CEVA INC
Form 10-K
March 04, 2019

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, 2018**

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.)
1174 Castro Street, Suite 210, Mountain View, California (Address of principal executive offices)	**94040** (Zip Code)

(650) 417-7900

(Registrant's telephone number, including area code)

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

Title of each class	Name of each exchange on which registered
Common Stock, $0.001 par value per share	NASDAQ GLOBAL MARKET

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 [X]

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 [X]

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 [X] 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 [X] No [ ]

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. [ ]

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 [X]
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 is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes [ ] No [X]

As of June 30, 2018, the aggregate market value of the registrant’s common stock held by non-affiliates of the registrant was $498,330,000 based on the closing sale price as reported on the National Association of Securities Dealers Automated Quotation System National Market System on June 29, 2018. 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 25, 2019
Common Stock, $0.001 par value per share	22,063,490 shares

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant’s definitive Proxy Statement for its Annual Meeting of Stockholders to be held on May 20, 2019 (the “2019 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 forecast that in 2022, our licensing revenue will have grown approximately 10% to 20% from current levels, our royalty revenue will be approximately two times the current levels and our net income will be approximately three times the current levels;
- Our belief that the adoption of our signal processing platform and artificial intelligence processors beyond cellular baseband market continues to progress, and that our shipment data is indicative of the continued traction our non-baseband customers are gaining with our signal processing IPs;
- Our belief that the growing market potential for voice assisted devices offers an additional growth segment for the company in voice-enabled devices such as smartphones, headsets, earbuds, smart speakers, smart home and automotive;
- Our belief that our advanced DSPs and 5G platform for mobile broadband put us in a strong position to power 5G modems for handsets, fixed wireless and other UE use cases;
- Our belief that our WhisPro speech recognition technology and our ClearVox noise and echo cancellation technology, plus our proven track record in audio/voice DSPs, put us in a strong position to power audio and voice roadmaps across a new range of addressable end markets;
- Per Yole Développement, camera-enabled devices incorporating computer vision and AI are expected to exceed 1 billion units by 2022;
- Our belief that our CEVA-PentaG is the most advanced cellular baseband IP platform in the industry today;
- Our belief that, together with our presence in the handset baseband market, our Bluetooth and Wi-Fi IPs allow us to expand further into IoT applications and substantially increases our overall addressable market which is expected to be more than 8.8 billion devices annually by 2022;
- Our specialization and competitive edge in signal processing platforms put us in a strong position to capitalize on the emergence of 5G to address mass market adoption and benefit from new 5G usage models such as fixed wireless access, remote radio heads, cellular backhaul, small cells, and other machine type communications such as connected cars, smart cities and industrial markets;
- Our belief that our computer vision DSP and neural net software are opportunities for us to expand our footprint and content in smartphones, drones, surveillance, consumer cameras, automotive ADAS and industrial IoT applications;
- Our belief that our newly announced NeuPro™ and CDNN software technology, a family of AI processors for deep learning at the edge, represents new licensing and royalty drivers for the company;
- Our belief that royalty revenue growth in the next few years for non-handset baseband applications will be a combination of higher unit shipments of Bluetooth and other connectivity products that bear lower ASPs, along with higher ASPs driven by base station and vision products;

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- Our belief that our licensing business is progressing well with a solid pipeline, diverse customer base and target markets;
- Our belief that the elevated inventories in handsets will add to the usual seasonal weakness in our near-term royalties for 2019 which will be offset by revenues derived from our continued expansion at our non-handset and base station customers;
- Our belief that royalty revenues derived from handsets will recover in the latter part of 2019;
- Our anticipation that our research and development expenses cost will continue to increase in 2019;
- Our anticipation that our cost of revenues will increase in 2019 as compared to prior years;
- 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; and
- Our belief that changes in interest rates within our investment portfolio will not have a material effect on our financial position on an annual or quarterly basis.

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 Mountain View, California, CEVA is the leading licensor of signal processing platforms and artificial intelligence processors for a smarter, connected world. We partner with semiconductor companies and OEMs worldwide to create power-efficient, intelligent and connected devices for a range of end markets, including mobile, consumer, automotive, industrial and IoT. Our ultra-low-power hardware IPs and software solutions address many of the most complex technologies for imaging and computer vision, neural networks, sound, long (cellular) and short range wireless and artificial intelligent (AI) processors. Our portfolio includes comprehensive platforms for 5G baseband processing for handsets and RAN, complete end-to-end offerings for cellular IoT, front-end voice and speech recognition software and algorithms along with DSPs for voice enabled devices and AI assistants, advanced imaging and computer vision for any camera-enabled device, and a family of self-contained AI processors that address a wide range of applications. For short range wireless, we offer the industry’s most widely adopted IPs for Bluetooth (low energy and dual mode) and Wi-Fi (4/5/6 up to 4x4).

