

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2022

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number: **000-49842**

CEVA, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

77-0556376
(I.R.S. Employer
Identification No.)

15245 Shady Grove Road, Suite 400, Rockville, MD 20850
(Address of principal executive offices)

20850
(Zip Code)

(240) 308-8328

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, \$.001 per share	CEVA	The NASDAQ Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes

No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act.

Yes

No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes

No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes

No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes

No

As of June 30, 2022, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was \$562,317,298 based on the closing sale price as reported on the National Association of Securities Dealers Automated Quotation System National Market System on June 30, 2022. Shares of common stock held by each officer, director, and holder of 5% or more of the outstanding common stock of the Registrant have been excluded from this calculation in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

Class	Outstanding at February 23, 2023
Common Stock, \$0.001 par value per share	23,416,026 shares

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement for its Annual Meeting of Stockholders to be held on May 23, 2023 (the "2023 Proxy Statement") are incorporated by reference into Item 5 of Part II and Items 10, 11, 12, 13, and 14 of Part III.

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FORWARD-LOOKING STATEMENTS AND INDUSTRY DATA

This Annual Report contains forward-looking statements that involve risks and uncertainties, as well as assumptions that if they materialize or prove incorrect, could cause the results of CEVA to differ materially from those expressed or implied by such forward-looking statements and assumptions. All statements other than statements of historical fact are statements that could be deemed forward-looking statements. Forward-looking statements are generally written in the future tense and/or are preceded by words such as “will,” “may,” “should,” “could,” “expect,” “suggest,” “believe,” “anticipate,” “intend,” “plan,” or other similar words. Forward-looking statements include the following:

- Our belief that our chip design expertise strengthens our relationships with customers, streamlines IP adoption and generates recurrent royalties;
- Our belief that there is growing demand for high performance and low power signal processing IPs and specialized AI platforms and software incorporating all the necessary hardware and software for target applications;
- Our strategies to capitalize on the growing demand for smarter, connected devices;
- Our expectations around competition and our belief that we compete effectively in the principal competitive elements in our field;
- Our belief that the adoption of our wireless connectivity and smart sensing IP products beyond our incumbency in the handset baseband market continues to progress, and the concluded agreements for our connectivity and smart sensing IP products during the recent period illustrates the exceptional interest in our wireless connectivity platforms, in both traditional and new areas;
- Our belief that our PentaG2 platform for 5G handsets and 5G IoT endpoints is the most comprehensive baseband processor IP in the industry today and provides newcomers and incumbents with a comprehensive solution to address the need for 5G processing for smartphones, fixed wireless, satellite communications and a range of connected devices such as robots, cars, smart cities and other devices for industrial applications;
- Our belief that our specialization and technological edge in signal processing platforms for 5G base station radio access network (RAN) and our PentaG RAN platform put us in a strong position to capitalize on the growing 5G RAN demand and the its disintegration toward new architecture and form factors, and that our PentaG RAN platform for 5G RAN settings is the most comprehensive baseband processor IP in the industry today and provides customers and incumbents with a comprehensive solution to address the need for 5G;
- Our belief that our Bluetooth, Wi-Fi, UWB, cellular IoT and 5G IPs allow us to expand further into IoT applications and substantially increase our value-add and overall addressable market, which is expected to be more than 15 billion devices annually by 2026 based on ABI Research;
- Our belief that the growing market for True Wireless Stereo (TWS) earbuds and smartwatches, and AR and VR headsets and other wearable assisted devices, offers an incremental growth segment for us;
- Our belief that our unique capability to combine our Bluetooth IP, audio DSP IP and software for contextual aware user experience puts us in a strong position to capitalize on the fast-growing TWS markets of earbuds, smartwatches, Over the Counter hearing aids, wireless speakers, PCs, and more;
- Our belief that our second generation SensPro2 sensor hub DSP family provides highly compelling offerings for any sensor-enabled device and applications which enables us to address the transformation in devices enabled by these applications and expand our footprint and content in smartphones, drones, consumer cameras, surveillance, automotive safety, voice-enabled devices and industrial IoT applications;

- Statements regarding third-party estimates of industry growth and future market conditions, including the expectation that camera-enabled devices incorporating computer vision and AI will exceed 1 billion units and devices incorporating voice AI will reach 600 million units by 2025 per research from Yole Group;
- Our belief that our newest generation family of AI processors for deep learning at the edge, the NeuPro-M, represents new IP licensing and royalty drivers for us in the coming years, due to the increased deployment of neural networks in a wide range of camera-based devices, which is expected to be more than 2.5 billion Edge AI devices shipped annually by 2026 based on research from Yole Group;
- Our belief that the Hillcrest Labs sensor fusion business unit allows us to address an important technology piece used in personal computers, robotics, TWS earbuds, smart TVs and many other smart sensing IP products;
- Our beliefs regarding the impact of the Intrinsic acquisition, including it providing new growth vectors, new market reach and a broader revenue base, it allowing us to expand into the lucrative aerospace and defense market, and our ability to offer customers co-creation solutions that combine the CEVA IP portfolio and Intrinsic's broad chip design competencies;
- Our expectation that significant growth in shipments and royalty revenues will be derived from base station and IoT applications over the next few years, including from a range of different products at different royalty ASPs, spanning from high volume Bluetooth and Wi-Fi to high value sensor fusion and base station RAN;
- Our belief that our ubiquitous technology and collaborative business model present a significant and secular growth prospect as the continuing digital transformation drives industries to become connected and intelligent which we intend to continue to capitalize on the semiconductor momentum with our Edge AI, 5G, Wi-Fi, Bluetooth and other product lines;
- Our expectation that our licensing, NRE and related revenues business will continue to benefit from multiple growth vectors where we excel, in particular 5G, Wi-Fi 6 & 7, Edge Ai and wearables and hearables;
- Our efforts with respect to managing demand, ongoing supply chain disruptions and shortages;
- Any statements regarding sales trends and financial results for 2023 and other future periods, including our expectations with respect to future customers, contracts, revenues and expenses, regarding our customer pipeline, that a significant portion of our future revenues will continue to be generated by a limited number of customers, that international customers will continue to account for a significant portion of our revenues for the foreseeable future, that an increasing portion of our new customers and revenues will be derived from internationally customers generally and sales to the Asia Pacific (APAC) and China in particular, and that we can expand our customer base and revenues in Europe and the U.S.;
- Our anticipation that our cash and cash equivalents, short-term bank deposits and marketable securities, along with cash from operations, will provide sufficient capital to fund our operations for at least the next 12 months;
- Our belief that fluctuations in high interest rates within our investment portfolio will not have a material effect on our financial position on an annual or quarterly basis;
- Our belief that the high interest rate environment and concerns related to economic slowdown we experienced in the second half of 2022 may continue throughout the first half of 2023, or longer, and adversely affect our revenues;

- Our expectation that while the COVID-19 pandemic may no longer materially affect our operating results, we will continue to be impacted by other global, macroeconomic and industry phenomena including the continued Russian military action against Ukraine, soft demand and elevated inventories in the smartphone and consumer electronics markets and the technology sector undergoing project expense adjustments and other re-alignments which we expect to continue into the first half of 2023; and
- Our expectation that we will engage in an orderly transition process as we integrate newly appointed officers and managers.

Forward-looking statements are not guarantees of future performance and involve risks and uncertainties. The forward-looking statements contained in this report are based on information that is currently available to us and expectations and assumptions that we deem reasonable at the time the statements were made. We do not undertake any obligation to update any forward-looking statements in this report or in any of our other communications, except as required by law. All such forward-looking statements should be read as of the time the statements were made and with the recognition that these forward-looking statements may not be complete or accurate at a later date.

Many factors may cause actual results to differ materially from those expressed or implied by the forward-looking statements contained in this report. These factors include, but are not limited to, those risks set forth in Item 1A: Risk Factors.

This report contains market data prepared by third party research firms. Actual market results may differ from their projections. This report includes trademarks and registered trademarks of CEVA. Products or service names of other companies mentioned in this Annual Report on Form 10-K may be trademarks or registered trademarks of their respective owners.

PART I

ITEM 1. BUSINESS

Company Overview

Headquartered in Rockville, Maryland, CEVA is the leading licensor of wireless connectivity and smart sensing technologies and a provider of chip design services. We offer Digital Signal Processors, AI processors, short and long range connectivity solutions, 5G wireless platforms and complementary software for sensor fusion, image enhancement, computer vision, voice input and artificial intelligence, all of which are key enabling technologies for a smarter, more connected world. Our state-of-the-art technology is included in more than 15 billion chips shipped to date for a diverse range of end markets. In 2022, more than 1.7 billion CEVA-powered devices were shipped, equivalent to more than 50 devices every second.

Our hardware IP products and solutions are licensed to customers who embed them into their System on Chip (SoC) designs to create power-efficient, intelligent, secure and connected devices. Our customers include many of the world's leading semiconductor and original equipment manufacturer (OEM) companies targeting a wide variety of cellular and IoT end markets, including mobile, PC, consumer, automotive, robotics, industrial, aerospace and defense and medical. Our software IP is licensed primarily to OEMs who embed our software in their SoC.

Our Intrinsic chip design business unit enables us to offer our customers SoC design services, which we refer to as co-creation, that take advantage of our IP portfolio, Intrinsic's designed to deliver (D2D) and security IP and Intrinsic's design capabilities for digital, mix signal and RF. We believe that having chip design expertise as part of our offerings strengthens our relationships with customers, streamlines IP adoption, generates recurrent royalties and more. Furthermore, Intrinsic's experience and customer base in the growing chip development programs with the U.S. Department of Defense and the Defense Advanced Research Projects Agency (DARPA) together with its IP offerings for processor security and chiplets extends CEVA's serviceable market and revenue base.

CEVA is a sustainability and environmentally conscious company. We have adopted both a Code of Business Conduct and Ethics and a Sustainability Policy, in which we emphasize and focus on environmental preservation, recycling, the welfare of our employees and privacy – which we promote on a corporate level. At CEVA, we are committed to social responsibility, values of preservation and consciousness towards these purposes.

Our revenue mix comprises primarily of IP licensing fees and related revenues, non-recurring engineering (NRE) revenues and royalties generated from the shipments of products deploying our IP. Related revenues include revenues from post contract support, training and sale of development systems and chips. NRE revenue is associated with our Intrinsic chip design business.

We were initially incorporated in Delaware on November 22, 1999 under the name DSP Cores, Inc. The current company was created through the combination of the DSP IP licensing division of DSP Group, Inc. and Parthus Technologies plc (Parthus) in November 2002.

We have 485 employees worldwide, with research and development facilities in Israel, the United States, France, Serbia, Ireland and the United Kingdom, and sales and support offices throughout Asia Pacific (APAC), Sweden, France, Israel and the United States.

Industry Background

DSP Cores

Digital signal processing is a key underlying technology in many of today's fastest growing electronics markets. Digital signal processors (DSPs) are specialized high-speed processors that are optimized for performing repetitive arithmetic calculations on an array of data. DSPs provide the foundation for a vast majority of today's electronic products that are smart and connected, enabling the sensing and wireless communications capabilities (e.g. 5G baseband and RAN processing, computer vision, deep neural network, sound processing and analytics).

Edge AI Hybrid Processors

Edge AI Hybrid processors are a new breed of processors targeted at cost- and power-sensitive intelligent devices that use interchangeable workloads of traditional DSP and AI inferencing algorithms to enable intelligent vision, conversational AI, sensor fusion and contextual awareness. The DSP is used to process conventional algorithms for imaging, vision, voice, sound, radar, among others, while the AI-related workloads such as classification, pattern matching, prediction and detection are handled by a combination of DSPs and AI accelerators. These Edge AI hybrid processors perform all AI inferencing on the device, with no need for cloud-based processing. These processors aim to mimic the human brain, allowing them to perform cognitive tasks for a wide range of functions, including vision, sound, real-time translation, user behavior and malware detection. Edge AI processors will make their way into billions of devices in the coming years, including mobile, consumer, medical, industrial and automotive applications.

Short Range Wireless IPs

Wi-Fi, Bluetooth and ultra wideband (UWB) are key technologies for any company looking to address the mobile, SmartHome, Enterprise, and IoT end markets. Moreover, many companies wish to integrate these connectivity technologies into SoC designs rather than provide connectivity through an additional chip in the system. Yet, Wi-Fi and Bluetooth standards are constantly evolving, and the many new end applications are looking to benefit from these enhancements, which put further pressure on time to market on SoC vendors. The advent of IoT has resulted in significant demand for connectivity IPs that addresses this burgeoning market, among which are smart True Wireless Stereo earbuds, wearables, health monitoring, smart speakers, smart home appliances, and many other consumer and IoT devices. By licensing rather than developing these technologies in-house, companies can now get access to the latest standards and profiles from CEVA without undertaking the expensive research and development costs required to develop these technologies internally.

Cellular IoT IPs

Cellular IoT, and specifically Narrowband IoT (NB-IoT), LTE Cat-1 and the upcoming RedCap standards have become key technologies for any company wishing to connect low power IoT devices over long distances, using cellular networks. By its nature, cellular is a very complex technology, with most of the industry knowledge held within a few large companies. By providing low power cellular DSP cores and platforms, we help companies overcome the entry barriers to the cellular IoT market without undertaking the complex and expensive R&D to develop these technologies internally.

5G/5G Advanced User Equipment and Infrastructure IPs

As 5G networks continue to be deployed globally, new use cases and applications that leverage the standard's enormous bandwidth and ultra-low latency are emerging, including fixed wireless access, private networks and vehicle-to-everything (V2X) communications, to name but a few. CEVA's latest generation CEVA-XC20 DSP and PentaG2 platform IP effectively lower the high entry barriers for network equipment manufacturers, IoT companies and newcomers who wish to address these huge market opportunities by providing comprehensive IPs on which to build their 5G/5G Advanced SoC and ASICs, while reducing the time-to-market, risk, effort and associated cost.

Sensor Fusion

Inertial and environmental sensors based on micro-electromechanical systems (MEMS) are used in an increasing number of devices, including smartphones, laptops, robots, TWS earbuds, spatial audio headsets, smart TVs, remote controls, AR and VR headsets, drones and many other consumer and industrial devices. The software required to process the sensor data and fuse the data from multiple sensors is complex and requires unique specialization. By licensing rather than developing this sensor processing software in-house, companies can focus their efforts developing the applications that utilize the processed sensor data to create differentiated, contextually aware devices.

Chiplets

The development of monolithic SoCs at advanced nodes has become exponentially more expensive, and this, coupled with long design cycles and manufacturing lead times, has led to the emergence of chiplets as a viable, cost-effective alternative. A chiplet is a sub processing unit or modular chip that is combined together with other chiplets in a package connected together by die-to-die interconnects, to form a processor. This new approach to complex chip design is a fast and less expensive way to build a processor, where chiplets can provide essential functionality like 5G connectivity and AI processing within a modular processor design. By providing die-to-die interconnect IP and security and assurance IP for chiplets, along with full design services, CEVA can help companies develop chiplets and address this burgeoning market.

Design Gap

The demand for connected and smart mobile, consumer, automotive, industrial, aerospace & defense and IoT devices continues to grow. These devices require faster and low power connectivity, and a richer user experience that is aware and predictive. Semiconductor manufacturers face ever growing pressures to make smaller, feature-rich integrated circuits that are more reliable, less expensive and have greater performance. These two trends are occurring concurrently in the face of decreasing product lifecycles and constrained battery power. The advent of wireless connectivity technologies like 5G, Wi-Fi 6 and Bluetooth 5 and the diverse sensor related workloads required to make a device smart, such as advanced image enhancement, computer vision, AI inferencing, voice and audio pre- and post- processing, spatial audio and motion sensor fusion have further increased these pressures. While semiconductor manufacturing processes have advanced significantly to allow a substantial increase in the number of circuits placed on a single chip, resources for design capabilities have not kept pace with the advances in manufacturing processes, resulting in a growing “design gap” between the increasing manufacturing potential and the constrained design capabilities.

CEVA’s Business

CEVA addresses the requirements of the mobile, RAN, consumer, automotive, robotics, industrial, aerospace & defense and IoT markets by designing and licensing a broad range of robust processors, platforms and software which streamline the design of solutions for developing a wide variety of application specific solutions that combine connectivity and smart sensing that involve primarily camera, microphone and IMU.

Given the “design gap,” as well as the increasing complexity and the unique skill set required to develop a system-on-chip, many semiconductor design and manufacturing companies increasingly choose to license proven intellectual property, such as processor cores (e.g. DSP, CPU, GPU and AI), connectivity platforms (e.g. Bluetooth, Wi-Fi, Ultra Wideband, 5G) and software algorithms (e.g. sensor fusion, sound, spatial audio) and memory and physical IPs from silicon intellectual property companies like CEVA rather than develop those technologies in-house. In addition, with more complex designs and shorter time to market, it is no longer cost efficient and becoming progressively more difficult for most semiconductor companies to develop the signal processing platform, incorporating the complex DSPs like scalar and vector and AI accelerators and related graph compilers and data connectivity modem and PHY platforms. As a result, companies increasingly seek to license these IPs from CEVA or a third-party community of developers.

Our Business Model

Our objective is for our CEVA wireless connectivity and smart sensing platforms to become the de facto technologies across the mobile, consumer, automotive, robotics, industrial aerospace & defense and IoT markets. To enable this goal, we license our technologies on a worldwide basis to semiconductor and OEM companies that design and manufacture products that combine CEVA-based solutions with their own differentiating technology. We recently expanded our business model through the acquisition of Intrinsix to offer our customers chip design services to help integrate our IP into their chip designs. We believe this expanded business model will strengthen relationships with key customers, gain us access to new customers and generate recurrent royalties.

We believe our business model offers us some key advantages. By not focusing on manufacturing or selling silicon products, we are free to widely license our technology and free to focus most of our resources on research and development. By choosing to license our IP, manufacturers can achieve the advantage of creating their own differentiated solutions and develop their own unique product roadmaps. Through our licensing efforts, we have established a worldwide community developing CEVA-based solutions, and therefore we can leverage their strengths, customer relationships, proprietary technology advantages, and existing sales and marketing infrastructure. In addition, as our intellectual property is widely licensed and deployed, system OEM companies can obtain CEVA-based chipsets from a wide range of suppliers, thus reducing dependence on any one supplier and fostering price competition, both of which help to contain the cost of CEVA-based products.

We operate a licensing, non-recurring engineering (NRE) and royalty business model. We typically charge a license fee for access to our hardware technology and a royalty fee for each unit of silicon which incorporates our hardware or software technology. We also provide NRE services to customers who require design expertise for their chip development programs.

License fees and NRE services are invoiced in accordance with agreed-upon contractual terms. Royalties are reported and invoiced quarterly and generally based on a fixed unit rate or a percentage of the sale price for the CEVA-based silicon product.

Strategy

We believe there is a growing demand for high performance and low power signal processing IPs and specialized AI platforms and software incorporating all the necessary hardware and software for target applications. We also recognize chip design skills and expertise are scarce nowadays and more companies are deciding to develop chips in-house, creating an even greater demand for IP and chip design services.

Our IP portfolio is strategically aligned to allow us to exploit the most lucrative “design gaps” in the growing demand for smarter, connected devices. CEVA offers expertise developing complete solutions in a number of key growth markets, including, 5G cellular baseband, wireless wearables, robots, automotive and IoT. For these markets, we offer a comprehensive portfolio of connectivity and smart sensing IPs, which include various types of specialized DSPs and platforms for 5G, computer vision, sound, AI, Wi-Fi, Bluetooth, UWB, cellular-IoT solutions, sensor fusion, sound and security and interconnectivity solutions for chiplets. We believe we are well-positioned to take full advantage of this growing demand. To capitalize on this industry shift, we intend to:

- develop and enhance our range of DSP cores and Edge AI hybrid processors with additional features, performance and capabilities;
- develop and expand our short range wireless IPs and customer base, providing the newest standards and the most complete offerings to streamline our customers’ deployments;
- continue to develop new generation of high performance DSPs and AI accelerators to pursue opportunities and grow our footprint in the 5G handset, cellular IoT base station RAN, automotive and headset markets;
- go up the “value chain” by adding and charging for software for our wireless, AI, voice, audio and IMU (Inertial Measurement Units) products
- expand our presence in AI for edge SoC market by capitalizing on our AI accelerators and CDNN graph compiler software technologies;
- continue to develop and enhance our range of complete and highly integrated platform solutions and to provide chip design services, as co-creation deals, to our licensing partners to deliver a complete and verified system solution, all the way up to full chip design;
- continue to prudently invest in strategic technologies that enable us to strengthen our presence in existing market or enter new addressable markets;
- capitalize on our relationships and leadership within our worldwide community of semiconductor and OEM licensees who are developing CEVA-based solutions;

- capitalize on our technology leadership in the development of advanced processor technologies, connectivity IPs and sensor fusion software to create and develop new, strategic relationships with OEMs and semiconductor companies to replace their internal DSPs or incumbent DSP suppliers with CEVA-based solutions; and
- capitalize on our IP licensing and royalty business model which we believe is the best vehicle for a pervasive adoption of our technology and allows us to focus our resources on research and development of new licensable technologies and applications.

Products

We are the leading licensor of wireless connectivity and smart sensing platforms and a provider of chip design services for semiconductor companies and OEMs serving the mobile, consumer, automotive, robotics, industrial, aerospace & defense and IoT markets. Our comprehensive platforms are comprised of specialized DSPs coupled with an AI accelerator and other types of accelerators targeted for low power workloads, including 5G baseband processing, intelligent vision, voice recognition, physical layer processing and sensor fusion. We also offer high performance DSPs targeted for 5G RAN and Open RAN, Wi-Fi enterprise and residential access points, satellite communication and other multi-gigabit communications. Our portfolio also includes a wide range of application software optimized for our processors, including voice front-end processing and speech recognition, imaging and computer vision and sensor fusion. For sensor fusion, our Hillcrest Labs sensor processing technologies provide a broad range of sensor fusion software and IMU solutions for AR/VR, robotics, remote controls and IoT. For wireless IoT, we offer the industry's most widely adopted IPs for Bluetooth (low energy and dual mode), Wi-Fi 4/5/6/6E (802.11n/ac/ax), UWB and cellular IoT. Our categories of products include the following:

1) *Wireless communications*

- CEVA-XC vector DSPs for 5G handsets, 5G RAN, and general purpose baseband processing
- PentaG2 - 5G NR modem platform for UE and for non-handset 5G vertical markets like Fixed Wireless Access, Industry 4.0, robotics and AR/VR devices that requires ultra-low-latency systems

2) *AI and computer vision*

- SensPro2 sensor hub platforms addressing imaging, vision, powertrain, applications, including DSP processors and a comprehensive software portfolio
- NeuPro-M platforms for AI applications, in a form of integrated and scalable system including a combination of dedicated AI processor, ultra-low power acceleration engines, memory architecture and smart interfaces to address multiple markets like automotive, surveillance, mobile and more
- CDNN: deep neural network graph compiler that enables AI developers to automatically compile, optimize and run pre-trained networks onto embedded devices

3) *Sound*

- CEVA-Bluebud wireless audio platform, CEVA-BX1, CEVA-BX2 and SensPro2 DSPs, AI accelerators, algorithms and software for sound-enabled application, including WhisPro speech recognition and ClearVox, a complete voice front-end software package for near and far-field voice-enabled devices
- Deep neural network compiler and tools

4) *Sensor Fusion*

- MotionEngine, sensor processing software, combining high accuracy 6-axis and 9-axis sensor fusion, dynamic sensor calibration, and many application specific features such as cursor control, gesture recognition, activity tracking, context awareness, and AR/VR stabilization

- Sensor Hub DSPs, that serve as a hub for AI and DSP processing workloads associated with a wide range of sensors including camera, Radar, LiDAR, Time-of-Flight, microphones and inertial measurement units (IMUs)

5) *Multipurpose DSP/controller*

- CEVA-BX high level programmable, modern processors for a broad range of signal processing and control workloads

6) *Wireless IoT*

- RivieraWaves' Bluetooth 5 (up to 5.3) dual mode and low energy platforms
- RivieraWaves' Wi-Fi (4/5/6/6E up to 4x4) platforms
- UWB platform
- DragonFly platform for NB-IoT

We deliver our DSP cores, platforms and AI processors in the form of a hardware description language definition (known as a soft core or a synthesizable core). All CEVA cores can be manufactured on any process using any physical library, and all are accompanied by a complete set of tools and an integrated development environment. An extensive third-party network supports CEVA DSP cores, platforms and AI processors with a wide range of complementing software and platforms. In addition, we provide development platforms, software development kits and software debug tools, which facilitate system design, debug and software development.

In order to reduce the cost, complexity, and risk in bringing products to market, CEVA has developed a suite of system platforms and solutions. These platforms and solutions combine the hardware and software elements that are essential for designers deploying CEVA's state-of-the-art DSP cores, platforms and AI processors. Platforms typically integrate a CEVA DSP core, hardware accelerators and coprocessors, optimized software, libraries and tool chain. Our family of DSP-based platforms are targeted for baseband processing within cellular handsets, cellular IoT devices and base stations RAN, wired communications, advanced imaging, computer vision, radar application and deep neural networks, and audio, voice and sensing and Internet-of-Things related applications. Furthermore, our leading-edge technology portfolio, along with the chip design capabilities of Intrinsic, offers a holistic proposition for incumbents and newcomers in the expanding semiconductor markets. We can offer these customers chip design services around our system platforms and solutions to further reduce their risk in bringing products to market, all the way up to full chip design.

Customers

We have licensed our signal processing cores, platforms, AI processors and connectivity IPs to leading semiconductor and OEM companies throughout the world. These companies incorporate our IP into application-specific chipsets or custom-designed chipsets that they manufacture, market and sell to consumer electronics companies. We also license our technologies to OEMs directly. Included among our licensees are the following customers: Actions, Ambiq, AIC Semi, Artosyn, ASPEED, ASR Micro, Atmosic, Autotalks, Beken, Bestechnic, Broadcom, Celeno, Ceragon, Cirrus Logic, Espressif, FujiFilm, GCT Semi, Goodix, iCatch, ICOM, InPlay, Intel, iRobot, Itron, Leadcore, LG Electronics, LifeSignals, Mediatek, Microchip, MorningCore, Nations, Nextchip, Nokia, Nordic Semi, Novatek, Nurlink, NXP, ON Semi, Synaptics, Optek, Oticon, Panasonic, Picocom, Renesas, Rockchip, Rohm, Samsung, Sanechips, Sharp, SiFive, SiFlower, SigmaStar, Socionext, Sony, Sonova, STMicroelectronics, Toshiba, Unisoc, Vatics, Winner Micro, Yamaha and ZTE.

International Sales and Operations

Customers based in EME (Europe and Middle East) and APAC (Asia Pacific) accounted for 79% of our total revenues for 2022, 78% of our total revenues for 2021 and 79% for 2020, with customers in China accounting for 56%, 55% and 51% of total revenues for 2022, 2021 and 2020, respectively. Additional information on the geographic breakdown of our revenues and location of our long-lived assets is contained in Note 12 to our consolidated financial statements, which appear elsewhere in this annual report.

Sales and Marketing

We license our technology through a direct sales force. As of December 31, 2022, we had 36 employees in sales and marketing. We have sales offices and representation in Asia Pacific (APAC) region, Sweden, Israel, France and the United States.

Maintaining close relationships with our customers and strengthening these relationships are central to our strategy. From time to time we develop a new signal processors, platforms, software solutions or connectivity products with close alignment with a number of tier-one industry players which signifies to the market that we are focused on viable applications that meet broad industry needs or try to get similar inputs and insight for our new developments from our marketing team. Generally, these industry leaders become licensees for these products allows us to create a roadmap for the future development of existing cores and application platforms and connectivity products and helps us to anticipate the next potential applications for the market. We seek to use our customer relationships to deliver new products in a faster time to market.

We use a variety of marketing initiatives to stimulate demand and brand awareness in our target markets. These marketing efforts include contacts with industry analysts, presenting at key industry trade shows and conferences, and a comprehensive digital marketing program aimed at developing and nurturing relationships with potential customers. Our marketing group runs competitive benchmark analyses to help us maintain our competitive position.

Technical Support

We offer technical support services through our offices in Israel, Asia Pacific (APAC) region, France and the United States. As of December 31, 2022, we had 31 employees in technical support. Our technical support services include:

- assistance with implementation, responding to customer-specific inquiries, training and, when and if they become available, distributing updates and upgrades of our products;
- application support, consisting of providing general hardware and software design examples, ready-to-use software modules and guidelines to our licensees to assist them in using our technology; and
- design services, consisting of creating customer-specific implementations of our signal processing IPs and application platforms.

We believe that our technical support services are a means to assist our licensees to embed our cores and platforms in their designs and products. Our technology is highly complex, combining sophisticated signal processing IP core architectures, integrated circuit designs and development tools. Effective customer support in helping our customers to implement our solutions enables them to shorten the time to market for their applications. Our support organization is made up of experienced engineers and professional support personnel. We conduct technical training for our licensees and their customers and meet with them from time to time to track the implementation of our technology.

Research and Development and Non-recurring Engineering Design Services

Our research and development team is focused on improving and enhancing our existing products, as well as developing new products to broaden our offerings and market opportunities and providing NRE design services. These efforts are largely driven by current and anticipated customer and market needs.

Our research and development team consists of 372 engineers as of December 31, 2022, working in eight development centers located in Israel, France, the United States, Ireland, the United Kingdom and Serbia, including 47 engineers at Intrinsix either working on research and development projects or providing NRE services for chip design. Our engineers possess significant experience in developing DSP cores and tools for 5G, computer vision, AI, connectivity products (Wi-Fi, UWB and Bluetooth), NB-IoT, and sensor processing and sensor fusion software. In addition, we engage third party contractors with specialized skills as required to support our research and development efforts.

Our NRE services address the most complex and time-critical integrated circuit design projects across the following major design service domains: multi-processor digital SoC and FPGA design, mixed signal, analog and RF chip. Additional services include design verification and physical design and silicon realization. All of these skillsets are scarce, highly sought after in today's semiconductor landscape and applicable to every vertical, from consumer and IoT through to automotive and aerospace and defense.

We encourage our research and development personnel to maintain active roles in various international organizations that develop and maintain standards in the electronics and related industries. This involvement allows us to influence the development of new standards; keeps us informed as to important new developments regarding standards; and allows us to demonstrate our expertise to existing and potential customers who also participate in these standards-setting bodies.

Competition

The markets in which we operate are intensely competitive. They are subject to rapid change and are significantly affected by new product introductions. We compete with other suppliers of licensed signal processing IPs. We believe that the principal competitive elements in our field are signal processing IP performance, Intrinsic's IP and NRE capabilities, overall chip cost, power consumption, flexibility, reliability, communication and multimedia software and algorithms availability, design cycle time, tool chain, customer support, financial strength, name recognition and reputation. We believe that we compete effectively in each of these areas but can offer no assurance that we will have the financial resources, technical expertise, and marketing or support capabilities to compete successfully in the future.

The markets in which we compete are dominated by large, highly competent semiconductor companies that have significant brand recognition, a large installed base and a large network of support and field application engineers. The following industry players and factors may have a significant impact on our competitiveness:

- we compete directly in the signal processing cores space with Verisilicon, Cadence and Synopsys;
- we compete with CPU IP or configurable CPU IP (offering DSP configured CPU and/or DSP acceleration and/or connectivity capabilities to their IP) providers, such as ARM, Synopsys and Cadence and the RISC-V open source;
- we compete with internal engineering teams at companies such as Mediatek, Qualcomm, Samsung and NXP that may design programmable DSP core products and signal processing cores in-house and therefore not license our technologies;
- we compete in the short range wireless markets with Mindtree, Synopsys and internal engineering teams at companies such as Cypress (now part of Infineon), Silicon Labs and NXP;
- we compete in embedded imaging and vision market with Cadence, Synopsys, Videantis, Arm and Verisilicon;
- we compete in AI processor marketing with AI processor and accelerator providers, including Arm, Cadence, Synopsys, Cambricon, Digital Media Professionals (DMP), Expedera, Imagination Technologies, Nvidia open source NVDLA and Verisilicon;
- we compete in the audio and voice applications market with ARM, Cadence, Synopsys and Verisilicon; and
- we compete for chip design services in our main markets with WiPro and Cyient, and in the aerospace and defense markets with Marvell, ASIC North and First Pass Engineering.

We also have faced competition from companies that offer Central Processor Unit (CPU) intellectual property. These companies' products are used for host functions in various applications, such as in mobile and home entertainment products. These applications typically also incorporate a programmable DSP or neural network accelerator that is responsible for communication and video/audio/voice-related tasks, neural network or in some cases connectivity capabilities. CPU companies, such as ARM, Cadence, and Synopsys have added DSP acceleration, CNN acceleration and /or connectivity solutions and make use of it to provide platform solutions in the areas of baseband, video, imaging, vision, AI, audio and connectivity.

With respect to certain large potential customers, we also compete with internal engineering teams, which may design programmable signal processing IP core products in-house. Companies such as Mediatek, Samsung, and STMicroelectronics license our designs for some applications and use their own proprietary cores for other applications. These companies also may choose to license their proprietary signal processing IP cores to third parties and, as a result, become direct competitors.

In addition, we may face increased competition from smaller, niche semiconductor design companies in the future. Some of our customers also may decide to satisfy their needs through in-house design. Aside from the in-house research and development groups, we do not compete with any individual company across the range of our market offerings.

Proprietary Rights

Our success and ability to compete are dependent on our ability to develop and maintain the proprietary aspects of our intellectual property and to operate without infringing the proprietary rights of others. We rely on a combination of patent, trademark, trade secret and copyright laws and contractual restrictions to protect the proprietary aspects of our technology. These legal protections afford only limited protection of our technology. We also seek to limit disclosure of our intellectual property and trade secrets by requiring employees and consultants with access to our proprietary information to execute confidentiality agreements with us and by restricting access to our source code and other intellectual property. Due to rapid technological change, we believe that factors such as the technological and creative skills of our personnel, new product developments and enhancements to existing products are more important than specific legal protections of our technology in establishing and maintaining a technology leadership position.

We have an active program to protect our proprietary technology through the filing of patents. Our patents relate to our signal processing IP cores and application-specific platform technologies. As of December 31, 2022, we hold 66 patents in the United States, five patents in Canada, 88 patents in the EME (Europe and Middle East) region and 10 patents in Asia Pacific (APAC) region, totaling 169 patents, with expiration dates between 2023 and 2039. In addition, as of December 31, 2022, we have 11 patent applications pending in the United States, two pending patent applications in Canada, nine pending patent applications in the EME region, three pending global (PCT) patent applications and five pending patent applications in the APAC region, totaling 30 pending patent applications.

We actively pursue foreign patent protection in countries where we feel it is prudent to do so. Our policy is to apply for patents or for other appropriate statutory protection when we develop valuable new or improved technology. The status of patents involves complex legal and factual questions, and the breadth of claims allowed is uncertain. Accordingly, there are no assurances that any patent application filed by us will result in a patent being issued, or that our issued patents, and any patents that may be issued in the future, will afford us adequate protection against competitors with similar technology; nor can we be assured that patents issued to us will not be infringed or that others will not design around our technology. In addition, the laws of certain countries in which our products are or may be developed, manufactured or sold may not protect our products and intellectual property rights to the same extent as the laws of the United States. We can provide no assurance that our pending patent applications or any future applications will be approved or will not be challenged by third parties, that any issued patents will effectively protect our technology, or that patents held by third parties will not have an adverse effect on our ability to do business.

The semiconductor industry is characterized by frequent litigation regarding patent and other intellectual property rights. Questions of infringement in the semiconductor field involve highly technical and subjective analyses. In addition, patent infringement claims are increasingly being asserted by patent holding companies (so-called patent “trolls”), which do not use technology and whose sole business is to enforce patents against companies, such as us, for monetary gain. Because such patent holding companies do not provide services or use technology, the assertion of our own patents by way of counter-claim may be ineffective. Litigation may in the future be necessary to enforce our patents and other intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others, or to defend against claims of infringement or invalidity. We cannot assure you that we would be able to prevail in any such litigation or be able to devote the financial resources required to bring such litigation to a successful conclusion.

In any potential dispute involving our patents or other intellectual property, our licensees also could become the targets of litigation. We are generally bound to indemnify licensees under the terms of our license agreements. Although our indemnification obligations are generally subject to a maximum amount, these obligations could nevertheless result in substantial expenses. In addition to the time and expense required for us to indemnify our licensees, a licensee’s development, marketing and sale of products embodying our solutions could be severely disrupted or shut down as a result of litigation.

We also rely on trademark, copyright and trade secret laws to protect our intellectual property. We have registered trademark in the United States for our name CEVA and the related CEVA logo, and currently market our signal processing cores and other technology offerings under this trademark.

Human Capital Resources

The table below presents the number of employees of CEVA as of December 31, 2022 by function and geographic location.

	Number
Total employees	485
Function	
Research and development and NRE	372
Sales and marketing	36
Administration	46
Technical support	31
Location	
Israel	257
France	49
Ireland	12
China	18
United States	96
United Kingdom	9
Elsewhere	44

We believe we are a respected employer in the countries where we have operations, and, with the help of our employees, we strive to be a responsible global corporate citizen and a more sustainable company. Our Code of Business Conduct and Ethics sets the standards of conduct of our directors, officers and employees. In addition, in 2020, we adopted a Sustainability Policy that addresses matters related to our employees as well as data privacy and security, resource conservation and recycling, and other environmental matters. In particular, our Sustainability Policy reflects our commitment to diversity and equal opportunity, a harassment-free workplace, training, development and employee engagement, and human rights, health and safety, and other matters relevant to employee well-being and the CEVA culture. The code is reviewed and updated periodically by our Board or Directors, and both the code and our Sustainability Policy are available on our website at www.ceva-dsp.com.

Our employees are not represented by any collective bargaining agreements, however, certain provisions of Israeli law and the collective bargaining agreements between the Histadrut (General Federation of Labor in Israel) and the Coordination Bureau of Economic Organizations (the Israeli federation of employers' organizations) apply to our Israeli employees. We have never experienced a work stoppage. We believe our employee relations are good, as is their general well-being, which is one of management's top priorities.

Available Information

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to reports pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, are available, free of charge, on our website at www.ceva-dsp.com, as soon as reasonably practicable after such reports are electronically filed with the Securities and Exchange Commission and are also available on the SEC's website at www.sec.gov.

Our website and the information contained therein or connected thereto are not intended to be incorporated into this Annual Report on Form 10-K.

ITEM 1A. RISK FACTORS

We caution you that the following important factors, among others, could cause our actual future results to differ materially from those expressed in forward-looking statements made by or on behalf of us in filings with the Securities and Exchange Commission, press releases, communications with investors and oral statements. Any or all of our forward-looking statements in this annual report, and in any other public statements we make, may turn out to be wrong. They can be affected by inaccurate assumptions we might make or by known or unknown risks and uncertainties. Many factors mentioned in the discussion below will be important in determining future results. We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise. You are advised, however, to consult any further disclosures we make in our reports filed with the Securities and Exchange Commission.

Summary Risk Factors

Risks Related to Our Industry and Markets

- The markets in which we operate are highly competitive, and as a result we could experience a loss of sales, lower prices and lower revenues.
- Because our IP solutions are components of end products, if semiconductor companies and electronic equipment manufacturers do not incorporate our solutions into their end products or if the end products of our customers do not achieve market acceptance, we may not be able to generate adequate sales of our products.
- We depend on market acceptance of third-party semiconductor intellectual property.
- If we are unable to meet the changing needs of our end-users or address evolving market demands, our business may be harmed.
- Our operating results are affected by the highly cyclical nature of and general economic conditions in the semiconductor industry, including significant supply chain disruption.