Our technologies are licensed to leading semiconductor and OEM companies throughout the world. These companies incorporate our IP into application-specific integrated circuits (“ASICs”) and application-specific standard products (“ASSPs”) that they manufacture, market and sell into wireless, consumer, automotive and IoT companies. Our state-of-the-art technology has shipped in more than 10 billion chips to date for a wide range of diverse end markets. One in three handsets sold worldwide is powered by CEVA.

Our revenue mix comprises primarily of IP licensing fees and related 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.

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

Industry Background

DSP Cores

Digital signal processing and digital signal control are key technologies 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 supporting a vast majority of today's electronic products that are smart and connected and enable sensing and wireless communications capabilities (e.g. LTE and 5G baseband processing, computer vision, deep neural network, sound processing and analytics).

AI Processors

Artificial intelligence processors are a new breed of processors designed to enable AI-related workloads such as classification, pattern matching, prediction and detection to be performed on a device, with no cloud connection required. These processors 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. AI processors will make their way into billions of devices in the coming years, including IoT, mobile, medical, industrial and automotive applications.

Short Range Wireless IPs

Wi-Fi and Bluetooth low energy and dual mode are key technologies for any company looking to address the Internet-of-Things ("IoT"). Moreover, many companies wish to integrate these connectivity technologies into SoC designs rather than provide connectivity through an additional chip in the system. Through our connectivity business unit, we are able to expand further into the Wi-Fi and Bluetooth smart connectivity markets. The advent of IoT has resulted in significant demand for connectivity IPs that solves a crucial void in many companies' strategies to address this burgeoning market. Wi-Fi and Bluetooth standards are constantly evolving, and the many different end applications where these technologies are being deployed require further customization. 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.

Design Gap

The demand for smarter, better connected mobile, consumer, automotive, industrial and IoT devices continues to grow. These devices require more connectivity, greater feature sets and a richer user experience. 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 and connectivity technologies like 5G, cellular IoT, Wi-Fi 6 and Bluetooth 5 and multimedia technologies such as advanced image enhancement, computer vision, deep learning and voice and audio pre- and post-processing 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 Business

CEVA addresses the requirements of the mobile, consumer, automotive, industrial and IoT markets by designing and licensing a broad range of robust, application-specific signal processing platforms which enable the rapid design of solutions for developing a wide variety of applications, including communications and connectivity, audio and voice, imaging and vision and storage.

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 products, memory and application-specific platforms, from silicon intellectual property (SIP) 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 DSP, subsystem and software, for their target application. For connectivity, with ever-evolving standards and a huge variety of uses, most semiconductor companies cannot develop and maintain this technology in-house. As a result, companies increasingly seek to license these IPs from CEVA or a third-party community of developers, such as CEVAnet, CEVA's third-party network.

Our IP Business Model

Our objective is for our CEVA signal processing platforms and AI processors to become the de facto technologies across the mobile, consumer, automotive, industrial 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 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. As an example, our CEVA-XCnet partner program focuses on various technology and solution providers with complimentary offerings for our CEVA-XC communication processor addressing wireless, infrastructure, smart grid and connectivity markets. 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 and royalty business model. We typically charge a license fee for access to our technology and a royalty fee for each unit of silicon which incorporates our technology. License fees 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 incorporating all the necessary hardware and software for target applications. Our IP portfolio is strategically aligned to allow us to exploit the most lucrative "design gaps" in the growing demand for smarter, connected devices. As CEVA offers expertise developing complete solutions in a number of key growth markets, including cellular baseband, wireless infrastructure, cellular IoT, advanced imaging, computer vision, deep neural networks, sound and audio processing and analytics, Wi-Fi, Bluetooth and AI, 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 AI 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;

develop high-end DSP enhanced and expanded customer base in the base station market;

enrich our offering and customer base in cellular IoT;

go up the 'value chain' by adding and charging for software for our voice and / or our audio products;

expand our presence in AI for edge SoC market by capitalizing on our AI processors and software technologies;

differentiate and expand in the computer vision market by adding and charging for software, in particular SLAM;