Risks Related to Our Global Operating Business

- Our quarterly operating results fluctuate from quarter to quarter due to a variety of factors, including our lengthy sales cycle, and may not be a meaningful indicator of future performance
- We rely significantly on revenues derived from a limited number of customers who contribute to our royalty and license revenues.
- Our business is dependent on IP licensing and NRE revenues, which may vary period to period.
- Royalty and other payment rates could decrease for existing and future license agreements and other customer agreements, which could materially adversely affect our operating results.
- We generate a significant amount of our total revenues, especially royalty revenues, from the handset baseband market (for mobile handsets and for other modem connected devices) and our business and operating results may be materially adversely affected if we do not continue to succeed in these highly competitive markets.
- Because we have significant international operations, with a significant concentration of revenues in China, we may be subject to political, economic and other conditions relating to our international operations that could increase our operating expenses and disrupt our revenues and business. In addition, new tariffs, trade measures and other geopolitical risks and instability could adversely affect our consolidated results of operations, financial position and cash flows.
- In order to sustain the future growth of our business, we must penetrate new markets and our new products must achieve widespread market acceptance but such additional revenue opportunities may not be implemented and may not be achieved.

- Our success will depend on our ability to successfully manage our geographically dispersed operations.
- Our operations in Israel may be adversely affected by instability in the Middle East region. In addition, terrorist attacks, acts of war or military actions and/or other civil unrest may adversely affect the territories in which we operate, and our business, financial condition and operating results.
- Our research and development expenses may increase if the grants we currently receive from the Israeli government are reduced or withheld.
- We depend on a limited number of key personnel who would be difficult to replace, and changes in our management and sales teams may adversely affect our operations.
- The sales cycle for our IP and NRE solutions is lengthy, and even approved projects may have structured payment terms, which makes forecasting of our customer orders and revenues difficult.
- Intrinsix's business relies heavily on contracts with U.S. government prime contractors, which exposes us to business volatility and risks, including government budgeting cycles and appropriations, potential early termination of contracts, procurement regulations, governmental policy shifts, security requirements, audits, investigations, sanctions and penalties.
- We may face difficulties in integrating Intrinsix into our business and offering turnkey IP solutions and co-creation projects.
- We may seek to expand our business in ways that could result in diversion of resources and extra expenses, and our product development efforts may not generate an acceptable return, if any.
- We may not be able to adequately protect our intellectual property, and our business will suffer if we are sued for infringement of the intellectual property rights of third parties or if we cannot obtain licenses to these rights on commercially acceptable terms.
- The COVID-19 pandemic, or other outbreak of disease or similar public health threat, could materially and adversely affect our business, financial condition and results of operations.
- Cybersecurity threats or other security breaches could compromise sensitive information belonging to us or our customers and could harm our business and our reputation.

Risks Related to Finance, Accounting and Taxation

- The nature of our business requires the application of complex revenue recognition rules. Significant changes in U.S. generally accepted accounting principles, or GAAP, including the adoption of the new revenue recognition rules, could materially affect our financial position and results of operations.
- Changes in our tax rates or exposure to additional income tax liabilities or assessments could adversely impact our cash flow, financial condition and results of operations.
- The Israeli and French tax benefits that we currently receive and the government programs in which we participate require us to meet certain conditions and may be terminated or reduced in the future, which could increase our tax expenses.
- We are exposed to fluctuations in currency exchange rates.
- If we determine that our goodwill and intangible assets have become impaired, we may incur impairment charges, which would negatively impact our operating results.

Risks Related to Ownership of Our Common Stock

- The anti-takeover provisions in our certificate of incorporation and bylaws could prevent or discourage a third party from acquiring us.
- Our stock price may be volatile so you may not be able to resell your shares of our common stock at or above the price you paid for them.

Risks Related to Our Industry and Markets

The markets in which we operate are highly competitive, and as a result we could experience a loss of sales, lower prices and lower revenues.

The markets for the products in which our technology is incorporated are highly competitive. Aggressive competition could result in substantial declines in the prices that we are able to charge for our intellectual property or lose design wins to competitors. Many of our competitors are striving to increase their share of the growing signal processing IP markets and are reducing their licensing and royalty fees to attract customers. The following industry players and factors may have a significant impact on our competitiveness:

- we compete directly in the signal processing cores space with Verisilicon, Cadence and Synopsys;
- we compete with CPU IP or configurable CPU IP (offering DSP configured CPU and/or DSP acceleration and/or connectivity capabilities to their IP) providers, such as ARM, Synopsys and Cadence and the RISC-V open source;
- we compete with internal engineering teams at companies such as Mediatek, Qualcomm, Samsung, and NXP that may design programmable DSP core products and signal processing cores in-house and therefore not license our technologies;
- we compete in the short range wireless markets with Mindtree, Synopsys and internal engineering teams at companies such as Cypress (now part of Infineon), Silicon Labs and NXP;
- we compete in embedded imaging and vision market with Cadence, Synopsys, Videantis, Arm and Verisilicon;
- we compete in AI processor marketing with AI processor and accelerator providers, including Arm, Cadence, Synopsys, Cambricon, Digital Media Professionals (DMP), Expedera, Imagination Technologies, Nvidia open source NVDLA and Verisilicon;
- we compete in the audio and voice applications market with ARM, Cadence, Synopsys and Verisilicon; and
- we compete for chip design services in our main markets with WiPro and Cyient, and in the aerospace and defense markets with Marvell, ASIC North and First Pass Engineering.

In addition, we may face increased competition from smaller, niche semiconductor design companies in the future. Some of our customers also may decide to satisfy their needs through in-house design. We compete on the basis of signal processing IP performance, Intrinsic's IP and NRE capabilities, overall chip cost, power consumption, flexibility, reliability, communication and multimedia software availability, design cycle time, tool chain, customer support, name recognition, reputation and financial strength. Our inability to compete effectively on these bases could have a material adverse effect on our business, results of operations and financial condition.

Because our IP solutions are components of end products, if semiconductor companies and electronic equipment manufacturers do not incorporate our solutions into their end products or if the end products of our customers do not achieve market acceptance, we may not be able to generate adequate sales of our products.

We do not sell our IP solutions directly to end-users; we license our technology primarily to semiconductor companies and electronic equipment manufacturers, who then incorporate our technology into the products they sell. As a result, we rely on our customers to incorporate our technology into their end products at the design stage. Once a company incorporates a competitor's technology into its end product, it becomes significantly more difficult for us to sell our technology to that company because changing suppliers involves significant cost, time, effort and risk for the company. As a result, we may incur significant expenditures on the development of a new technology without any assurance that our existing or potential customers will select our technology for incorporation into their own product and without this "design win," it becomes significantly difficult to sell our IP solutions. Moreover, even after a customer agrees to incorporate our technology into its end products, the design cycle is long and may be delayed due to factors beyond our control, which may result in the end product incorporating our technology not reaching the market until long after the initial "design win" with such customer. From initial product design-in to volume production, many factors could impact the timing and/or amount of sales actually realized from the design-in. These factors include, but are not limited to, changes in the competitive position of our technology, our customers' financial stability, and our customers' ability to ship products according to our customers' schedule. Moreover, current economic conditions may further prolong a customer's decision-making process and design cycle.

Further, because we do not control the business practices of our customers, we do not influence the degree to which they promote our technology or set the prices at which they sell products incorporating our technology. We cannot assure you that our customers will devote satisfactory efforts to promote their end products which incorporate our IP solutions.

In addition, our royalties from licenses and therefore the growth of our business, are dependent upon the success of our customers in introducing products incorporating our technology and the success of those products in the marketplace. The primary customers for our products are semiconductor design and manufacturing companies, system OEMs and electronic equipment manufacturers, particularly in the telecommunications field. All of the industries we license into are highly competitive, cyclical and have been subject to significant economic downturns at various times. These downturns are characterized by production overcapacity and reduced revenues, which at times may encourage semiconductor companies or electronic product manufacturers to reduce their expenditure on our technology. If we do not retain our current customers and continue to attract new customers, our business may be harmed.

We depend on market acceptance of third-party semiconductor intellectual property.

The semiconductor intellectual property (SIP) industry is a relatively small and emerging industry. Our future growth will depend on the level of market acceptance of our third-party licensable intellectual property model, the variety of intellectual property offerings available on the market, and a shift in customer preference away from in-house development of proprietary signal processing IP towards licensing open signal processing IP cores and platforms. Furthermore, the third-party licensable intellectual property model is highly dependent on the market adoption of new services and products, such as low cost smartphones in emerging markets, LTE-based smartphones, mobile broadband, small cell base stations and the increased use of advanced audio, voice, computational photography and embedded vision in mobile, automotive and consumer products, as well as in IoT and connectivity applications in general in which we participate. Such market adoption is important because the increased cost associated with ownership and maintenance of the more complex architectures needed for the advanced services and products may motivate companies to license third-party intellectual property rather than design them in-house.

The trends that would enable our growth are largely beyond our control. Semiconductor customers also may choose to adopt a multi-chip, off-the-shelf chip solution versus IP licensing or using highly-integrated chipsets that embed our technologies. If the above referenced market shifts do not materialize or third-party SIP does not achieve market acceptance, our business, results of operations and financial condition could be materially harmed.

If we are unable to meet the changing needs of our end-users or address evolving market demands, our business may be harmed.

The markets for signal processing IPs are characterized by rapidly changing technology, emerging markets and new and developing end-user needs, and requiring significant expenditure for research and development. We cannot assure you that we will be able to introduce systems and solutions that reflect prevailing industry standards, on a timely basis, meet the specific technical requirements of our end-users or avoid significant losses due to rapid decreases in market prices of our products, and our failure to do so may seriously harm our business. Further, we cannot assure you that the markets we chose to invest in will continue to be significant sources of revenue in the future. For example, while we have acquired Intrinsic in part to enter the aerospace and defense market, we could fail to realize the benefits of the acquisition if the U.S. government reduces spending on defense research.

Our operating results are affected by the highly cyclical nature of and general economic conditions in the semiconductor industry, including significant supply chain disruption.

We operate within the semiconductor industry, which experiences significant fluctuations in sales and profitability. Downturns in the semiconductor industry are characterized by diminished product demand, excess customer inventories, accelerated erosion of prices and excess production capacity. Various market data suggests that the semiconductor industry may be facing such a negative cycle presently, especially in the global handset market. The semiconductor industry has also faced significant global supply chain issues as a result of the impact of the COVID-19 pandemic (both on demand for devices to enable wireless connectivity and remote environments and on supply from the related imposition of government restrictions on staffing and facility operations) as well as other trends such as the increasing demand for semiconductors in automobiles, which together have resulted in the inability of fabrication plants to produce sufficient quantities of chips to meet demand, supply chain shortages and other disruptions. The high interest rate environment and macroeconomic concerns related to slowdown and inventory buildout we experienced in the second half of 2022 may continue throughout the first half of 2023, or longer, and adversely affect our revenues. Other factors, such as the ongoing pandemic or further trade tensions between the U.S. and China, may prolong or deepen these challenges faced by the industry. Volatility or declines in the semiconductor industry could cause substantial fluctuations or declines in our revenues and results of operations.

Risks Related to Our Global Operating Business

Our quarterly operating results fluctuate from quarter to quarter due to a variety of factors, including our lengthy sales cycle, and may not be a meaningful indicator of future performance.

In some quarters our operating results could be below the expectations of securities analysts and investors, which could cause our stock price to fall. Factors that may affect our quarterly results of operations in the future include, among other things:

- the gain or loss of significant licensees, partly due to our dependence on a limited number of customers generating a significant amount of quarterly revenues;
- any delay in execution of any anticipated IP licensing arrangement during a particular quarter;
- delays in revenue recognition for some license agreements based on percentage of completion of customized work or other accounting reasons;
- the timing and volume of orders and production by our customers, as well as fluctuations in royalty revenues resulting from fluctuations in unit shipments by our licensees;
- royalty pricing pressures and reduction in royalty rates due to an increase in volume shipments by customers, end-product price erosion and competitive pressures;
- earnings or other financial announcements by our major customers that include shipment data or other information that implicates expectations for our future royalty revenues;
- the mix of revenues among IP licensing and related revenues, NRE revenues and royalty revenues;
- the timing of the introduction of new or enhanced technologies by us and our competitors, as well as the market acceptance of such technologies;
- the discontinuation, or public announcement thereof, of product lines or market sectors that incorporate our technology by our significant customers;
- our lengthy sales cycle and specifically in the third quarter of any fiscal year during which summer vacations slow down decision-making processes of our customers in executing contracts;
- lengthy and unpredictable project approval and funding timelines characteristic of government agencies and other customers in the aerospace and defense markets, coupled with the ability, and frequent election, of government agencies and their contractors to discontinue programs with little or no advance notice;
- delays in the commercialization of end products that incorporate our technology;
- currency fluctuations, mainly the EURO and the NIS versus the U.S. dollar;
- fluctuations in operating expenses and gross margins associated with the introduction of, and research and development investments in, new or enhanced technologies and adjustments to operating expenses resulting from restructurings;

- the approvals, amounts and timing of Israeli research and development government grants from the Israeli Innovation Authority of the Ministry of Economy and Industry in Israel (the “IIA”), EU grants and French research tax credits;
- the impact of new accounting pronouncements, including the new revenue recognition rules;
- the timing of our payment of royalties to the IIA, which is impacted by the timing and magnitude of license agreements and royalty revenues derived from technologies that were funded by grant programs of the IIA;
- statutory changes associated with research tax benefits applicable to French technology companies;
- our ability to scale our operations in response to changes in demand for our technologies;
- entry into new end markets that utilize our signal processing IPs, software and platforms;
- changes in our pricing policies and those of our competitors;
- restructuring, asset and goodwill impairment and related charges, as well as other accounting changes or adjustments, such as our third quarter 2022 write off of deferred tax assets;
- general political conditions, including global trade wars resulting from tariffs and business restrictions and bans imposed by government entities, like the well publicized 2018 ban associated with ZTE and the October 2022 announcement of broad restrictions on the transfer to China of certain advanced semiconductors and supercomputing items, as well as other regulatory actions and changes that may adversely affect the business environment;
- general economic conditions, including the current economic conditions, and its effect on the semiconductor industry and sales of consumer products into which our technologies are incorporated;
- delays in final product delivery due to unexpected issues introduced by our service or EDA tool providers;
- delays in ratification of standards for Bluetooth, Wi-Fi or NB-IoT that can affect the introduction of new products;
- constraints on chip manufacturing capacity due to high demand or shutdowns of semiconductor fabrication plants and other manufacturing facilities; and
- reductions in demand for consumer and digital devices due to lockdowns or overall financial difficulties resulting from the ongoing COVID-19 pandemic or any other future pandemic outbreak or public health threat.

Each of the above factors is difficult to forecast and could harm our business, financial condition and results of operations. Also, we license our technology to OEMs and semiconductor companies for incorporation into their end products for consumer markets, including handsets and consumer electronics products. The royalties we generate are reported by our customers.

Our royalty revenues are affected by seasonal buying patterns of consumer products sold by OEMs, partially by our direct customers and partially by semiconductor customers that incorporate our technology into their end products and the market acceptance of such end products. The first quarter in any given year is usually a sequentially down quarter for us in relation to royalty revenues as this period represents lower post-Christmas fourth quarter consumer product shipments. However, the magnitude of this first quarter decrease varies annually and has been impacted by global economic conditions, market share changes, exiting or refocusing of market sectors by our customers and the timing of introduction of new and existing handset devices powered by CEVA technology sold in any given quarter compared to the prior quarter. Furthermore, in 2020, 2021 and 2022 the worldwide COVID-19 pandemic and the expected recovery in economic activities created strong demand for chips that significantly surpasses the supply capacity for digital connectivity and consumer devices, causing long lead times. The high interest rate environment and macroeconomic concerns related to slowdown and inventory buildout we experienced in the second half of 2022 may continue throughout the first half of 2023, or longer, and distort more traditional seasonality trends.

Moreover, the semiconductor and consumer electronics industries remain volatile, which makes it extremely difficult for our customers and us to accurately forecast financial results and plan for future business activities. As a result, our past operating results should not be relied upon as an indication of future performance.

We rely significantly on revenues derived from a limited number of customers who contribute to our royalty and license revenues.

We derive a significant amount of revenues from a limited number of customers. Sales to UNISOC (formerly Spreadtrum Communications, Inc.), accounted for 14%, 21% and 14% of our total revenues for 2022, 2021 and 2020, respectively. With respect to our royalty revenues, two royalty paying customers each represented 10% or more of our total royalty revenues for 2022, and collectively represented 46% of our total royalty revenues for 2022. Three royalty paying customers each represented 10% or more of our total royalty revenues for 2021, and collectively represented 57% of our total royalty revenues for 2021, and four royalty paying customers each represented 10% or more of our total royalty revenues for 2020, and collectively represented 72% of our total royalty revenues for 2020. We expect that a significant portion of our future revenues will continue to be generated by a limited number of customers. The loss of any significant royalty paying customer could adversely affect our near-term future operating results. Furthermore, consolidation among our customers may negatively affect our revenue source, increase our existing customers' negotiation leverage and make us further dependent on a limited number of customers. Moreover, the discontinuation of product lines or market sectors that incorporate our technology by our significant customers or a change in direction of their business and our inability to adapt our technology to their new business needs could have material negative implications for our future royalty revenues.

Our business is dependent on IP licensing and NRE revenues, which may vary period to period.

License agreements for our signal processing IP cores and platforms have not historically provided for substantial ongoing license payments, so past IP licensing revenues may not be indicative of the amount of such revenues in any future period. We believe that there is a similar risk with RivieraWaves' operations associated with Bluetooth and Wi-Fi connectivity technologies. Significant portions of our anticipated future revenues, therefore, will likely depend upon our success in attracting new customers or expanding our relationships with existing customers. However, revenues recognized from licensing arrangements vary significantly from period to period, depending on the number and size of deals closed during a quarter, and are difficult to predict. In addition, as we expand our business into the non-handset baseband markets, our licensing deals may be smaller but greater in volume which may further fluctuate our licensing revenues quarter to quarter. Our ability to succeed in our licensing efforts will depend on a variety of factors, including the performance, quality, breadth and depth of our current and future products as well as our sales and marketing skills. In addition, some of our licensees may in the future decide to satisfy their needs through in-house design and production. Our failure to obtain future licensing customers would impede our future revenue growth and could materially harm our business.

In addition, our Intrinsic business derives revenues primarily from non-recurring engineering (NRE) payments as well as retains certain IP assets. We believe significant portions of our anticipated future revenues will likely depend upon our success in attracting new customers to NRE services, monetizing Intrinsic IP assets and expanding our relationships with existing Intrinsic customers. Revenues recognized from such arrangements have historically varied significantly from period to period, depending on the number and size of deals closed during a quarter, as well as the timing of the approval and funding processes of U.S. government agencies and their contractors that can be lengthy and difficult to predict. In addition, some Intrinsic's customers may in the future decide to satisfy their needs through in-house design and production. Our failure to obtain future customers for Intrinsic's NRE business and IP, or to for relevant Intrinsic personnel to maintain applicable U.S. government security clearances, would also impede our future revenue growth and could materially harm our business.

Royalty and other payment rates could decrease for existing and future license agreements and other customer agreements, which could materially adversely affect our operating results.

Royalty payments to us under existing and future license agreements could be lower than currently anticipated for a variety of reasons. Average selling prices for semiconductor products generally decrease over time during the lifespan of a product. In addition, there is increasing downward pricing pressures in the semiconductor industry on end products incorporating our technology, especially end products for the handsets and consumer electronics markets. As a result, notwithstanding the existence of a license agreement, our customers may demand that royalty rates for our products be lower than our historic royalty rates. We have in the past and may be pressured in the future to renegotiate existing license agreements with our customers. In addition, certain of our license agreements provide that royalty rates may decrease in connection with the sale of larger quantities of products incorporating our technology. Furthermore, our competitors may lower the royalty rates for their comparable products to win market share which may force us to lower our royalty rates as well. As a consequence of the above referenced factors, as well as unforeseen factors in the future, the royalty rates we receive for use of our technology could decrease, thereby decreasing future anticipated revenues and cash flow. Royalty revenues were approximately 34%, 41% and 48% of our total revenues for 2022, 2021 and 2020, respectively. Therefore, a significant decrease in our royalty revenues could materially adversely affect our operating results.

Moreover, royalty rates may be negatively affected by macroeconomic trends (including the recent COVID-19 pandemic or future pandemics, other public health threats and their global impact) or changes in products mix. Furthermore, consolidation among our customers may increase the leverage of our existing customers to extract concessions from us in royalty rates. Moreover, changes in products mix such as an increase in lower royalty bearing products shipped in high volume like low-cost feature phones and Bluetooth-based products in lieu of higher royalty bearing products like LTE phones could lower our royalty revenues.

In addition, Intrinsic's NRE hourly rates under existing and future agreements could be lower than currently anticipated for a variety of reasons, including, for example, U.S. government regulation changes and pricing pressures from competitors in the aerospace and defense markets. As a result, notwithstanding the existence of an agreement, our customers may demand that NRE rates, be lower than our historic rates. A significant decrease in our NRE rates could also materially adversely affect our operating results.

We generate a significant amount of our total revenues, especially royalty revenues, from the handset baseband market (for mobile handsets and for other modem connected devices) and our business and operating results may be materially adversely affected if we do not continue to succeed in these highly competitive markets.

A significant portion of our revenues in general, and in particular our royalty revenues, are derived from baseband for handsets. Any adverse change in our ability to compete and maintain our competitive position in the handset baseband market, including through the introduction by competitors of enhanced technologies that attract customers that target those markets, would harm our business, financial condition and results of operations. Moreover, the handset baseband market is extremely competitive and is facing intense pricing pressures, and we expect that competition and pricing pressures will only increase. Furthermore, it can be very volatile with regards to volume shipments of different phones, standards and connected devices due to inventory build out or consumer demand changes or geographical macroeconomics, pricing changes, product discontinuations due to technical issues and timing of introduction of new phones and products. Our existing OEM or semiconductor customers also may fail to introduce new handset devices that attract consumers, lose a significant design opportunity for a new product introduction, or encounter significant delays in developing, manufacturing or shipping new or enhanced products in those markets or find alternative technological solutions and suppliers. The inability of our customers to compete would result in lower shipments of products powered by our technologies which in turn would have a material adverse effect on our business, financial condition and results of operations. In particular, a customer's loss of a design opportunity may have an adverse effect on our royalty revenues from such customer, which in turn will also have an adverse effect on our overall results of operations and market share. As an example, Intel, one of our customers, did not have its products selected for inclusion in a new smartphone series, and thereafter announced the sale of its 5G smartphone modem, as a result of which, our royalty revenues from Intel reached record low levels in 2022. Our overall royalty revenues will be negatively impacted if we fail to offset any loss of royalty revenues from Intel, or any other loss of royalty revenues from a customer, with royalty revenues from other emerging products incorporating our technologies. Since a significant portion of our revenues are derived from the handset baseband market, adverse conditions in this market would have a material adverse effect on our business, financial condition and results of operations.

Because we have significant international operations, with a significant concentration of revenues in China, we may be subject to political, economic and other conditions relating to our international operations that could increase our operating expenses and disrupt our revenues and business.

Approximately 79% of our total revenues for 2022, 78% for 2021 and 79% for 2020 were derived from customers located outside of the United States. Revenues from customers located in the Asia Pacific region account for a substantial portion of these revenues, with significant concentration of revenues in China, which accounted for 56%, 55% and 51% of total revenues for 2022, 2021 and 2020, respectively. We expect that international customers generally, and sales to the Asia Pacific region and China in particular, will continue to account for a significant portion of our revenues for the foreseeable future. While we anticipate that we can expand our customer base and revenues in Europe and the U.S., the present concentration of revenues from a single country significantly increases our risk profile, and the occurrence of any negative international political, economic or geographic events, including any financial crisis, trade restrictions or disputes or other major event causing business disruption in China, the broader Asia Pacific region and other international jurisdictions, could result in significant revenue shortfalls. These shortfalls could cause our business, financial condition and results of operations to be harmed. Some of the risks of doing business internationally include:

- unexpected changes in regulatory requirements;
- fluctuations in the exchange rate for the U.S. dollar;
- imposition of tariffs and other barriers and restrictions, including trade tensions such as U.S.-China trade tensions;
- potential negative international community's reaction to the U.S. Tax Cuts and Jobs Act;
- burdens of complying with a variety of foreign laws, treaties and technical standards;
- uncertainty of laws and enforcement in certain countries relating to the protection of intellectual property;
- multiple and possibly overlapping tax structures and potentially adverse tax consequences;
- political and economic instability, including military activities, terrorist attacks and protectionist policies; and
- changes in diplomatic and trade relationships.

For example, in October 2022 the U.S. Department of Commerce Bureau of Industry and Security imposed broad restrictions and compliance burdens on the transfer to China of certain advanced semiconductors and supercomputing items, software and technology subject to U.S. export controls, in addition to restricting sales to certain semiconductor fab facilities in China. Moreover, restrictions were implemented on U.S. persons' activities in support of the transfer of certain items not subject to U.S. export controls. We continue to assess the potential impact of these restrictions on our operations, and these restrictions are in addition to existing license requirements and company-specific designations affecting trade in the Asia Pacific region. Actions of any nature, including future new trade controls, could affect specific customers, industries, and technologies produced inside and outside the United States, and may reduce our revenues and adversely affect our business and financial results.

New tariffs, trade measures and other geopolitical risks and instability could adversely affect our consolidated results of operations, financial position and cash flows.

Tensions between the U.S. and China have been escalating since 2018 and are not fully resolved yet, and a number of factors may exacerbate these tensions in the future. In addition, Russian military activities in Ukraine have resulted in increased sanctions and export controls against Russia and Belarus, and could also increase China/Taiwan political tensions and U.S./China trade and other relations. Trade tensions between the U.S. and China and other geopolitical instabilities have resulted, and could in the future result, in significant tariff increases, sanctions against specified entities, and the broadening of restrictions and license requirements for specified transfers and uses of products. For example, the ongoing geopolitical and economic uncertainty between the U.S. and China, the unknown impact of current and future U.S. and Chinese trade regulations and other geopolitical risks with respect to China and Taiwan, may cause disruptions in the semiconductor industry and its supply chain, decreased demand from customers for the ultimate products using our IP solutions, or other disruptions which may, directly or indirectly, materially harm our business, financial condition and results of operations. In addition, critical metals and materials used in semiconductors, such as Palladium, are sourced in Russia, and sanctions against Russia could impact the semiconductor supply chain. While tariffs and other retaliatory trade measures imposed by other countries on U.S. goods have not yet had a significant impact on our business or results of operations, our revenues are increasingly originated in China and the broader APAC region, and we cannot predict further developments. Thus, existing or future tariffs could have a material adverse effect on our consolidated results of operations, financial position and cash flow. Further changes in U.S. trade policy could trigger retaliatory actions by affected countries, which could impose restrictions on our ability to do business in or with affected countries or prohibit, reduce or discourage purchases of our products by foreign customers and higher prices for our products in foreign markets. For example, there are risks that the Chinese government may, among other things, require the use of local suppliers, compel companies that do business in China to partner with local companies to conduct business and provide incentives to government-backed local customers to buy from local suppliers. Changes in, and responses to, U.S. trade policy could reduce the competitiveness of our products and cause our sales and revenues to drop, which could materially and adversely impact our business and results of operations.

In order to sustain the future growth of our business, we must penetrate new markets and our new products must achieve widespread market acceptance but such additional revenue opportunities may not be implemented and may not be achieved.

In order to expand our business and increase our revenues, we must penetrate new markets and introduce new products, including additional non-baseband related products. We have invested significant resources in pursuing potential opportunities for revenue growth and diversify our revenue streams. Our continued success will depend significantly on our ability to accurately anticipate changes in industry standards and to continue to appropriately fund development efforts to enhance our existing products or introduce new products in a timely manner to keep pace with technological developments. However, there are no assurances that we will develop products relevant for the marketplace or gain significant market share in those competitive markets. Moreover, if any of our competitors implement new technologies before us, those competitors may be able to provide products that are more effective or at lower prices, which could adversely impact our sales and impact our market share. Our inability to penetrate new markets and increase our market share in those markets or lack of customer acceptance of our new products may harm our business and potential growth.

Our success will depend on our ability to successfully manage our geographically dispersed operations.

Most of our research and development staff is located in Israel. We also have research and development teams in France, Ireland, the United Kingdom and United States (following our acquisitions of Intrinsic in May 2021 and the Hillcrest Labs business from InterDigital in July 2019) and recently we have opened a design center in Serbia. Accordingly, our ability to compete successfully will depend in part on the ability of a limited number of key executives located in geographically dispersed offices to manage our research and development staff and integrate them into our operations to effectively address the needs of our customers and respond to changes in our markets. If we are unable to effectively manage and integrate our remote operations, our business may be materially harmed.

Our operations in Israel may be adversely affected by instability in the Middle East region.

One of our principal research and development facilities is located in Israel, and most of our executive officers and some of our directors are residents of Israel. Although substantially all of our sales currently are made to customers outside Israel, we are nonetheless directly influenced by the political, economic and military conditions affecting Israel, including recent changes to Israel's judicial system. Any major hostilities involving Israel could significantly harm our business, operating results and financial condition.

In addition, certain of our employees are currently obligated to perform annual reserve duty in the Israel Defense Forces and are subject to being called to active military duty at any time. Although we have operated effectively under these requirements since our inception, we cannot predict the effect of these obligations on the company in the future. Our operations could be disrupted by the absence, for a significant period, of one or more of our key employees due to military service.

Terrorist attacks, acts of war or military actions and/or other civil unrest may adversely affect the territories in which we operate, and our business, financial condition and operating results.

Terrorist attacks and attempted terrorist attacks, military responses to terrorist attacks, other military actions, including illegal invasion of sovereign countries, or governmental action in response to or in anticipation of a terrorist attack or civil unrest or foreign invasion, may adversely affect prevailing economic conditions, resulting in work stoppages, reduced consumer spending or reduced demand for end products that incorporate our technologies. These developments subject our worldwide operations to increased risks and, depending on their magnitude, could reduce net sales and therefore could have a material adverse effect on our business, financial condition and operating results.

Our research and development expenses may increase if the grants we currently receive from the Israeli government are reduced or withheld.

We currently receive research grants mainly from programs of the IIA. We recorded an aggregate of \$5,014,000, \$3,843,000 and \$3,042,000 in 2022, 2021 and 2020, respectively. To be eligible for these grants, we must meet certain development conditions and comply with periodic reporting obligations. Although we have met such conditions in the past, should we fail to meet such conditions in the future our research grants may be repayable, reduced or withheld. The repayment or reduction of such research grants may increase our research and development expenses which in turn may reduce our operating income. Also, the timing of such payments from the IIA may vary from year to year and quarter to quarter, and we have no control on the timing of such payment.

We depend on a limited number of key personnel who would be difficult to replace, and changes in our management and sales teams may adversely affect our operations.

Our success depends to a significant extent upon certain of our key employees and senior management, the loss of which could materially harm our business. Competition for skilled employees in our field is intense, and in the current environment where many employees have become accustomed to remote work environments and frequent job changes, integration of employees into our company culture and retention of employees is becoming increasingly difficult. We cannot assure you that in the future we will be successful in attracting and retaining the required personnel.

In addition, in recent months we have experienced transition in our senior management and sales teams, including the retirement of Gideon Wertheizer as our Chief Executive Officer effective December 31, 2022 and the appointment of Amir Panush as our Chief Executive Officer effective January 1, 2023, as well as the appointment of Gweltaz Toquet as our Chief Commercial Officer on January 1, 2023 following Issachar Ohana's departure from his position as Executive Vice President of Worldwide Sales effective December 31, 2022. While we expect to engage in an orderly transition process as we integrate newly appointed officers and managers, we face a variety of risks and uncertainties relating to management transition and execution of our sales strategy, including diversion of management attention from business concerns, failure to retain other key personnel, loss of institutional knowledge, loss of sales prospects and inability to replenish our sales team in a manner needed to execute our sales strategy. These risks and uncertainties could result in operational and administrative inefficiencies and added costs, which could adversely impact our results of operations.

The sales cycle for our IP and NRE solutions is lengthy, and even approved projects may have structured payment terms, which makes forecasting of our customer orders and revenues difficult.

The sales cycle for our IP solutions and NRE services is lengthy, often lasting three to nine months. Our customers generally conduct significant technical evaluations, including customer trials, of our technology as well as competing technologies prior to making a purchasing decision. Purchasing decisions also may be delayed because of a customer's internal budget approval process or from the involvement of U.S. government agencies for project and budgetary approvals. In addition, given the current market conditions, we have less ability to predict the timing of our customers' purchasing cycle and potential unexpected delays in such a cycle. Because of the lengthy sales cycle and potential delays, our dependence on a limited number of customers to generate a significant amount of revenues for a particular period and the size of customer orders, if orders forecasted for a specific customer for a particular period do not occur in that period, our revenues and operating results for that particular quarter could suffer. Furthermore, even approved projects may be subject to tranche or milestone-based payment structures, rather than upfront payments, which may cause delays in our performance of the relevant work and revenue recognition. Moreover, a portion of our expenses related to an anticipated order is fixed and difficult to reduce or change, which may further impact our operating results for a particular period.

Intrinsix's business relies heavily on contracts with U.S. government prime contractors, which exposes us to business volatility and risks, including government budgeting cycles and appropriations, potential early termination of contracts, procurement regulations, governmental policy shifts, security requirements, audits, investigations, sanctions and penalties.

Historically, Intrinsix has derived a significant portion of its revenues as a subcontractor to U.S. government prime contractors and has had some contracts directly with the U.S. government. U.S. federal government agencies, including the Department of Defense (DoD), are subject to budgetary constraints, and our continued performance under our contracts with these agencies and their prime contractors, or award of additional contracts from these agencies or their prime contractors, could be jeopardized by spending reductions or budget cutbacks at these agencies. The funding of U.S. government programs is uncertain and dependent on continued congressional appropriations and administrative allotment of funds based on an annual budgeting process, which is often responsive to myriad factors, including changes in political or public support for security and defense programs, uncertainties associated with the current global threat environment and other geo-political matters, and adoption of new laws or regulations relating to government contracting or changes to existing laws or regulations. These and other factors could cause governmental agencies to reduce their engagements for Intrinsix products and services under existing contracts, to exercise their rights to terminate contracts at-will or to abstain from renewing contracts, any of which would cause our revenue to decline and could otherwise harm our business, financial condition and results of operations. Given its acquisition by CEVA, Inc., Intrinsix is no longer eligible for certain types of direct government contracts set aside for qualifying small businesses, which also could potentially reduce revenue from government contracts.

In addition, changes in federal law, government procurement policy, priorities, regulations, technology initiatives and/or requirements may also negatively impact our potential for growth in the aerospace and defense space. New laws, regulations or procurement requirements or changes to current ones (including, for example, regulations related to cybersecurity, supply chain integrity, privacy, information protection, and cost accounting) can significantly increase our costs and risks and reduce our profitability.

As a company performing government contracts and subcontracts, we are also subject to additional regulations and compliance obligations, including related to accounting and billing, contract administration, government property, ethics and conflicts of interest, intellectual property, national security, and socioeconomic requirements. As a government contractor and subcontractor, we are and may become subject to audits, investigations, claims, disputes, enforcement actions. These matters could divert financial and management resources and result in administrative, civil or criminal litigation, arbitration or other legal proceedings and across a broad array of matters, and could in administrative, civil or criminal fines, penalties or other sanctions, non-monetary relief or actions such as suspension or debarment from government contracts or suspension of export/import privileges, and otherwise harm our business and our ability to obtain and retain government contract-related awards. An investigation, claim, dispute, enforcement action or litigation, even if unsubstantiated or fully indemnified or insured, could also negatively impact our reputation, thereby making it substantially more difficult to compete successfully for business, obtain and retain awards or obtain adequate insurance in the future, and could have a material adverse effect on our business, financial condition and results of operations.

We may face difficulties in integrating Intrinsix into our business and offering turnkey IP solutions and co-creation projects.

We completed our acquisition of Intrinsix in the second quarter of 2021. Our Intrinsix chip design business unit enables us to offer our customers co-creation SoC design services that take advantage of our IP portfolio, Intrinsix's designed to deliver (D2D) and security IP and Intrinsix's design capabilities for digital, mix signal and RF. We believe this co-creation business proposition strengthens our relationships with customers, generates recurrent royalties and more. However, we may not be able effectively manage the integration of acquired personnel, operations, and technologies successfully, or effectively manage the combined operations following the acquisition, which may prevent us from achieving anticipated benefits from the acquisition. In addition, our efforts to with respect to turnkey IP services and solutions will take longer than normal sales cycles as we move up the management levels of our customers and sell, generally, a more complex product and service combination. Succeeding in these efforts will require additional investment, training and changes that will introduce additional risk, cost and may introduce the possibility to customers that we are now competitors. If we do not succeed in these efforts, we will not reap the anticipated benefits of our acquisition of Intrinsix, which could have a material adverse effect on our business, financial condition and results of operations.

We may seek to expand our business in ways that could result in diversion of resources and extra expenses.

We may in the future pursue acquisitions of businesses, products and technologies, establish joint venture arrangements, make minority equity investments or enhance our existing CEVAnet partner eco-system to expand our business. We are unable to predict whether or when any prospective acquisition, equity investment or joint venture will be completed. The process of negotiating potential acquisitions, joint ventures or equity investments, as well as the integration of acquired or jointly developed businesses, technologies or products may be prolonged due to unforeseen difficulties and may require a disproportionate amount of our resources and management's attention. We cannot assure you that we will be able to successfully identify suitable acquisition or investment candidates, complete acquisitions or investments, or integrate acquired businesses or joint ventures with our operations. If we were to make any acquisition or investment or enter into a joint venture, we may not receive the intended benefits of the acquisition, investment or joint venture or such an acquisition, investment or joint venture may not achieve comparable levels of revenues, profitability or productivity as our existing business or otherwise perform as expected. The expansion of our CEVAnet partner eco-system also may not achieve the anticipated benefits. The occurrence of any of these events could harm our business, financial condition or results of operations. Future acquisitions, investments or joint ventures may require substantial capital resources, which may require us to seek additional debt or equity financing.

Future acquisitions, joint ventures or minority equity investments by us could result in the following, any of which could seriously harm our results of operations or the price of our stock:

- issuance of equity securities that would dilute our current stockholders' percentages of ownership;
- large one-time write-offs or equity investment impairment write-offs;
- incurrence of debt and contingent liabilities;
- difficulties in the assimilation and integration of operations, personnel, technologies, products and information systems of the acquired companies;
- inability to realize cost efficiencies or synergies, thereby incurring higher operating expenditures as a result of the acquisition;
- diversion of management's attention from other business concerns;
- contractual disputes;
- risks of entering geographic and business markets in which we have no or only limited prior experience; and
- potential loss of key employees of acquired organizations.

Because our IP solutions and NRE services are complex, the detection of errors in our products may be delayed, and if we deliver products with defects, our credibility will be harmed, the sales and market acceptance of our products may decrease and product liability claims may be made against us.

Our IP solutions and NRE services are complex and may contain errors, defects and bugs when introduced. If we deliver products with errors, defects or bugs, our credibility and the market acceptance and sales of our products could be significantly harmed. Furthermore, the nature of our products may also delay the detection of any such error or defect. If our products contain errors, defects and bugs, then we may be required to expend significant capital and resources to alleviate these problems. This could result in the diversion of technical and other resources from our other development efforts. Any actual or perceived problems or delays may also adversely affect our ability to attract or retain customers. Furthermore, the existence of any defects, errors or failure in our products could lead to product liability claims or lawsuits against us or against our customers. A successful product liability claim could result in substantial cost and divert management's attention and resources, which would have a negative impact on our financial condition and results of operations.

Our product development efforts are time-consuming and expensive and may not generate an acceptable return, if any.

Our product development efforts require us to incur substantial research and development expense. Our research and development expenses were approximately \$78.5 million, \$72.5 million, and \$62.0 million for 2022, 2021 and 2020, respectively. We may not be able to achieve an acceptable return, if any, on our research and development efforts.

The development of our products is highly complex. We occasionally have experienced delays in completing the development and introduction of new products and product enhancements, and we could experience delays in the future. Unanticipated problems in developing products could also divert substantial engineering resources, which may impair our ability to develop new products and enhancements and could substantially increase our costs. Furthermore, we may expend significant amounts on research and development programs that may not ultimately result in commercially successful products. Our research and development expense levels have increased steadily in the past few years. As a result of these and other factors, we may be unable to develop and introduce new products successfully and in a cost-effective and timely manner, and any new products we develop and offer may never achieve market acceptance. Any failure to successfully develop future products would have a material adverse effect on our business, financial condition and results of operations.

The future growth of our business depends in part on our ability to license to system OEMs and small-to-medium-sized semiconductor companies directly and to expand our sales geographically.

Historically, a substantial portion of our licensing revenues has been derived in any given period from a relatively small number of licensees. Because of the substantial license fees we charge, our customers tend to be large semiconductor companies or vertically integrated system OEMs. Part of our current growth strategy is to broaden the adoption of our products by small and mid-size companies by offering different versions of our products targeted at these companies. If we are unable to develop and market effectively our intellectual property through these models, our revenues will continue to be dependent on a smaller number of licensees and a less geographically dispersed pattern of licensees, which could materially harm our business and results of operations.

We may not be able to adequately protect our intellectual property.

Our success and ability to compete depend in large part upon the protection of our proprietary technologies. We rely on a combination of patent, copyright, trademark, trade secret, mask work and other intellectual property rights, confidentiality procedures and IP licensing arrangements to establish and protect our proprietary rights. These agreements and measures may not be sufficient to protect our technology from third-party infringement or protect us from the claims of others. As a result, we face risks associated with our patent position, including the potential need to engage in significant legal proceedings to enforce our patents, the possibility that the validity or enforceability of our patents may be denied, the possibility that third parties will be able to compete against us without infringing our patents and the possibility that our products may infringe patent rights of third parties.

Our trade names or trademarks may be registered or utilized by third parties in countries other than those in which we have registered them, impairing our ability to enter and compete in those markets. If we were forced to change any of our brand names, we could lose a significant amount of our brand identity.

Our business will suffer if we are sued for infringement of the intellectual property rights of third parties or if we cannot obtain licenses to these rights on commercially acceptable terms.

We are subject to the risk of adverse claims and litigation alleging infringement of the intellectual property rights of others. There are a large number of patents held by others, including our competitors, pertaining to the broad areas in which we are active. We have not, and cannot reasonably, investigate all such patents. From time to time, we have become aware of patents in our technology areas and have sought legal counsel regarding the validity of such patents and their impact on how we operate our business, and we will continue to seek such counsel when appropriate in the future. In addition, patent infringement claims are increasingly being asserted by patent holding companies (so-called patent “trolls”), which do not use technology and whose sole business is to enforce patents against companies, such as us, for monetary gain. Because such patent holding companies do not provide services or use technology, the assertion of our own patents by way of counter-claim may be ineffective. Infringement claims may require us to enter into license arrangements or result in protracted and costly litigation, regardless of the merits of these claims. Any necessary licenses may not be available or, if available, may not be obtainable on commercially reasonable terms. If we cannot obtain necessary licenses on commercially reasonable terms, we may be forced to stop licensing our technology, and our business would be seriously harmed.

The COVID-19 pandemic, or other outbreak of disease or similar public health threat, could materially and adversely affect our business, financial condition and results of operations.

Pandemics, such as the ongoing coronavirus (COVID-19) pandemic, have affected, and may continue to affect, the global community and our business, financial condition and results of operations. The nature and severity of the impact will continue to depend largely on future developments, including the emergence of new variants of COVID-19, availability of effective treatments and the extent to which actions have been or may be taken to contain or address its impact globally. These actions, such as restrictions on in-person meetings and travel, vaccine mandates or other similar restrictions and limitations, may be, or have been, relaxed or suspended, but may also be reinstated if other pandemics occur in the future or if the COVID-19 pandemic worsens again. The timing and impact of any such actions or reinstatements remains difficult to predict.

The spread of COVID-19 caused us to modify our business practices, and we may take further actions as may be required by government authorities or that we determine are in the best interests of our employees, customers, and communities. Such actions may result in disruptions to our supply chain, operations and facilities, and workforce. We cannot assure you that such measures will be sufficient to mitigate the risks posed by COVID-19 or any other public health threat, and our ability to perform critical functions could be harmed. In addition, the degree to which COVID-19 or other future outbreak of pandemics or public health threats impacts our business, financial condition, and results of operations will depend on future developments, which are highly uncertain, and to what extent such developments impact normal economic and operating conditions.

Cybersecurity threats or other security breaches could compromise sensitive information belonging to us or our customers and could harm our business and our reputation.

We store sensitive data, including intellectual property, proprietary business information and our customer and employee information. Despite our security measures, our information technology and infrastructure may be vulnerable to attacks by hackers or breached due to employee error, malfeasance or other disruptions that could result in unauthorized disclosure or loss of sensitive data. Because the techniques used to obtain unauthorized access to networks, or to sabotage systems, change frequently and generally are not recognized until launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. Furthermore, in the operation of our business we also use third-party vendors that store certain sensitive data. Any security breach of our own or a third-party vendor's systems could cause us to be non-compliant with applicable laws or regulations, subject us to legal claims or proceedings, disrupt our operations, damage our reputation, and cause a loss of confidence in our products and services, any of which could adversely affect our business.

Risks Related to Finance, Accounting and Taxation

The nature of our business requires the application of complex revenue recognition rules. Significant changes in U.S. generally accepted accounting principles, or GAAP, including the adoption of the new revenue recognition rules, could materially affect our financial position and results of operations.

We prepare our financial statements in accordance with GAAP, which is subject to interpretation or changes by the Financial Accounting Standards Board, or FASB, the SEC, and other various bodies formed to promulgate and interpret appropriate accounting principles. New accounting pronouncements and changes in accounting principles have occurred in the past and are expected to occur in the future, which may have a significant effect on our financial results. For example, pursuant to the new revenue recognition rules, effective as of January 1, 2018, an entity recognizes sales and usage-based royalties as revenue only when the later of the following events occurs: (1) the subsequent sale or usage occurs or (2) the performance obligation to which some or all of the sales-based or usage-based royalty allocated has been satisfied (or partially satisfied). Recognizing royalty revenue on a lag time basis is not permitted. As a result, the royalties we generate from customers is based on royalty of units shipped during the quarter as estimated by our customers, not a quarter in arrears that we previously report. Adoption of this standard and any difficulties in implementation of changes in accounting principles, including uncertainty associated with royalty revenues for the quarter based on estimates provided by our customer, could cause us to fail to meet our financial reporting obligations, which could result in regulatory discipline and harm investors' confidence in us.

Changes in our tax rates or exposure to additional income tax liabilities or assessments could adversely impact our cash flow, financial condition and results of operations.

We are subject to income taxes in the United States and various foreign jurisdictions. In addition to our significant operations in Israel, we have operations in Ireland, France, the United Kingdom, China and Japan. Significant judgment is required in determining our worldwide provision for income taxes and other tax liabilities. In the ordinary course of a global business, there are many intercompany transactions and calculations where the ultimate tax determination is uncertain. Due to the potential for changes to tax laws and regulations or changes to the interpretation thereof, the ambiguity of tax laws and regulations, the subjectivity of factual interpretations, the complexity of our intercompany arrangements, uncertainties regarding the geographic mix of earnings in any particular period, the potential decision or need to transfer cash or other assets from one jurisdiction to another, potential for tax authorities to challenge the manner in which our subsidiaries' profits are currently recognized, and other factors, our estimates of effective tax rate and income tax assets and liabilities can be incorrect, we could lose the ability to use certain deferred tax assets, we could incur significant additional taxes in connection with a specific transaction, our overall tax expenses could increase, and our business, cash flow, financial condition and results of operations could be materially adversely affected. The impact of the factors referenced in this paragraph may also be substantially different from period-to-period.

For example, a substantial portion of our taxable income historically has been generated in Israel, and starting in 2020, also in France. Although our Israeli and Irish subsidiaries historically, and starting in 2022 our French subsidiary as well, are taxed at rates lower than the U.S. tax rates, the tax rates in these jurisdictions could nevertheless result in a substantial increase as a result of withholding tax expenses with respect to which we are unable to obtain a refund from the relevant tax authorities. If our Israeli, French and Irish subsidiaries were no longer to qualify for these lower tax rates or if the applicable tax laws were rescinded or changed, our operating results could be materially adversely affected. A mix of our revenues in each of these locations may change the mix of our taxable income, and as a result, our overall tax rate may increase, as we encountered in 2021, specifically due to higher taxes in France, or in the third quarter of 2022, due to our recording a \$15.6 million expense as a result of a valuation allowance for certain deferred tax assets in Israel.

U.S. tax regulations are also implicated by our international operations. For example, certain of our taxes may be "double taxed" in both foreign jurisdictions and the U.S., including with respect to our taxes on our Irish and Israeli interest income. While we have elected to account for global intangible low-taxed income (GILTI) as a current-period expense when incurred, legislation and clarifying guidance are expected to continue to be issued by the U.S. Treasury Department and various states in future periods, which could have a material adverse impact on the value of our U.S. deferred tax assets, result in significant changes to currently computed income tax liabilities for past and current tax periods, and increase our future U.S. tax expense. We could also incur significant additional tax expenses as a result of moving off-shore cash to our U.S. entity: out of total cash, cash equivalents, bank deposits and marketable securities of \$147.7 million at year end 2022, \$141.1 million was held by our foreign subsidiaries, with only \$6.6 million held in the U.S., which could make capital expenditures to expand operations in the U.S., or our conducting strategic transactions in the U.S., more expensive. In addition, beginning in our fiscal year 2022, the Tax Cuts and Jobs Act of 2017 eliminates the option to deduct research and development expenditures in the year incurred, requiring amortization in accordance with Internal Revenue Code (IRC) Section 174. If this requirement is not repealed or otherwise modified, it will materially increase our effective tax rate and reduce our operating cash flows.

Further, several countries, including the U.S. and Ireland as well as the Organization for Economic Cooperation and Development have reached agreement on a global minimum tax initiative. Many countries are also actively considering changes to existing tax laws or have proposed or enacted new laws that could increase our tax obligations in countries where we do business or cause us to change the way we operate our business.

Finally, our determination of our tax liability in the U.S. and other jurisdictions, including our intercompany transfer pricing, is subject to review by applicable domestic and foreign tax authorities. Although we believe that our tax estimates are reasonable, due to the complexity of our corporate structure, the multiple intercompany transactions and the various tax regimes, we cannot assure you that a tax audit or tax dispute to which we may be subject will result in a favorable outcome for us. If taxing authorities do not accept our tax positions and impose higher tax rates on our foreign operations, our overall tax expenses could increase.

The Israeli and French tax benefits that we currently receive and the government programs in which we participate require us to meet certain conditions and may be terminated or reduced in the future, which could increase our tax expenses.

We enjoy certain tax benefits in Israel, particularly as a result of the "Approved Enterprise" and the "Benefited Enterprise" status of our facilities and programs through 2019, and the "Technological Preferred Enterprise" status of our facilities and programs since 2020. To maintain our eligibility for these tax benefits, we must continue to meet certain conditions, relating principally to adherence to the investment program filed with the Investment Center of the Israeli Ministry of Industry and Trade and to periodic reporting obligations. Should we fail to meet such conditions, these benefits would be cancelled and we would be subject to corporate tax in Israel at the standard corporate rate (23% in 2022) and could be required to refund tax benefits already received. Additionally, if we increase our activities outside of Israel, for example, by acquisitions, our increased activities may not be eligible for inclusion in Israeli tax benefit programs. The termination or reduction of certain programs and tax benefits or a requirement to refund tax benefits already received may seriously harm our business, operating results and financial condition.

Our French subsidiary is entitled to a new tax benefit of 10% applied to specific revenues under the French IP Box regime. The French IP Box regime applies to net income derived from the licensing, sublicensing or sale of several IP rights such as patents and copyrighted software, including royalty revenues. This new elective regime requires a direct link between the income benefiting from the preferential treatment and the R&D expenditures incurred and contributing to that income. Qualifying income may be taxed at a favorable 10% CIT rate (plus social surtax, hence 10.3% in total). This new French IP Box regime was enacted into the French tax law as of January 1, 2019, and the final version of the Official guidance of the French tax authorities (FTA) was published on April 22, 2020. Since the French IP Box regime was enacted very recently, there is no French Case Law on this subject at this time and French companies do not yet have any feedback on the ongoing tax audits and on the FTA's tendency in this matter. Different interpretations of the French law by the French taxing authorities regarding the French IP Box regime may impose higher tax rates on our French operations and our overall tax expenses could increase.

In addition, pursuant to our acquisition of the RivieraWaves operations, we will benefit from certain research tax credits applicable to French technology companies, including, for example, the Crédit Impôt Recherche (CIR). The CIR is a French tax credit aimed at stimulating research activities. The CIR can be offset against French corporate income tax due and the portion in excess (if any) may be refunded every three years. The French Parliament can decide to eliminate, or reduce the scope or the rate of, the CIR benefit, at any time or challenge our eligibility or calculations for such tax credits, all of which may have an adverse impact on our results of operations and future cash flows.

We are exposed to fluctuations in currency exchange rates.

A significant portion of our business is conducted outside the United States. Although most of our revenues are transacted in U.S. dollars, we may be exposed to currency exchange fluctuations in the future as business practices evolve and we are forced to transact business in local currencies. Moreover, the majority of our expenses are denominated in foreign currencies, mainly New Israeli Shekel (NIS) and the EURO, which subjects us to the risks of foreign currency fluctuations. Our primary expenses paid in currencies other than the U.S. dollar are employee salaries. Increases in the volatility of the exchange rates of currencies other than the U.S. dollar versus the U.S. dollar could have an adverse effect on the expenses and liabilities that we incur in currencies other than the U.S. dollar when remeasured into U.S. dollars for financial reporting purposes. We have instituted a foreign cash flow hedging program to minimize the effects of currency fluctuations. However, hedging transactions may not successfully mitigate losses caused by currency fluctuations, and our hedging positions may be partial or may not exist at all in the future. We also review our monthly expected non-U.S. dollar denominated expenditure and look to hold equivalent non-U.S. dollar cash balances to mitigate currency fluctuations. However, in some cases, we expect to continue to experience the effect of exchange rate currency fluctuations on an annual and quarterly basis. For example, our EURO cash balances increase significantly on a quarterly basis beyond our EURO liabilities from the CIR, which is generally refunded every three years. This has resulted a foreign exchange loss during 2021 due to the devaluation of our Euro cash balances as the U.S. dollar strengthened significantly during this period as compared to the Euro.

We are exposed to the credit risk of our customers, which could result in material losses.

As we diversify and expand our addressable market, we will enter into IP licensing arrangements with first time customers on which we do not have full visibility of their creditworthiness. Furthermore, we have significant business activities in the Asia Pacific region. As a result, our future credit risk exposure may increase. Although we monitor and attempt to mitigate credit risks, there can be no assurance that our efforts will be effective. Although any losses to date relating to the credit exposure of our customers have not been material, future losses, if incurred, could harm our business and have a material adverse effect on our operating results and financial condition.

If we determine that our goodwill and intangible assets have become impaired, we may incur impairment charges, which would negatively impact our operating results.

Goodwill represents the excess of cost over the fair value of net assets acquired in business combinations. Under accounting principles generally accepted in the United States of America, we assess potential impairment of our goodwill and intangible assets at least annually, as well as on an interim basis to the extent that factors or indicators become apparent that could reduce the fair value of any of our businesses below book value. Impairment may result from significant changes in the manner of use of the acquired asset, negative industry or economic trends and significant underperformance relative to historic or projected operating results. For example, in the third quarter of 2022, we recorded \$3.6 million of impairment of intangible assets with respect to Immervision technology acquired in August 2019, as we decided to cease the development of this product line. If we determine that our goodwill and intangible assets have become impaired, we may incur impairment charges, which could negatively impact our operating results.

Risks Related to Ownership of Our Common Stock

The anti-takeover provisions in our certificate of incorporation and bylaws could prevent or discourage a third party from acquiring us.

Our certificate of incorporation and bylaws contain provisions that may prevent or discourage a third party from acquiring us, even if the acquisition would be beneficial to our stockholders. Our board of directors also has the authority to fix the rights and preferences of shares of our preferred stock and to issue such shares without a stockholder vote. Our bylaws also place limitations on the authority to call a special meeting of stockholders. We have advance notice procedures for stockholders desiring to nominate candidates for election as directors or to bring matters before an annual meeting of stockholders. In addition, these factors may also adversely affect the market price of our common stock, and the voting and other rights of the holders of our common stock.

Our stock price may be volatile so you may not be able to resell your shares of our common stock at or above the price you paid for them.

Announcements of developments related to our business, announcements by competitors, quarterly fluctuations in our financial results, changes in the general conditions of the highly dynamic industry in which we compete or the national economies in which we do business, and other factors could cause the price of our common stock to fluctuate, perhaps substantially. For example, if we fail to achieve our near term financial guidance, or fail to show overall business growth and expansion, our stock price may significantly decline. In addition, in recent years, the stock market has experienced extreme price fluctuations, which have often been unrelated to the operating performance of affected companies. These factors and fluctuations could have a material adverse effect on the market price of our common stock.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our headquarters are located in Rockville, Maryland, where we conduct research and development and administration activities in a 9,913 square foot facility under a lease expiring in 2028. We also have principal offices where we conduct research and development, sales and marketing and administration activities in Herzliya, Israel, where we have a 57,425 square foot facility lease expiring 2025; Sophia Antipolis, France, where we have a 10,823 square foot facility lease expiring in 2031; and Marlborough, Massachusetts, where we have a 10,775 square foot facility lease expiring in 2029.

We also lease eight other buildings for our main additional engineering, sales, marketing, administrative, support, operations and design centers, including two other facilities located in each of the U.K., Ireland and China, and one other facility located in each of the U.S. and Japan. Together with our principal offices, these twelve facilities cover an aggregate of approximately 109,595 square feet, ranging from 1,132 square feet to 57,425 square feet, with lease terms expiring from 2023 to 2034.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we are involved in litigation relating to claims arising out of our operations in the normal course of business. We are not a party to any legal proceedings, the adverse outcome of which, in management's opinion, would have a material adverse effect on our results of operations or financial position.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

EXECUTIVE OFFICERS OF THE REGISTRANT

Below are the names, ages and principal recent business experience of our current executive officers. All such persons have been appointed by our board of directors to serve until their successors are elected and qualified or until their earlier resignation or removal.

Amir Panush, age 49, has served as our Chief Executive Officer since January 2023. He joined us from InvenSense, Inc., a TDK group company, where he served as Chief Executive Officer and General Manager of TDK Corporation's MEMS Sensors Business Group. Mr. Panush previously held various leadership positions at TDK following TDK's successful acquisition of InvenSense in 2017. Mr. Panush joined InvenSense in 2015, serving as head of the company's Strategy & Corporate Development, where he drove strategic expansion and diversification efforts. Prior to joining InvenSense, from May 2011 to March 2015, Mr. Panush served in various capacities at Qualcomm, most recently as the Senior Director of Product Management and Business Development for the IoE/IoT client business. Prior to joining Qualcomm, Mr. Panush led strategic marketing and partnerships at Atheros Communications, which was later acquired by Qualcomm. His earlier industry roles spanned software engineering and project management leadership at Texas Instruments and Comsys Mobile, which was acquired by Intel. Mr. Panush holds a Master of Business Administration from Haas Business School, University of California at Berkeley and a bachelor's degree, Cum Laude, in Computer Science from Technion Institute of Technology in Israel.

Yaniv Arieli, age 54, has served as our Chief Financial Officer since May 2005. Prior to his current position, Mr. Arieli served as President of U.S. Operations and Director of Investor Relations of DSP Group beginning in August 2002 and Vice President of Finance, Chief Financial Officer and Secretary of DSP Group's DSP Cores Licensing Division prior to that time. Before joining DSP Group in 1997, Mr. Arieli served as an account manager and certified public accountant at Kesselman & Kesselman, a member of PricewaterhouseCoopers, a leading accounting firm. Mr. Arieli is a CPA and holds a B.A. in Accounting and Economics from Haifa University in Israel and an M.B.A. from Newport University and is also a member of the National Investor Relation Institute.

Michael Boukaya, age 48, has served as our Chief Operating Officer since April 2019. Prior to this position, Mr. Boukaya served as our Vice President and General Manager of the wireless business unit since 2014. Previously, Mr. Boukaya served as VP and Chief Architect with overall responsibility for the research and development of next generation DSP cores, wireless platform architectures and multimedia processors. Before joining CEVA, he was with DSP Group, Inc., holding different engineering and research and development management positions. Mr. Boukaya holds a B.Sc. in Electronic Engineering from the Technion Technology Institute, graduated from Executive Program of Stanford Graduate School of Business, and holds several patents on DSP technology.

Gweltaz Toquet, age 50, has served as our Chief Commercial Officer since January 2023. Mr. Toquet has more than 20 years of sales and management experience with the Company, most recently serving as our Vice President of Sales for Asia Pacific, India and Europe. In particular, Mr. Toquet has spent over 15 years as our Vice President of Sales for Asia Pacific based in Hong Kong, where he led the build-out and management of the sales and support functions in the region spanning China, Japan, Taiwan and Korea. Prior to joining the Company in 2002, Mr. Toquet held several roles in sales, business development, product marketing and business line management at Freehand DSP and Texas Instruments. Mr. Toquet holds a Master of Science in Engineering degree from Institut Supérieur d'Electronique de Paris (ISEP).

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our common stock began trading on The NASDAQ Global Market on November 1, 2002. Our common stock currently trades under the ticker symbol "CEVA" on NASDAQ. As of February 23, 2023, there were approximately 432 holders of record, which we believe represents approximately 31,877 beneficial holders.

Equity Compensation Plan Information

Information as of December 31, 2022 regarding options, SARs, RSUs and PSUs granted under our stock plans and remaining available for issuance under those plans will be contained in the definitive 2023 Proxy Statement for the 2023 annual meeting of stockholders to be held on May 23, 2023 and incorporated herein by reference.

Issuer Purchases of Equity Securities

There were no repurchases of our common stock during the three months ended December 31, 2022.

2023 Annual Meeting of Stockholders

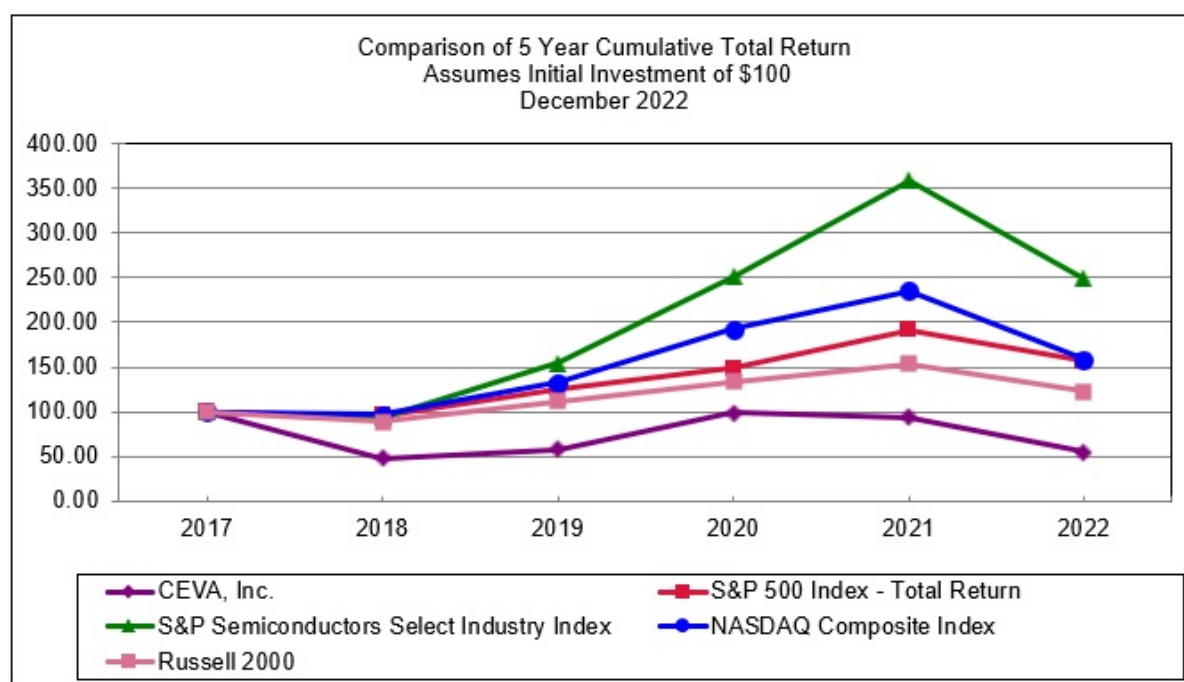
We anticipate that the 2023 annual meeting of our stockholders will be held virtually on May 23, 2023.

Dividends

We have historically not paid dividends and have no foreseeable plans to pay dividends.

Stock Performance Graph

Notwithstanding anything to the contrary set forth in any of the Company's previous or future filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, that might incorporate this proxy statement or future filings made by the Company under those statutes, the below Stock Performance Graph shall not be deemed filed with the United States Securities and Exchange Commission and shall not be deemed incorporated by reference into any of those prior filings or into any future filings made by the Company under those statutes.



	12/31/17	12/31/18	12/31/19	12/31/20	12/31/21	12/31/22
CEVA, Inc.	100.00	47.87	58.42	98.60	93.70	55.43
NASDAQ Composite	100.00	97.16	132.81	192.47	235.15	158.65
S&P 500	100.00	95.62	125.72	148.85	191.58	156.88
S&P Semiconductors	100.00	93.57	154.61	251.02	359.18	248.88
Russell 2000	100.00	88.99	111.70	134.00	153.85	122.41

The stock performance graph above compares the percentage change in cumulative stockholder return on the common stock of our company for the period from December 31, 2017, through December 31, 2022, with the cumulative total return on The NASDAQ Global Market (U.S.) Composite Index, the S&P 500 Index, the S&P Semiconductors Select Industry Index (S&P SSII) and the Russell 2000 Index.

This graph assumes the investment of \$100 in our common stock (at the closing price of our common stock on December 31, 2017), the NASDAQ Global Market (U.S.) Composite Index, the S&P 500 Index, the S&P SSII and the Russell 2000 Index on December 31, 2017, and assumes dividends, if any, are reinvested.

The Russell 2000 Index and the S&P SSII have been added to the performance graph for the fiscal year ended December 31, 2022 and we plan to include them in future filings. The Russell 2000 Index is a widely used broad-based market index that we believe more accurately represents companies of comparable market capitalization. Additionally, we believe that the S&P SSII is a more accurate representation of a published industry index that includes companies engaged in businesses similar to ours. Accordingly, we plan to discontinue the use of the NASDAQ Composite Index and the S&P 500 in future filings.

Comparisons in the graph above are based upon historical data and are not indicative of, nor intended to forecast, future performance of our common stock.

ITEM 6. RESERVED

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion together with the consolidated financial statements and related notes appearing elsewhere in this annual report. This discussion contains forward-looking statements that involve risks and uncertainties. Actual results may differ materially from those included in such forward-looking statements. Factors that could cause actual results to differ materially include those set forth under "Risk Factors," as well as those otherwise discussed in this section and elsewhere in this annual report. See "Forward-Looking Statements and Industry Data."

BUSINESS OVERVIEW

The following discussion and analysis is intended to provide an investor with a narrative of our financial results and an evaluation of our financial condition and results of operations. The discussion should be read in conjunction with our consolidated financial statements and notes thereto for the year ended December 31, 2022, both appearing elsewhere in this annual report.

Headquartered in Rockville, Maryland, CEVA is the leading licensor of wireless connectivity and smart sensing technologies and a provider of chip design services. We offer Digital Signal Processors, AI processors, short and long-range connectivity solutions, 5G wireless platforms and complementary software for sensor fusion, image enhancement, computer vision, voice input and artificial intelligence, all of which are key enabling technologies for a smarter, more connected world. Our state-of-the-art technology is included in more than 15 billion chips shipped to date for a diverse range of end markets. In 2022, more than 1.7 billion CEVA-powered devices were shipped, equivalent to more than 50 devices every second.

Our hardware IP products and solutions are licensed to customers who embed them into their SoC designs to create power-efficient, intelligent, secure and connected devices. Our customers include many of the world's leading semiconductor and original equipment manufacturer (OEM) companies targeting a wide variety of cellular and IoT end markets, including mobile, PC, consumer, automotive, Smart-home, surveillance, robotics, industrial, aerospace and defense and medical. Our software IP is licensed primarily to OEMs who embed our software in their SoC.

Our ultra-low-power hardware IP offerings are deployed in devices for wireless connectivity and smart sensing workloads. Our wireless portfolio includes 5G baseband processing platforms for mobile broadband, cellular IoT and base station RAN, and UWB, Bluetooth and Wi-Fi technologies for a range of connectivity devices. Our smart sensing portfolio includes advanced DSP and AI technologies for cameras, radars, microphones, and other sensors, which enable computer vision, audio, voice, motion sensing and other applications. We also offer processor-agnostic sensor IP for the processing of accelerometers, gyroscopes, magnetometers and optical flow, as well as spatial audio, noise cancellation and voice recognition.

Our Intrinsic chip design business unit enables us to offer our customers SoC design services, which we refer to as co-creation, that take advantage of our IP portfolio, Intrinsic's designed to deliver (D2D) and security IP and Intrinsic's design capabilities for digital, mix signal and RF. We believe that having chip design expertise as part of our offerings strengthens our relationships with customers, streamlines IP adoption, generates recurrent royalties and more. Furthermore, Intrinsic's experience and customer base in the growing chip development programs with the U.S. Department of Defense and the Defense Advanced Research Projects Agency (DARPA) together with its IP offerings for processor security and chiplets extends CEVA's serviceable market and revenue base.

CEVA is a sustainability and environmentally conscious company. We have adopted both a Code of Business Conduct and Ethics and a Sustainability Policy, in which we emphasize and focus on environmental preservation, recycling, the welfare of our employees and privacy – which we promote on a corporate level. At CEVA, we are committed to social responsibility, values of preservation and consciousness towards these purposes.

We believe the adoption of our wireless connectivity and smart sensing IP products beyond our incumbency in the handset baseband market continues to progress. In particular, we are currently experiencing exceptional interest for our wireless connectivity platforms, in both traditional and new areas. Reflecting this trend, in 2022, thirty-six of the seventy-six IP licensing and NRE deals concluded were for wireless connectivity.

We believe the following key elements represent significant growth drivers for the company:

- CEVA is a player in mobile handsets, the largest space of the semiconductor industry. Our customers use our technologies for baseband, voice processing and Bluetooth connectivity. Our key customer currently has a strong foothold in low- and mid-tier LTE and 5G smartphone markets.
- We believe our PentaG2 platform for 5G handsets and 5G IoT endpoints is the most comprehensive baseband IP platform in the industry today and provides newcomers and incumbents with a comprehensive solution to address the need for 5G processing for smartphones, fixed wireless access, satellite communications and a range of connected devices such as robots, cars, smart cities and other devices for industrial applications.
- Our specialization and technological edge in signal processing platforms for 5G base station RAN, and our PentaG RAN platform put us in a strong position to capitalize on the growing 5G RAN demand and its disintegration toward new architecture and form factors, including V-RAN, O-RAN, Active Antennas (AAU, RRU), private networks and small cells. We believe our PentaG RAN platform for 5G RAN settings is the most comprehensive baseband processor IP in the industry today and provides newcomers and incumbents with a comprehensive solution to address the need for 5G.
- Our broad Bluetooth, Wi-Fi, Ultra Wide Band (UWB) and cellular IoT IPs allow us to expand further into the high volume IoT applications and substantially increase our value-add. Our addressable market size for Bluetooth, Wi-Fi, UWB and cellular IoT is expected to be more than 15 billion devices annually by 2026 based on ABI Research. In the third quarter of 2022, a customer started shipments of a cellular IoT chip for new high-profile wearable that is enabled by our cellular technology. In 2022, shipments of devices enabled by our Bluetooth, Wi-Fi and cellular IoT IPs increased 12% year-over-year to 1.2 billion units.
- The growing market for True Wireless Stereo (TWS) earbuds, smartwatches, AR and VR headsets, and other wearable assisted devices, offers an incremental growth segment for us for our software IP. To better address this market, our spatial audio, MotionEngine for inertial measurement units (IMU), WhisPro speech recognition technology and ClearVox voice input software are offered in conjunction with our audio/voice DSPs.
- Our unique capability to combine our Bluetooth IP, audio DSP IP and software for contextual aware user experience puts us in a strong position to capitalize on the fast-growing TWS markets of earbuds, smartwatches, Over the Counter (OTC) hearing aids, wireless speakers, PCs and more. Our recently announced BlueBud platform integrates all of these technologies, lowering the entry barriers for semiconductors and OEMs to develop differentiated, high-performance solution for TWS devices.
- Our second generation SensPro2 sensor hub DSP family provides highly compelling offerings for any sensor-enabled device and application such as smartphones, automotive safety (ADAS), autonomous driving (AD), drones, robotics, security and surveillance, augmented reality (AR) and virtual reality (VR), Natural Language Processing (NLP) and voice recognition. Per research from Yole Group, camera-enabled devices incorporating computer vision and AI are expected to exceed 1 billion units, and devices incorporating voice AI are expected to reach 600 million units by 2025. This new DSP architecture enables us to address the transformation in devices enabled by these applications, and expand our footprint and content in smartphones, drones, consumer cameras, surveillance, automotive ADAS, voice-enabled devices and industrial IoT applications.
- Neural networks are increasingly being deployed in a wide range of camera-based devices in order to make these devices “smarter.” Our newest generation family of AI processors for deep learning at the edge, the NeuPro-M represents new IP licensing and royalty drivers for us in the coming years. Per research from Yole Group, 2.5 billion Edge AI devices will ship annually by 2026, illustrating the huge potential of the market.

- Our Hillcrest Labs sensor fusion business unit allows us to address an important technology piece used in personal computers, robotics, TWS earbuds, smart TVs and many other smart sensing IP products, for smart sensing, in addition to our existing portfolio for camera-based computer vision and AI processing, and microphone-based sound processing. MEMS-based inertial and environmental sensors are used in an increasing number of devices, including robotics, smartphones, laptops, tablets, TWS earbuds, spatial audio headsets, remote controls and many other consumer and industrial devices. Hillcrest Labs' innovative and proven MotionEngine™ software supports a broad range of merchant sensor chips and is licensed to OEMs and semiconductor companies that can run the software on CEVA DSPs or a variety of RISC CPUs. The MotionEngine software expands and complements CEVA's smart sensing technology. Hillcrest Labs' technology has already shipped in more than 250 million devices, indicative of its market traction and excellence. Along with our SensPro sensor fusion processors, our licensees can now benefit from our capabilities as a complete, one-stop-shop for processing all classes and types of sensors.

As a result of our diversification strategy beyond baseband for handsets, and our progress in addressing those new markets under the base station and IoT umbrella, we continue to experience significant growth in shipments and royalty revenues derived from base station and IoT product category (formerly referred to as non-handset products). Unit shipments for this category were up 8% year-over-year for 2022 to almost 1.4 billion units. We expect royalty growth to continue in this product category for the next few years. These devices are comprised of a range of different products at different royalty ASPs, spanning from high volume Bluetooth and Wi-Fi to high value sensor fusion and base station RAN. The royalty ASP of our other products will be in between the two ranges.

CURRENT TRENDS

We believe that as the continuing digital transformation drives industries to become connected and intelligent, our ubiquitous technology and collaborative business model present a significant and secular growth prospect. We intend to continue to capitalize on the semiconductor momentum with our Edge AI, 5G, Wi-Fi, Bluetooth and other product lines. We believe our key customers are keenly receptive to our products road-map and priorities and willing to expand the scope of engagements with us, and anticipate that we can expand our customer base and revenues in Europe and the U.S., complementing our strong presence today in China and the remainder of the APAC region.

Our licensing, NRE and related revenues business is expected to continue to benefit from multiple growth vectors where we excel, in particular 5G, Wi-Fi 6 & 7, Edge AI and wearables and hearables. In addition, our chip design services offerings and expanded access to the lucrative aerospace and defense markets via our Intrinsic business unit present further compelling opportunities. In royalties, we expect our base station & IoT product category to grow in 2023, with royalties from base station RAN, Bluetooth, Wi-Fi and sensor fusion being the main drivers. We expect our handset baseband royalties to decline in 2023, mainly related to the continued phase out of 4G smartphone royalties derived from a Tier 1 OEM that replaced our customer with Qualcomm for its 5G smartphones.

While the COVID-19 pandemic is no longer expected to materially affect our operating results, we will continue to be impacted by other global, macroeconomic and industry phenomenon. For example, as of the beginning of 2023, the smartphone and consumer electronics markets have continued to suffer from soft demand and elevated inventories, and the technology sector is undergoing project expense adjustments and other re-alignments. We expect this softness to prolong into the first half of 2023 and as a result anticipate that both our licensing and royalty revenues will be lower sequentially, while picking up the pace in the second half of the year. In addition, the high interest rate environment and concerns related to economic slowdown we experienced in the second half of 2022 may continue throughout the first half of 2023, or longer, and adversely affect our revenues, as may the ongoing supply chain disruption in the semiconductor industry.

CRITICAL ACCOUNTING POLICIES, ESTIMATES AND ASSUMPTIONS

Our consolidated financial statements are prepared in accordance with generally accepted accounting principles in the United States (U.S. GAAP). These accounting principles require us to make certain estimates, judgments and assumptions. We believe that the estimates, judgments and assumptions upon which we rely are reasonable based upon information available to us at the time that these estimates, judgments and assumptions are made. These estimates, judgments and assumptions can affect the reported amounts of assets and liabilities as of the date of the financial statements, as well as the reported amounts of revenues and expenses during the periods presented. To the extent there are material differences between these estimates, judgments or assumptions and actual results, our financial statements will be affected. The significant accounting policies that we believe are the most critical to aid in fully understanding and evaluating our reported financial results include the following:

- revenue recognition;
- business combinations and valuation of goodwill and other acquired intangible assets;
- income taxes;
- equity-based compensation; and
- credit losses of marketable securities.

In many cases, the accounting treatment of a particular transaction is specifically dictated by U.S. GAAP and does not require management's judgment in its application. There are also areas in which management's judgment in selecting among available alternatives would not produce a materially different result.

Revenue Recognition

Significant management judgments and estimates must be made and used in connection with the recognition of revenue in any accounting period. Material differences in the amount of revenue in any given period may result if these judgments or estimates prove to be incorrect or if management's estimates change on the basis of development of business or market conditions. Management's judgments and estimates have been applied consistently and have been reliable historically.

The following is a description of principal activities from which we generate revenue. Revenues are recognized when control of the promised goods or services are transferred to the customers in an amount that reflects the consideration that we expect to receive in exchange for those goods or services.

We determine revenue recognition through the following steps:

- identification of the contract with a customer;
- identification of the performance obligations in the contract;
- determination of the transaction price;
- allocation of the transaction price to the performance obligations in the contract; and
- recognition of revenue when, or as, we satisfy a performance obligation.

We enter into contracts that can include various combinations of products and services, as detailed below, which are generally capable of being distinct and accounted for as separate performance obligations.

We generate our revenues from (1) licensing intellectual properties, which in certain circumstances are modified for customer-specific requirements, (2) royalty revenues and (3) other revenues, which include revenues from NRE services and from support, training and sale of development systems and chips. We license our IP to semiconductor companies throughout the world. These semiconductor companies then manufacture, market and sell custom-designed chipsets to OEMs of a variety of consumer electronics products. We also license our technology directly to OEMs, which are considered end users.

We account for our IP license revenues and related services, which provide our customers with rights to use our IP, in accordance with ASC 606. A license may be perpetual or time limited in its application. In accordance with ASC 606, we recognize revenue from IP license at the time of delivery when the customer accepts control of the IP, as the IP is functional without professional services, updates and technical support. We have concluded that our IP license is distinct as the customer can benefit from the license on its own.

Most of our contracts with customers contain multiple performance obligations. For these contracts, we account for individual performance obligations separately, if they are distinct. The transaction price is allocated to the separate performance obligations on a relative standalone selling price basis. Stand-alone selling prices of IP license are typically estimated using the residual approach. Stand-alone selling prices of services are typically estimated based on observable transactions when these services are sold on a standalone basis.