continue to develop and enhance our range of complete and highly integrated platform solutions to deliver to our licensing partners a complete and verified system solution;

continue to 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 and connectivity IPs 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 signal processing platforms and a primary player in AI processors for semiconductor companies and OEMs serving the mobile, consumer, automotive, industrial and IoT markets. Our portfolio includes comprehensive platforms for 5G baseband processing for handsets and infrastructure, complete end-to-end offerings for cellular IoT, front-end voice and speech recognition software and algorithm along with DSPs for voice enabled devices, advanced imaging, computer vision and deep neural network for any camera-enabled device, and a family of self-contained AI processors that address a wide range of applications. For short range wireless, we offer the industry's most widely adopted IPs for Bluetooth (low energy and dual mode) and Wi-Fi (4/5/6 up to 4x4).

Our categories of products include the following:

1) *Wireless communications*

CEVA-XC vector DSPs for gNodeB, V2X, enterprise and residence Wi-Fi access points

PentaG - 5G NR modem platform for UE (announced in 2018)

Dragonfly NB2 - complete end-to-end offering for narrowband IoT (NB-IoT) (announced in 2018)

2) *Imaging and computer vision*

CEVA-XM imaging and computer vision platforms, including processors, accelerators and software framework for any camera-enabled device

Deep neural network compiler and tools

3) *Sound*

DSPs, 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

4) *AI at the edge*

NeuPro family of specialized AI processors designed to target any neural network workload (vision, sound, user behavior, real-time translation etc.) and scaling in performance to address IoT through to automotive (announced in 2018)

5) Multipurpose DSP/controller

New CEVA-BX high level programmable, modern processors for a broad range of signal processing and control workloads (announced in 2019)

6) Connectivity

RivieraWaves’ Bluetooth 5 dual mode and low energy platforms

RivieraWaves’ Wi-Fi (4/5/6 up to 4x4) platforms

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 and deep neural networks, and audio, voice and sensing and Internet-of-Things related applications.

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, Artosyn, ASR, Atmosic, Autotalks, Beken, Bestechnic, Brite, Broadcom, Celeno, Ceragon, Cirrus Logic, Dialog Semiconductor, DSP Group, Espressif, FujiFilm, GCT Semi, iCatch, InPlay, Intel, Itron, Leadcore, LG Electronics, Mediatek, Microchip, Nextchip, Nokia, Novatek, NXP, ON Semiconductor, Optek, Oticon, Panasonic, RDA, Renesas, Rockchip, Rohm, Samsung, Sanechips, Sharp, Siflower, SigmaStar, Socionext, Sony, Sonova, STMicroelectronics, Toshiba, Unisoc, Vatics, Yamaha and ZTE.

International Sales and Operations

Customers based in EME (Europe and Middle East) and APAC (Asia Pacific) accounted for 89% of our total revenues for 2018, 92% of our total revenues for 2017 and 87% for 2016. Information on the geographic breakdown of our revenues and location of our long-lived assets is contained in Note 11 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, 2018, we had 32 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, Ireland, Asia Pacific (APAC) region, Sweden, France and the United States. As of December 31, 2018, we had 24 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

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. These efforts are largely driven by current and anticipated customer and market needs.

Our research and development team, consisting of 254 engineers as of December 31, 2018, work in seven development centers located in Israel, France, Ireland and the United Kingdom. This team consists of engineers who possess significant experience in developing DSP cores, application platforms, connectivity products (Wi-Fi and Bluetooth) and serial storage technology (SATA and SAS). In addition, we engage third party contractors with specialized skills as required to support our research and development efforts.

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, 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. We face direct and indirect competition from:

- IP vendors that offer programmable or configurable DSP cores;
- IP vendors that offer vision processing units for computer vision applications;
- IP vendors that offer neural network processing units for AI applications;
- IP vendors that offer voice software packages, including beamforming, direction of arrival and echo cancellation;
- IP vendors that offer Bluetooth and Wi-Fi connectivity IPs;

IP vendors that offer hardware-based DSP implementation as opposed to software-based DSP, which is our specialization; and

internal design groups of large chip companies or OEMs that develop proprietary signal processing IP cores or engines for their own application-specific chipsets.

We face direct competition in the DSP and configurable core space mainly from Verisilicon, Cadence and Synopsys, which licenses DSP cores in addition to their respective semiconductor and EDA businesses. In AI processors, we face direct competition from EDA players in addition to a host of companies offering AI cores and accelerators such as Digital Media Professionals, (DMP), Imagination, AImotive, Cambricon and Graphcore. In the short range wireless space, we face direct competition from Imagination Technologies (acquired by Canyon Bridge) and Mindtree.

In recent years, 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 Limited, Cadence, Imagination Technologies 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, Qualcomm, Samsung, Huawei 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.

Aside from the in-house research and development groups, we do not compete with any individual company across the range of our market offerings. Within particular market segments, however, we do face competition to a greater or lesser extent from other industry participants. For example, in the following specific areas we compete with the companies indicated:

in the digital embedded imaging and vision market – Arm Limited, Synopsys, Cadence and Videantis, as well as GPU IP providers such as Arm Limited, Imagination Technologies and Verisilicon; and

in audio and voice applications market – Arm Limited, Cadence, Synopsys and Verisilicon.

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, 2018, we hold 54 patents in the United States, four patents in Canada, 51 patents in the EME (Europe and Middle East) region and seven patents in Asia Pacific (APAC) region, totaling 116 patents, with expiration dates between 2019 and 2037. In addition, as of December 31, 2018, we have 11 patent applications pending in the United States, five pending patent applications in Canada, eight pending patent applications in the EME region and seven pending patent applications in the APAC region, totaling 31 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.

Employees

The table below presents the number of employees of CEVA as of December 31, 2018 by function and geographic location.

	Number
Total employees	**341**
Function	
Research and development	254
Sales and marketing	32
Administration	31
Technical support	24
Location	
Israel	221
France	46
Ireland	12
China	16
United States	14
United Kingdom	18
Elsewhere	14

Our employees are not represented by any collective bargaining agreements, and we have never experienced a work stoppage. We believe our employee relations are good.

A number of our employees are located in Israel. 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.

In 2004, we finalized and adopted a new Code of Business Conduct and Ethics regarding the standards of conduct of our directors, officers and employees. The code is reviewed and updated periodically by our Board or Directors and is available on our website at www.ceva-dsp.com.

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.

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 Limited (acquired by SoftBank), Imagination Technologies (acquired by Canyon Bridge), Synopsys and Cadence and the RISC-V open source;
- we compete with internal engineering teams at companies such as Mediatek, Qualcomm, Samsung, Huawei 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 Arm Limited, Imagination Technologies (acquired by Canyon Bridge) and Mindtree;
- we compete in embedded imaging and vision market with Cadence, Synopsys, Videantis, Verislicon, Arm Limited (NEON technology) and GPU IP providers such as Arm Limited, Imagination Technologies and Verisilicon;
- we compete in AI processor marketing with AI processor and accelerator providers, including AImotive, Arm Limited, Cadence, Cambricon, Digital Media Professionals (DMP), Imagination Technologies, Nvidia open source NVDLA and Verisilicon; and
- we compete in the audio and voice applications market with Arm Limited, Cadence, Synopsys, and Verisilicon.

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, 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.

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 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 licensing and related 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;
- 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 R&D 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;
- 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, as well as other regulatory actions and changes that may adversely affect the business environment; and
- 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.

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 our OEM customers that incorporate our technology and the market acceptance of such end products supplied by our OEM customers. In accordance with the new revenue recognition rules, effective as of January 1, 2018, the royalties we generate is based on royalty reports of units shipped during the quarter as estimated by our customers, not a quarter in arrears that we previously reported. The first quarter in any given year therefore will be 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.

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. One customer, Spreadtrum, accounted for 15%, 23% and 27% of our total revenues for 2018, 2017 and 2016, respectively. With respect to our royalty revenues, three royalty paying customers each represented 10% or more of our total royalty revenues for 2018, and collectively represented 76% of our total royalty revenues for 2018. Two royalty paying customers each represented 10% or more of our total royalty revenues for 2017, and collectively represented 70% of our total royalty revenues for 2017, and two royalty paying customers each represented 10% or more of our total royalty revenues for 2016, and collectively represented 80% of our total royalty revenues for 2016. 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 licensing 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 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 is 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, including our newly announced AI processor cores 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.

Royalty rates could decrease for existing and future license 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 48%, 51% and 56% of our total revenues for 2018, 2017 and 2016, 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 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.

We generate a significant amount of our total 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.

Our total revenues derived solely from baseband for handset and for other devices represented 61%, 64% and 69% of our total revenues for 2018, 2017 and 2016, respectively. 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 OEM 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 customers also may fail to introduce new handset devices that attract consumers, 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 OEM 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. 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.