Revenues from contracts that involve significant customization of our IP to customer-specific specifications are considered as one performance obligation satisfied over-time. Our performance obligation does not create an asset with alternative use, and we have an enforceable right to payment. We recognize revenue on such contracts using cost based input methods, which recognize revenue and gross profit as work is performed based on a ratio between actual costs incurred compared to the total estimated costs for the contract. Provisions for estimated losses on uncompleted contracts are made during the period in which such losses are first determined, in the amount of the estimated loss on the entire contract.

Revenues that are derived from the sale of a licensee's products that incorporate our IP are classified as royalty revenues. Royalty revenues are recognized during the quarter in which the sale of the product incorporating our IP occurs. Royalties are calculated either as a percentage of the revenues received by our licensees on sales of products incorporating our IP or on a per unit basis, as specified in the agreements with the licensees. For a majority of our royalty revenues, we receive the actual sales data from our customers after the quarter ends and accounts for it as unbilled receivables. When we do not receive actual sales data from the customer prior to the finalization of our financial statements, royalty revenues are recognized based on our estimation of the customer's sales during the quarter. We may engage a third party to perform royalty audits of our licensees, and if these audits indicate any over- or under-reported royalties, we account for the results when the audits are resolved.

Contracts with customers generally contain an agreement to provide for training and post contract support, which consists of telephone or e-mail support, correction of errors (bug fixing) and unspecified updates and upgrades. Fees for post contract support, which takes place after delivery to the customer, are specified in the contract and are generally mandatory for the first year. After the mandatory period, the customer may extend the support agreement on similar terms on an annual basis. We consider the post contract support performance obligation as a distinct performance obligation that is satisfied over time, and as such, we recognize revenue for post contract support on a straight-line basis over the period for which technical support is contractually agreed to be provided to the licensee, typically 12 months.

Revenues that are derived from NRE chip design services are performance obligations that are recognized over time as the services are rendered. For time-and-materials contracts, the performance obligation is satisfied and revenue is recognized over time as the services are performed. Generally, contracts call for billings on a time-and-materials basis; however, in instances when a fixed-fee contract is signed, revenue is recognized over time, based on an input method of labor costs expended, relative to total expected labor costs to complete the contract.

Revenues from the sale of development systems and chips are recognized when control of the promised goods or services are transferred to the customers.

When contracts involve a significant financing component, we adjust the promised amount of consideration for the effects of the time value of money if the timing of payments agreed to by the parties to the contract (either explicitly or implicitly) provide the customer with a significant benefit of financing, unless the financing period is under one year and only after the products or services were provided, which is a practical expediency permitted under ASC 606.

Deferred revenues, which represent a contract liability, include unearned amounts received under license and NRE agreements, unearned technical support and amounts paid by customers not yet recognized as revenues.

We capitalize sales commission as costs of obtaining a contract when they are incremental and, if they are expected to be recovered, amortized in a manner consistent with the pattern of transfer of the good or service to which the asset relates. If the expected amortization period is one year or less, the commission fee is expensed when incurred.

Business Combinations and Valuation of Goodwill and Other Acquired Intangible Assets

We allocate the fair value of purchase price consideration to the tangible assets acquired, liabilities assumed and intangible assets acquired based on their estimated fair values. The excess of the fair value of purchase price consideration over the fair values of these identifiable assets and liabilities is recorded as goodwill. Such valuations require management to make significant estimates and assumptions, especially with respect to intangible assets. Significant estimates in valuing certain intangible assets include, but are not limited to, future expected cash flows from acquired customers, acquired technology, and trade names from a market participant perspective, useful lives, and discount rates. Management's estimates of fair value are based upon assumptions believed to be reasonable, but which are inherently uncertain and unpredictable and, as a result, actual results may differ from estimates.

We review goodwill for impairment at least annually or more frequently if events or changes in circumstances indicate that the carrying value of goodwill may not be recoverable in accordance with ASC 350 "Intangibles – Goodwill and other" (ASC 350). ASC 350 allows an entity to first assess qualitative factors to determine whether it is necessary to perform the quantitative goodwill impairment test. If the qualitative assessment does not result in a more likely than not indication of impairment, no further impairment testing is required. If an entity elects not to use this option, or if an entity determines that it is more likely than not that the fair value of a reporting unit is less than its carrying value, then the entity prepares a quantitative analysis to determine whether the carrying value of a reporting unit exceeds its estimated fair value. If the carrying value of a reporting unit exceeds its estimated fair value, the entity recognizes an impairment of goodwill for the amount of this excess, in accordance with the guidance in FASB Accounting Standards Update (ASU) No. 2017-04, Intangibles – Goodwill and Other (Topic 350), Simplifying the Test for Goodwill Impairment. For each of the three years for the period ended December 31, 2022, no impairment of goodwill has been identified.

Acquired finite-lived intangible assets are amortized over their estimated useful lives. We evaluate the recoverability of our intangible assets for possible impairment whenever events or circumstances indicate that the carrying amount of such assets may not be recoverable. Recoverability of these assets is measured by a comparison of the carrying amounts to the future undiscounted cash flows the assets are expected to generate. If such assets are considered to be impaired, the impairment to be recognized equals the amount by which the carrying value of the assets exceeds its fair market value. In 2022, we recorded an impairment charge of \$3,556,000 in operating expenses with respect to Immervision technology acquired in August 2019, as we decided to cease the development of this product line. In 2022 we also recorded in cost of revenues an impairment charge of prepaid expenses as follows: (1) an impairment charge of \$479,000 relating to an agreement to acquire certain NB-IoT technologies, and (2) an impairment charge of \$1,479,000 relating to an agreement to purchase certain assets and services from Immervision. We have not recorded any impairment charge during the years ended December 31, 2021 and 2020.

In addition to the recoverability assessment, we routinely review the remaining estimated useful lives of our finite-lived intangible assets. If we reduce the estimated useful life assumption for any asset, the remaining unamortized balance would be amortized over the revised estimated useful life.

Income Taxes

We are subject to income taxes mainly in Israel, France, the U.S. and Ireland. Significant judgment is required in evaluating our uncertain tax positions and determining our provision for income taxes. We recognize income taxes under the liability method. Tax benefits are recognized from uncertain tax positions only if we believe that it is more likely than not that the tax position will be sustained on examination by the taxing authorities based on the technical merits of the position. Although we believe we have adequately reserved for our uncertain tax positions, no assurance can be given that the final tax outcome of these matters will not be different. We adjust these reserves when facts and circumstances change, such as the closing of a tax audit, the refinement of an estimate or changes in tax laws. To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will impact the provision for income taxes in the period in which such determination is made. The provision for income taxes includes the effects of any reserves that are considered appropriate, as well as the related net interest and penalties.

We recognize deferred tax assets and liabilities for future tax consequences arising from differences between the carrying amounts of existing assets and liabilities under GAAP and their respective tax bases, and for net operating loss carryforwards and tax credit carryforwards. We regularly review our deferred tax assets for recoverability and record a valuation allowance if it is more likely than not that some portion or all of the deferred tax assets will not be realized. To make this judgment, we make predictions of the amounts and category of taxable income from various sources and weigh all available positive and negative evidence about these possible sources of taxable income.

Accounting for tax positions requires judgments, including estimating reserves for potential uncertainties. We also assess our ability to utilize tax attributes, including those in the form of carry-forwards for which the benefits have already been reflected in the financial statements. While we believe the resulting tax balances as of December 31, 2021 and 2022 are appropriately accounted for, the ultimate outcome of such matters could result in favorable or unfavorable adjustments to our consolidated financial statements and such adjustments could be material. See Note 14 to our Consolidated Financial Statements for the year ended December 31, 2022 for further information regarding income taxes. We have filed or are in the process of filing local and foreign tax returns that are subject to audit by the respective tax authorities. The amount of income tax we pay is subject to ongoing audits by the tax authorities, which often result in proposed assessments. We believe that we adequately provided for any reasonably foreseeable outcomes related to tax audits and settlement. However, our future results may include favorable or unfavorable adjustments to our estimated tax liabilities in the period the assessments are made or resolved, audits are closed or when statute of limitations on potential assessments expire.

We are subject to taxation in the United States, as well as a number of foreign jurisdictions. In December 2017, the United States enacted U.S. tax reform. The legislation implements many U.S. domestic and international tax provisions. Some aspects of U.S. tax reform still remain unclear, and although additional clarifying guidance has been issued (by the Internal Revenue Services, and the U.S. Treasury Department), there are still some areas that may not be clarified for some time. Among the U.S. states there are varying degrees of conformity to the federal legislation. As a result, there may be further impact of the legislation on our future results of operations and financial condition. It is possible that U.S. tax reform, or interpretations under it, could change and could have an adverse effect on us, and such effect could be material.

We have elected to account for global intangible low-taxed income (GILTI) as a current-period expense when incurred. Legislation and clarifying guidance are expected to continue to be issued by the U.S. Treasury Department and various states in future periods, which could have a material adverse impact on the value of our U.S. deferred tax assets, result in significant changes to currently computed income tax liabilities for past and current tax periods, and increase our future U.S. tax expense.

Equity-Based Compensation

We account for equity-based compensation in accordance with FASB ASC No. 718, "Stock Compensation" which requires the recognition of compensation expenses based on estimated fair values for all equity-based awards made to employees and non-employee directors. Equity-based compensation primarily includes restricted stock unit (RSUs), as well as options, stock appreciation right (SAR), performance-based stock units (PSUs) and employee stock purchase plan awards.

We use the straight-line recognition method for awards subject to graded vesting based only on a service condition and the accelerated method for awards that are subject to performance or market conditions. The fair value of each RSU and PSU (excluding PSUs based on market condition awards) is the market value as determined by the closing price of the common stock on the grant date. We estimate the fair value of PSU based on market condition awards on the date of grant using the Monte Carlo simulation model.

Credit Losses of Marketable Securities

Marketable securities consist mainly of corporate bonds. We determine the appropriate classification of marketable securities at the time of purchase and re-evaluate such designation at each balance sheet date. In accordance with FASB ASC No. 320, "Investments Debt Securities," we classify marketable securities as available-for-sale. Available-for-sale securities are stated at fair value, with unrealized gains and losses reported in accumulated other comprehensive income (loss), a separate component of stockholders' equity, net of taxes. Realized gains and losses on sales of marketable securities, as determined on a specific identification basis, are included in financial income, net. The amortized cost of marketable securities is adjusted for amortization of premium and accretion of discount to maturity, both of which, together with interest, are included in financial income, net. We have classified all marketable securities as short-term, even though the stated maturity date may be one year or more beyond the current balance sheet date, because it is probable that we will sell these securities prior to maturity to meet liquidity needs or as part of risk versus reward objectives.

Available-for-sale debt securities with an amortized cost basis in excess of estimated fair value are assessed to determine what amount of that difference, if any, is caused by expected credit losses. Expected credit losses on available-for-sale debt securities are recognized in financial income, net, on our consolidated statements of income (loss), and any remaining unrealized losses, net of taxes, are included in accumulated other comprehensive income (loss) in stockholders' equity. The determination of credit losses requires significant judgment and actual results may be materially different from our estimates. The amount of credit losses recorded for the years ended December 31, 2022, 2021 and 2020 was immaterial. We determine realized gains or losses on sale of marketable securities using a specific identification method and records such gains or losses as financial income, net.

Recently Adopted Accounting Pronouncement

In October 2021, the FASB issued ASU No. 2021-08, Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers (ASU 2021-08), which clarifies that an acquirer of a business should recognize and measure contract assets and contract liabilities in a business combination in accordance with Accounting Standards Codification (ASC) Topic 606, Revenue from Contracts with Customers (Topic 606). ASU No. 2021-08 is effective for fiscal year beginning after December 15, 2022, and interim periods therein for public business entities, with early adoption permitted. We early adopted the new guidance effective January 1, 2022. The adoption of this standard did not have a significant impact on our consolidated financial statements.

Recently Issued Accounting Pronouncement

In June 2022, the FASB issued ASU No. 2022-03, Fair Value Measurement (Topic 820): Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions, which clarifies the guidance when measuring the fair value of an equity security subject to contractual restrictions that prohibit the sale of an equity security and introduces new disclosure requirements for equity securities subject to contractual sale restrictions that are measured at fair value in accordance with Topic 820. The guidance is effective for annual periods beginning after December 15, 2023, with early adoption permitted. The adoption of this standard is not expected to result in a significant impact on our consolidated financial statements.

RESULTS OF OPERATIONS

The following table presents line items from our consolidated statements of income (loss) as percentages of our total revenues for the periods indicated:

	2020	2021	2022
Consolidated Statements of Income (Loss) Data:			
Revenues:			
Licensing, NRE and related revenue	52.3%	59.4%	66.3%
Royalties	47.7%	40.6%	33.7%
Total revenues	100.0%	100.0%	100.0%
Cost of revenues	10.7%	13.7%	20.1%
Gross profit	89.3%	86.3%	79.9%
Operating expenses:			
Research and development, net	61.8%	59.1%	58.3%
Sales and marketing	11.9%	10.5%	9.6%
General and administrative	14.1%	11.7%	11.4%
Amortization of intangible assets	2.3%	2.2%	2.0%
Impairment of assets	—	—	2.6%
Total operating expenses	90.1%	83.5%	83.9%
Operating income (loss)	(0.8)%	2.8%	(4.0)%
Financial income, net	3.3%	0.2%	2.1%
Remeasurement of marketable equity securities	—	1.6%	(1.9)%
Income (loss) before taxes on income	2.5%	4.6%	(3.8)%
Taxes on income	4.9%	4.3%	13.4%
Net income (loss)	(2.4)%	0.3%	(17.2)%

Discussion and Analysis

Below we provide information on the significant line items in our consolidated statements of income (loss) for each of the past three fiscal years, including the percentage changes year-on-year, as well as an analysis of the principal drivers of change in these line items from year-to-year.

Revenues

Total Revenues

	2020	2021	2022
Total revenues (in millions)	\$ 100.3	\$ 122.7	\$ 134.6
Change year-on-year	—	22.3%	9.7%

We derive a significant amount of revenues from a limited number of customers. Sales to UNISOC represented 14%, 21% and 14% of our total revenues for 2022, 2021 and 2020, respectively. Generally, the identity of our other customers representing 10% or more of our total revenues varies from period to period, especially with respect to our licensing customers as we generate licensing revenues generally from new customers on a quarterly basis. With respect to our royalty revenues, two royalty paying customers each represented 10% or more of our total royalty revenues for 2022, and collectively represented 46% of our total royalty revenues for 2022. Three royalty paying customers each represented 10% or more of our total royalty revenues for 2021, and collectively represented 57% of our total royalty revenues for 2021. Four royalty paying customers each represented 10% or more of our total royalty revenues for 2020, and collectively represented 72% of our total royalty revenues for 2020. We expect that a significant portion of our future revenues will continue to be generated by a limited number of customers. The concentration of our customers is explainable in part by consolidation in the semiconductor industry. The loss of any significant customer could adversely affect our near-term future operating results.

The following table sets forth the products and services as percentages of our total revenues in each of the periods set forth below:

	Year ended December 31,		
	2020	2021	2022
Connectivity products (baseband for handset and other devices, Bluetooth, Wi-Fi, NB-IoT, and SATA/SAS)	78%	73%	71%
Smart sensing products (AI, sensor fusion, audio/sound and imaging and vision)	22%	27%	29%

We expect to continue to generate a significant portion of our revenues for 2022 from the above products and services.

As of the beginning of 2023, the smartphone and consumer electronics markets have continued to suffer from soft demand and elevated inventories. Also, the technology sector is undergoing project expense adjustments and other re-alignments. We expect this softness to prolong into the first half of 2023 and as a result anticipate that both our licensing and royalty revenues will be lower sequentially, while picking up the pace in the second half of the year.

Licensing, NRE and related revenue

	2020	2021	2022
Licensing, NRE and related revenue (in millions)	\$ 52.5	\$ 72.8	\$ 89.3
Change year-on-year	—	38.7%	22.6%

Total 2022 licensing, NRE and related revenue reached a new record high. In 2022, we experienced growth for our WiFi IP as an emerging technology, as well as revenues from Intrinsic NRE related services (which were not incurred for the first five months of 2021, as the acquisition of Intrinsic was consummated on May 31, 2021), partially offset by lower licensing revenues from our Bluetooth IP. The increase in licensing, NRE and related revenues from 2020 to 2021 principally reflected the contribution of the acquisition of Intrinsic on May 31, 2021, to our revenues, and from diversification of technologies, markets, new and recurring customers and overall sales execution.

We signed 76 new licensing and NRE agreements, up from 73 last year. Our customer pipeline at the end of the year was healthy overall, but our outlook is cautious. We believe our key customers are keenly receptive to our products road map and priorities and willing to expand the scope of engagements with us.

Licensing, NRE and related revenue accounted for 66.3% of our total revenues for 2022, compared with 59.4% and 52.3% of our total revenues for 2021 and 2020, respectively.

Royalty Revenues

	2020	2021	2022
Royalty revenues (in millions)	\$ 47.8	\$ 49.9	\$ 45.4
Change year-on-year	—	4.3%	(9.0)%

We generate royalty revenues from our customers who ship units of chips incorporating our technologies. Our royalty revenues represent what our customers shipped during any quarter, or our best estimates for such shipments. The royalty rate is based either on a certain percent of the chipset price or a fixed amount per chipset based on volume discounts.

Royalty revenue was down in 2022 as compared to 2021 reflecting broad macro/consumer weakness and elevated inventory levels, especially in the second half of 2022. The largest decline was in our handset baseband royalties, which were down 24% year-over-year, primarily due (1) the continued ramp down by a customer of ours who was replaced by a competitor for 5G chips at a large U.S.-based handset OEM, (2) a \$3.3 million royalty audit finding in 2021 partially offset by smaller findings in 2022, and (3) to a lesser extent, the impact of the global slowdown on smartphone sales in emerging markets, a stronghold for our China-based customers. In the base station and IoT category, despite the weak global consumer demand in the second half of the year, we still managed to achieve record royalty revenues generated by a record 1.4 billion devices. Bluetooth royalties grew 11% year-over-year, generated from a record 1 billion unit shipments. Base station RAN royalties also grew, up 14% year-over-year, while lower shipments and royalties from PCs, robot vacuum cleaners, cameras and other consumer related technologies affected many of our customers.

Our 2021 royalty revenue reached to a new record high. The main growth driver was attributed to our base station and IoT product categories, which increased 28% in revenue compared to 2020, reaching a new high of \$28.6 million, up from \$22.3 million in 2020. Our technologies are being deployed in wearables, PCs, smart TVs, robot vacuum cleaners, surveillance cameras and in plenty of other IoT devices are key drivers for that growth. On 5G RAN, a key customer of ours released for field testing new 5G RAN products enabled by our latest and most advanced DSP, the XC16. The increase in royalty revenues partially offset by lower handset baseband based royalties, as a large US based handset OEM moved to 5G, for which it uses chips from a competitor.

Total shipments in 2022 increased 3% year-over-year to 1.70 billion units, up from 1.65 billion in 2021. Total shipment volume in 2020 was 1.3 billion.

The five largest royalty-paying customers accounted for 65% of our total royalty revenues for 2022, compared to 68% of our total royalty revenues for 2021 and 76% of our total royalty revenues for 2020.

Geographic Revenue Analysis

	2020		2021		2022	
	(in millions, except percentages)					
United States	\$ 20.8	20.8%	\$ 26.7	21.8%	\$ 28.1	20.9%
Europe, Middle East (EME)	\$ 12.0	11.9%	\$ 6.9	5.6%	\$ 10.0	7.5%
Asia Pacific (APAC) (1)	\$ 67.5	67.3%	\$ 89.1	72.6%	\$ 96.5	71.6%
(1) China	\$ 51.7	51.6%	\$ 67.5	55.0%	\$ 75.7	56.2%

A majority of our revenues during the past three years have originated in the APAC region, with China representing the largest revenue share of countries in the APAC region. The increase in revenues in absolute dollars in APAC from 2021 to 2022 was partially attributed to the introduction of WiFi 6 standard as a key technology add-on to many consumer related devices, replacing or in many cases on top of Bluetooth technologies. The increase in revenues in absolute dollars and percentage terms in APAC from 2020 to 2021 was due to strong execution in licensing of our wireless platforms for Bluetooth, Wi-Fi and 5G. Bluetooth royalties from customers in China also showed strong growth year over year.

The increase in revenues in absolute dollars in the United States from 2021 to 2022 was mainly attributed to higher NRE chip design business, contributing for a full year, as compared to only 5 months in 2021, and more sensor fusion empowered chip sales, offset by less Intel based royalties post their divestment from the modem business. The increase in revenues in absolute dollars and percentage terms in the United States from 2020 to 2021 reflected NRE revenues following the acquisition of Intrinsic, coupled with good licensing execution for our Wi-Fi platforms.

The increase in revenues in absolute dollars and percentage in the EME region from 2021 to 2022 primarily reflected 5G base station technology license from an existing EME customer. The decrease in revenues in absolute dollars and percentage in the EME region from 2020 to 2021 primarily reflected lower royalties from one customer that moved its billing process from EME to the United States and an overall weaker licensing environment during the year.

Cost of Revenues

	2020		2021		2022	
Cost of revenues (in millions)	\$ 10.7		\$ 16.8		\$ 27.1	
Change year-on-year		—		56.5%		60.8%

Cost of revenues accounted for 20.1% of our total revenues for 2022, compared to 13.7% of our total revenues for 2021 and 10.7% of our total revenues for 2020. The absolute dollar and percentage increases in cost of revenues for 2022 as compared to 2021 principally reflected impairment charges of prepaid assets with respect to (1) Immersion-related assets and services and (2) certain non-performing assets related to NB-IoT technology, as well as higher service costs and customization work for our customers, mainly due to the inclusion of salary and related NRE costs and EDA tools associated with the Intrinsic in 2022, which costs were not incurred for the first five months of 2021 as the acquisition of Intrinsic was consummated in May 2021. The absolute dollar increases in cost of revenues for 2021 as compared to 2020 principally reflected higher service costs for our customers, mainly due to incorporating for the first time, salary and related NRE costs associated with the Intrinsic business.

Cost of revenues includes labor-related costs and, where applicable, costs related to overhead, subcontractors, materials, travel, royalty expenses payments to the Israeli Innovation Authority of the Ministry of Economy and Industry in Israel (the IIA), amortization of acquired assets and non-cash equity-based compensation expenses. Non-cash equity-based compensation expenses included in cost of revenues for the years 2022, 2021 and 2020 were \$1,461,000, \$818,000, and \$639,000, respectively. Royalty expenses relate to royalties payable to the IIA that amount to 3%-3.5% of the actual sales of certain of our products, the development of which previously included grants from the IIA. The obligation to pay these royalties is contingent on actual sales of these products. Amortization of acquired assets related to the purchase of a license of NB-IoT technologies in the first quarter of 2018, to a strategic investment in Immervision in the third quarter of 2019, and to certain intangible assets associated with the Intrinsic acquisition in the second quarter of 2021. Our amortization charges were \$2.0 million, \$1.6 million and \$0.7 million for 2022, 2021 and 2020, respectively. In 2022 we recorded impairment charges of \$2.0 relating to discontinued Immervision technology and non-performing assets of certain NB-IoT technology.

Operating Expenses

	2020	2021	2022
	(in millions)		
Research and development, net	\$ 62.0	\$ 72.5	\$ 78.5
Sales and marketing	\$ 11.9	\$ 12.9	\$ 12.9
General and administration	\$ 14.1	\$ 14.3	\$ 15.3
Amortization of intangible assets	\$ 2.3	\$ 2.7	\$ 2.7
Impairment of assets	\$ —	\$ —	\$ 3.6
Total operating expenses	\$ 90.3	\$ 102.4	\$ 113.0
<i>Change year-on-year</i>	—	13.3%	10.4%

The increase in total operating expenses for 2022 as compared to 2021 principally reflected (1) an impairment charge of \$3.6 million with respect to Immervision technology acquired in August 2019, as we decided to cease the development of this product line, (2) higher salary and employee-related costs, mainly due to the inclusion of salary and related costs associated with Intrinsic employees in 2022, and higher EDA tools costs related to the Intrinsic business (costs related to the Intrinsic business were not incurred for the first five months of 2021 as the acquisition of Intrinsic was consummated in May 2021), and (3) higher outsourcing personal and services costs, partially offset with higher research grants received, mainly from the IIA. The increase in total operating expenses for 2021 as compared to 2020 principally reflected (1) higher salary and employee-related costs, which mainly include: (i) higher number of research and development personnel, including first time salary and related costs associated with the Intrinsic employees; and (ii) higher currency exchange expenses as a result of the devaluation of the U.S. dollar against the Israeli NIS and the Euro, (2) higher professional services cost associated with the Intrinsic transaction, and (3) higher facilities expenses, partially offset by lower allowance for credit losses.

Research and Development Expenses, Net

	2020	2021	2022
Research and development expenses, net (in millions)	\$ 62.0	\$ 72.5	\$ 78.5
<i>Change year-on-year</i>	—	16.9%	8.3%

The net increase in research and development expenses for 2022 as compared to 2021 principally reflected higher salary and employee-related costs, mainly due to the inclusion of salary and related costs associated with Intrinsic employees in 2022, and higher CAD tools costs related to the Intrinsic business (costs related to the Intrinsic business were not incurred for the first five months of 2021 as the acquisition of Intrinsic was consummated in May 2021), as well as higher outsourcing personal and services costs and higher non-cash equity-based compensation expenses, partially offset by higher research grants received, mainly from the IIA. The net increase in research and development expenses for 2021 as compared to 2020 principally reflected (1) higher salary and employee-related costs, which mainly include: (i) a higher number of research and development personnel, including first time salary and related costs associated with the Intrinsic employees; (ii) Holdback Merger Consideration costs for the Intrinsic executives; and (iii) higher currency exchange expenses as a result of the devaluation of the U.S. dollar against the Israeli NIS and the Euro, (2) lower Crédit Impôt Recherche (CIR) received from the French tax authorities, and (3) higher facilities expenses. The average number of research and development personnel in 2022 was 325, compared to 310 in 2021 and 298 in 2020. The number of research and development personnel was 328 at December 31, 2022 as compared to 311 in 2021 and 304 in 2020.

We anticipate that our research and development expenses cost will continue to increase in 2023 but to a lesser extent compared to past years, mainly as we continue to support new customers and with disciplined investments in new technology solutions, which contribute to the licensing revenues and further down the road to royalty revenues.

Research and development expenses, net of related government grants and French research tax benefits applicable to CIR, were 58.3% of our total revenues for 2022, as compared with 59.1% for 2021 and 61.8% for 2020. We recorded research grants under funding programs of \$4,850,000 in 2022, compared with \$3,595,000 in 2021 and \$2,844,000 in 2020. We recorded UK tax credits and CIR benefits of \$2,316,000, \$2,547,000 and \$3,485,000 for 2022, 2021 and 2020, respectively.

Research and development expenses consist primarily of salaries and associated costs, facilities expenses associated with research and development activities, project-related expenses connected with the development of our intellectual property which are expensed as incurred, and non-cash equity-based compensation expenses. Non-cash equity-based compensation expenses included in research and development expenses, net for the years 2022, 2021 and 2020 were \$8,540,000, \$7,287,000 and \$6,874,000, respectively. Research and development expenses are net of related government research grants, UK tax credits and research tax benefits applicable to CIR. We view research and development as a principal strategic investment and have continued our commitment to invest heavily in this area, which represents the largest of our ongoing operating expenses. We will need to continue to invest in research and development and such expenses may increase in the future to keep pace with new trends in our industry.

Sales and Marketing Expenses

	2020	2021	2022
Sales and marketing expenses (in millions)	\$ 11.9	\$ 12.9	\$ 12.9
<i>Change year-on-year</i>	—	8.0%	0.3%

The increase in sales and marketing expenses for 2021 as compared to 2020 principally reflected higher salary and employee related costs, mainly associated with the Intrinsic employees, and higher commission expenses, partially offset by lower non-cash equity-based compensation expenses.

Sales and marketing expenses as a percentage of our total revenues were 9.6% for 2022, as compared with 10.5% for 2021 and 11.9% for 2020. The total number of sales and marketing personnel was 36 in 2022, as compared with 36 in 2021 and 35 in 2020. Sales and marketing expenses consist primarily of salaries, commissions, travel and other costs associated with sales and marketing activities, as well as advertising, trade show participation, public relations and other marketing costs and non-cash equity-based compensation expenses. Non-cash equity-based compensation expenses included in sales and marketing expenses for the years 2022, 2021 and 2020 were \$1,550,000, \$1,626,000 and \$2,038,000, respectively.

General and Administrative Expenses

	2020	2021	2022
General and administrative expenses (in millions)	\$ 14.1	\$ 14.3	\$ 15.3
<i>Change year-on-year</i>	—	1.3%	7.2%

The increase in general and administrative expenses for 2022 as compared to 2021 principally reflected higher salaries and related costs, partially offset with lower professional services cost mainly associated with the Intrinsic transaction. The slight increase in general and administrative expenses for 2021 as compared to 2020 principally reflected higher professional services cost associated with the Intrinsic transaction and higher salaries and employee related costs, partially offset by lower allowance for credit losses and lower non-cash equity-based compensation expenses.

General and administrative expenses as a percentage of our total revenues were 11.4% for 2022, as compared with 11.7% for 2021 and 14.1% for 2020. The total number of general and administrative personnel was 46 in 2022, as compared with 50 in 2021 and 34 in 2020. General and administrative expenses consist primarily of fees for directors, salaries for management and administrative employees, accounting and legal fees, expenses related to investor relations and facilities expenses associated with general and administrative activities, allowance for credit losses and non-cash equity-based compensation expenses. Non-cash equity-based compensation expenses included in general and administrative expenses for the years 2022, 2021 and 2020 were \$2,954,000, \$3,324,000 and \$4,085,000, respectively.

Amortization of Intangible Assets

Our amortization charges were \$2.7 million, \$2.7 million and \$2.3 million for 2022, 2021 and 2020 respectively. The amortization charges in 2022 and 2021 were incurred in connection with the amortization of intangible assets associated with (1) the acquisition of the Hillcrest Labs business, (2) the strategic investment in Immervision, and (3) the acquisition of Intrinsic in 2021. The amortization charges in 2020 were incurred in connection with the amortization of intangible assets associated with (1) the acquisition of the Hillcrest Labs business and (2) the strategic investment in Immervision. As of December 31, 2022, the net amount of intangible assets associated with the acquisitions was \$4.6 million.

Impairment of Assets

In 2022, we recorded an impairment charge of \$3.6 million with respect to Immervision technology acquired in August 2019, as we decided to cease the development of this product line.

Financial Income, net

	2020	2021	2022
	(in millions)		
Financial income, net	\$ 3.28	\$ 0.20	\$ 2.81
<i>of which:</i>			
Interest income and gains and losses from marketable securities, net	\$ 2.84	\$ 1.47	\$ 2.74
Foreign exchange gain (loss)	\$ 0.44	\$ (1.27)	\$ 0.07

Financial income, net, consists of interest earned on investments, gains and losses from sale of marketable securities, accretion (amortization) of discount (premium) on marketable securities and foreign exchange movements.

The increase in interest income and gains and losses from marketable securities, net, for 2022 as compared to 2021 reflected higher yields, offset with lower combined cash, bank deposits and marketable securities balances held. The decrease in interest income and gains and losses from marketable securities, net, for 2021 as compared to 2020 mainly reflected lower yields.

We review our monthly expected major non-U.S. dollar denominated expenditures and look to hold equivalent non-U.S. dollar cash balances to mitigate currency fluctuations. However, our Euro cash balances increase significantly on a quarterly basis beyond our Euro liabilities, mainly from the French research tax benefits applicable to CIR, which is generally refunded every three years. This has resulted in a foreign exchange gain of \$0.07 million, a foreign exchange loss of \$1.27 million (due to the devaluation of our Euro cash balances as the U.S. dollar strengthened significantly during this period as compared to the Euro) and a foreign exchange gain of 0.44 million for 2022, 2021 and 2020, respectively.

Remeasurement of marketable equity securities

We recorded a loss of \$2.5 million in 2022 and a gain of \$2.0 million in 2021 related to remeasurement of marketable equity securities, which we hold at cost. During the year ended December 31, 2020, no impairment loss was identified. Over time, other income (expense), net, may be affected by market dynamics and other factors. Equity values generally change daily for marketable equity securities and upon the occurrence of observable price changes or upon impairment of marketable equity securities. In addition, volatility in the global economic climate and financial markets, including the effects of COVID-19, could result in a significant change in the value of our investments.

Provision for Income Taxes

During the years 2022, 2021 and 2020, we recorded tax expenses of \$18.1 million, \$5.3 million and \$4.9 million, respectively.

The increase in provision for income taxes in 2022 as compared to 2021 principally reflected the impact of a charge to record a valuation allowance in 2022 due to a change in the estimation for taxable income for future years of our Israeli operations (as further described below), offset with a reduced tax rate of 10% applied to specific revenues in our French subsidiary in 2022 (under the French IP Box regime, as compared to a corporate tax rate of 26.5% in 2021).

In 2022, based on the weight of available positive and negative evidence, we recorded a valuation allowance for certain deferred tax assets (including withholding tax assets) of our Israeli subsidiary due to uncertainty regarding its future taxable income. In assessing the realizability of deferred tax assets, the key assumptions used to determine positive and negative evidence included the Company's cumulative taxable loss for the past three years, current trends related to actual taxable earnings or losses, and expected future reversals of existing taxable temporary differences, as well as projections for future annual results. Accordingly, we recorded a charge of \$15.6 million in 2022 as a reserve against our deferred tax assets.

The increase in provision for income taxes in 2021 as compared to 2020 principally reflected a significant increase in income earned in France, which has a relatively high corporate tax rate of 26.5%, offset by lower withholding tax expenses for which we will not be able to obtain a refund from certain tax authorities, and a one time Income tax benefit recorded in 2021 associated with the purchase price allocation related to the Intrinsix acquisition.

We are subject to income and other taxes in the United States and in numerous foreign jurisdictions. Our domestic and foreign tax liabilities are dependent on the jurisdictions in which profits are determined to be earned and taxed. Additionally, the amount of taxes paid is subject to our interpretation of applicable tax laws in the jurisdictions in which we operate. A number of factors influence our effective tax rate, including changes in tax laws and treaties as well as the interpretation of existing laws and rules. Federal, state, and local governments and administrative bodies within the United States, and other foreign jurisdictions have implemented, or are considering, a variety of broad tax, trade, and other regulatory reforms that may impact us. For example, the Tax Cuts and Jobs Act (the "U.S. Tax Reform") enacted on December 22, 2017 resulted in changes in our corporate tax rate, our deferred income taxes, and the taxation of foreign earnings. It is not currently possible to accurately determine the potential comprehensive impact of these or future changes, but these changes could have a material impact on our business and financial condition.

We have significant operations in Israel and operations in France and the Republic of Ireland. A substantial portion of our taxable income is generated in Israel and France, as well as in the U.S. due to GILTI and the requirement to capitalize R&D expenditures under IRC Section 174 over 5 years if sourced from the U.S. and over 15 years if sourced internationally. Although our Israeli and Irish subsidiaries, and, from 2022 onward, our French subsidiary, are taxed at rates substantially lower than U.S. tax rates, the tax rates in these jurisdictions could nevertheless result in a substantial increase as a result of withholding tax expenses with respect to which we are unable to obtain a refund from the relevant tax authorities.

Our Irish subsidiary qualified for a 12.5% tax rate on its trade. Interest income generated by our Irish subsidiary is taxed at a rate of 25%.

Our French subsidiary is now entitled to a new tax benefit of 10% applied to specific revenues under the French IP Box regime. The French IP Box regime applies to net income derived from the licensing, sublicensing or sale of several IP rights such as patents and copyrighted software, including royalty revenues. This new elective regime requires a direct link between the income benefiting from the preferential treatment and the R&D expenditures incurred and contributing to that income. Qualifying income may be taxed at a favorable 10% CIT rate (plus social surtax, hence 10.3% in total).

In 2017, the French government passed a series of tax reforms allowing for a phased reduction in the corporate tax rate. In accordance with the tax reforms, our French subsidiary qualified in 2018 for a corporate tax rate of 28% for taxable profit up to €500,000 (approximately \$533,745) and the standard rate of 33.33% for taxable profit above €500,000 (approximately \$533,745). In 2019, the standard corporate income tax rate was reduced to 31%, with the first €500,000 (approximately \$533,745) of taxable profit still being subject to the reduced 28% rate. In 2020, a corporate income tax rate of 28% has become the new standard rate for all taxable profits. In 2021, the corporate income tax rate was reduced to 26.5%. In 2022, the standard corporate income tax rate was further reduced to 25%.

Our Israeli subsidiary is entitled to various tax benefits as a technological enterprise. In December 2016, the Economic Efficiency Law (Legislative Amendments for Applying the Economic Policy for the 2017 and 2018 Budget Years), 2016, which includes the Amendment to the Law for the Encouragement of Capital Investments, 1959 (Amendment 73) (the “Amendment”), was published. The Amendment, among other things, prescribes special tax tracks for technological enterprises, which are subject to rules that were issued by the Minister of Finance in April 2017.

The new tax track under the Amendment, which is applicable to our Israeli subsidiary, is the “Technological Preferred Enterprise”. Technological Preferred Enterprise is an enterprise for which total consolidated revenues of its parent company and all subsidiaries are less than 10 billion New Israeli Shekel (NIS). A Technological Preferred Enterprise, as defined in the Amendment, that is located in the center of Israel (where our Israeli subsidiary is currently located), is taxed at a rate of 12% on profits deriving from intellectual property. Any dividends distributed to “foreign companies”, as defined in the Amendment, deriving from income from technological enterprises will be taxed at a rate of 4%. We are applying the Technological Preferred Enterprise tax track for our Israeli subsidiary from tax year 2020 and onwards.

To maintain our Israeli subsidiary’s eligibility for the above tax benefits, it must continue to meet certain conditions under the Investment Law. Should our Israeli subsidiary fail to meet such conditions in the future, these benefits would be cancelled and it would be subject to corporate tax in Israel at the standard corporate rate and could be required to refund tax benefits already received, with interest and adjustments for inflation based on the Israeli consumer price index.

For more information about our provision for income taxes, see Note 14 to the attached Notes to Consolidated Financial Statement for the year ended December 31, 2022.

LIQUIDITY AND CAPITAL RESOURCES

As of December 31, 2022, we had approximately \$21.3 million in cash and cash equivalents, \$6.1 million in short term bank deposits, \$112.1 million in marketable securities, and \$8.2 million in long term bank deposits, totaling \$147.7 million, as compared to \$154.9 million at December 31, 2021. The decrease in 2022 as compared to 2021 principally reflected unrealized investment loss on marketable securities of approximately \$6.3 million, funds used to repurchase 218,809 shares of common stock for an aggregate consideration of approximately \$6.8 million, and purchase of property and equipment of approximately \$3.5 million partially offset by cash proceeds from exercise of stock-based awards of approximately \$3.5 million and net cash provided by operating.

Out of total cash, cash equivalents, bank deposits and marketable securities of \$147.7 million at year end 2022, \$141.1 million was held by our foreign subsidiaries. Our intent is to permanently reinvest earnings of our foreign subsidiaries and our current operating plans do not demonstrate a need to repatriate foreign earnings to fund our U.S. operations. However, if these funds were needed for our operations in the United States, we would be required to accrue and pay taxes to repatriate these funds. The determination of the amount of additional taxes related to the repatriation of these earnings is not practicable, as it may vary based on various factors such as the location of the cash and the effect of regulation in the various jurisdictions from which the cash would be repatriated. Moving off-shore cash to our U.S. entity would result in significant additional tax expenses.

During 2022, we invested \$63.9 million of cash in bank deposits and marketable securities with maturities up to 45 months from the balance sheet date. In addition, during the same period, bank deposits and marketable securities were sold or redeemed for cash amounting to \$52.3 million. During 2021, we invested \$40.7 million of cash in bank deposits and marketable securities with maturities up to 57 months from the balance sheet date. In addition, during the same period, bank deposits and marketable securities were sold or redeemed for cash amounting to \$56.1 million. During 2020, we invested \$99.9 million of cash in bank deposits and marketable securities with maturities up to 56 months from the balance sheet date. In addition, during the same period, bank deposits and marketable securities were sold or redeemed for cash amounting to \$87.6 million. All of our marketable securities are classified as available-for-sale. The purchase and sale or redemption of available-for-sale marketable securities are considered part of investing cash flow. Available-for-sale marketable securities are stated at fair value, with unrealized gains and losses reported in accumulated other comprehensive income (loss), a separate component of stockholders’ equity, net of taxes. Realized gains and losses on sales of investments, as determined on a specific identification basis, are included in the consolidated statements of income (loss). The amount of credit losses recorded for the twelve months ended December 31, 2022, 2021, and 2020, was immaterial. For more information about our marketable securities, see Notes 1 and 3 to the attached Notes to Consolidated Financial Statement for the year ended December 31, 2022.

Bank deposits are classified as short-term bank deposits and long-term bank deposits. Short-term bank deposits are deposits with maturities of more than three months but no longer than one year from the balance sheet date, whereas long-term bank deposits are deposits with maturities of more than one year as of the balance sheet date. Bank deposits are presented at their cost, including accrued interest, and purchases and sales are considered part of cash flows from investing activities.

Operating Activities

Cash provided by operating activities in 2022 was \$6.9 million and consisted of a net loss of \$23.2 million, adjustments for non-cash items of \$28.2 million, and changes in operating assets and liabilities of \$1.9 million. Adjustments for non-cash items primarily consisted of \$7.6 million of depreciation and amortization of intangible assets, \$14.5 million of equity-based compensation expenses, \$2.5 million of remeasurement of marketable equity securities, and \$3.6 million of impairment of intangible assets with respect to Immervision technology acquired in August 2019, as we decided to cease the development of this product line. The increase in cash from changes in operating assets and liabilities primarily consisted of a decrease in deferred taxes, net of \$7.8 million (primarily reflect the impact of a charge to record a valuation allowance in 2022), an increase in trade payable of \$0.5 million, an increase in accrued payroll and related benefits of \$1.0 million, and an increase in accrued expenses and other payables, including income taxes payable, of \$2.5 million, partially offset by an increase of trade receivables of \$3.8 million, an increase of prepaid expenses and other assets of \$1.1 million, and a decrease in deferred revenues of \$5.5 million.

Cash provided by operating activities in 2021 was \$25.8 million and consisted of a net income of \$0.4 million, adjustments for non-cash items of \$19.6 million, and changes in operating assets and liabilities of \$5.8 million. Adjustments for non-cash items primarily consisted of \$7.0 million of depreciation and amortization of intangible assets, and \$13.1 million of equity-based compensation expenses. The increase in cash from changes in operating assets and liabilities primarily consisted of a decrease in trade receivables of \$5.8 million, a decrease in prepaid expenses and other assets of \$3.6 million, and an increase in deferred revenues of \$5.1 million, partially offset by an increase in deferred taxes, net of \$6.3 million (mainly due to an increase in withholding tax assets which can be utilized in future years), a decrease in accrued expenses and other payables of \$1.7 million, and a decrease in accrued payroll and related benefits of \$0.9 million.

Cash provided by operating activities in 2020 was \$15.2 million and consisted of a net loss of \$2.4 million, adjustments for non-cash items of \$19.3 million, and changes in operating assets and liabilities of \$1.7 million. Adjustments for non-cash items primarily consisted of \$5.8 million of depreciation and amortization of intangible assets, and \$13.6 million of equity-based compensation expenses. The decrease in cash from changes in operating assets and liabilities primarily consisted of an increase in trade receivables of \$2.9 million, an increase in prepaid expenses and other assets of \$0.6 million, and a decrease in deferred revenues of \$1.2 million, partially offset by a decrease in accrued interest on bank deposits of \$1.2 million, and an increase in accrued payroll and related benefits of \$1.8 million.

Cash flows from operating activities may vary significantly from quarter to quarter depending on the timing of our receipts and payments. Our ongoing cash outflows from operating activities principally relate to payroll-related costs and obligations under our property leases and design tool licenses. Our primary sources of cash inflows are receipts from our accounts receivable, to some extent funding from the IIA and interest earned from our cash, deposits and marketable securities. The timing of receipts of accounts receivable from customers is based upon the completion of agreed milestones or agreed dates as set out in the contracts.

Investing Activities

Net cash used in investing activities in 2022 was \$15.1 million, as compared to net cash used in investing activities of \$16.7 million in 2021 and net cash used in investing activities of \$15.2 million in 2020. We had a cash outflow of \$49.9 million with respect to investments in marketable securities and a cash inflow of \$21.4 million with respect to maturity, and sale, of marketable securities during 2022. Included in the cash inflow during 2022 was net proceeds of \$16.9 million from bank deposits. We had a cash outflow of \$39.2 million with respect to investments in marketable securities and a cash inflow of \$36.1 million with respect to maturity, and sale, of marketable securities during 2021. Included in the cash inflow during 2021 was net proceeds of \$18.5 million from bank deposits. We had a cash outflow of \$56.0 million with respect to investments in marketable securities and a cash inflow of \$32.2 million with respect to maturity, and sale, of marketable securities during 2020. Included in the cash inflow during 2020 was net proceeds of \$11.5 million from bank deposits. Capital equipment purchases of computer hardware and software used in engineering development, furniture and fixtures amounted to approximately \$3.5 million in 2022, \$2.2 million in 2021 and \$2.9 million in 2020. We had a cash outflow, net of cash acquired, of \$29.9 million in 2021 for the acquisition of Intrinsix.

Financing Activities

Net cash used in financing activities in 2022 was \$3.3 million, as compared to net cash provided by financing activities of \$3.2 million in 2021 and net cash used in financing activities of \$2.1 million in 2020.

In August 2008, we announced that our board of directors approved a share repurchase program for up to one million shares of common stock which was further extended collectively by an additional 6,400,000 shares in 2010, 2013, 2014, 2018 and 2020. In 2022, we repurchased 218,809 shares of common stock pursuant to our share repurchase program at an average purchase price of \$31.01 per share, for an aggregate purchase price of \$6.8 million. In 2021, we did not repurchase any shares of common stock. In 2020, we repurchased 202,392 shares of common stock at an average purchase price of \$23.62 per share for an aggregate purchase price of \$4.8 million. As of December 31, 2022, we had 278,799 shares available for repurchase.

In 2022, 2021 and 2020, we received \$3.5 million, \$3.2 million and \$2.9 million, respectively, from the exercise of stock-based awards. In 2020 had a cash outflow of \$0.2 million for the acquisition of the Hillcrest Labs business.

We believe that our cash and cash equivalent, short-term bank deposits and marketable securities, along with cash from operations, will provide sufficient capital to fund our operations for at least the next 12 months. We cannot provide assurance, however, that the underlying assumed levels of revenues and expenses will prove to be accurate.

In addition, as part of our business strategy, we occasionally evaluate potential acquisitions of businesses, products and technologies and minority equity investments. Accordingly, a portion of our available cash may be used at any time for the acquisition of complementary products or businesses or minority equity investments. Such potential transactions may require substantial capital resources, which may require us to seek additional debt or equity financing. We cannot assure you that we will be able to successfully identify suitable acquisition or investment candidates, complete acquisitions or investments, integrate acquired businesses into our current operations, or expand into new markets. Furthermore, we cannot provide assurance that additional financing will be available to us in any required time frame and on commercially reasonable terms, if at all. See “Risk Factors—We may seek to expand our business in ways that could result in diversion of resources and extra expenses.” for more detailed information.

Contractual Obligations

The table below presents the principal categories of our contractual obligations as of December 31, 2022:

	Payments Due by Period			
	(\$ in thousands)			
		Less than 1 year	1-3 years	3-5 years
Operating Lease Obligations – Leasehold properties	1,536	592	841	103
Purchase Obligations – design tools	15,788	6,681	9,107	—
Other purchase Obligations	664	571	93	—
Total	17,988	7,844	10,041	103

Operating leasehold obligations principally relate to our offices in Israel, Ireland, United Kingdom, France, China, Japan and the United States. Purchase obligations relate to license agreements entered into for maintenance of design tools. Other purchase obligations consist of capital and operating purchase order commitments. Other than set forth in the table above, we have no long-term debt or capital lease obligations.

At December 31, 2022, our income tax payable, net of withholding tax credits, included \$1,633,000 related to uncertain tax positions. Due to uncertainties in the timing of the completion of tax audits, the timing of the resolution of these positions is uncertain and we are unable to make a reasonably reliable estimate of the timing of payments. As a result, this amount is not included in the above table.

In addition, at December 31, 2022, the amount of accrued severance pay was \$9,064,000. Severance pay relates to accrued severance obligations to our Israeli employees as required under Israeli labor laws. These obligations are payable only upon termination, retirement or death of the respective employee. Of this amount, \$589,000 is unfunded.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

A majority of our revenues and a portion of our expenses are transacted in U.S. dollars and our assets and liabilities together with our cash holdings are predominately denominated in U.S. dollars. However, the majority of our expenses are denominated in currencies other than the U.S. dollar, principally the NIS and the EURO. Increases in volatility of the exchange rates of currencies other than the U.S. dollar versus the U.S. dollar could have an adverse effect on the expenses and liabilities that we incur when remeasured into U.S. dollars. We review our monthly expected non-U.S. dollar denominated expenditures and look to hold equivalent non-U.S. dollar cash balances to mitigate currency fluctuations. However, our Euro cash balances increase significantly on a quarterly basis beyond our Euro liabilities, mainly from French research tax benefits applicable to the CIR, which is generally refunded every three years. This has resulted in a foreign exchange gain of \$0.07 million, a foreign exchange loss of \$1.27 million and a foreign exchange gain of \$0.44 million for 2022, 2021 and 2020, respectively.

As a result of currency fluctuations and the remeasurement of non-U.S. dollar denominated expenditures to U.S. dollars for financial reporting purposes; we may experience fluctuations in our operating results on an annual and quarterly basis. To protect against the increase in value of forecasted foreign currency cash flow resulting from salaries paid in currencies other than the U.S. dollar during the year, we follow a foreign currency cash flow hedging program. We hedge portions of the anticipated payroll for our non-U.S. employees denominated in currencies other than the U.S. dollar for a period of one to twelve months with forward and option contracts. During 2022, 2021 and 2020, we recorded accumulated other comprehensive loss of \$162,000, accumulated other comprehensive gain of \$55,000 and accumulated other comprehensive loss of \$49,000, respectively, from our forward and option contracts, net of taxes, with respect to anticipated payroll expenses for our non-U.S. employees. As of December 31, 2022, the amount of other comprehensive loss from our forward and option contracts, net of taxes, was \$107,000, which will be recorded in the consolidated statements of income during the following six months. We recognized a net loss of 1.29 million, a net gain of 0.17 million and a net gain of \$0.69 million for 2022, 2021 and 2020, respectively, related to forward and options contracts. We note that hedging transactions may not successfully mitigate losses caused by currency fluctuations. We expect to continue to experience the effect of exchange rate and currency fluctuations on an annual and quarterly basis.

The majority of our cash and cash equivalents are invested in high grade certificates of deposits with major U.S., European and Israeli banks. Generally, cash and cash equivalents and bank deposits may be redeemed and therefore minimal credit risk exists with respect to them. Nonetheless, deposits with these banks exceed the Federal Deposit Insurance Corporation (FDIC) insurance limits or similar limits in foreign jurisdictions, to the extent such deposits are even insured in such foreign jurisdictions. While we monitor on a systematic basis the cash and cash equivalent balances in the operating accounts and adjust the balances as appropriate, these balances could be impacted if one or more of the financial institutions with which we deposit our funds fails or is subject to other adverse conditions in the financial or credit markets. To date, we have experienced no loss of principal or lack of access to our invested cash or cash equivalents; however, we can provide no assurance that access to our invested cash and cash equivalents will not be affected if the financial institutions that we hold our cash and cash equivalents fail.

We hold an investment portfolio consisting principally of corporate bonds. We have the ability to hold such investments until recovery of temporary declines in market value or maturity. As of December 31, 2022, the unrealized losses associated with our investments were approximately \$6.8 million due to the dramatic changes in the interest rate environment that took place in 2022. As we hold such bonds with unrealized losses to recovery, no credit loss was recognized during 2022. However, we can provide no assurance that we will recover present declines in the market value of our investments.

Interest income and gains and losses from marketable securities, net, were \$2.74 million in 2022, \$1.47 million in 2021 and \$2.84 million in 2020. The increase in interest income and gains and losses from marketable securities, net, for 2022 as compared to 2021 reflected higher yields, offset with lower combined cash, bank deposits and marketable securities balances held. The decrease in interest income and gains and losses from marketable securities, net, for 2021 as compared to 2020 mainly reflected lower yields.

We are exposed primarily to fluctuations in the level of U.S. interest rates. To the extent that interest rates rise, fixed interest investments may be adversely impacted, whereas a decline in interest rates may decrease the anticipated interest income for variable rate investments. We typically do not attempt to reduce or eliminate our market exposures on our investment securities because the majority of our investments are short-term. We currently do not have any derivative instruments but may put them in place in the future. Fluctuations in interest rates within our investment portfolio have not had, and we do not currently anticipate such fluctuations will have, a material effect on our financial position on an annual or quarterly basis.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

See the Index to Financial Statements and Supplementary Data on page F-1.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

Not Applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures.

As of the end of the period covered by this report, we carried out an evaluation, under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2022.

There has been no change in our internal control over financial reporting that occurred during our most recent fiscal quarter that has materially affected or is reasonably likely to materially affect our internal control over financial reporting.

Management's Annual Report on Internal Control Over Financial Reporting.

CEVA, Inc.'s management is responsible for establishing and maintaining adequate internal control over the company's financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934. CEVA, Inc.'s internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. There are inherent limitations in the effectiveness of any internal control, including the possibility of human error and the circumvention or overriding of controls. Accordingly, even effective internal controls can provide only reasonable assurances with respect to financial statement preparation. Further because of changes in conditions, the effectiveness of internal controls may vary over time such that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of CEVA, Inc.'s internal control over financial reporting as of December 31, 2022. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework) (COSO) in Internal Control-Integrated Framework. Based on its assessment using those criteria, management believes that CEVA, Inc.'s internal control over financial reporting was effective as of December 31, 2022.

CEVA, Inc.'s independent registered public accountants audited the financial statements included in this Annual Report on Form 10-K and have issued a report concurring with management's assessment of the company's effective internal control over financial reporting, which appears in Item 8 of this Annual Report.

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information regarding our directors required by this item is incorporated herein by reference to the 2023 Proxy Statement. Information regarding the members of the Audit Committee, our code of business conduct and ethics, the identification of the Audit Committee Financial Expert, stockholder nominations of directors and compliance with Section 16(a) of the Securities Exchange Act of 1934 is also incorporated herein by reference to the 2023 Proxy Statement.

The information regarding our executive officers required by this item is contained in Part I of this annual report.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated herein by reference to the 2023 Proxy Statement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCK HOLDER MATTERS

The information required by this item is incorporated herein by reference to the 2023 Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item is incorporated herein by reference to the 2023 Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item is incorporated herein by reference to the 2023 Proxy Statement.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of or are included in this Annual Report on Form 10-K:

1. Financial Statements:

- Consolidated Balance Sheets as of December 31, 2022 and 2021
- Consolidated Statements of Income (Loss) for the Years Ended December 31, 2022, 2021 and 2020.
- Consolidated Statements of Comprehensive Loss for the Years Ended December 31, 2022, 2021 and 2020.
- Statements of Changes in Stockholders' Equity for the Years Ended December 31, 2022, 2021 and 2020.
- Consolidated Statements of Cash Flows for the Years Ended December 31, 2022, 2021 and 2020.
- Notes to the Consolidated Financial Statements.
- 2. Financial Statement Schedules:

Other financial statement schedules have been omitted since they are either not required or the information is otherwise included.

3. Exhibits:

The exhibits filed as part of this Annual Report on Form 10-K are listed on the exhibit index immediately preceding such exhibits, which exhibit index is incorporated herein by reference. Some of these documents have previously been filed as exhibits with the Securities and Exchange Commission and are being incorporated herein by reference to such earlier filings. CEVA's file number under the Securities Exchange Act of 1934 is 000-49842.

INDEX TO EXHIBITS

EXHIBIT NUMBER	EXHIBIT DESCRIPTION	FORM	FILE NO.	EXHIBIT NUMBER	FILING DATE	FILED HEREWITH
2.1	Agreement and Plan of Merger, dated May 9, 2021, by and among the Registrant, Northstar Merger Sub, Inc. Intrinsic Corp., and Shareholder Representative Services LLC	8-K	000-49842	2.1	May 9, 2021	
3.1	Amended and Restated Certificate of Incorporation of the Registrant	10	000-49842	3.1	June 3, 2002	
3.2	Certificate of Ownership and Merger (merging CEVA, Inc. into ParthusCeva, Inc.)	8-K	000-49842	3.1	December 8, 2003	
3.3	Amended and Restated Bylaws of the Registrant	8-K	000-49842	3.1	October 31, 2019	
3.4	Amendment to the Amended and Restated Certificate of Incorporation of the Registrant	8-K	000-49842	3.1	July 22, 2005	

3.5	Amendment to the Amended and Restated Certificate of Incorporation of the Registrant	10-K	000-49842	3.5	February 28, 2020
4.1	Specimen of Common Stock Certificate	S-1	333-97353	4.1	July 30, 2002
4.2	Description of Securities	10-K	000-49842	4.2	February 28, 2020
10.1†	CEVA, Inc. 2003 Director Stock Option Plan	10-K	000-49842	10.8	March 15, 2012
10.2†	CEVA, Inc. Amended and Restated 2002 Employee Stock Purchase Plan	10-Q	000-49842	4.6	August 10, 2020
10.3	Form of Indemnification Agreement	10	000-49842	10.13	June 3, 2002
10.4†	Employment Agreement between the Registrant and Amir Panush dated as of November 7, 2022	8-K	000-49842	10.3	November 9, 2022
10.5†	Employment Agreement between the Registrant and Gideon Wertheizer dated as of November 1, 2002	10-K	000-49842	10.16	March 28, 2003
10.6†	Amendment, dated February 18, 2021, to the Employment Agreement between the Registrant and Gideon Wertheizer dated as of November 1, 2002	8-K	000-49842	10.2	February 18, 2021
10.7†	Separation and Release Agreement between the Registrant and Gideon Wertheizer dated as of November 7, 2022	8-K	000-49842	10.1	November 9, 2022
10.8†	Consulting Agreement between the Registrant and Gideon Wertheizer dated as of November 7, 2022	8-K	000-49842	10.2	November 9, 2022
10.9†	Employment Agreement between the Registrant and Issachar Ohana dated as of November 1, 2002	10-K	000-49842	10.18	March 28, 2003
10.10†	Separation and Release Agreement between the Registrant and Issachar Ohana dated as of December 7, 2022	8-K	000-49842	10.1	December 12, 2022
10.11†	Personal and Special Employment Agreement between the Registrant and Yaniv Arieli dated as of August 18, 2005	10-Q	000-49842	10.1	November 9, 2005
10.12†	Amendment, dated November 6, 2013, to the Employment Agreement between the Registrant and Yaniv Arieli dated as of August 18, 2005	8-K	000-49842	10.1	November 8, 2013
10.13†	Second Amendment, dated February 18, 2021, to the Employment Agreement between the Registrant and Yaniv Arieli dated as of August 18, 2005	8-K	000-49842	10.3	February 18, 2021

10.14†	Third Amendment, dated November 7, 2022, to the Employment Agreement between the Registrant and Yaniv Arieli dated as of August 18, 2005	8-K	000-49842	10.5	November 9, 2022
10.15†	Employment Agreement between the Registrant and Michael Boukaya dated as of April 4, 2019.	8-K	000-49842	10.1	April 9, 2019
10.16†	Amendment, dated February 18, 2021, to the Employment Agreement between the Registrant and Michael Boukaya dated as of April 4, 2019.	8-K	000-49842	10.4	February 18, 2021
10.17†	Second Amendment, dated November 7, 2022, to the Employment Agreement between the Registrant and Michael dated as of April 4, 2019	8-K	000-49842	10.4	November 9, 2022
10.18†	Form of Nonstatutory Stock Option Agreement under the CEVA, Inc. 2003 Director Stock Option Plan	10-Q	000-49842	10.26	August 9, 2006
10.19†	Amendment, dated July 22, 2003, to the Employment Agreement by and between Issachar Ohana and CEVA, Inc., dated November 1, 2002	10-Q	000-49842	10.27	November 9, 2007
10.20†	Amendment, effective as of November 1, 2007, to the Employment Agreement by and between Issachar Ohana and CEVA, Inc., dated November 1, 2002 and as amended on July 22, 2003	8-K	000-49842	99.1	November 7, 2007
10.21†	Employment Agreement between the Registrant and Gweltaz Toquet dated as of May 11, 2021	8-K	000-49842	10.3	December 12, 2022
10.22†	Addendum, dated December 7, 2022, to the Employment Agreement between the Registrant and Gweltaz Toquet dated as of May 11, 2021	8-K	000-49842	10.2	December 12, 2022
10.23†	CEVA, Inc. Amended and Restated 2011 Stock Incentive Plan	10-Q	000-49842	10.1	August 9, 2022
10.24†	Form of Stock Appreciation Right Agreement under the CEVA, Inc. 2011 Stock Incentive Plan	10-K	000-49842	10.26	March 11, 2016
10.25†	Form of Israeli Stock Appreciation Right Agreement under the CEVA, Inc. 2011 Stock Incentive Plan	10-K	000-49842	10.27	March 11, 2016
10.26†	Form of Israeli Restricted Stock Unit Agreement for employees under the CEVA, Inc. 2011 Stock Incentive Plan	10-K	000-49842	10.28	March 11, 2016
10.27†	Form of Restricted Stock Unit Agreement for employees under the CEVA, Inc. 2011 Stock Incentive Plan	10-K	000-49842	10.29	March 11, 2016

10.28†	Form of Restricted Stock Unit Agreement for non-employee directors under the CEVA, Inc. 2011 Stock Incentive Plan	10-K	000-49842	10.30	March 11, 2016	
10.29†	Form of Restricted Stock Unit Agreement for Israeli non-employee directors under the CEVA, Inc. 2011 Stock Incentive Plan	10-K	000-49842	10.31	March 11, 2016	
10.30†	Israeli Sub-plan under the CEVA, Inc. 2011 Stock Incentive Plan	10-K	000-49842	10.32	March 11, 2016	
10.31#†	2022 Incentive Plan for Issachar Ohana, EVP Worldwide Sales, effective as of January 1, 2022	8-K	000-49842	10.1	February 18, 2022	
10.32#†	2023 Incentive Plan for Gweltaz Toquet, Chief Commercial Officer, effective as of January 1, 2023	8-K	000-49842	10.1	February 21, 2023	
10.33#†	2022 Executive Bonus Plan for Gideon Wertheizer, Yaniv Arieli and Michael Boukaya, effective as of January 1, 2022	8-K	000-49842	N/A	February 18, 2022	
10.34#†	2023 Executive Bonus Plan for Amir Panush, Yaniv Arieli and Michael Boukaya, effective as of January 1, 2023	8-K	000-49842	N/A	February 21, 2023	
10.35#†	Form of Short-Term Executive PSUs for Israeli Executive Officers	8-K	000-49842	10.2	February 24, 2020	
10.36#†	Form of Short-Term Executive PSUs for U.S.-based Executive Officers	8-K	000-49842	10.3	February 24, 2020	
10.37†	Form of Long-Term Executive PSUs for Israeli Executive Officers.	8-K	000-49842	10.4	February 24, 2020	
10.38†	Form of Long-Term Executive PSUs for U.S.-based Executive Officers.	8-K	000-49842	10.5	February 24, 2020	
10.39†	2019 PSU Award for Gideon Wertheizer	8-K	000-49842	N/A	May 9, 2019	
10.40†	2023 Inducement Award for Amir Panush					X
21.1	List of Subsidiaries					X
23.1	Consent of Kost Forer Gabbay & Kasierer, a member of Ernst & Young Global					X
24.1	Power of Attorney (See signature page of this Annual Report on Form 10-K)					X
31.1	Rule 13a-14(a)/15d-14(a) Certification of Chief Executive Officer					X

31.2	Rule 13a-14(a)/15d-14(a) Certification of Chief Financial Officer	X
32	Section 1350 Certification of Chief Executive Officer and Chief Financial Officer	X
101.INS	Inline XBRL Instance Document	
101.SCH	Inline XBRL Taxonomy Extension Schema Document	
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document	
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document	
101.LAB	Inline XBRL Taxonomy Extension Labels Linkbase Document	
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document	
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)	

Confidential portions of this document have been redacted as permitted by applicable regulations.

† Management contract or compensatory plan or arrangement required to be filed as an exhibit pursuant to Item 15(b) of Form 10-K

ITEM 16. FORM 10-K SUMMARY

The Company has elected not to include summary information.

CEVA, INC.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

CONSOLIDATED FINANCIAL STATEMENTS
AS OF DECEMBER 31, 2022

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Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of CEVA, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of CEVA, Inc. (the Company) as of December 31, 2022 and 2021, the related consolidated statements of income (loss), comprehensive loss, changes in stockholders' equity and cash flows for each of the three years in the period ended December 31, 2022, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated March 1, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Revenue Recognition

Description of the Matter

As described in Note 1 to the consolidated financial statements, the Company generates a significant portion of its revenues from licensing intellectual properties and related services. Most of the Company's contracts with customers contain multiple goods or services which are accounted for as separate performance obligation, if they are distinct. The transaction price is allocated to the separate performance obligations on a relative standalone selling price basis. Standalone selling prices of intellectual properties licenses are typically estimated using the residual approach. Standalone selling prices of related services are typically estimated based on observable transactions when those services are sold on a standalone basis.

Auditing the identification of performance obligations in intellectual properties license contracts may require certain judgments as it relates to the evaluation of the contractual terms of the arrangement. Auditing the allocation of the transaction price to performance obligations requires significant judgment in determining whether the use of the residual approach to estimate the standalone selling prices of intellectual properties licensing is appropriate.

CEVA, INC.

How We addressed the Matter in Our Audit

We obtained an understanding, evaluated the design and tested the operating effectiveness of internal controls related to the identification of distinct performance obligations, the determination of the standalone selling prices, including the Company's assessment of the appropriateness of the residual approach method.

Among the procedures we performed to test the identification and determination of distinct performance obligations, for a sample of contracts, we read the executed contract to understand and evaluated management's identification of significant terms for completeness, including the identification of distinct performance obligations.

To test management's determination of standalone selling price for each performance obligation, we performed procedures to evaluate the methodology applied, tested the accuracy of the underlying data and calculations and the application of that methodology to the sample of contracts. Our testing of the application of the residual method to estimate standalone selling prices of intellectual properties license included inquiries with management and analysis of the variability of actual intellectual properties license pricing during the year.

Finally, we assessed the appropriateness of the related disclosures in the consolidated financial statements.

/s/ KOST FORER GABBAY & KASIERER
A Member of Ernst & Young Global

We have served as the Company's auditor since 1999.
Tel-Aviv, Israel

March 1, 2023



Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of CEVA, Inc.

Opinion on Internal Control Over Financial Reporting

We have audited CEVA, Inc.'s internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, CEVA, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2022 and 2021, the related consolidated statements of income (loss), comprehensive loss, changes in stockholders' equity and cash flows for each of the three years in the period ended December 31, 2022, and the related notes and our report dated March 1, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Annual Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

CEVA, INC.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/KOST FORER GABBAY & KASIERER
A Member of Ernst & Young Global
Tel Aviv, Israel
March 1, 2023

CEVA, INC.

CONSOLIDATED BALANCE SHEETS
(U.S. dollars in thousands, except share and per share data)

	December 31,	
	2021	2022
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 33,153	\$ 21,285
Short-term bank deposits	31,410	6,114
Marketable securities	90,298	112,080
Trade receivables (net of allowance for credit losses of \$288 and \$313 at December 31, 2021 and December 31, 2022, respectively)	27,449	31,250
Prepaid expenses and other current assets	6,670	6,896
Total current assets	188,980	177,625
Long-term assets:		
Bank deposits	—	8,205
Severance pay fund	10,175	8,475
Deferred tax assets, net	15,850	8,599
Property and equipment, net	6,765	7,099
Operating lease right-of-use assets	8,827	10,283
Goodwill	74,777	74,777
Intangible assets, net	14,607	6,680
Investments in marketable equity securities	2,919	408
Other long-term assets	5,759	6,291
Total long-term assets	139,679	130,817
Total assets	\$ 328,659	\$ 308,442
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Trade payables	\$ 1,464	\$ 1,995
Deferred revenues	8,661	3,168
Accrued expenses and other payables	4,030	6,660
Accrued payroll and related benefits	18,011	18,473
Operating lease liabilities	3,274	2,982
Total current liabilities	35,440	33,278
Long-term liabilities:		
Accrued severance pay	10,551	9,064
Operating lease liabilities	5,130	6,703
Other accrued liabilities	806	526
Total long-term liabilities	16,487	16,293
Stockholders' equity:		
Preferred stock:		
\$0.001 par value; 5,000,000 shares authorized; none issued and outstanding	—	—
Common stock:		
\$0.001 par value; 45,000,000 shares authorized; 23,595,160 shares issued at December 31, 2021 and 2022; 22,984,552 and 23,215,439 shares outstanding at December 31, 2021 and 2022, respectively	23	23
Additional paid in-capital	235,386	242,841
Treasury stock at cost (610,608 and 379,721 shares of common stock at December 31, 2021 and 2022, respectively)	(13,790)	(9,904)
Accumulated other comprehensive loss	(372)	(6,249)
Retained earnings	55,485	32,160
Total stockholders' equity	276,732	258,871
Total liabilities and stockholders' equity	\$ 328,659	\$ 308,442

The accompanying notes are an integral part of the consolidated financial statements.

CEVA, INC.

CONSOLIDATED STATEMENTS OF INCOME (LOSS)
(U.S. dollars in thousands, except per share data)

	Year Ended December 31,		
	2020	2021	2022
Revenues:			
Licensing, NRE and related revenues	\$ 52,513	\$ 72,827	\$ 89,259
Royalties	47,813	49,879	45,389
Total revenues	<u>100,326</u>	<u>122,706</u>	<u>134,648</u>
Cost of revenues	<u>10,749</u>	<u>16,827</u>	<u>27,052</u>
Gross profit	<u>89,577</u>	<u>105,879</u>	<u>107,596</u>
Operating expenses:			
Research and development, net	62,010	72,504	78,501
Sales and marketing	11,907	12,861	12,902
General and administrative	14,116	14,296	15,322
Amortization of intangible assets	2,307	2,710	2,724
Impairment of assets	—	—	3,556
Total operating expenses	<u>90,340</u>	<u>102,371</u>	<u>113,005</u>
Operating income (loss)	(763)	3,508	(5,409)
Financial income, net	3,284	197	2,812
Remeasurement of marketable equity securities	—	1,983	(2,511)
Income (loss) before taxes on income	<u>2,521</u>	<u>5,688</u>	<u>(5,108)</u>
Taxes on income	4,900	5,292	18,075
Net income (loss)	<u>\$ (2,379)</u>	<u>\$ 396</u>	<u>\$ (23,183)</u>
Basic net income (loss) per share	<u>\$ (0.11)</u>	<u>\$ 0.02</u>	<u>\$ (1.00)</u>
Diluted net income (loss) per share	<u>\$ (0.11)</u>	<u>\$ 0.02</u>	<u>\$ (1.00)</u>
Weighted average shares used to compute net income (loss) per share (in thousands):			
Basic	<u>22,107</u>	<u>22,819</u>	<u>23,172</u>
Diluted	<u>22,107</u>	<u>23,251</u>	<u>23,172</u>

The accompanying notes are an integral part of the consolidated financial statements.

CEVA, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(U.S. dollars in thousands)

	Year Ended December 31,		
	2020	2021	2022
Net income (loss):	\$ (2,379)	\$ 396	\$ (23,183)
Other comprehensive income (loss) before tax:			
Available-for-sale securities:			
Changes in unrealized gains (losses)	548	(1,150)	(6,323)
Reclassification adjustments included in net income (loss)	6	(13)	55
Net change	554	(1,163)	(6,268)
Cash flow hedges:			
Changes in unrealized gains (losses)	632	228	(1,461)
Reclassification adjustments included in net income (loss)	(688)	(165)	1,292
Net change	(56)	63	(169)
Other comprehensive income (loss) before tax	498	(1,100)	(6,437)
Income tax expense (benefit) related to components of other comprehensive income (loss)	114	(250)	(560)
Other comprehensive income (loss), net of taxes	384	(850)	(5,877)
Comprehensive loss	\$ (1,995)	\$ (454)	\$ (29,060)

The accompanying notes are an integral part of the consolidated financial statements.

CEVA, INC.

STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY
(U.S. dollars in thousands, except share data)

	Common Stock		Additional paid-in capital	Treasury stock	Accumulated other comprehensive income (loss)	Retained earnings	Total stockholders' equity
	Number of shares outstanding	Amount					
Balance as of January 1, 2020	21,839,369	\$ 22	\$ 228,005	\$ (39,390)	\$ 94	\$ 62,426	\$ 251,157
Net loss	—	—	—	—	—	(2,379)	(2,379)
Other comprehensive income	—	—	—	—	384	—	384
Equity-based compensation	—	—	13,636	—	—	—	13,636
Purchase of treasury stock	(202,392)	—	—	(4,780)	—	—	(4,780)
Issuance of treasury stock upon exercise of stock-based awards	623,940	—	(8,469)	14,037	—	(2,697)	2,871
Balance as of December 31, 2020	<u>22,260,917</u>	<u>\$ 22</u>	<u>\$ 233,172</u>	<u>\$ (30,133)</u>	<u>\$ 478</u>	<u>\$ 57,350</u>	<u>\$ 260,889</u>
Net income	—	—	—	—	—	396	396
Other comprehensive loss	—	—	—	—	(850)	—	(850)
Equity-based compensation	—	—	13,055	—	—	—	13,055
Issuance of treasury stock upon exercise of stock-based awards	723,635	1	(10,841)	16,343	—	(2,261)	3,242
Balance as of December 31, 2021	<u>22,984,552</u>	<u>\$ 23</u>	<u>\$ 235,386</u>	<u>\$ (13,790)</u>	<u>\$ (372)</u>	<u>\$ 55,485</u>	<u>\$ 276,732</u>
Net loss	—	—	—	—	—	(23,183)	(23,183)
Other comprehensive loss	—	—	—	—	(5,877)	—	(5,877)
Equity-based compensation	—	—	14,505	—	—	—	14,505
Purchase of treasury stock	(218,809)	—	—	(6,785)	—	—	(6,785)
Issuance of treasury stock upon exercise of stock-based awards	449,696	—	(7,050)	10,671	—	(142)	3,479
Balance as of December 31, 2022	<u>23,215,439</u>	<u>\$ 23</u>	<u>\$ 242,841</u>	<u>\$ (9,904)</u>	<u>\$ (6,249^(*))</u>	<u>\$ 32,160</u>	<u>\$ 258,871</u>
(*) Accumulated unrealized loss from available-for-sale securities, net of taxes of \$685					\$ (6,142)		
Accumulated unrealized loss from hedging activities, net of taxes of \$1					\$ (107)		
Accumulated other comprehensive loss, net as of December 31, 2022					\$ (6,249)		

The accompanying notes are an integral part of the consolidated financial statements.

CEVA, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(U.S. dollars in thousands)

	Year ended December 31,		
	2020	2021	2022
Cash flows from operating activities:			
Net income (loss)	\$ (2,379)	\$ 396	\$ (23,183)
Adjustments required to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation	3,233	3,184	3,190
Amortization of intangible assets	2,588	3,801	4,371
Impairment of intangible assets	—	—	3,556
Equity-based compensation	13,636	13,055	14,505
Realized loss (gain), net on sale of available-for-sale marketable securities	6	(13)	55
Amortization of premiums on available-for-sale marketable securities	444	420	397
Unrealized foreign exchange (gain) loss, net	(591)	1,163	(351)
Remeasurement of marketable equity securities	—	(1,983)	2,511
Changes in operating assets and liabilities:			
Trade receivables, net	(2,917)	5,842	(3,749)
Prepaid expenses and other assets	(559)	3,604	(1,126)
Operating lease right-of-use assets	2,014	225	(1,456)
Accrued interest on bank deposits	1,186	(65)	144
Deferred taxes, net	(335)	(6,305)	7,811
Trade payables	186	404	511
Deferred revenues	(1,208)	5,053	(5,493)
Accrued expenses and other payables	133	(1,737)	333
Accrued payroll and related benefits	1,803	(875)	984
Operating lease liability	(2,183)	(232)	1,504
Income taxes payable	143	189	2,127
Accrued severance pay, net	(37)	(322)	283
Net cash provided by operating activities	15,163	25,804	6,924
Cash flows from investing activities:			
Acquisition of a business, net of cash acquired (see note 1)	—	(29,891)	—
Purchase of property and equipment	(2,935)	(2,193)	(3,499)
Investment in bank deposits	(43,893)	(1,500)	(14,000)
Proceeds from bank deposits	55,393	19,989	30,885
Investment in available-for-sale marketable securities	(56,011)	(39,192)	(49,873)
Proceeds from maturity of available-for-sale marketable securities	21,956	26,043	18,196
Proceeds from sale of available-for-sale marketable securities	10,272	10,035	3,175
Net cash used in investing activities	(15,218)	(16,709)	(15,116)
Cash flows from financing activities:			
Purchase of treasury stock	(4,780)	—	(6,785)
Payment of contingent consideration liability	(204)	—	—
Proceeds from exercise of stock-based awards	2,871	3,242	3,479
Net cash provided by (used in) financing activities	(2,113)	3,242	(3,306)
Effect of exchange rate changes on cash and cash equivalents	508	(327)	(370)
Increase (decrease) in cash and cash equivalents	(1,660)	12,010	(11,868)
Cash and cash equivalents at the beginning of the year	22,803	21,143	33,153
Cash and cash equivalents at the end of the year	\$ 21,143	\$ 33,153	\$ 21,285

The accompanying notes are an integral part of the consolidated financial statements.

CEVA, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS—(Continued)

(U.S. dollars in thousands)

	Year ended December 31,		
	2020	2021	2022
Supplemental information of cash-flows activities:			
Cash paid during the year for:			
Income and withholding taxes	\$ 4,727	\$ 9,183	\$ 10,193
Non-cash transactions:			
Property and equipment purchases incurred but unpaid at the end of the year	\$ 5	\$ 59	\$ 25
Right-of-use assets obtained in the exchange for operating lease liabilities	\$ 6,787	\$ 2,679	\$ 5,009

The accompanying notes are an integral part of the consolidated financial statements.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
(in thousands, except share data)

NOTE 1: ORGANIZATION AND SIGNIFICANT ACCOUNTING POLICIES***Organization:***

CEVA, Inc. (“CEVA” or the “Company”) was incorporated in Delaware on November 22, 1999. The Company was formed through the combination of Parthus Technologies plc (“Parthus”) and the digital signal processor (DSP) cores licensing business and operations of DSP Group, Inc. in November 2002. The Company had no business or operations prior to the combination.

CEVA licenses a family of wireless connectivity and smart sensing technologies and is a provider of chip design services. The Company’s offerings include Digital Signal Processors, AI processors, short and long range connectivity solutions, 5G wireless platforms and complementary software for sensor fusion, image enhancement, computer vision, voice input and artificial intelligence, all of which are key enabling technologies for a smarter, more connected world. These technologies are offered in combination with non-recurring engineering (“NRE”) services from CEVA’s Intrinsic Corp. (“Intrinsic”) business, helping customers address their most complex and time-critical integrated circuit design projects. CEVA’s DSP-based solutions address the technology requirements of: 5G baseband processing for mobile, broadband, cellular IoT and Radio Access Network (RAN); computer vision for any camera, 4D and LIDAR-enabled device; audio/voice/sound; and ultra-low-power always-on/sensing applications for wearables, hearables and multiple IoT markets. For motion sensors and sensor fusion, CEVA’s Hillcrest Labs sensor processing technologies provide a broad range of software and inertial measurement unit (“IMU”) solutions for markets including hearables, wearables, AR/VR, PC, robotics, remote controls and IoT. For wireless IoT, the Rivierawaves platforms for Bluetooth (low energy and dual mode), Wi-Fi 4/5/6/6E (802.11n/ac/ax), Ultra-wideband (UWB) are the most broadly licensed connectivity platforms in the industry.