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.

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. 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 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.

Because we have significant international operations, 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 89% of our total revenues for 2018, 92% for 2017 and 87% for 2016 were derived from customers located outside of the United States. We expect that international customers will continue to account for a significant portion of our revenues for the foreseeable future. As a result, the occurrence of any negative international political, economic or geographic events 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;
- 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 terrorist attacks and protectionist polices; and

changes in diplomatic and trade relationships.

Revenues from customers located in the Asia Pacific region account for a substantial portion of our total revenues. We expect that revenue from international sales generally, and sales to the Asia Pacific region specifically, will continue to be a material part of our total revenues. Therefore, any financial crisis, trade negotiations or disputes or other major event causing business disruption in international jurisdictions generally, and China and the Asia Pacific region in particular, could negatively affect our future revenues and results of operations. For example, in 2018, the U.S. Department of Commerce’s Bureau of Industry and Security’s initial ban on exports of U.S. products to Chinese telecommunications OEM ZTE disrupted ZTE’s operations, which caused delays with our engagements with ZTE and negatively impacted our royalty revenues. Actions of any nature with respect to such customers may reduce our revenues from them and adversely affect our business and financial results.

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

General trade tensions between the U.S. and China have been escalated in 2018, and not fully resolved yet. 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, we cannot predict further developments, and such existing or future tariffs could have a material adverse effect on our consolidated results of operations, financial position and cash flows. Furthermore, 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.

We depend on a limited number of key personnel who would be difficult to replace.

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. We cannot assure you that in the future we will be successful in attracting and retaining the required personnel.

The sales cycle for our IP solutions is lengthy, which makes forecasting of our customer orders and revenues difficult.

The sales cycle for our IP solutions 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. In addition, purchasing decisions also may be delayed because of a customer’s internal budget approval process. Furthermore, 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. 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.

Because our IP solutions 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 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 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, and the U.K. 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 being made to customers outside Israel, we are nonetheless directly influenced by the political, economic and military conditions affecting Israel. 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 such as those that have occurred in France, where we have our wireless connectivity operations as a result of our acquisition of RivieraWaves, and attempted terrorist attacks, military responses to terrorist attacks, other military actions, or governmental action in response to or in anticipation of a terrorist attack, or civil unrest, 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 $3,510,000, $4,417,000 and $6,410,000 in 2018, 2017 and 2016, 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. For example, in both 2018 and 2017, the amount of grants approved by the IIA was substantially lower than prior years due to different allocation and methodology that IIA has implemented. As a result, our research and developments costs increased in 2018 and 2017 as compared to prior years.

Enacted tax legislation in the United States may impact our business.

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 new U.S. domestic and international tax provisions. A year after enactment, 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. Also, a number of U.S. states have not yet updated their laws to take into account the new federal legislation. Legislation and clarifying guidance are expected to continue to be issued by the U.S. Treasury Department and various states in 2019, 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.

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.

The Israeli 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. 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 in the future, these benefits would be cancelled and we would be subject to corporate tax in Israel at the standard corporate rate (23% in 2018) and could be required to refund tax benefits already received. In addition, we cannot assure you that these tax benefits will be continued in the future at their current levels or otherwise. The tax benefits under our active investment programs are scheduled to gradually expire starting in 2020. The termination or reduction of certain programs and tax benefits (particularly benefits available to us as a result of the "Approved Enterprise" and the "Benefited Enterprise" status of our facilities and programs) or a requirement to refund tax benefits already received may seriously harm our business, operating results and financial condition.

We may have exposure to additional tax liabilities as a result of our foreign 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. We are regularly under audit by tax authorities. Our intercompany transfer pricing may be reviewed by the U.S. Internal Revenue Service and by foreign tax jurisdictions. 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.

Our failure to maintain certain research tax benefits applicable to French technology companies may adversely affect the results of operations of our RivieraWaves operations.

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.

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 licensing arrangements with first time customers with whom we don’t have full visible of their creditworthiness. Furthermore, we have increased 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 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.

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 $47.8 million, $40.4 million and $30.8 million for 2018, 2017 and 2016, 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.

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.

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.

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 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 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.

Our operating results are affected by the highly cyclical nature of the semiconductor industry.

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. From different market data, we may be facing such a negative cycle in the first half of 2019. These factors could cause substantial fluctuations in our revenues and in our 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.

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.

Our corporate tax rate may increase, which could adversely impact our cash flow, financial condition and results of operations.