CEVA’s Intrinsic business also expands its market reach to the aerospace and defense markets and allows it to offer co-creation solutions that combine CEVA’s standardized, off-the-shelf IP together with Intrinsic’s non-recurring engineering (“NRE”) design capabilities and IP in RF, mixed-signal, security, high complexity digital design, chiplets and more.

CEVA’s technologies are licensed to leading semiconductor and original equipment manufacturer (“OEM”) companies. These companies design, manufacture, market and sell application-specific integrated circuits (“ASICs”) and application-specific standard products (“ASSPs”) based on CEVA’s technology to mobile, consumer, automotive, robotics, industrial, aerospace & defense and IoT companies for incorporation into a wide variety of end products.

Acquisitions:

On May 31, 2021, (the “closing date”), the Company acquired 100% of the equity shares of Intrinsic, a leading chip design specialist. The Company acquired Intrinsic pursuant to the Agreement and Plan of Merger, made and entered into on May 9, 2021 (the “Merger Agreement”), by and among the Company, Northstar Merger Sub, Inc., Intrinsic and Shareholder Representative Services LLC, for \$33,096 in cash (“the Merger Consideration”), with \$26,704 paid at closing, \$4,260 delivered to escrow to satisfy indemnification claims, if any, and \$2,605 payable to certain Intrinsic executives held back as described below (the “Holdback Merger Consideration”), and after giving effect to post-closing adjustments resulting in a \$473 repayment to the Company during the third quarter of 2021. As part of the Merger Agreement, the Company entered into agreements with the Chief Executive Officer and the Chief Technology Officer of Intrinsic pursuant to which the Holdback Merger Consideration, representing 25% of the Merger Consideration payable to each of them in respect of their equity in Intrinsic, is being held back and, subject to their respective continued employment with the Company, released to them over a period of twenty-four (24) months after closing of the acquisition.

In addition, the Company incurred acquisition-related costs in an amount of \$970, which were included in general and administrative expenses for the year ended December 31, 2021.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

The acquisition has been accounted in accordance with FASB Accounting Standards Codification (“ASC”) No. 805, “Business Combinations.” Under the acquisition method of accounting, the total purchase price is allocated to the net tangible and intangible assets of Intrinsic acquired in the acquisition, based on their fair values on the closing date.

The results of operations of the combined business, including the acquired business, have been included in the consolidated financial statements as of the closing date. The primary rationale for this acquisition was (1) extending the Company’s market reach into the sustainable and sizeable aerospace and defense space, (2) increasing the Company’s content in customers’ designs and accordingly increasing the license and royalty revenue opportunity by offering turnkey IP platforms that can combine the Company’s off-the-shelf connectivity and smart sensing IP with Intrinsic’s NRE design capabilities and IP in RF, mixed-signal, security, high complexity digital design, chiplets and more, and (3) expanding the Company’s IP portfolio with secure processor IP for IoT devices and Heterogeneous SoC interface IP for the growing adoption of chiplets, which offer a faster and less expensive alternative to the high R&D costs and complexities associated with monolithic IC developments. A significant portion of the acquisition price was recorded as goodwill due to the synergies with Intrinsic.

The purchase price allocation for the acquisition has been determined as follows:

Assets	
Net assets (including cash in the amount of \$600)	\$ 872
Intangible assets	7,572
Goodwill	23,707
Total assets	\$ 32,151
Liabilities	
Deferred tax liabilities	\$ 1,660
Total liabilities	\$ 1,660
Total	\$ 30,491

The fair value and weighted average estimated useful life of the acquired intangible assets are as follows:

Identifiable Intangible Assets	Estimated Fair Value	Weighted-Average Estimated Useful Life in Years
Customer relationships	\$ 3,604	5.5
Customer backlog	421	1.5
Technologies	3,329	3.0
Patents	218	5.0
Total identifiable intangible assets	\$ 7,572	

CEVA, INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

The following unaudited pro forma financial information presents combined results of operations for the periods presented, as if the Company had completed the acquisition on January 1, 2020. The unaudited pro forma financial information has been calculated after adjusting the Company's results and those of Intrinsic, including: (i) Holdback Merger Consideration costs; (ii) amortization expense from acquired intangible assets; and (iii) interest income and unrealized gains on equity securities included in the statement of income of Intrinsic, which were specifically excluded from the acquisition of Intrinsic, and the respective income tax effects of such adjustments. The unaudited pro forma financial information presented below is not necessarily indicative of consolidated results of operations of the combined business had the acquisition occurred at the beginning of the respective fiscal years, nor is it necessarily indicative of future results of operations of the combined company.

	Year ended December 31	
	2020	2021
Pro forma total revenues	\$ 122,048	\$ 131,397
Pro forma net loss	(3,837)	(1,707)

The intangible assets are amortized based on the pattern upon which the economic benefits of the intangible assets are to be utilized.

Basis of presentation:

The consolidated financial statements have been prepared according to U.S Generally Accepted Accounting Principles ("U.S. GAAP").

Recently Adopted Accounting Pronouncements:

In October 2021, the FASB issued ASU No. 2021-08, Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers (ASU 2021-08), which clarifies that an acquirer of a business should recognize and measure contract assets and contract liabilities in a business combination in accordance with Accounting Standards Codification (ASC) Topic 606, Revenue from Contracts with Customers (Topic 606). ASU No. 2021-08 is effective for fiscal year beginning after December 15, 2022, and interim periods therein for public business entities, with early adoption permitted. The Company early adopted the new guidance effective January 1, 2022. The adoption of this standard did not have a significant impact on the Company's consolidated financial statements.

Use of estimates:

The preparation of the consolidated financial statements in conformity with U.S. GAAP requires management to make estimates, judgments and assumptions. The Company's management believes that the estimates, judgments and assumptions used are reasonable based upon information available at the time they are made. These estimates, judgments and assumptions can affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the dates of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. The coronavirus disease ("COVID-19") pandemic has created, and may continue to create significant uncertainty in macroeconomic conditions, and the extent of its impact on the Company's operational and financial performance will depend on certain developments, including the duration and spread of the outbreak and the impact on the Company's customers and its sales cycles. Further, other global events such as the Russian military action against Ukraine could have an impact on the Company's business. The Company has considered the impact of COVID-19 and other global events on its estimates and assumptions and determined that there were no material adverse impacts on the consolidated financial statements for the year ended December 31, 2022. As events continue to evolve and additional information becomes available, the Company's estimates and assumptions may change materially in future periods.

Financial statements in U.S. dollars:

A majority of the revenues of the Company and its subsidiaries is generated in U.S. dollars ("dollars"). In addition, a portion of the Company and its subsidiaries' costs are incurred in dollars. The Company's management has determined that the dollar is the primary currency of the economic environment in which the Company and its subsidiaries principally operate. Thus, the functional and reporting currency of the Company and its subsidiaries is the dollar.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

Accordingly, monetary accounts maintained in currencies other than the dollar are remeasured into dollars in accordance with Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) No. 830, “Foreign Currency Matters.” All transaction gains and losses from remeasurement of monetary balance sheet items are reflected in the consolidated statements of income (loss) as financial income or expenses, as appropriate, which is included in “financial income, net.” The foreign exchange losses arose principally on the EURO and the NIS monetary balance sheet items as a result of the currency fluctuations of the EURO and the NIS against the dollar.

Principles of consolidation:

The consolidated financial statements incorporate the financial statements of the Company and all of its subsidiaries. All inter-company balances and transactions have been eliminated on consolidation.

Cash equivalents:

Cash equivalents are short-term highly liquid investments that are readily convertible to cash with original maturities of three months or less from the date acquired.

Short-term bank deposits:

Short-term bank deposits are deposits with maturities of more than three months but less than one year from the balance sheet date. The deposits are presented at their cost, including accrued interest. The deposits bear interest annually at an average rate of 2.53%, 1.12% and 1.54% during 2020, 2021 and 2022, respectively.

Marketable securities:

Marketable securities consist mainly of corporate bonds. The Company determines the appropriate classification of marketable securities at the time of purchase and re-evaluates such designation at each balance sheet date. In accordance with FASB ASC No. 320 “Investments- Debt Securities,” the Company classifies marketable securities as available-for-sale. Available-for-sale securities are stated at fair value, with unrealized gains and losses reported in accumulated other comprehensive income (loss), a separate component of stockholders’ equity, net of taxes. Realized gains and losses on sales of marketable securities, as determined on a specific identification basis, are included in financial income, net. The amortized cost of marketable securities is adjusted for amortization of premium and accretion of discount to maturity, both of which, together with interest, are included in financial income, net. The Company has classified all marketable securities as short-term, even though the stated maturity date may be one year or more beyond the current balance sheet date, because it is probable that the Company will sell these securities prior to maturity to meet liquidity needs or as part of risk versus reward objectives.

The Company determines realized gains or losses on sale of marketable securities on a specific identification method and records such gains or losses as financial income, net.

Available-for-sale debt securities with an amortized cost basis in excess of estimated fair value are assessed to determine what amount of that difference, if any, is caused by expected credit losses. Expected credit losses on available-for-sale debt securities are recognized in financial income, net, on the Company’s consolidated statements of income (loss), and any remaining unrealized losses, net of taxes, are included in accumulated other comprehensive income (loss) in stockholders’ equity. The amount of credit losses recorded for the twelve months ended December 31, 2020, 2021 and 2022 was immaterial.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

Long-term bank deposits:

Long-term bank deposits are deposits with maturities of more than one year as of the balance sheet date. The deposits presented at their cost, including accrued interest. The deposits bear interest annually at an average rate of 1.32%, 1.15% and 3.80% during 2020, 2021 and 2022, respectively.

Trade receivables and allowances:

Trade receivables are recorded and carried at the original invoiced amount less an allowance for any potential uncollectible amounts. The Company makes estimates of expected credit losses for the allowance for doubtful accounts and allowance for unbilled receivables based upon its assessment of various factors, including historical experience, the age of the trade receivable balances, credit quality of its customers, current economic conditions, reasonable and supportable forecasts of future economic conditions, and other factors that may affect its ability to collect from customers. The estimated credit loss allowance is recorded as general and administrative expenses on the Company's consolidated statements of income (loss).

Property and equipment, net:

Property and equipment are stated at cost, net of accumulated depreciation. Depreciation is calculated using the straight-line method over the estimated useful lives of the assets, at the following annual rates:

	%
Computers, software and equipment	10 - 33
Office furniture and equipment	7 - 33
Leasehold improvements	10 - 20
	(the shorter of the expected lease term or useful economic life)

The Company's long-lived assets are reviewed for impairment in accordance with FASB ASC No. 360-10-35, "Impairment or Disposal of Long-Lived Assets," whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of the carrying amount of an asset to be held and used is measured by a comparison of its carrying amount to the future undiscounted cash flows expected to be generated by such asset (asset group). If such asset (asset group) is considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of such asset exceeds its fair value. In determining the fair value of long-lived assets for purposes of measuring impairment, the Company's assumptions include those that market participants would consider in valuations of similar assets.

No impairment was recorded in 2020, 2021 and 2022.

Leases:

The Company adopted Topic 842, which requires the recognition of lease assets and lease liabilities by lessees for leases classified as operating leases. The Company determines if an arrangement is a lease at inception. The Company's assessment is based on: (1) whether the contract includes an identified asset, (2) whether the Company obtains substantially all of the economic benefits from the use of the asset throughout the period of use, and (3) whether the Company has the right to direct how and for what purpose the identified asset is used throughout the period of use.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

Leases are classified as either finance leases or operating leases. A lease is classified as a finance lease if any one of the following criteria are met: the lease transfers ownership of the asset by the end of the lease term, the lease contains an option to purchase the asset that is reasonably certain to be exercised, the lease term is for a major part of the remaining useful life of the asset, the present value of the lease payments equals or exceeds substantially all of the fair value of the asset, or the underlying asset is of such a specialized nature that it is expected to have no alternative use to the lessor at the end of lease term. A lease is classified as an operating lease if it does not meet any one of these criteria. Since all of the Company's lease contracts do not meet any of the criteria above, the Company concluded that all of its lease contracts should be classified as operation leases.

Operating lease right-of-use ("ROU") assets and liabilities are recognized on the commencement date based on the present value of remaining lease payments over the lease term. For this purpose, the Company considers only payments that are fixed and determinable at the time of commencement. As most of the Company's leases do not provide an implicit rate, the Company uses its incremental borrowing rate based on information available on the commencement date in determining the present value of lease payments. The ROU asset also includes any lease payments made prior to commencement and is recorded net of any lease incentives received. All ROU assets are reviewed for impairment. In 2022, the Company abandoned one of its offices, and as a result \$439 was written off. The lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise such options.

The Company elected to not recognize a lease liability and a ROU asset for lease with a term of twelve months or less.

Goodwill:

Goodwill is carried at cost and is not amortized but rather is tested for impairment at least annually or between annual tests in certain circumstances. The Company conducts its annual test of impairment for goodwill on October 1st of each year.

The Company operates in one operating segment and this segment comprises only one reporting unit.

ASC 350 allows an entity to first assess qualitative factors to determine whether it is necessary to perform the quantitative goodwill impairment test. If the qualitative assessment does not result in a more likely than not indication of impairment, no further impairment testing is required. If the Company elects not to use this option, or if the Company determines that it is more likely than not that the fair value of a reporting unit is less than its carrying value, then the Company prepares a quantitative analysis to determine whether the carrying value of a reporting unit exceeds its estimated fair value. If the carrying value of a reporting unit exceeds its estimated fair value, the Company recognizes an impairment of goodwill for the amount of this excess, in accordance with the guidance in FASB Accounting Standards Update ("ASU") No. 2017-04, Intangibles - Goodwill and Other (Topic 350), Simplifying the Test for Goodwill Impairment. For each of the three years in the period ended December 31, 2022, no impairment of goodwill has been recorded.

Intangible assets, net:

Acquired intangible assets with finite lives are amortized over their estimated useful lives. The Company amortizes intangible assets with finite lives over periods ranging from half a year to seven and a half years, using the straight line method, unless another method is more appropriate.

The Company's long-lived assets and intangible assets with finite lives are reviewed for impairment in accordance with FASB ASC No. 360-10-35, "Impairment or Disposal of Long-Lived Assets," whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of the carrying amount of an asset to be held and used is measured by a comparison of its carrying amount to the future undiscounted cash flows expected to be generated by such asset (asset group). If such asset (asset group) is considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of such asset exceeds its fair value. In determining the fair value of long-lived assets for purposes of measuring impairment, the Company's assumptions include those that market participants would consider in valuations of similar assets.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

The Company did not record any impairments during the years ended December 31, 2020 and 2021. In 2022, the Company recorded an impairment charge of \$3,556 in operating expenses with respect to Immervision technology acquired in August 2019, as the Company decided to cease the development of this product line. In 2022, the Company also recorded in cost of revenues an impairment charge of prepaid expenses as follows: (1) an impairment charge of \$479 relating to an agreement to acquire certain NB-IoT technologies, and (2) an impairment charge of \$1,479 relating to an agreement to purchase certain assets and services from Immervision.

Investments in marketable equity securities:

The Company holds an equity interest in Cipia Vision Ltd (CPIA.TA) ("Cipia"). For the year ended December 31, 2020, Cipia was a privately held company and the Company's investment in Cipia did not have a readily determinable fair value. As such, for the year ended December 31, 2020, the Company has elected to account for its investment in Cipia using the measurement alternative pursuant to ASC 321 Investments — Equity Securities.

In November 2021, Cipia completed its IPO on the Tel-Aviv Stock Exchange, and as a result, the Company's investment in Cipia was no longer eligible for the measurement alternative. As such, following Cipia's IPO, the Company measured its Cipia investment at fair value with changes in fair value recognized in remeasurement of marketable equity securities. As of December 31, 2022, the investment fair value amounted to \$408. The Company recorded a gain of \$1,983 and a loss of \$2,511 for the years ended December 31, 2021 and 2022, respectively from the remeasurement of the investment.

Revenue recognition:

The following is a description of principal activities from which the Company generates revenue. Revenues are recognized when control of the promised goods or services are transferred to the customers in an amount that reflects the consideration that the Company expects to receive in exchange for those goods or services.

The Company determines revenue recognition through the following steps:

- identification of the contract with a customer;
- identification of the performance obligations in the contract;
- determination of the transaction price;
- allocation of the transaction price to the performance obligations in the contract; and
- recognition of revenue when, or as, the Company satisfies a performance obligation.

The Company enters into contracts that can include various combinations of products and services, as detailed below, which are generally capable of being distinct and accounted for as separate performance obligations.

The Company generates its revenues from (1) licensing intellectual properties, which in certain circumstances are modified for customer-specific requirements, (2) royalty revenues, and (3) other revenues, which include revenues from NRE services, support, training and sale of development systems and chips, which are included in licensing and related revenue in the accompanying consolidated statements of income (loss).

The Company accounts for its IP license revenues and related services, which provide the Company's customers with rights to use the Company's IP, in accordance with ASC 606. A license may be perpetual or time limited in its application. In accordance with ASC 606, the Company will recognize revenue from IP license at the time of delivery when the customer accepts control of the IP, as the IP is functional without professional services, updates and technical support. The Company has concluded that its IP license is distinct as the customer can benefit from the license on its own.

Most of the Company's contracts with customers contain multiple performance obligations. For these contracts, the Company accounts for individual performance obligations separately, if they are distinct. The transaction price is allocated to the separate performance obligations on a relative standalone selling price basis. Standalone selling prices of IP license are typically estimated using the residual approach. Standalone selling prices of services are typically estimated based on observable transactions when these services are sold on a standalone basis.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

Revenues from contracts that involve significant customization of the Company's IP to customer-specific specifications are considered as one performance obligation satisfied over-time. The Company's performance obligation does not create an asset with alternative use, and the Company has an enforceable right to payment. The Company recognizes revenue on such contracts using cost based input methods, which recognize revenue and gross profit as work is performed based on a ratio between actual costs incurred compared to the total estimated costs for the contract. Provisions for estimated losses on uncompleted contracts are made during the period in which such losses are first determined, in the amount of the estimated loss on the entire contract.

Revenues that are derived from the sale of a licensee's products that incorporate the Company's IP are classified as royalty revenues. Royalty revenues are recognized during the quarter in which the sale of the product incorporating the Company's IP occurs. Royalties are calculated either as a percentage of the revenues received by the Company's licensees on sales of products incorporating the Company's IP or on a per unit basis, as specified in the agreements with the licensees. For a majority of the Company's royalty revenues, the Company receives the actual sales data from its customers after the quarter ends and accounts for it as unbilled receivables. When the Company does not receive actual sales data from the customer prior to the finalization of its financial statements, royalty revenues are recognized based on the Company's estimation of the customer's sales during the quarter.

Contracts with customers generally contain an agreement to provide for training and post contract support, which consists of telephone or e-mail support, correction of errors (bug fixing) and unspecified updates and upgrades. Fees for post contract support, which takes place after delivery to the customer, are specified in the contract and are generally mandatory for the first year. After the mandatory period, the customer may extend the support agreement on similar terms on an annual basis. The Company considers the post contract support performance obligation as a distinct performance obligation that is satisfied over time, and as such, it recognizes revenue for post contract support on a straight-line basis over the period for which technical support is contractually agreed to be provided to the licensee, typically twelve months.

Revenues that are derived from NRE chip design services are performance obligations that are recognized over time as the services are rendered. For time-and-materials contracts, the performance obligation is satisfied, and revenue is recognized over time as the services are performed. Generally, contracts call for billings on a time-and-materials basis; however, in instances when a fixed-fee contract is signed, revenue is recognized over time, based on an input method of labor costs expended, relative to total expected labor costs to complete the contract.

Revenues from the sale of development systems and chips are recognized when control of the promised goods or services are transferred to the customers.

When contracts involve a significant financing component, the Company adjusts the promised amount of consideration for the effects of the time value of money if the timing of payments agreed to by the parties to the contract (either explicitly or implicitly) provide the customer with a significant benefit of financing, unless the financing period is under one year and only after the products or services were provided, which is a practical expediency permitted under ASC 606.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

Deferred revenues, which represent a contract liability, include unearned amounts received under license and NRE agreements, unearned technical support and amounts paid by customers not yet recognized as revenues.

The Company capitalizes sales commission as costs of obtaining a contract when they are incremental and, if they are expected to be recovered, amortized in a manner consistent with the pattern of transfer of the good or service to which the asset relates. If the expected amortization period is one year or less, the commission fee is expensed when incurred.

Cost of revenue:

Cost of revenue includes the costs of products, services and royalty expense payments to the Israeli Innovation Authority of the Ministry of Economy and Industry in Israel (the "IIA") (refer to Note 16 for further details). Cost of product revenue includes materials, subcontractors, amortization of acquired assets and the portion of development costs associated with product development arrangements. Cost of service revenue includes salary and related costs for personnel engaged in services, training and customer support, and travel, office expenses and other support costs.

Income taxes:

The Company recognizes income taxes under the liability method. It recognizes deferred income tax assets and liabilities for the expected future consequences of temporary differences between the financial reporting and tax bases of assets and liabilities. These differences are measured using the enacted statutory tax rates that are expected to apply to taxable income for the years in which differences are expected to reverse. The effect of a change in tax rates on deferred income taxes is recognized in the statements of income (loss) during the period that includes the enactment date.

Valuation allowance is recorded to reduce the deferred tax assets to the net amount that the Company believes is more likely than not to be realized. The Company considers all available evidence, both positive and negative, including historical levels of income, expectations and risks associated with estimates of future taxable income and ongoing tax planning strategies, in assessing the need for a valuation allowance.

The Company accounts for uncertain tax positions in accordance with ASC 740. ASC 740-10 contains a two-step approach to recognizing and measuring uncertain tax positions. The first step is to evaluate the tax position taken or expected to be taken in a tax return by determining if the weight of available evidence indicates that it is more likely than not that, on an evaluation of the technical merits, the tax position will be sustained on audit, including resolution of any related appeals or litigation processes. The second step is to measure the tax benefit as the largest amount that is more than 50% (cumulative probability) likely to be realized upon ultimate settlement. The Company accrues interest and penalties related to unrecognized tax benefits under taxes on income.

Research and development:

Research and development costs are charged to the consolidated statements of income (loss) as incurred.

Government grants and tax credits:

Government grants received by the Company relating to categories of operating expenditures are credited to the consolidated statements of income (loss) during the period in which the expenditure to which they relate is charged. Royalty and non-royalty-bearing grants from the IIA for funding certain approved research and development projects are recognized at the time when the Company is entitled to such grants, on the basis of the related costs incurred, and included as a deduction from research and development expenses in the consolidated statements of income (loss).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

The Company recorded grants in the amounts of \$2,844, \$3,595 and \$4,850 for the years ended December 31, 2020, 2021 and 2022, respectively. The Company's Israeli subsidiary is obligated to pay royalties amounting to 3%-3.5% of the sales of certain products the development of which received grants from the IIA in previous years. The obligation to pay these royalties is contingent on actual sales of the products. Grants received from the IIA may become repayable if certain criteria under the grants are not met.

The French Research Tax Credit, *Crédit d'Impôt Recherche* ("CIR"), is a French tax incentive to stimulate research and development ("R&D") which is relevant for the Company's French subsidiaries (RivieraWaves SAS and CEVA France). Generally, the CIR offsets the income tax to be paid and the remaining portion (if any) can be refunded. The CIR is calculated based on the claimed volume of eligible R&D expenditures by the Company. As a result, the CIR is presented as a deduction from "research and development expenses" in the consolidated statements of income (loss). During the years ended December 31, 2020, 2021 and 2022, the Company recorded CIR benefits in the amount of \$3,287, \$2,299 and \$2,152, respectively.

The research & development (R&D) tax credit in the UK is designed to encourage innovation and increase spending on R&D activities for companies operating in the UK. This is relevant to the Company's subsidiary R&D centers in the UK. Generally, the UK R&D tax credit offsets the income tax to be paid and the remaining portion (if any) will be refunded. The R&D tax credit is calculated based on the claimed volume of eligible R&D expenditures by the Company. As a result, the R&D tax credit is presented as a deduction from "research and development expenses" in the consolidated statements of income (loss). During the years ended December 31, 2020, 2021 and 2022, the Company recorded R&D tax credit benefits in the amount of \$198, \$248 and \$164, respectively.

Employee benefit plan:

Certain of the Company's employees are eligible to participate in a defined contribution pension plan (the "Plan"). Participants in the Plan may elect to defer a portion of their pre-tax earnings into the Plan, which is run by an independent party. The Company makes pension contributions at rates varying up to 10% of the participant's pensionable salary. Contributions to the Plan are recorded as an expense in the consolidated statements of income (loss).

The Company's U.S. operations maintain a retirement plan (the "U.S. Plan") that qualifies as a deferred salary arrangement under Section 401(k) of the Internal Revenue Code. Participants in the U.S. Plan may elect to defer a portion of their pre-tax earnings, up to the Internal Revenue Service annual contribution limit. The Company matches 50% of each participant's contributions up to a maximum of 6% of the participant's base pay. Each participant may contribute up to 15% of base remuneration. Contributions to the U.S. Plan are recorded during the year contributed as an expense in the consolidated statements of income (loss).

Total contributions for the years ended December 31, 2020, 2021 and 2022 were \$1,232, \$1,155 and \$1,034, respectively.

Accrued severance pay:

Effective July 1, 2021, the Israeli subsidiary's agreements with employees hired prior to August 1, 2016, are under Section 14 of the Severance Pay Law, 1963. Up to July 1, 2021, the liability of CEVA's Israeli subsidiary for severance pay for employees hired prior to August 1, 2016, was calculated pursuant to Israeli severance pay law based on the most recent salary of each employee multiplied by the number of years of employment for these employee as of June 30, 2021. The Israeli subsidiary's liability for the period until June 30, 2021, is fully provided for by monthly deposits with severance pay funds, insurance policies and an accrual. The deposited funds include profits and losses accumulated up to June 30, 2021. The deposited funds may be withdrawn only upon the fulfillment of the obligation pursuant to Israeli severance pay law or labor agreements. The value of these policies is recorded as an asset on the Company's consolidated balance sheets.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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Effective August 1, 2016, the Israeli subsidiary's agreements with new employees in Israel are under Section 14 of the Severance Pay Law, 1963, and effective July 1, 2021, also with employees hired prior to August 1, 2016. The Israeli subsidiary's contributions for severance pay have extinguished its severance obligation. Upon contribution of the full amount based on the employee's monthly salary for each year of service, no additional obligation exists regarding the matter of severance pay, and no additional payments is made by the Israeli subsidiary to the employee. Furthermore, the related obligation and amounts deposited on behalf of the employee for such obligation are not stated on the balance sheet, as the Israeli subsidiary is legally released from any obligation to employees once the required deposit amounts have been paid.

Severance pay expenses, net of related income, for the years ended December 31, 2020, 2021 and 2022, were \$1,983, \$1,943 and \$2,706, respectively.

Equity-based compensation:

The Company accounts for equity-based compensation in accordance with FASB ASC No. 718, "Stock Compensation" which requires the recognition of compensation expenses based on estimated fair values for all equity-based awards made to employees and non-employee directors. Equity-based compensation primarily includes restricted stock units ("RSUs"), as well as options, stock appreciation right ("SAR"), performance-based stock units ("PSUs") and employee stock purchase plan awards.

The Company use the straight-line recognition method for awards subject to graded vesting based only on a service condition and the accelerated method for awards that are subject to performance or market conditions. The fair value of each RSU and PSU (excluding PSUs based on market condition awards) is the market value as determined by the closing price of the common stock on the day of grant. The Company estimates the fair value of PSU based on market condition awards on the date of grant using the Monte-Carlo simulation model.

The fair value for rights to purchase shares of common stock under the Company's employee stock purchase plan was estimated on the date of grant using the following assumptions:

	2020	2021	2022
Expected dividend yield	0%	0%	0%
Expected volatility	32% - 60%	39% - 60%	38% - 50%
Risk-free interest rate	0.1% - 1.9%	0.1% - 1.7%	0.5% - 3.0%
Expected forfeiture	0%	0%	0%
Contractual term of up to	24 months	24 months	24 months

During the years ended December 31, 2020, 2021 and 2022, the Company recognized equity-based compensation expense related to stock options, SARs, RSUs, PSUs and employee stock purchase plan as follows:

	Year ended December 31,		
	2020	2021	2022
Cost of revenue	\$ 639	\$ 818	\$ 1,461
Research and development, net	6,874	7,287	8,540
Sales and marketing	2,038	1,626	1,550
General and administrative	4,085	3,324	2,954
Total equity-based compensation expense	\$ 13,636	\$ 13,055	\$ 14,505

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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As of December 31, 2022, there was \$22,376 of unrecognized compensation expense related to unvested RSUs, PSUs and employee stock purchase plan. This amount is expected to be recognized over a weighted-average period of 1.6 years. As of December 31, 2022, there was no unrecognized compensation expense related to unvested stock options and SARs.

Fair value of financial instruments:

The carrying amount of cash, cash equivalents, short term bank deposits, trade receivables, other accounts receivable, trade payables and other accounts payable approximates fair value due to the short-term maturities of these instruments. Marketable securities, marketable equity securities and derivative instruments are carried at fair value. See Note 5 for more information.

Comprehensive income (loss):

The Company accounts for comprehensive income (loss) in accordance with FASB ASC No. 220, "Comprehensive Income." This statement establishes standards for the reporting and display of comprehensive income (loss) and its components in a full set of general purpose financial statements. Comprehensive income (loss) generally represents all changes in stockholders' equity during the period except those resulting from investments by, or distributions to, stockholders. The Company's items of other comprehensive income (loss) relate to unrealized gains and losses, net of tax, on hedging derivative instruments and marketable securities.

Concentration of credit risk:

Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of cash, cash equivalents, bank deposits, marketable securities, foreign exchange contracts and trade receivables. The Company invests its surplus cash in cash deposits and marketable securities in financial institutions and has established guidelines relating to diversification and maturities to maintain safety and liquidity of the investments.

The majority of the Company's cash and cash equivalents are invested in high grade certificates of deposits with major U.S., European and Israeli banks. Generally, cash and cash equivalents and bank deposits may be redeemed on demand and therefore minimal credit risk exists with respect to them. Nonetheless, deposits with these banks exceed the Federal Deposit Insurance Corporation ("FDIC") insurance limits or similar limits in foreign jurisdictions, to the extent such deposits are even insured in such foreign jurisdictions. Generally, these cash equivalents may be redeemed upon demand and, therefore management believes that it bears a lower risk. The short-term and long-term bank deposits are held in financial institutions which management believes are institutions with high credit standing, and accordingly, minimal credit risk from geographic or credit concentration. Furthermore, the Company holds an investment portfolio consisting principally of corporate bonds. The Company has the ability to hold such investments until recovery of temporary declines in market value or maturity. However, the Company can provide no assurance that it will recover declines in the market value of its investments.

The Company is exposed primarily to fluctuations in the level of U.S. interest rates. To the extent that interest rates rise, fixed interest investments may be adversely impacted, whereas a decline in interest rates may decrease the anticipated interest income for variable rate investments.

The Company is exposed to financial market risks, including changes in interest rates. The Company typically does not attempt to reduce or eliminate its market exposures on its investment securities because the majority of its investments are short-term.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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The Company's trade receivables are geographically diverse, mainly in the Asia Pacific, and also in the United States and Europe. Concentration of credit risk with respect to trade receivables is limited by credit limits, ongoing credit evaluation and account monitoring procedures. The Company performs ongoing credit evaluations of its customers and to date has not experienced any material losses. The Company makes estimates of expected credit losses for based upon its assessment of various factors, including historical experience, the age of the trade receivable balances, credit quality of its customers, current economic conditions, reasonable and supportable forecasts of future economic conditions, and other factors that may affect its ability to collect from customers.

	Balance at beginning of period	Additions	Deduction	Balance at end of period
Year ended December 31, 2022				
Allowance for credit losses	\$ 288	\$ 25	\$ —	\$ 313
Year ended December 31, 2021				
Allowance for credit losses	\$ 300	\$ 152	\$ (164)	\$ 288
Year ended December 31, 2020				
Allowance for credit losses	\$ 327	\$ 1,443	\$ (1,470)	\$ 300

The Company has no off-balance-sheet concentration of credit risk.

Derivative and hedging activities:

The Company follows the requirements of FASB ASC No. 815, "Derivatives and Hedging" which requires companies to recognize all of their derivative instruments as either assets or liabilities in the statement of financial position at fair value. The accounting for changes in fair value (i.e., gains or losses) of a derivative instrument depends on whether it has been designated and qualifies as part of a hedging transaction and further, on the type of hedging transaction. For those derivative instruments that are designated and qualify as hedging instruments, a company must designate the hedging instrument, based upon the exposure being hedged, as a fair value hedge, cash flow hedge, or a hedge of a net investment in a foreign operation. Due to the Company's global operations, it is exposed to foreign currency exchange rate fluctuations in the normal course of its business. The Company's treasury policy allows it to offset the risks associated with the effects of certain foreign currency exposures through the purchase of foreign exchange forward or option contracts ("Hedging Contracts"). The policy, however, prohibits the Company from speculating on such Hedging Contracts for profit. To protect against the increase in value of forecasted foreign currency cash flow resulting from salaries paid in currencies other than the U.S. dollar during the year, the Company instituted a foreign currency cash flow hedging program. The Company hedges portions of the anticipated payroll of its non-U.S. employees denominated in the currencies other than the U.S. dollar for a period of one to twelve months with Hedging Contracts. Accordingly, when the dollar strengthens against the foreign currencies, the decline in present value of future foreign currency expenses is offset by losses in the fair value of the Hedging Contracts. Conversely, when the dollar weakens, the increase in the present value of future foreign currency expenses is offset by gains in the fair value of the Hedging Contracts. These Hedging Contracts are designated as cash flow hedges.

For derivative instruments that are designated and qualify as a cash flow hedge (i.e., hedging the exposure to variability in expected future cash flows that is attributable to a particular risk), the gain or loss on the derivative instrument is reported as a component of other comprehensive income (loss) and reclassified into earnings in the same period or periods during which the hedged transaction affects earnings.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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As of December 31, 2021, and 2022, the notional principal amount of the Hedging Contracts to sell U.S. dollars held by the Company was \$4,500 and \$12,200, respectively.

Advertising expenses:

Advertising expenses are charged to consolidated statements of income (loss) as incurred. Advertising expenses for the years ended December 31, 2020, 2021 and 2022 were \$559, \$623 and \$746, respectively.

Treasury stock:

The Company repurchases its common stock from time to time pursuant to a board-authorized share repurchase program through open market purchases and repurchase plans.

The repurchases of common stock are accounted for as treasury stock, and result in a reduction of stockholders' equity. When treasury shares are reissued, the Company accounts for the reissuance in accordance with FASB ASC No. 505-30, "Treasury Stock" and charges the excess of the repurchase cost over issuance price using the weighted average method to retained earnings. The purchase cost is calculated based on the specific identified method. In the case where the repurchase cost over issuance price using the weighted average method is lower than the issuance price, the Company credits the difference to additional paid-in capital.

Net income (loss) per share of common stock:

Basic net income (loss) per share is computed based on the weighted average number of shares of common stock outstanding during each year. Diluted net income (loss) per share is computed based on the weighted average number of shares of common stock outstanding during each year, plus dilutive potential shares of common stock considered outstanding during the year, in accordance with FASB ASC No. 260, "Earnings Per Share."

	Year ended December 31,		
	2020	2021	2022
Numerator:			
Net income (loss)	\$ (2,379)	\$ 396	\$ (23,183)
Denominator (in thousands):			
Basic weighted-average common stock outstanding	22,107	22,819	23,172
Effect of stock-based awards	—	432	—
Diluted weighted-average common stock outstanding	22,107	23,251	23,172
Basic net income (loss) per share	\$ (0.11)	\$ 0.02	\$ (1.00)
Diluted net income (loss) per share	\$ (0.11)	\$ 0.02	\$ (1.00)

The total number of shares related to outstanding equity-based awards excluded from the calculation of diluted net loss per share, since their effect was anti-dilutive, was 1,132,017 for the years ended December 31, 2020. The weighted-average number of shares related to outstanding equity-based awards excluded from the calculation of diluted net income per share, since their effect was anti-dilutive, were 65,073 shares for the year ended December 31, 2021. The total number of shares related to outstanding equity-based awards excluded from the calculation of diluted net loss per share, since their effect was anti-dilutive, was 985,277 for the years ended December 31, 2022.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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Recently Issued Accounting Pronouncement, Not Yet Adopted by the Company:

In June 2022, the FASB issued ASU No. 2022-03, Fair Value Measurement (Topic 820): Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions, which clarifies the guidance when measuring the fair value of an equity security subject to contractual restrictions that prohibit the sale of an equity security and introduces new disclosure requirements for equity securities subject to contractual sale restrictions that are measured at fair value in accordance with Topic 820. The guidance is effective for annual periods beginning after December 15, 2023, with early adoption permitted. The adoption of this standard is not expected to result in a significant impact on the Company's consolidated financial statements.

NOTE 2: REVENUE RECOGNITION

The following table includes estimated revenue expected to be recognized in future periods related to performance obligations that are unsatisfied or partially unsatisfied at the end of the reporting period. The estimated revenues do not include amounts of royalties or unexercised contract renewals:

		2023		2024		2025
License, NRE and related revenues	\$	15,531	\$	739	\$	559

Disaggregation of revenue:

The following table provides information about disaggregated revenue by primary geographical market, major product line and timing of revenue recognition:

	Year ended December 31, 2021			Year ended December 31, 2022		
	Licensing, NRE and related revenues	Royalties	Total	Licensing, NRE and related revenues	Royalties	Total
Primary geographical markets						
United States	\$ 16,685	\$ 10,033	\$ 26,718	\$ 20,995	\$ 7,100	\$ 28,095
Europe and Middle East	2,938	3,938	6,876	6,864	3,205	10,069
Asia Pacific	53,194	35,908	89,102	61,400	35,084	96,484
Other	10	—	10	—	—	—
Total	<u>\$ 72,827</u>	<u>\$ 49,879</u>	<u>\$ 122,706</u>	<u>\$ 89,259</u>	<u>\$ 45,389</u>	<u>\$ 134,648</u>
Major product/service lines						
Connectivity products (baseband for handset and other devices, Bluetooth, Wi-Fi, NB-IoT, and SATA/SAS)	\$ 52,460	\$ 36,960	\$ 89,420	\$ 62,376	\$ 33,891	\$ 96,267
Smart sensing products (AI, sensor fusion, audio/sound and imaging and vision)	20,367	12,919	33,286	26,883	11,498	38,381
Total	<u>\$ 72,827</u>	<u>\$ 49,879</u>	<u>\$ 122,706</u>	<u>\$ 89,259</u>	<u>\$ 45,389</u>	<u>\$ 134,648</u>
Timing of revenue recognition						
Products transferred at a point in time	\$ 53,401	\$ 49,879	\$ 103,280	\$ 62,328	\$ 45,389	\$ 107,717
Products and services transferred over time	19,426	—	19,426	26,931	—	26,931
Total	<u>\$ 72,827</u>	<u>\$ 49,879</u>	<u>\$ 122,706</u>	<u>\$ 89,259</u>	<u>\$ 45,389</u>	<u>\$ 134,648</u>

CEVA, INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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	Year ended December 31, 2020		
	Licensing and related revenues	Royalties	Total
Primary geographical markets			
United States	\$ 6,716	\$ 14,097	\$ 20,813
Europe and Middle East	6,176	5,790	11,966
Asia Pacific	39,621	27,926	67,547
Total	\$ 52,513	\$ 47,813	\$ 100,326
Major product/service lines			
Connectivity products (baseband for handset and other devices, Bluetooth, Wi-Fi, NB-IoT, and SATA/SAS)	\$ 40,748	\$ 37,917	\$ 78,665
Smart sensing products (AI, sensor fusion, audio/sound and imaging and vision)	11,765	9,896	21,661
Total	\$ 52,513	\$ 47,813	\$ 100,326
Timing of revenue recognition			
Products transferred at a point in time	\$ 40,075	\$ 47,813	\$ 87,888
Products and services transferred over time	12,438	—	12,438
Total	\$ 52,513	\$ 47,813	\$ 100,326

Contract balances:

The following table provides information about trade receivables, unbilled receivables and contract liabilities from contracts with customers:

	December 31, 2021	December 31, 2022
Trade receivables	\$ 14,644	\$ 12,297
Unbilled receivables (associated with licensing, NRE and related revenue)	1,833	8,695
Unbilled receivables (associated with royalties)	10,972	10,258
Deferred revenues (short-term contract liabilities)	8,661	3,168

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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The Company receives payments from customers based upon contractual payment schedules; trade receivables are recorded when the right to consideration becomes unconditional, and an invoice is issued to the customer. Unbilled receivables associated with licensing and other include amounts related to the Company's contractual right to consideration for completed performance objectives not yet invoiced. Unbilled receivables associated with royalties are recorded as the Company recognizes revenues from royalties earned during the year, but not yet invoiced, either by actual sales data received from customers, or, when applicable, by the Company's estimation. Contract liabilities (deferred revenue) include payments received in advance of performance under the contract, and are realized with the associated revenue recognized under the contract.

During the year ended December 31, 2022, the Company recognized \$8,351 that was included in deferred revenues (short-term contract liability) balance at January 1, 2022.

Practical expediency and exemptions:

The Company generally expenses sales commissions when incurred because the amortization period would have been less than one year. The Company records these costs within sales and marketing expenses on the Company's consolidated statements of income (loss).

The Company does not assess whether a contract has a significant financing component if the expectation at contract inception is such that the period between payment by the customer and the transfer of the promised goods or services to the customer will be one year or less.

CEVA, INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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NOTE 3: MARKETABLE SECURITIES

The following is a summary of available-for-sale marketable securities at December 31, 2021 and 2022:

	As at December 31, 2022			
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
Available-for-sale - matures within one year:				
Corporate bonds	\$ 17,552	\$ —	\$ (1,330)	\$ 16,222
Available-for-sale - matures after one year through five years:				
Corporate bonds	101,355	38	(5,535)	95,858
Total	\$ 118,907	\$ 38	\$ (6,865)	\$ 112,080

	As at December 31, 2021			
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
Available-for-sale - matures within one year:				
Corporate bonds	\$ 11,937	\$ 39	\$ (7)	\$ 11,969
Available-for-sale - matures after one year through five years:				
Corporate bonds	78,920	227	(818)	78,329
Total	\$ 90,857	\$ 266	\$ (825)	\$ 90,298

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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The following table presents gross unrealized losses and fair values for those investments that were in an unrealized loss position as of December 31, 2021 and 2022, and the length of time that those investments have been in a continuous loss position:

	Less than 12 months		12 months or greater	
	Fair value	Gross unrealized loss	Fair value	Gross unrealized loss
As of December 31, 2022	\$ 58,706	\$ (1,885)	\$ 48,539	\$ (4,980)
As of December 31, 2021	\$ 53,412	\$ (667)	\$ 12,039	\$ (158)

During the years ended December 31, 2020, 2021 and 2022 the amount of credit losses recorded was not material.

The following table presents gross realized gains and losses from sale of available-for-sale marketable securities:

	Year ended December 31,		
	2020	2021	2022
Gross realized gains from sale of available-for-sale marketable securities	\$ 14	\$ 43	\$ —
Gross realized losses from sale of available-for-sale marketable securities	\$ (20)	\$ (30)	\$ (55)

NOTE 4: LEASES

The Company leases substantially all of its office space and vehicles under operating leases. The Company's leases have original lease periods expiring between 2023 and 2034. Many leases include one or more options to renew. The Company does not assume renewals in its determination of the lease term unless the renewals are deemed to be reasonably certain. Lease payments included in the measurement of the lease liability comprise the following: the fixed non-cancelable lease payments, payments for optional renewal periods where it is reasonably certain the renewal period will be exercised, and payments for early termination options unless it is reasonably certain the lease will not be terminated early.

The following is a summary of weighted average remaining lease terms and discount rate for all of the Company's operating leases:

	December 31, 2022
Weighted average remaining lease term (years)	4.89
Weighted average discount rate	3.20%

Total operating lease cost and cash payments for operating leases were as follows:

	Year ended December 31,	
	2021	2022
Operating lease cost	\$ 3,085	\$ 3,288
Cash payments for operating leases	\$ 3,175	\$ 3,211

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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Maturities of lease liabilities are as follows:

2023	3,040
2024	2,487
2025	1,877
2026	851
2027 and thereafter	2,121
Total undiscounted cash flows	10,376
Less imputed interest	691
Present value of lease liabilities	\$ 9,685

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NOTE 5: FAIR VALUE MEASUREMENT

FASB ASC No. 820, “Fair Value Measurements and Disclosures” defines fair value, establishes a framework for measuring fair value. Fair value is an exit price, representing the amount that would be received for selling an asset or paid for the transfer of a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or a liability. A three-tier fair value hierarchy is established as a basis for considering such assumptions and for inputs used in the valuation methodologies in measuring fair value:

Level I	Unadjusted quoted prices in active markets that are accessible on the measurement date for identical, unrestricted assets or liabilities;
Level II	Quoted prices in markets that are not active, or inputs that are observable, either directly or indirectly, for substantially the full term of the asset or liability; and
Level III	Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable (supported by little or no market activity).

The Company measures its marketable securities, investments in marketable equity securities and foreign currency derivative contracts at fair value. Investments in marketable equity securities are classified within Level I as the securities are traded in an active market. Marketable securities and foreign currency derivative contracts are classified within Level II as the valuation inputs are based on quoted prices and market observable data of similar instruments.

The table below sets forth the Company’s assets and liabilities measured at fair value by level within the fair value hierarchy. Assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement.

Description	December 31, 2022	Level I	Level II	Level III
Assets:				
Marketable securities:				
Corporate bonds	\$ 112,080	—	\$ 112,080	—
Foreign exchange contract	13	—	13	—
Investments in marketable equity securities	408	408	—	—
Liabilities:				
Foreign exchange contracts	119	—	119	—

Description	December 31, 2021	Level I	Level II	Level III
Assets:				
Marketable securities:				
Corporate bonds	\$ 90,298	—	\$ 90,298	—
Foreign exchange contract	63	—	63	—
Investments in marketable equity securities	2,919	2,919	—	—

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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NOTE 6: PROPERTY AND EQUIPMENT, NET

Composition of assets, grouped by major classifications, is as follows:

	As at December 31,	
	2021	2022
Cost:		
Computers, software and equipment	\$ 23,541	\$ 25,754
Office furniture and equipment	1,069	1,195
Leasehold improvements	4,180	4,656
	<u>28,790</u>	<u>31,605</u>
Less – Accumulated depreciation	(22,025)	(24,506)
Property and equipment, net	<u>\$ 6,765</u>	<u>\$ 7,099</u>

The Company recorded depreciation expenses in the amount of \$3,184 and \$3,190 for the years ended December 31, 2021 and 2022, respectively. In addition, in 2022, assets no longer in use by the Company of \$709 have been written down.

NOTE 7: GOODWILL AND INTANGIBLE ASSETS, NET

(a) Goodwill:

Changes in goodwill are as follows:

	Year ended December 31,	
	2021	2022
Balance as of January 1,	\$ 51,070	\$ 74,777
Acquisition	23,707	—
Balance as of December 31,	<u>\$ 74,777</u>	<u>\$ 74,777</u>

CEVA, INC.

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(b) Intangible assets:

	Weighted average amortization period (years)	Year ended December 31, 2021			Year ended December 31, 2022			
		Gross carrying amount	Accumulated amortization	Net	Gross carrying amount	Accumulated amortization	Impairment (*)	Net
Intangible assets – amortizable:								
Intangible assets related to the acquisition of Intrinsic business								
Customer relationships	5.5	\$ 3,604	\$ 382	\$ 3,222	\$ 3,604	\$ 1,037	\$ —	\$ 2,567
Customer backlog	1.5	421	164	257	421	421	—	—
Patents	5.0	218	26	192	218	69	—	149
Core technologies	3.0	3,329	647	2,682	3,329	1,757	—	1,572
Intangible assets related to the acquisition of Hillcrest Labs business								
Customer relationships	4.4	3,518	2,130	1,388	3,518	2,998	—	520
Customer backlog	0.5	72	72	—	72	72	—	—
R&D Tools	7.5	2,475	810	1,665	2,475	1,140	—	1,335
Intangible assets related to Immervision assets acquisition								
R&D Tools	6.4	7,063	2,679	4,384	7,063	3,507	3,556	—
Intangible assets related to an investment in NB-IoT technologies								
NB-IoT technologies (**)	7.0	1,961	1,144	817	1,961	1,424	—	537
Total intangible assets		\$ 22,661	\$ 8,054	\$ 14,607	\$ 22,661	\$ 12,425	\$ 3,556	\$ 6,680

(*) During 2022, the Company recorded an impairment charge of \$3,556 in operating expenses with respect to Immervision technology acquired in August 2019, as the Company has decided to cease the development of this product line.

(**) During the first quarter of 2018, the Company entered into an agreement to acquire certain NB-IoT technologies in the amount of \$2,800, of which technologies valued at \$600 have not been received and have been written off during 2022. Of the \$2,200, \$210 has not resulted in cash outflows as of December 31, 2022. In addition, the Company participated in programs sponsored by the Hong Kong government for the support of the above investment, and as a result, the Company received during 2019 an amount of \$239 related to the NB-IoT technologies, which was reduced from the gross carrying amount of intangible assets. The Company recorded the amortization cost of the NB-IoT technologies in “cost of revenues” on the Company’s consolidated statements of income (loss).

Future estimated annual amortization charges are as follows:

2023	2,611
2024	1,909
2025	1,189
2026	956
2027	15
	<u>\$ 6,680</u>

The Company recorded amortization expense in the amount of \$3,801 and \$4,371 for the years ended December 31, 2021 and 2022, respectively.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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NOTE 8: ACCRUED EXPENSES AND OTHER PAYABLES

	As at December 31,	
	2021	2022
Engineering accruals	\$ 719	\$ 779
Professional fees	782	874
Government grants	795	918
Income taxes payable, net	420	2,547
Other	1,314	1,542
Total	\$ 4,030	\$ 6,660

NOTE 9: STOCKHOLDERS' EQUITY*a. Common stock:*

Holder of common stock are entitled to one vote per share on all matters to be voted upon by the Company's stockholders. In the event of a liquidation, dissolution or winding up of the Company, holders of common stock are entitled to share ratably in all of the Company's assets. The Board of Directors may declare a dividend out of funds legally available therefore and the holders of common stock are entitled to receive ratably any such dividends. Holders of common stock have no preemptive rights or other subscription rights to convert their shares into any other securities.

b. Preferred stock:

The Company is authorized to issue up to 5,000,000 shares of "blank check" preferred stock, par value \$0.001 per share. Such preferred stock may be issued by the Board of Directors from time to time in one or more series. These series may have designations, preferences and relative, participating, optional or other special rights and any qualifications, limitations or restrictions thereof, including dividend rights, conversion rights, exchange rights, voting rights, redemption rights (including sinking and purchase fund provisions), and dissolution preferences as may be determined by the Company's Board of Directors.

c. Share repurchase program:

In August 2008, the Company announced that its Board of Directors approved a share repurchase program for up to one million shares of common stock which was further extended by an additional 6,400,000 shares in 2010, 2013, 2014, 2018 and 2020.

As of December 31, 2022, 278,799 shares of common stock remained authorized for repurchase under the Company's share repurchase program.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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d. Employee and non-employee stock plans:

The Company grants a mix of stock options, SARs capped with a ceiling and RSUs to employees and non-employee directors of the Company and its subsidiaries under the Company's equity plans and provides the right to purchase common stock pursuant to the Company's 2002 employee stock purchase plan to employees of the Company and its subsidiaries.

The SAR unit confers the holder the right to stock appreciation over a preset price of the Company's common stock during a specified period of time. When the unit is exercised, the appreciation amount is paid through the issuance of shares of the Company's common stock. The ceiling limits the maximum income for each SAR unit. SARs are considered an equity instrument as it is a net share settled award capped with a ceiling (400% for all SAR grants made in years prior to 2016. Starting in 2016, the Company ceased to grant SAR units). The options and SARs granted under the Company's stock incentive plans have been granted at the fair market value of the Company's common stock on the grant date. Options and SARs granted to employees under stock incentive plans vest at a rate of 25% of the shares underlying the option after one year and the remaining shares vest in equal portions over the following 36 months, such that all shares are vested after four years. Options granted to non-employee directors vest 25% of the shares underlying the option on each anniversary of the option grant.

A summary of the Company's stock option and SARs activities and related information for the year ended December 31, 2022, is as follows:

	Number of options and SAR units (1)	Weighted average exercise price	Weighted average remaining contractual term	Aggregate intrinsic-value
Outstanding at the beginning of the year	126,000	\$ 20.06	2.6	\$ 2,921
Granted	—	—		
Exercised	(19,000)	18.79		
Forfeited or expired	(1,000)	24.86		
Outstanding at the end of the year (2)	<u>106,000</u>	<u>\$ 20.24</u>	<u>2.0</u>	<u>\$ 609</u>
Exercisable at the end of the year (2)	<u>106,000</u>	<u>\$ 20.24</u>	<u>2.0</u>	<u>\$ 609</u>

- (1) The SAR units are convertible for a maximum number of shares of the Company's common stock equal to 75% of the SAR units subject to the grant.
- (2) Represent options granted to non-employee directors of the Company only. As of December 31, 2022, there were no outstanding or exercisable SAR units left and no outstanding or exercisable options granted to employees left.

In 2020, 2021 and 2022, the Company did not grant options and/or SARs.

The total intrinsic value of options and SARs exercised during the years ended December 31, 2020, 2021 and 2022 was \$6,876, \$7,177 and \$273, respectively.

A RSU award is an agreement to issue shares of the Company's common stock at the time the award or a portion thereof vests. RSUs granted to employees generally vest in three equal annual installments starting on the first anniversary of the grant date. Until the end of 2017, RSUs granted to non-employee directors would generally vest in full on the first anniversary of the grant date. Starting in 2018, RSUs granted to non-employee directors would generally vest in two equal annual installments starting on the first anniversary of the grant date.

CEVA, INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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On February 14, 2022, the Committee granted 9,935, 5,961, 7,451 and 5,961 time-based RSUs, effective as of February 17, 2022, to each of the Company's CEO, Executive Vice President, Worldwide Sales, Chief Financial Officer and Chief Operating Officer, respectively, pursuant to the 2011 Plan. The RSU grants vest 33.4% on February 17, 2023, 33.3% on February 17, 2024 and 33.3% on February 17, 2025.

Also on February 14, 2022, the Committee granted 14,903, 3,974, 4,969 and 3,974 PSUs, effective as of February 17, 2022, to each of the Company's CEO, Executive Vice President, Worldwide Sales, Chief Financial Officer and Chief Operating Officer, respectively, pursuant to 2011 Plan (collectively, the "2022 Short-Term Executive PSUs"). The performance goals for the 2022 Short-Term Executive PSUs with specified weighting are as follows:

Weighting	Goals
50%	Vesting of the full 50% of the PSUs occurs if the Company achieves the 2022 license, NRE and related revenue target approved by the Board (the "2022 License Revenue Target"). The vesting threshold is achievement of 90% of 2022 License Revenue Target. If the Company's actual result exceeds 90% of the 2022 License Revenue Target, every 1% increase of the 2022 License Revenue Target, up to 110%, would result in an increase of 2% of the eligible PSUs.
50%	Vesting of the full 50% of the PSUs occurs if the Company achieves positive total shareholder return whereby the return on the Company's stock for 2022 is greater than the S&P500 index. The vesting threshold is if the return on the Company's stock for 2022 is at least 90% of the S&P500 index. If the return on the Company's stock, in comparison to the S&P500, is above 90% but less than 99% of the S&P500 index, 91% to 99% of the eligible PSUs would be subject to vesting. If the return on the Company's stock exceeds 100% of the S&P500 index, every 1% increase in comparison to the S&P500 index, up to 110%, would result in an increase of 2% of the eligible PSUs.

Additionally, PSUs representing an additional 20%, meaning an additional 2,981, 795, 994 and 795, would be eligible for vesting for each of the Company's CEO, Executive Vice President, Worldwide Sales, Chief Financial Officer and Chief Operating Officer, respectively, if the performance goals set forth above are exceeded.

In 2022, the Company achieved 98% of the 2022 License Revenue Target and a negative total shareholder return whereby the return on the Company's stock for 2022 was lesser than the S&P500 index, so based on the PSU award conditions, the Company's CEO, Executive Vice President, Worldwide Sales, Chief Financial Officer and Chief Operating Officer received 7,269, 1,938, 2,423 and 1,938 PSUs, respectively.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

The 2022 Short-Term Executive PSUs vest 33.4% on February 17, 2023, 33.3% on February 17, 2024, and 33.3% on February 17, 2025.

On November 9, 2022, the Company reported that Gideon Wertheizer had announced his intention to retire from his position as the Company's CEO and an employee of the Company, effective as of January 1, 2023. In connection with his retirement, the Board determined to accelerate in full the vesting of Mr. Wertheizer's 34,887 unvested RSUs.

On December 7, 2022, Issachar Ohana, the Executive Vice President, Worldwide Sales, and the Board reached an understanding regarding Mr. Ohana's separation from the Company, effective as of December 31, 2022. In connection with his departure, the Board determined to accelerate in full the vesting of Mr. Ohana's 16,114 unvested RSUs.

A summary of the Company's RSU and PSU activities and related information for the year ended December 31, 2022, is as follows:

	Number of RSUs and PSUs	Weighted average grant-date fair value
Unvested as at the beginning of the year	688,073	\$ 41.18
Granted	628,611	34.52
Vested	(330,211)	37.61
Forfeited	(107,196)	43.72
Unvested at the end of the year	<u>879,277</u>	<u>\$ 37.57</u>

Stock Plans

As of December 31, 2022, the Company maintains the Company's 2003 Director Stock Option Plan (the "Director Plan") and the 2011 Stock Incentive Plan (the "2011 Plan" and together with the Director Plan, the "Stock Plans").

As of December 31, 2022, options, SARs, RSUs and PSUs to purchase 464,946 shares of common stock were available for grant under the Stock Plans.

2011 Stock Incentive Plan

The 2011 Plan was adopted by the Company's Board of Directors in February 2011 and stockholders on May 17, 2011. Up to 3,200,000 shares of common stock (subject to adjustment in the event of future stock splits, future stock dividends or other similar changes in the common stock or the Company's capital structure), plus the number of shares that remain available for grant of awards under the Company's 2002 Stock Incentive Plan (the "2002 Plan"), plus any shares that would otherwise return to the 2002 Plan as a result of forfeiture, termination or expiration of awards previously granted under the 2002 plan (subject to adjustment in the event of stock splits and other similar events), are reserved for issuance under the 2011 Plan. The 2002 Plan was automatically terminated and replaced and superseded by the 2011 Plan, except that any awards previously granted under the 2002 Plan shall remain in effect pursuant to their term. As of December 31, 2022, there were no outstanding equity awards remaining in the 2002 Plan.

On June 2, 2022, the Company's stockholders approved an amendment and restatement of the 2011 Plan to have any shares which remain available for issuance or that would otherwise return to the Company's Director Plan as a result of forfeiture, termination or expiration of awards be rolled over to the 2011 Plan, resulting in an immediate increase of 273,693 shares at time of the approval.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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The 2011 Plan provides for the grant of incentive stock options intended to qualify under Section 422 of the Internal Revenue Code, nonqualified stock options, restricted stock, RSUs, dividend equivalent rights and stock appreciation rights. Officers, employees, directors, external consultants and advisors of the Company and those of the Company's present and future parent and subsidiary corporations are eligible to receive awards under the 2011 Plan. Under current U.S. tax laws, incentive stock options may only be granted to employees. The 2011 Plan permits the Company's Board of Directors or a committee thereof to determine how grantees may pay the exercise or purchase price of their awards.

Unless sooner terminated, the 2011 Plan is effective until April 2030.

The Company's Board of Directors or a committee thereof has authority to administer the 2011 Plan. The Company's Board of Directors has the authority to adopt, amend and repeal the administrative rules, guidelines and practices relating to the 2011 Plan and to interpret its provisions.

2003 Director Stock Option Plan

Under the Director Plan, 1,350,000 shares of common stock (subject to adjustment in the event of future stock splits, future stock dividends or other similar changes in the common stock or the Company's capital structure) are authorized for issuance.

The Director Plan provides for the grant of nonqualified stock options to non-employee directors. Options must be granted at an exercise price equal to the fair market value of the common stock on the date of grant. Options may not be granted for a term in excess of ten years.

Under the original terms of the Director Plan, (a) any person who becomes a non-employee director of the Company was automatically granted an option to purchase 38,000 shares of common stock, (b) on June 30 of each year, beginning in 2004, each non-employee director who had served on the Company's Board of Directors for at least six (6) months as of such date was automatically granted an option with the exercise price being the fair market value of the Company's common stock as of July 1st of each year to purchase 13,000 shares of common stock, and each non-employee director would receive an option with the exercise price being the fair market value of the Company's common stock as of July 1st of each year to purchase 13,000 shares of common stock for each committee on which he or she had served as chairperson for at least six months prior to such date, and (c) the Chairman of the Board was granted an additional option with the exercise price being the fair market value of the Company's common stock as of July 1st of each year to purchase 15,000 shares of common stock on an annual basis. In February 2015, the Board suspended the automatic grant of stock options to each non-employee director and the Chairman of the Board under the Director Plan. In lieu of the automatic stock option grants under the Director Plan, the Board approved an equity award to all current directors of the Company consisting solely of RSUs granted under the 2011 Plan. From February 2015 to 2017, the Chairman of the Board of Directors would receive a RSU award with an annualized value of \$268,520, directors with a chairperson position on any committee of the Board of Directors would receive a RSU award with an annualized value of \$249,340 and all other directors would receive a RSU award with an annualized value of \$124,670. In response to market trends, in lieu of the prior annualized values of the RSU awards to directors, starting in July 2018, each director was granted shares of RSUs based on an annualized value of \$124,670, which vest 50% on the first year anniversary of the grant date and the remaining 50% on the second year anniversary of the grant date. In July 2020, 2021 and 2022, based on the new parameters, the directors of the Company received a grant of RSUs in the aggregate amount of 26,984 RSUs, 21,392 RSUs and 26,551 RSUs, respectively. In February 2019, the Board determined that each new director of the Company, in lieu of an option to purchase 38,000 shares of common stock, would receive a RSU award with an annualized value of \$124,670.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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As mentioned above, on June 2, 2022, the Company's stockholders approved an amendment and restatement of the 2011 Plan to have any shares which remain available for issuance or that would otherwise return to the Company's Director Plan be rolled over to the 2011 Plan. As a result, as of December 31, 2022, there were no outstanding equity awards remaining in the Director Plan.

The Company's Board of Directors or a committee thereof has authority to administer the Director Plan. The Company's Board of Directors or a committee thereof has the authority to adopt, amend and repeal the administrative rules, guidelines and practices relating to the Director Plan and to interpret its provisions.

2002 Employee Stock Purchase Plan ("ESPP")

The ESPP was adopted by the Company's Board of Directors and stockholder in July 2002. The ESPP is intended to qualify as an "Employee Stock Purchase Plan" under Section 423 of the U.S. Internal Revenue Code and is intended to provide the Company's employees with an opportunity to purchase shares of common stock through payroll deductions. An aggregate of 3,050,000 shares of common stock (subject to adjustment in the event of future stock splits, future stock dividends or other similar changes in the common stock or the Company's capital structure) are reserved for issuance. As of December 31, 2022, 89,238 shares of common stock were available for future issuance under the ESPP.

All of the Company's employees who are regularly employed for more than five months in any calendar year and work 20 hours or more per week are eligible to participate in the ESPP. Non-employee directors, consultants, and employees subject to the rules or laws of a foreign jurisdiction that prohibit or make impractical their participation in an employee stock purchase plan are not eligible to participate in the ESPP.

The ESPP designates offer periods, purchase periods and exercise dates. Offer periods generally will be overlapping periods of 24 months. Purchase periods generally will be six-month periods. Exercise dates are the last day of each purchase period. In the event the Company merges with or into another corporation, sells all or substantially all of the Company's assets, or enters into other transactions in which all of the Company's stockholders before the transaction own less than 50% of the total combined voting power of the Company's outstanding securities following the transaction, the Company's Board of Directors or a committee designated by the Board may elect to shorten the offer period then in progress.

The price per share at which shares of common stock may be purchased under the ESPP during any purchase period is the lesser of:

- 85% of the fair market value of common stock on the date of grant of the purchase right, which is the commencement of an offer period; or
- 85% of the fair market value of common stock on the exercise date, which is the last day of a purchase period.

The participant's purchase right is exercised in the above noted manner on each exercise date arising during the offer period unless, on the first day of any purchase period, the fair market value of common stock is lower than the fair market value of common stock on the first day of the offer period. If so, the participant's participation in the original offer period will be terminated, and the participant will automatically be enrolled in the new offer period effective the same date.

The ESPP is administered by the Board of Directors or a committee designated by the Board, which will have the authority to terminate or amend the plan, subject to specified restrictions, and otherwise to administer and resolve all questions relating to the administration of the plan.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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e. Dividend policy:

The Company has never declared or paid any cash dividends on its capital stock and does not anticipate paying any cash dividends in the foreseeable future.

NOTE 10: DERIVATIVES AND HEDGING ACTIVITIES

The fair value of the Company's outstanding derivative instruments is as follows:

	Year ended December 31,	
	2021	2022
Derivative assets:		
Derivatives designated as cash flow hedging instruments:		
Foreign exchange forward contracts	\$ 63	\$ 13
Total	<u>\$ 63</u>	<u>\$ 13</u>
Derivative liabilities:		
Derivatives designated as cash flow hedging instruments:		
Foreign exchange option contracts	\$ —	\$ 23
Foreign exchange forward contracts	\$ —	\$ 96
Total	<u>\$ —</u>	<u>\$ 119</u>

The Company recorded the fair value of derivative assets in "prepaid expenses and other current assets" and the fair value of derivative liabilities in "accrued expenses and other payables" on the Company's consolidated balance sheets.

The changes in unrealized gains (losses) recognized in "accumulated other comprehensive income (loss)" on derivatives, before tax effect, is as follows:

	Year ended December 31,		
	2020	2021	2022
Derivatives designated as cash flow hedging instruments:			
Foreign exchange option contracts	\$ (8)	\$ —	\$ (361)
Foreign exchange forward contracts	640	228	(1,100)
	<u>\$ 632</u>	<u>\$ 228</u>	<u>\$ (1,461)</u>

The net (gains) losses reclassified from "accumulated other comprehensive income (loss)" into income, are as follows:

	Year ended December 31,		
	2020	2021	2022
Derivatives designated as cash flow hedging instruments:			
Foreign exchange option contracts	\$ (6)	\$ —	\$ 338
Foreign exchange forward contracts	(682)	(165)	954
	<u>\$ (688)</u>	<u>\$ (165)</u>	<u>\$ 1,292</u>

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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The Company recorded in cost of revenues and operating expenses, a net gain of \$688, a net gain of \$165 and a net loss of \$1,292 during the years ended December 31, 2020, 2021 and 2022, respectively, related to its Hedging Contracts.

NOTE 11: ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

The following table summarizes the changes in accumulated balances of other comprehensive income (loss), net of taxes:

	Year ended December 31, 2021			Year ended December 31, 2022		
	Unrealized gains (losses) on available-for-sale marketable securities	Unrealized gains (losses) on cash flow hedges	Total	Unrealized gains (losses) on available-for-sale marketable securities	Unrealized gains (losses) on cash flow hedges	Total
Beginning balance	\$ 478	\$ —	\$ 478	\$ (427)	\$ 55	\$ (372)
Other comprehensive income (loss) before reclassifications	(892)	200	(692)	(5,766)	(1,316)	(7,082)
Amounts reclassified from accumulated other comprehensive income (loss)	(13)	(145)	(158)	51	1,154	1,205
Net current period other comprehensive income (loss)	(905)	55	(850)	(5,715)	(162)	(5,877)
Ending balance	\$ (427)	\$ 55	\$ (372)	\$ (6,142)	\$ (107)	\$ (6,249)

The following table provides details about reclassifications out of accumulated other comprehensive income (loss):

Details about Accumulated Other Comprehensive Income (Loss) Components	Amount reclassified from accumulated other comprehensive income (loss)			Affected Line Item in the Statements of Income (Loss)
	2020	2021	2022	
Unrealized gains (losses) on cash flow hedges	\$ 14	\$ 4	\$ (20)	Cost of revenues
	607	144	(1,135)	Research and development
	19	4	(32)	Sales and marketing
	48	13	(105)	General and administrative
	688	165	(1,292)	Total, before income taxes
	83	20	(138)	Income tax expense (benefit)
	605	145	(1,154)	Total, net of income taxes
Unrealized gains (losses) on available-for-sale marketable securities	(6)	13	(55)	Financial income, net
	(1)	—	(4)	Income tax benefit
	(5)	13	(51)	Total, net of income taxes
	\$ 600	\$ 158	\$ (1,205)	Total, net of income taxes

CEVA, INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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NOTE 12: GEOGRAPHIC INFORMATION AND MAJOR CUSTOMER AND PRODUCT DATA

a. Summary information about geographic areas:

The Company manages its business on a basis of one reportable segment: the licensing of intellectual property and co-creation solutions to semiconductor companies and electronic equipment manufacturers (see Note 1 for a brief description of the Company's business). The following is a summary of revenues within geographic areas:

	Year ended December 31,		
	2020	2021	2022
Revenues based on customer location:			
United States	\$ 20,813	\$ 26,718	\$ 28,095
Europe, Middle East	11,966	6,876	10,069
Asia Pacific (1)	67,547	89,102	96,484
Other	—	10	—
	<u>\$ 100,326</u>	<u>\$ 122,706</u>	<u>\$ 134,648</u>
(1) China	\$ 51,726	\$ 67,491	\$ 75,682

	2021	2022
Long-lived assets by geographic region:		
Israel	\$ 8,402	\$ 9,857
France	599	2,066
United States	4,624	4,339
Other	1,967	1,120
	<u>\$ 15,592</u>	<u>\$ 17,382</u>

b. Major customer data as a percentage of total revenues:

The following table sets forth the customers that represented 10% or more of the Company's total revenues in each of the periods set forth below:

	Year ended December 31,		
	2020	2021	2022
Customer A	14%	21%	14%
Customer B	15%	*)	*)

*) Less than 10%

CEVA, INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

c. Information about Products and Services:

The following table sets forth the products and services as percentages of the Company's total revenues in each of the periods set forth below:

	Year ended December 31,		
	2020	2021	2022
Connectivity products and services	78%	73%	71%
Smart sensing products and services	22%	27%	29%

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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NOTE 13: SELECTED STATEMENTS OF INCOME DATA*a. Financial income, net:*

	Year ended December 31,		
	2020	2021	2022
Interest income	\$ 3,291	\$ 1,873	\$ 3,190
Gain (loss) on available-for-sale marketable securities, net	(6)	13	(55)
Amortization of premium on available-for-sale marketable securities, net	(444)	(420)	(397)
Foreign exchange gain (loss), net	443	(1,269)	74
Total	\$ 3,284	\$ 197	\$ 2,812

b. Remeasurement of marketable equity securities:

The Company recorded a gain of \$1,983 and a loss of \$2,511 in 2021 and 2022, respectively, related to remeasurement of its marketable equity securities. During the year ended December 31, 2020, no impairment loss was identified.

NOTE 14: TAXES ON INCOME*a. U.S. tax reform*

On December 22, 2017, the U.S. government enacted the Tax Cuts and Jobs Act (the "Tax Act"). The Tax Act includes significant changes to the U.S. corporate income tax system including but not limited to: a federal corporate rate reduction from 35% to 21%; creation of the base erosion anti-abuse tax ("BEAT"), introduction of the Global Intangible Low Taxed Income ("GILTI") provisions; the transition of U.S. international taxation from a worldwide tax system to a modified territorial tax system; modifications to the allowance of net business interest expense deductions; modification of net operating loss provisions; changes to 162(m) limitation rules and bonus depreciation provisions. The change to a modified territorial tax system resulted in a one-time U.S. tax liability on those earnings which have not previously been repatriated to the U.S. (the "Transition Tax"), with future dividend distributions not subject to U.S. federal income tax when repatriated. A majority of the provisions in the Tax Act became effective January 1, 2018.

In connection with its analysis of the impact of the Tax Act, the Company had \$16,053 of Transition Tax inclusion reported on the tax return filed for the year ended December 31, 2017. After the utilization of existing tax net operating loss carryforwards, the Company did not pay additional U.S. federal cash taxes.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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The Tax Act added a new code section 951A, which requires a U.S. shareholder of a Controlled Foreign Corporation (“CFC”) to include in current taxable income, its GILTI in a manner similar to Subpart F income. The statutory language also allows a deduction for corporate shareholders equal to 50% of the GILTI inclusion, which would be reduced to 37.5% starting in 2026. In general, GILTI imposes a tax on the net income of foreign corporate subsidiaries in excess of a deemed return on their tangible assets. The Company is subject to GILTI for 2018 and future periods. The Company is electing to account for the income tax effects of GILTI as a ‘period cost’, an income tax expense in the year the tax is incurred.

For the fiscal year ended 2020 and 2021, the Company operated at net losses before and after GILTI inclusion and did not pay additional U.S. federal cash taxes.

Furthermore, the Tax Act limits the carryover of net operating losses generated after tax years 2017 to 80% of taxable income and eliminates the ability to carryback. Losses incurred before January 1, 2018 have not changed and are not limited to the 80% of taxable income and will continue to be carried forward 20 years. The Company has fully utilized all pre-2018 net operating losses. Any future net operating losses generated will be carried forward indefinitely and subject to an 80% taxable income limitation.

b. A number of the Company’s operating subsidiaries are taxed at rates lower than U.S. rates.

1. Irish Subsidiaries

The Irish operating subsidiaries qualified for a 12.5% tax rate on its trade. Interest income earned by the Irish subsidiaries is taxed at a rate of 25%. As of December 31, 2022, the open tax years, subject to review by the applicable taxing authorities for the Irish subsidiaries, are 2018 and subsequent years.

2. Israeli Subsidiary

The Israeli subsidiary enjoys certain tax benefits in Israel, particularly as a result of the “Approved Enterprise” and the “Benefited Enterprise” status of its facilities and programs through 2019, and the “Technological Preferred Enterprise” status of its facilities and programs since 2020.

The Israeli subsidiary has been granted “Approved Enterprise” and “Benefited Enterprise” status under the Israeli Law for the Encouragement of Capital Investments. For such Approved Enterprises and Benefited Enterprises, the Israeli subsidiary elected to apply for alternative tax benefits—the waiver of government grants in return for tax exemptions on undistributed income. Upon distribution of such exempt income, the Israeli subsidiary will be subject to corporate tax at the rate ordinarily applicable to the Approved Enterprise’s or Benefited Enterprise’s income. Such tax exemption on undistributed income applies for a limited period of between two to ten years, depending upon the location of the enterprise. During the remainder of the benefits period (generally until the expiration of ten years), a reduced corporate tax rate not exceeding 23% will apply.

The Israeli subsidiary is a foreign investor company, or FIC, as defined by the Investment Law. FICs are entitled to further reductions in the tax rate normally applicable to Approved Enterprises and Benefited Enterprises. Depending on the foreign ownership in each tax year, the tax rate can range between 10% (when foreign ownership exceeds 90%) to 20% (when foreign ownership exceeds 49%). There can be no assurance that the subsidiary will continue to qualify as an FIC in the future or that the benefits described herein will be granted in the future.

The Company’s Israeli subsidiary’s tax-exempt profit from Approved Enterprises and Benefited Enterprises is permanently reinvested as the Company’s management has determined that the Company does not currently intend to distribute dividends. Therefore, deferred taxes have not been provided for such tax-exempt income. The Company intends to continue to reinvest these profits and does not currently foresee a need to distribute dividends out of such tax-exempt income.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

In December 2016, the Economic Efficiency Law (Legislative Amendments for Applying the Economic Policy for the 2017 and 2018 Budget Years), 2016, which includes the Amendment to the Law for the Encouragement of Capital Investments, 1959 (Amendment 73) (the "Amendment"), was published. The Amendment, among other things, prescribes special tax tracks for technological enterprises, which are subject to rules that were issued by the Minister of Finance during April 2017.

The new tax track under the Amendment, which is applicable to the Israeli subsidiary, is the "Technological Preferred Enterprise". A Technological Preferred Enterprise is an enterprise for which total consolidated revenues of its parent company and all subsidiaries are less than 10 billion New Israeli Shekel ("NIS"). A Technological Preferred Enterprise, as defined in the law, which is located in the center of Israel (where our Israeli subsidiary is currently located) is subject to tax at a rate of 12% on profits deriving from intellectual property (in development area A, the tax rate is 7.5%), subject to satisfaction of a number of conditions, including compliance with a minimal amount or ratio of annual Research and development expenditure and Research and development employees, as well as having at least 25% of annual income derived from exports. Any dividends distributed to "foreign companies", as defined in the law, deriving from income from the technological enterprises will be subject to tax at a rate of 4% if foreign entities hold at least 90% of the Company's common stock.

In light of the Company's decision not to distribute a dividend in the coming year, no tax expenses were recognized in the tax year.

The balance of accumulated income that has not yet been thawed as of December 31, 2022 is 118,512 NIS (approximately \$33,677)

In addition, due to a lack of intention to distribute a dividend in a subsidiary that has imprisoned profits, the Company did not recognize as of December 31, 2022 a deferred tax liability against recognition of deferred tax expenses.

Income not eligible for Technological Preferred Enterprise is taxed at a regular rate, which was 23% in 2022, 2021 and 2020.

The Israeli subsidiary elected to compute taxable income in accordance with Income Tax Regulations (Rules for Accounting for Foreign Investors Companies and Certain Partnerships and Setting their Taxable Income), 1986. Accordingly, the taxable income or loss is calculated in U.S. dollars. Applying these regulations reduces the effect of the foreign exchange rate (of NIS against the U.S. dollar) on the Company's Israeli taxable income.

As of December 31, 2022, the open tax years, subject to review by the applicable taxing authorities for the Israeli subsidiary, are 2018 and subsequent years.

3. French Subsidiary

In 2017, the French government passed a series of tax reforms allowing for the phased reduction in the corporate tax rate. In 2018, the French operating subsidiary qualified for a 28% corporate income tax rate for taxable profit up to €500 (approximately \$534) and the standard corporate income tax rate of 33.33% for taxable profit above €500 (approximately \$534). In 2019, the standard corporate income tax rate was reduced to 31%, with the first €500 (approximately \$534) of taxable profit still being subject to the 28% rate. In 2020, the 28% corporate income tax rate has become the new standard rate for all taxable profits. In 2021, the standard corporate income tax rate was reduced to 26.5%. In 2022, the standard corporate income tax rate was reduced to 25%.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

Since 2021, the Company's French subsidiary is entitled to a new tax benefit of 10% applied to specific revenues under the French IP Box regime. The French IP Box regime applies to net income derived from the licensing, sublicensing or sale of several IP rights such as patents and copyrighted software, including royalty revenues. This new elective regime requires a direct link between the income benefiting from the preferential treatment and the R&D expenditures incurred and contributing to that income. Qualifying income may be taxed at a favorable 10% CIT rate (plus social surtax, hence 10.3% in total).

As of December 31, 2022, the open tax years subject to review by the applicable taxing authorities for the French subsidiary are 2020 and subsequent years.

c. Taxes on income comprised of:

	Year ended December 31,		
	2020	2021	2022
Domestic taxes:			
Current	\$ 12	\$ 5	\$ 949
Deferred	—	(1,536)	(4,425)
Foreign taxes:			
Current	6,337	11,772	6,647
Deferred	(1,449)	(4,949)	14,904
	<u>\$ 4,900</u>	<u>\$ 5,292</u>	<u>\$ 18,075</u>
Income (loss) before taxes on income:			
Domestic	\$ (6,348)	\$ (14,883)	\$ (22,046)
Foreign	8,869	20,571	16,938
	<u>\$ 2,521</u>	<u>\$ 5,688</u>	<u>\$ (5,108)</u>

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

d. Reconciliation between the Company's effective tax rate and the U.S. statutory rate:

	Year ended December 31,		
	2020	2021	2022
Income (loss) before taxes on income	\$ 2,521	\$ 5,688	\$ (5,108)
Theoretical tax at U.S. statutory rate	529	1,194	(1,073)
Foreign income taxes at rates other than U.S. rate	810	450	(4,644)
Technological Preferred Enterprise benefits (*)	22	836	—
Subpart F	359	192	301
Non-deductible items	306	340	121
Non-taxable items	(690)	(483)	(452)
Taxes for prior years	—	—	(2,257)
Stock-based compensation expense	(666)	(1,193)	267
Impacts of GILTI	644	—	6,736
Tax adjustment in respect of difference tax rate of foreign subsidiary	1,044	108	(8,147)
Foreign withholding taxes	—	648	1,390
Changes in valuation allowance	2,487	2,575	24,585
Other, net	55	625	1,248
Taxes on income	\$ 4,900	\$ 5,292	\$ 18,075

(*) Basic and diluted earnings per share amounts of the benefit resulting from:

the "Technological Preferred Enterprise benefits" status	\$ 0.00	\$ 0.04	\$ —
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CEVA, INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

e. *Deferred taxes on income:*

Significant components of the Company's deferred tax assets are as follows:

	As at December 31,	
	2021	2022
Deferred tax assets		
Operating loss carryforward	\$ 15,621	\$ 11,517
Accrued expenses and deferred revenues	1,951	2,677
Temporary differences related to R&D expenses	5,057	14,677
Equity-based compensation	2,756	5,623
Operating leases	1,737	2,004
Tax credit carry forward	10,997	17,212
Other	132	1,255
Total gross deferred tax assets	38,251	54,965
Valuation allowance	(19,288)	(43,873)
Net deferred tax assets	\$ 18,963	\$ 11,092
Deferred tax liabilities		
Operating leases	\$ 1,719	\$ 2,020
Intangible assets	1,394	473
Total deferred tax liabilities	\$ 3,113	\$ 2,493
Net deferred tax assets (*)	\$ 15,850	\$ 8,599

(*) \$119 and \$4,544 net deferred taxes for the years ended December 31, 2021 and 2022, respectively, are from domestic jurisdictions.

Changes in valuation allowances on deferred tax assets result from management's assessment of the Company's ability to utilize certain future tax deductions, operating losses and tax credit carryforwards prior to expiration. Valuation allowances were recorded to reduce deferred tax assets to an amount that will, more likely than not, be realized in the future.

During the year ended December 31, 2022, the Company concluded that, based on its evaluation of available evidence, it was no longer more likely than not that its Israeli operations deferred tax assets were recoverable. As a result, the Company recorded a valuation allowance of \$31,494 against its Israeli operations deferred tax assets.

As of December 31, 2022, the Company's undistributed earnings from non-U.S. subsidiaries are intended to be indefinitely reinvested in non-U.S. operations, and therefore no U.S. deferred taxes liabilities have been recorded.

f. *Uncertain tax positions:*

A reconciliation of the beginning and ending amount of gross unrecognized tax benefits based on the provisions of FASB ASC No. 740 is as follows:

	Year ended December 31,	
	2021	2022
Beginning of year	\$ 1,558	\$ 1,610
Additions for current year tax positions	133	50
Reductions for prior year's tax positions	(81)	(27)
Balance at December 31	\$ 1,610	\$ 1,633

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

As of December 31, 2021 and 2022, there were \$1,610 and \$1,633, respectively, of unrecognized tax benefits that if recognized would affect the annual effective tax rate. The Company did not accrue interest and penalties relating to unrecognized tax benefits in its provision for income taxes during the years ended December 31, 2021 and 2022 because such interest and penalties did not have a material impact on the Company's financial statements.

The Company believes that an adequate provision has been made for any adjustments that may result from tax examinations. However, the outcome of tax audits cannot be predicted with certainty. If any issues addressed in the Company's tax audits are resolved in a manner not consistent with management's expectations, the Company could be required to adjust its provision for income taxes in the period such resolution occurs. The Company does not expect uncertain tax positions to change significantly over the next 12 months, except in the case of settlements with tax authorities, the likelihood and timing of which are difficult to estimate.

g. Tax loss carryforwards:

As of December 31, 2022, CEVA and its subsidiaries had net operating loss carryforwards for various state income tax purposes of approximately \$27,300 which are available to offset taxable income. Such loss carryforwards begin to expire in 2030.

As of December 31, 2022, CEVA's Irish subsidiary had foreign operating losses of approximately \$49,611, which are available to offset future taxable income indefinitely.

As of December 31, 2022, CEVA's Israeli subsidiary had foreign operating losses of approximately \$16,284, which are available to offset future taxable income indefinitely.

h. Tax returns:

CEVA files income tax returns in the U.S. federal jurisdiction and various state and local jurisdictions. With few exceptions, CEVA is no longer subject to U.S. federal income tax examinations by tax authorities, and state and local income tax examinations, for the years prior to 2011.

NOTE 15: RELATED PARTY TRANSACTIONS

On February 16, 2021, the Board unanimously approved the appointment of Jaclyn Liu as an independent member of the Board with the appointment effective as of February 16, 2021. Ms. Liu is a partner of Morrison & Foerster LLP, outside legal counsel to the Company. Fees attributed to Morrison & Foerster LLP during the year ended December 31, 2022, were \$524. The accounts payable balance with Morrison & Foerster LLP at December 31, 2022 was \$92.

NOTE 16: COMMITMENTS AND CONTINGENCIES

a. The Company is not a party to any litigation or other legal proceedings that the Company believes could reasonably be expected to have a material adverse effect on the Company's business, results of operations and financial condition.

b. As of December 31, 2022, the Company and its subsidiaries had several non-cancelable operating leases, primarily for facilities and equipment. These leases generally contain renewal options and require the Company and its subsidiaries to pay all executory costs such as maintenance and insurance. In addition, the Company has several fixed service agreements with sub-contractors.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(in thousands, except share data)

As of December 31, 2022, future purchase obligations and minimum rental commitments for leasehold properties and operating leases with non-cancelable terms are as follows:

	Minimum rental commitments for leasehold properties	Commitments for other lease obligations	Other purchase obligations	Total
2023	\$ 592	\$ 6,681	\$ 571	\$ 7,844
2024	447	4,553	50	5,050
2025	320	4,554	43	4,917
2026 and thereafter	177	—	—	177
Total	\$ 1,536	\$ 15,788	\$ 664	\$ 17,988

c. Royalties:

The Company participated in programs sponsored by the Israeli government for the support of research and development activities. Through December 31, 2022, the Company had obtained grants from the IIA for certain of the Company's research and development projects. The Company is obligated to pay royalties to the IIA, amounting to 3%-3.5% of the sales of the products and other related revenues (based on the dollar) generated from such projects, up to 100% of the grants received. Royalty payment obligations also bear interest at the LIBOR rate. The obligation to pay these royalties is contingent on actual sales of the products and in the absence of such sales, no payment is required.

Royalty expenses relating to the IIA grants included in cost of revenues for the years ended December 31, 2020, 2021 and 2022 amounted to \$1,066, \$1,175 and \$1,221, respectively. As of December 31, 2022, the aggregate contingent liability to the IIA (including interest) amounted to \$28,778.

CEVA, INC.

EMPLOYMENT INDUCEMENT GRANT**NOTICE OF RESTRICTED AND PERFORMANCE STOCK UNIT AWARD –****FOR ISRAELI RESIDENT GRANTEE**

Grantee's Name: Amir Panush

You (the "Grantee") have been granted Restricted Stock Units and Performance Stock Units (the "Award"), subject to the terms and conditions of this Notice of Restricted and Performance Stock Unit Award For Israeli Resident Grantees (the "Notice") and the Restricted and Performance Stock Unit Award Agreement (the "Award Agreement") attached hereto. This Award is being granted to you as an "employment inducement award" under NASDAQ Listing Rule 5635 (c) (4), outside of the CEVA, Inc. 2011 Stock Incentive Plan, as amended from time to time (the "Plan") and the Israeli Sub-Plan of the Plan (the "Sub-Plan"). Notwithstanding that this Award is being granted outside of the Plan, except as expressly provided otherwise, the Award will be governed in a manner consistent with the terms and conditions of the Plan and the Sub-Plan. In the event of any inconsistency or contradiction between any of the terms of this Notice and the provisions of the Plan or the Sub-Plan, the terms and provisions of this Notice shall prevail. Capitalized terms used herein but not otherwise defined shall have the meaning set forth in the Plan or the Sub-Plan.

Date of Award: February 17, 2023

Vesting Commencement Date: February 17, 2023

Total Number of Restricted, Short-Term Performance, and Long-Term Performance Stock Units Awarded (the "Units"): 14,541 (the "Time-Based Units"), 28,354 (the "short-term PSUs"), and 60,587 (the "long-term PSUs")

Type of Award:	X	102 Capital Gains Track Option Award (with Trustee)
		102 Ordinary Income Track Option Award (with Trustee)
		102 Non Trustee Option Award
		3(i) Option Award
	Other	_____

Time-Based Vesting Schedule:

Subject to the Grantee's Continuous Service and other limitations set forth in this Notice, the Plan, the Sub-Plan and the Award Agreement, the Time-Based Units will vest in accordance with the following schedule: 33.4% of the original number of Time-Based Units on the first anniversary of the Vesting Commencement Date, 33.3% of the original number of Time-Based Units on the second anniversary of the Vesting Commencement Date and the remaining 33.3% of the original number of Time-Based Units on the third anniversary of the Vesting Commencement Date.

Short-Term PSU Vesting Schedules:

Subject to the Grantee's Continuous Service and other limitations set forth in this Notice, the Plan, the Sub-Plan and the Award Agreement, in each case as described below, the short-term PSUs shall vest as follows:

Relative TSR

25% of the short-term PSUs may be earned and vest based on the Company's TSR compared to the TSR of the S&P Semiconductors Select Industry Index (the "**S&P Relative TSR PSUs**") and another 25% of the short-term PSUs may be earned and vest based on the Company's TSR compared to the TSR of the Russell 2000 Index (the "**Russell Relative TSR PSUs**") during the TSR Performance Period. If the S&P Semiconductors Select Industry Index is discontinued, a comparable index will be selected by the Board in good faith and used for purposes of determining the number of S&P Relative TSR PSUs earned. Similarly, if the Russell 2000 Index is discontinued, a comparable index will be selected by the Board in good faith and used for purposes of determining the number of Russell Relative TSR PSUs.

"**TSR Performance Period**" means the one-year period commencing on January 1, 2023 and ending on December 31, 2023.

"**TSR**" means the cumulative percentage change in stock price over the TSR Performance Period, with dividends paid during the TSR Performance Period being added to the stock price at the end of the TSR Performance Period. The price of an entity's stock at the beginning of the TSR Performance Period will be the average closing stock price over the trading days in the 30 days immediately preceding the start of the TSR Performance Period, and the stock price at the end of the TSR Performance Period will be the average closing stock price over the trading days in the last 30 days of the TSR Performance Period.

The Board shall calculate TSR in its sole discretion and the Board's determinations shall be final and binding.

The methodology for determining the number of S&P Relative TSR PSUs and Russell Relative TSR PSUs eligible to vest is described in Exhibit A.

2023 License, NRE and Related Revenue

50% of the short-term PSUs may be earned and vest based on the Company's achievement of the 2023 license, NRE and related revenue amount in the budget approved by the Board (the "**2023 License Revenue Target**" and such short-term PSUs, the "**License Revenue PSUs**"). The Board shall determine achievement of 2023 License Revenue Target, in its sole discretion and the Board's determinations shall be final and binding. The methodology for determining the number of License Revenue PSUs eligible to vest is described in Exhibit A.

The short-term PSUs will become eligible to vest only if and to the extent that the applicable performance goal is satisfied. In the event that the applicable performance goal has been satisfied, then the short-term PSUs will vest if and only to the extent that the applicable service-based vesting requirements are satisfied. Short-term PSUs that become eligible to vest based on satisfying the performance goal are referred to as “**Earned S&P Relative TSR PSUs**”, “**Earned Russell Relative TSR PSUs**” and “**Earned License Revenue PSUs**” (together, the “**Earned PSUs**”). In no event will (i) the Earned S&P Relative TSR PSUs exceed the Maximum S&P Relative TSR PSUs (as defined in Exhibit A), (ii) the Earned Russell S&P TSR PSUs exceed the Maximum Russell Relative TSR PSUs (as defined in Exhibit A), and (iii) the Earned License Revenue PSUs exceed the Maximum License Revenue PSUs (as defined in Exhibit A).

The Earned PSUs are subject to service-based vesting requirements that apply if and only after any short-term PSUs become Earned PSUs as follows: 33.4% of the Earned PSUs on the first anniversary of the Vesting Commencement Date, 33.3% of the Earned PSUs on the second anniversary of the Vesting Commencement Date and the remaining 33.3% of the Earned PSUs on the third anniversary of the Vesting Commencement Date.

During any authorized leave of absence, the service-based vesting of the Units as provided in this Notice shall be suspended after the leave of absence exceeds a period of 90 days. Service-based vesting of the Units shall resume upon the Grantee’s termination of the leave of absence and return to service to the Company or a Related Entity. The service-based vesting of the Units shall be extended by the length of the suspension.

Long-Term PSU Vesting Schedules:

Subject to the Grantee’s Continuous Service and other limitations set forth in this Notice, the Plan, the Sub-Plan and the Award Agreement, in each case as described below, the long-term PSUs shall vest upon the first to occur of the following:

Earnings Per Share

The long-term PSUs shall vest if the Company’s compound annual growth rate for non-GAAP earnings per share for each fiscal year over the three-year period from 2022 through 2025 reaches 10% or if the Company’s non-GAAP earnings per share for any fiscal year reaches \$1.00 during the EPS Performance Period (the “**EPS Goal**”). The long-term PSUs shall immediately vest on the date that the Board determines the EPS Goal was achieved, subject to the Grantee’s Continuous Service through such date.

“**EPS Performance Period**” means January 1, 2023 through December 31, 2025.

The Board shall determine achievement of the EPS Goal, in its sole discretion and the Board’s determinations shall be final and binding.

Annual Operating Margin

The long-term PSUs shall vest if the Company’s non-GAAP operating margin for any fiscal year reaches 20% during the AOM Performance Period (the “**AOM Goal**”). The long-term PSUs shall immediately vest on the date that the Board determines the AOM Goal was achieved, subject to the Grantee’s Continuous Service through such date.

“**AOM Performance Period**” means January 1, 2023 through December 31, 2025.

The Board shall determine achievement of the AOM Goal, in its sole discretion and the Board’s determinations shall be final and binding.

Revenue

The long-term PSUs shall vest if the Company's compound annual growth rate for revenue for each fiscal year over the three-year period from 2022 through 2025 reaches 10% or if the Company's revenue for any fiscal year reaches \$180 million during the Revenue Performance Period (the "**Revenue Goal**") The long-term PSUs shall immediately vest on the date that the Board determines the Revenue Goal was achieved, subject to the Grantee's Continuous Service through such date.

"**Revenue Performance Period**" means January 1, 2023 through December 31, 2025.

The Board shall determine achievement of the Revenue Goal, in its sole discretion and the Board's determinations shall be final and binding.

Absolute TSR

The Long-term PSUs shall vest if the Company's Market Capitalization reaches and remains at or above \$1.1 billion for 30 consecutive trading days, as determined after market close on the thirtieth such consecutive trading day, during the Absolute TSR Performance Period (the "**Absolute TSR Goal**"). The PSUs shall immediately vest on the date that the Board determines the Absolute TSR Goal was achieved, subject to the Grantee's Continuous Service through such date.

"**Market Capitalization**" means total outstanding shares of common stock of the Company as of a given date multiplied by the closing price for the Company's common stock as quoted by the NASDAQ Stock Market, subject to adjustment for stock splits, dividends, recapitalizations and the like.

"**Absolute TSR Performance Period**" means January 1, 2023 through December 31, 2025.

The Board shall determine achievement of the Absolute TSR Goal in its sole discretion and the Board's determinations shall be final and binding.

The long-term PSUs will vest only if and to the extent that the Absolute TSR Goal, Revenue Goal, AOM Goal or the EPS Goal is achieved. In the event that neither the Absolute TSR Goal, Revenue Goal, AOM Goal nor the EPS Goal is achieved, the long-term PSUs shall be forfeited and deemed reconveyed to the Company and the Company shall thereafter be the legal and beneficial owner of such reconveyed long-term PSUs and shall have all rights and interest in or related thereto without further action by the Grantee.

For purposes of this Notice and the Award Agreement, the term "vest" shall mean, with respect to any Units, that such Units are no longer subject to forfeiture to the Company. If the Grantee would become vested in a fraction of a Unit, such Unit shall not vest until the Grantee becomes vested in the entire Unit.

Vesting shall cease upon the date the Grantee terminates Continuous Service for any reason, including death or Disability. In the event of termination of the Grantee's Continuous Service for any reason, including death or Disability, any unvested Units held by the Grantee immediately upon such termination of the Grantee's Continuous Service shall be forfeited and deemed reconveyed to the Company and the Company shall thereafter be the legal and beneficial owner of such reconveyed Units and shall have all rights and interest in or related thereto without further action by the Grantee.

IN WITNESS WHEREOF, the Company and the Grantee have executed this Notice and agree that the Award is to be governed by the terms and conditions of this Notice, the Award Agreement, the Plan and the Sub-Plan.

CEVA, Inc.,
a Delaware corporation

By: Yaniv Arieli
Title: CFO
Date of Signature: Date_Of_Signature_Manager

THE GRANTEE ACKNOWLEDGES AND AGREES THAT THE UNITS SHALL VEST, IF AT ALL, ONLY DURING THE PERIOD OF THE GRANTEE'S CONTINUOUS SERVICE (NOT THROUGH THE ACT OF BEING HIRED, BEING GRANTED THE AWARD OR ACQUIRING SHARES HEREUNDER). THE GRANTEE FURTHER ACKNOWLEDGES AND AGREES THAT NOTHING IN THIS NOTICE OR THE AWARD AGREEMENT SHALL CONFER UPON THE GRANTEE ANY RIGHT WITH RESPECT TO FUTURE AWARDS OR CONTINUATION OF THE GRANTEE'S CONTINUOUS SERVICE, NOR SHALL IT INTERFERE IN ANY WAY WITH THE GRANTEE'S RIGHT OR THE RIGHT OF THE COMPANY OR RELATED ENTITY TO WHICH THE GRANTEE PROVIDES SERVICES TO TERMINATE THE GRANTEE'S CONTINUOUS SERVICE, WITH OR WITHOUT CAUSE, AND WITH OR WITHOUT NOTICE. THE GRANTEE ACKNOWLEDGES THAT UNLESS THE GRANTEE HAS A WRITTEN EMPLOYMENT AGREEMENT WITH THE COMPANY TO THE CONTRARY, THE GRANTEE'S STATUS IS AT WILL.

The Grantee acknowledges receipt of a copy of the Award Agreement as well as the Plan and the Sub-Plan, and represents that he or she is familiar with the terms and provisions thereof, and hereby accepts the Award subject to all of the terms and provisions hereof and thereof. The Grantee has reviewed this Notice, the Award Agreement, the Plan and the Sub-Plan in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Notice, and fully understands all provisions of this Notice, the Award Agreement, the Plan and the Sub-Plan. The Grantee hereby agrees that all questions of interpretation and administration relating to this Notice and the Award Agreement shall be resolved by the Administrator of the Plan in accordance with Section 8 of the Award Agreement. The Grantee further agrees to the venue selection and waiver of a jury trial in accordance with Section 9 of the Award Agreement. The Grantee further agrees to notify the Company upon any change in the residence address indicated in this Notice.

To the extent an Approved 102 Option, as defined below, is designated above, the Grantee declares and acknowledges: (i) that he or she fully understand that Section 102 of the Ordinance and the rules and regulations enacted thereunder apply to the Award specified in this Notice and to him or her; and (ii) that he or she understands the provisions of Section 102, the tax track chosen and the implications thereof. In addition, the terms of the Award shall also be subject to the terms of the Trust Agreement made between the Company and the Trustee for the benefit of the Grantee (the "Trust Agreement"), as well as the requirements of the Israeli Income Tax Commissioner. The grant of the Award is conditioned upon the Grantee signing all documents requested by the Company, the Employer or the Trustee, in accordance with and under the Trust Agreement. ***A copy of the Trust Agreement is available for the Grantee's review, during normal working hours, at Company's offices.***

Date of Signature: Date_Of_Signature_Employee

Grantee Name: Amir Panush

Exhibit A

The number of PSUs that vest (determined separately with respect to each category of PSU, with each category representing 50% of the PSUs) will be determined as follows (rounded down to the nearest whole share):

S&P Relative TSR PSUs

Company TSR Compared to S&P Semiconductors

Select Industry Index (the “S&P Index”) TSR at

End of the TSR Performance Period	% of S&P Relative TSR PSUs Earned	Number of Earned S&P Relative TSR PSUs
Below 90% of the S&P Index’s TSR	0%	0
Equal to 90% of the S&P Index’s TSR	90%	4,907
91% to 99% of the S&P Index’s TSR	91% to 99%	4,962 to 5,398
Equal to the S&P Index’s TSR	100%	5,452
110% of the S&P Index’s TSR	130%	7,088 (the “Maximum S&P Relative TSR PSUs”)

If, at the end of the TSR Performance Period, the Company’s TSR is greater than the S&P Index’s TSR but less than 110% of the S&P Index’s TSR, the Earned S&P Relative TSR PSUs will increase by 3% for each 1% increase in the Company’s TSR above the S&P Index’s TSR. To the extent the relevant TSR is not a whole percentage, the number of Earned S&P Relative TSR PSUs will be determined by applying linear interpolation.

For example, the Earned S&P Relative TSR PSUs would equal 5,589 if the average of the S&P Index’s TSR at the end of the TSR Performance Period is 20% and the Company’s TSR at the end of the TSR Performance Period is 21%, subject to the three-year service-based vesting period discussed above.

Russell Relative TSR PSUs

Company TSR Compared to Russell 2000 Index (the “Russell Index”) TSR at End of the TSR Performance Period	% of Russell Relative TSR PSUs Earned	Number of Earned Russell Relative TSR PSUs
Below 90% of the Russell Index’s TSR	0%	0
Equal to 90% of the Russell Index’s TSR	90%	0
91% to 99% of the Russell Index’s TSR	91% to 99%	4,907
Equal to the Russell Index’s TSR	100%	4,962 to 5,398
110% of the Russell Index’s TSR	130%	7,088 (the “Maximum Russell Relative TSR PSUs”)

If, at the end of the TSR Performance Period, the Company’s TSR is greater than the Russell Index’s TSR but less than 110% of the Russell Index’s TSR, the Earned Russell Relative TSR PSUs will increase by 3% for each 1% increase in the Company’s TSR above the Russell Index’s TSR. To the extent the relevant TSR is not a whole percentage, the number of Earned Russell Relative TSR PSUs will be determined by applying linear interpolation.

For example, the Earned Russell Relative TSR PSUs would equal 5,589 if the average of the Russell Index’s TSR at the end of the TSR Performance Period is 20% and the Company’s TSR at the end of the TSR Performance Period is 21%, subject to the three-year service-based vesting period discussed above.

License Revenue PSUs

Percentage of 2023 License Revenue Target Achieved	% of License Revenue PSUs Earned	Number of Earned License Revenue PSUs
Below 90%	0%	0
90%	90%	9,814
91% to 99%	91% to 99%	9,924 to 10,796
100%	100%	10,905
110%	130%	14,177 (the “Maximum Earned License Revenue PSUs”)

If the Company’s 2023 License Revenue is greater than 100% of the 2023 License Revenue Target but less than 110% of the 2023 License Revenue Target, the Earned License Revenue PSUs will increase by 3% for each 1% increase in the 2023 License Revenue Target achieved. To the extent that the 2023 License Revenue Target is achieved at a level that is not a whole percentage, the percentage of the License Revenue PSUs that become Earned License Revenue PSUs will be determined by applying linear interpolation.

For example, the Earned License Revenue PSUs would equal (i) 10,360 if the Company achieves 95% of the 2023 License Revenue Target and (ii) 12,214 if the Company achieves 104% of the 2023 License Revenue Target, subject to the three-year service-based vesting period discussed above.

EMPLOYMENT INDUCEMENT AWARD

RESTRICTED AND PERFORMANCE STOCK UNIT AWARD AGREEMENT-
FOR ISRAELI RESIDENT GRANTEES

1. Grant of Restricted and Performance Stock Units. CEVA, Inc., a Delaware corporation (the “Company”), hereby grants to the Grantee (the “Grantee”) named in the Notice of Restricted and Performance Stock Unit Award for Israeli Resident Grantees (the “Notice”) an award (the “Award”) of the Total Number of Restricted Stock Units, Short-Term Performance Stock Units and Long-Term Performance Stock Units set forth in the Notice (the “Units”), subject to the terms and provisions of the Notice and this Award Agreement for Israeli Resident Grantees (the “Award Agreement”). This Award is being granted to Grantee as an “employment inducement award” under NASDAQ Listing Rule 5635 (c) (4), outside of the CEVA, Inc. 2011 Stock Incentive Plan, as amended from time to time (the “Plan”) and the Israeli Sub-Plan of the Plan (the “Sub-Plan”). Notwithstanding that this Award is being granted outside of the Plan, except as expressly provided otherwise, the Award will be governed in a manner consistent with the terms and conditions of the Plan and the Sub-Plan, which are incorporated herein by reference. Capitalized terms used herein but not otherwise defined shall have the meaning set forth in the Plan or the Sub-Plan.

2. Conversion of Units and Issuance of Shares.

(a) General. Subject to Sections 2(b) and 2(c), one share of common stock of the Company (the “Company Stock”) shall be issuable for each Unit subject to the Award (the “Shares”) upon vesting. Immediately thereafter, or as soon as administratively feasible, the Company will deliver the appropriate number of Shares to the Grantee after satisfaction of any required tax or other withholding obligations, or, in the case of Approved 102 Option, to the Trustee. Notwithstanding the foregoing, the relevant number of Shares shall be delivered to the Grantee or, in the case of Approved 102 Option, to the Trustee no later than March 15th of the year following the calendar year in which the Award vests.

(b) Delay of Conversion. The conversion of the Units into the Shares under Section 2(a) above may be delayed in the event the Company reasonably anticipates that the issuance of the Shares would constitute a violation of federal securities laws or other Applicable Law. If the conversion of the Units into the Shares is delayed by the provisions of this Section 2(b), the conversion of the Units into the Shares shall occur at the earliest date at which the Company reasonably anticipates issuing the Shares will not cause a violation of federal securities laws or other Applicable Law. For purposes of this Section 2(b), the issuance of the Shares that would cause inclusion in gross income or the application of any penalty provision or other provision of the Internal Revenue Code of 1986, as amended (the “Code”) is not considered a violation of Applicable Law.

(c) Delay of Issuance of Shares. The Company shall delay the delivery of any Shares under this Section 2 to the extent necessary to comply with Section 409A(a)(2)(B)(i) of the Code (relating to payments made to certain “specified employees” of certain publicly-traded companies); in such event, any Shares to which the Grantee would otherwise be entitled during the six (6) month period following the date of the Grantee’s termination of Continuous Service will be delivered on the first business day following the expiration of such six (6) month period.

3. Taxes.

(a) Tax Liability. The Grantee is ultimately liable and responsible for all taxes owed by the Grantee in connection with the Award, regardless of any action the Company or any Related Entity takes with respect to any tax withholding obligations that arise in connection with the Award. Neither the Company nor any Related Entity makes any representation or undertaking regarding the treatment of any tax withholding in connection with any aspect of the Award, including the grant or vesting, or delivery of Shares under, the Award or the subsequent sale of Shares acquired under the Award. The Company and its Related Entities do not commit and are under no obligation to structure the Award to reduce or eliminate the Grantee's tax liability. No Shares will be delivered to the Grantee or other person under the Award until the Grantee or other person has made arrangements acceptable to the Administrator and/or the Trustee, as applicable, for the satisfaction of applicable income tax, employment tax and any other withholding obligations.

(b) Payment of Withholding Taxes. Prior to any event in connection with the Award (e.g., vesting) that the Company determines may result in any tax withholding obligation, whether United States federal, state, local or non-U.S., including any social insurance, employment tax, payment on account or other tax-related obligation (the "Tax Withholding Obligation"), Grantee must arrange for the satisfaction of the minimum amount of the Tax Withholding Obligation in a manner acceptable to the Company.

(i) By Share Withholding. If permissible under Applicable Law, Grantee authorizes the Company to, in its sole discretion, withhold from those Shares otherwise issuable to Grantee the whole number of Shares sufficient to satisfy the minimum applicable Tax Withholding Obligation. Grantee acknowledges that the withheld Shares may not be sufficient to satisfy Grantee's minimum Tax Withholding Obligation. Accordingly, Grantee agrees to pay to the Company or any Related Entity as soon as practicable, including through additional payroll withholding, any amount of the Tax Withholding Obligation that is not satisfied by the withholding of Shares described above.

(ii) By Sale of Shares. Unless Grantee determines to satisfy the Tax Withholding Obligation by some other means in accordance with clause (iii) below, Grantee's acceptance of this Award constitutes Grantee's instruction and authorization to the Company and any brokerage firm determined acceptable to the Company for this purpose to, upon the exercise of Company's sole discretion, sell on Grantee's behalf a whole number of Shares from those Shares issuable to Grantee as the Company determines to be appropriate to generate cash proceeds sufficient to satisfy the minimum applicable Tax Withholding Obligation ("Tax Obligation Sale"). These Shares will be sold on the day the Tax Withholding Obligation arises (e.g., a vesting date) or as soon thereafter as practicable. Grantee will be responsible for all broker's fees and other costs related to a Tax Obligation Sale, and Grantee agrees to indemnify and hold the Company harmless from any losses, costs, damages, or expenses relating to any Tax Obligation Sale. To the extent the proceeds of a Tax Obligation Sale exceed Grantee's minimum Tax Withholding Obligation, the Company agrees to pay the excess in cash to Grantee. Grantee acknowledges that the Company or its designee is under no obligation to arrange for a Tax Obligation Sale at any particular price, and that the proceeds of any Tax Obligation Sale may not be sufficient to satisfy Grantee's minimum Tax Withholding Obligation. Accordingly, Grantee agrees to pay to the Company or any Related Entity as soon as practicable, including through additional payroll withholding, any amount of the Tax Withholding Obligation that is not satisfied by a Tax Obligation Sale.

(iii) By Check, Wire Transfer or Other Means. At any time not less than five (5) business days (or a fewer number of business days as determined by the Administrator) before any Tax Withholding Obligation arises (e.g., a vesting date), Grantee may elect to satisfy Grantee's Tax Withholding Obligation by delivering to the Company an amount that the Company determines is sufficient to satisfy the Tax Withholding Obligation by (x) wire transfer to an account specified by the Company, (y) delivery of a certified check payable to the Company, or (z) any other means as is specified from time to time by the Administrator.

(iv) Additional Options. The Company or a Related Entity also may satisfy any Tax Withholding Obligation by offsetting any amounts (including, but not limited to, salary, bonus and severance payments) payable to Grantee by the Company and/or a Related Entity. Furthermore, in the event of any determination that the Company has failed to withhold a sum sufficient to pay all withholding taxes due in connection with the Award, Grantee agrees to pay the Company the amount of the deficiency in cash within five (5) days after receiving a written demand from the Company to do so, whether or not Grantee is an employee of the Company at that time.

(c) Tax Consultation. The Grantee is advised to consult with a tax advisor with respect to the tax consequences of receiving or converting Units hereunder. The Company and/or the Employer do not assume any responsibility to advise the Grantee on such matters, which shall remain solely the responsibility of the Grantee.

4. Transfer Restrictions. The Units may not be transferred in any manner other than by will or by the laws of descent and distribution and may be converted during the lifetime of the Grantee only by the Grantee. With respect to any Units granted under the provisions of Section 102 of the Ordinance, Shares resulting from their conversion and any additional rights, including bonus shares that may be distributed to the Grantee in connection with the Units (the "Additional Rights"), which will be allocated to the Trustee on behalf of the Grantee according to the provisions of Section 102 of the Ordinance and the Rules (the "Approved 102 Option"), a Grantee shall not sell, assign, transfer, give as a collateral or any right that would be given to any third party or release from trust any Share received upon the conversion of an Approved 102 Option and/or any Additional Right, until at least the lapse of the Holding Period required under Section 102 of the Ordinance. Notwithstanding the above, if any such sale or release occurs during the Holding Period, the sanctions under Section 102 of the Ordinance and under any rules or regulations or orders or procedures promulgated thereunder shall apply to and shall be borne by such Grantee. At the end of the Holding Period, the Units, Shares or any Additional Rights may be transferred to the Grantee upon his demand, but only under the condition that the tax due in accordance with Section 102 and the Rules is paid to the satisfaction of the Trustee and the Company. With respect to an Unit granted pursuant to Section 102(c) of the Ordinance, including Additional Rights in respect thereof, if the Grantee ceases to be employed by the Employer, the Grantee shall extend to the Company and/or the Employer a security or guarantee for the payment of tax (including social security taxes and health insurance taxes) due at the time of sale of Shares, all in accordance with the provisions of Section 102 and the Rules.

5. Right to Shares. The Grantee shall not have any right in, to or with respect to any of the Shares (including any voting rights or rights with respect to dividends paid on the Company Stock) issuable under the Award until the Award is settled by the issuance of such Shares to the Grantee or, in the case of Approved 102 Option, to the Trustee.

6. Entire Agreement: Governing Law. The Notice and this Award Agreement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and the Grantee with respect to the subject matter hereof, and may not be modified adversely to the Grantee's interest except by means of a writing signed by the Company and the Grantee. Nothing in the Notice or this Award Agreement (except as expressly provided therein) is intended to confer any rights or remedies on any persons other than the parties. The Notice and this Award Agreement are to be construed in accordance with and governed by the internal laws of the State of Delaware without giving effect to any choice of law rule that would cause the application of the laws of any jurisdiction other than the internal laws of the State of Delaware to the rights and duties of the parties, provided that that the tax treatment and the tax rules and regulations applying hereto shall be the Ordinance and Rules or the Code, as applicable. Should any provision of the Notice or this Award Agreement be determined to be illegal or unenforceable, such provision shall be enforced to the fullest extent allowed by law and the other provisions shall nevertheless remain effective and shall remain enforceable.

7. Construction. The captions used in the Notice and this Award Agreement are inserted for convenience and shall not be deemed a part of the Award for construction or interpretation. Except when otherwise indicated by the context, the singular shall include the plural and the plural shall include the singular. Use of the term “or” is not intended to be exclusive, unless the context clearly requires otherwise.

8. Administration and Interpretation. This Award shall be administered in accordance with the terms of the Plan. Any question or dispute regarding the administration or interpretation of the Notice or this Award Agreement shall be submitted by the Grantee or by the Company to the Administrator of the Plan. The resolution of such question or dispute by the Administrator shall be final and binding on all persons.

9. Venue and Waiver of Jury Trial. The Company, the Grantee, and the Grantee’s assignees pursuant to Section 4 (the “parties”) agree that any suit, action, or proceeding arising out of or relating to the Notice or this Award Agreement shall be brought in the United States District Court in the State of Delaware (or should such court lack jurisdiction to hear such action, suit or proceeding, in a Delaware state court) and that the parties shall submit to the jurisdiction of such court. The parties irrevocably waive, to the fullest extent permitted by law, any objection the party may have to the laying of venue for any such suit, action or proceeding brought in such court. **THE PARTIES ALSO EXPRESSLY WAIVE ANY RIGHT THEY HAVE OR MAY HAVE TO A JURY TRIAL OF ANY SUCH SUIT, ACTION OR PROCEEDING.** If any one or more provisions of this Section 9 shall for any reason be held invalid or unenforceable, it is the specific intent of the parties that such provisions shall be modified to the minimum extent necessary to make it or its application valid and enforceable.

10. Notices. Any notice required or permitted hereunder shall be given in writing and shall be deemed effectively given upon personal delivery, upon deposit for delivery by an internationally recognized express mail courier service or upon deposit in the United States mail by certified mail (if the parties are within the United States), with postage and fees prepaid, addressed to the other party at its address as shown in these instruments, or to such other address as such party may designate in writing from time to time to the other party.

END OF AGREEMENT

CEVA, INC.

Subsidiaries

The following are the subsidiaries of CEVA, Inc.

Name	Jurisdiction of Incorporation
CEVA Limited	Northern Ireland
CEVA Development, Inc.	California
CEVA Inc.	Cayman Islands
CEVA Ireland Limited	Republic of Ireland
CEVA DSP Limited	Israel
CEVA Services Limited	Republic of Ireland
CEVA Systems LLC	Delaware
Nihon CEVA K.K.	Japan
CEVA Technologies Limited	Republic of Ireland
CEVA Technologies, Inc.	Delaware
CEVA Germany GmbH.	Germany
CEVA France	France
RivieraWaves SAS	France
Intrinsic Corp.	Massachusetts
CEVA SER d.o.o. Beograd	Serbia

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statements (Form S-8 Nos. 333-266698, 333-239813, 333-219868, 333-206274, 333-176207, 333-160866, 333-141355, 333-115506, 333-107443 and 333-101553) pertaining to the 2011 Stock Incentive Plan, 2002 Stock Incentive Plan, 2002 Employee Stock Purchase Plan, 2000 Stock Incentive Plan, Parthus Technologies 2000 Share Incentive Plan, Chicory Systems, Inc. 1999 Employee Stock Option/Stock Issuance Plan, and Amended and Restated 2003 Director Stock Option Plan of CEVA Inc. (formerly ParthusCeva, Inc.) of our reports dated March 1, 2023, with respect to the consolidated financial statements of CEVA Inc., and the effectiveness of internal control over financial reporting of CEVA Inc., included in this Annual Report (Form 10-K) for the year ended December 31, 2022.

Tel-Aviv, Israel

March 1, 2023

/s/ KOST FORER GABBAY & KASIERER

A Member of Ernst & Young Global

EXHIBIT 31.1
CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO
SECTION 302(a) OF THE SARBANES-OXLEY ACT OF 2002

I, Amir Panush, certify that:

1. I have reviewed this Annual Report on Form 10-K of CEVA, Inc. (the "Company");
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2023

By: /s/ Amir Panush
Amir Panush
Chief Executive Officer

EXHIBIT 31.2
CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO
SECTION 302(a) OF THE SARBANES-OXLEY ACT OF 2002

I, Yaniv Arieli, certify that:

1. I have reviewed this Annual Report on Form 10-K of CEVA, Inc. (the "Company");
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2023

By: /s/ Yaniv Arieli
Yaniv Arieli
Chief Financial Officer

CERTIFICATION
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of CEVA, Inc. (the “Company”) for the year ended December 31, 2022, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), the undersigned, Amir Panush, Chief Executive Officer of the Company, and Yaniv Arieli, Chief Financial Officer of the Company, each hereby certifies, that, to the best of his knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company at the dates and for the periods indicated.

This certification will not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, or otherwise subject to the liability of that section. This certification will not be deemed to be incorporated by reference into any filing under the Securities Act of 1933 or the Securities Exchange Act of 1934, except to the extent that the Company specifically incorporates it by reference.

Date: March 1, 2023

/s/ Amir Panush
Amir Panush
Chief Executive Officer

/s/ Yaniv Arieli
Yaniv Arieli
Chief Financial Officer