We have significant operations in Israel, as well operations in the Republic of Ireland and France. A substantial portion of our taxable income historically has been generated in Israel. Currently, our Israeli and Irish subsidiaries are taxed at rates lower than the U.S. tax rates. If our Israeli 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. Moreover, if U.S. or other authorities were to change applicable tax laws or successfully challenge the manner in which our subsidiaries' profits are currently recognized, our overall tax expenses could increase, and our business, cash flow, financial condition and results of operations could be materially adversely affected. Also our taxes on the Irish interest income may be double taxed both in Ireland and in the U.S. due to U.S. tax regulations and Irish tax restrictions on net operating losses to offset interest income. In addition, our Israeli interest income also may be taxed both in Israel and the U.S due to different Controlled Foreign Corporation rules.

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. 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 Mountain View, California and we have principal offices in Herzliya, Israel, Sophia Antipolis, France and Dublin, Ireland.

We lease buildings for our executive offices, and engineering, sales, marketing, administrative and support operations and design centers. The following table summarizes information with respect to the principal facilities leased by us as of December 31, 2018:

Location	**Term**	**Expiration**	**Area (Sq. Feet)**	**Principal Activities**
Mountain View, CA, U.S. (1)	8 years	2023	3,769	Headquarters; sales and marketing; administration
Herzliya, Israel	6 years	2020	43,337	Research and development; administration; sales and marketing
Dublin, Ireland (2)	10 years	2026	1,755	Research and development; administration
Cork, Ireland (3)	5 years	2021	2,780	Research and development
Belfast, UK	15 years	2019	2,600	Research and development
Sophia Antipolis, France	9 years	2021	7,535	Research and development; administration; sales and marketing
Shanghai, China	3 years	2021	3,438	Sales and marketing
Tokyo, Japan	3 years	2022	1,713	Sales and marketing

(1) Break clause in the lease exercisable in 2020.
(2) Break clause in the lease exercisable in 2021.
(3) Break clause in the lease exercisable in 2020.

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.

Gideon Wertheizer, age 62, has served as our Chief Executive Officer since May 2005. He joined our board of directors in January 2010. Mr. Wertheizer has 35 years of experience in the semiconductor and Silicon Intellectual Property (SIP) industries. He previously served as the Executive Vice President and General Manager of the DSP business unit at CEVA. Prior to joining CEVA in November 2002, Mr. Wertheizer held various executive positions at DSP Group, Inc., including such roles as Executive VP - Strategic Business Development, Vice President for Marketing and Vice President of VLSI design. Mr. Wertheizer holds a BsC for electrical engineering from Ben Gurion University in Israel and executive MBA from Bradford University in the United Kingdom.

Yaniv Arieli, age 50, 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.

Issachar Ohana, age 53, has served as our Vice President, Worldwide Sales, since November 2002 and our Executive Vice President, Worldwide Sales, since July 2006. Prior to joining CEVA in November 2002, Mr. Ohana was with DSP Group beginning in August 1994 as a VLSI design engineer. He was appointed Project Manager of DSP Group's research and development in July 1995, Director of Core Licensing in August 1998, and Vice President—Sales of the Core Licensing Division in May 2000. Mr. Ohana holds a B.Sc. in Electrical and Computer Engineering from Ben Gurion University in Israel and an MBA from Bradford University in the United Kingdom.

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 24, 2019, there were approximately 760 holders of record, which we believe represents approximately 8,940 beneficial holders.

Equity Compensation Plan Information

Information as of December 31, 2018 regarding options, SARs and RSUs granted under our stock plans and remaining available for issuance under those plans will be contained in the definitive 2019 Proxy Statement for the 2019 annual meeting of stockholders to be held on May 20, 2019 and incorporated herein by reference.

Issuer Purchases of Equity Securities

The table below sets forth the information with respect to repurchases of our common stock during the three months ended December 31, 2018.

Period	**(a) Total Number of Shares Purchased**	**(b) Average Price Paid per Share**	**(c) Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs**	**(d) Maximum Number of Shares that May Yet Be Purchased Under the Plans or Programs (1)**	
Month #1 (October 1, 2018 to October 31, 2018)	__	__	__	483, 844	
Month #2 (November 1, 2018 to November 30, 2018)	52,212	$ 26.02	52,212	431, 632	
Month #3 (December 1, 2018 to December 31, 2018)	76,452	$ 24.95	76,452	355, 180	
TOTAL	128,664	$ 25.38	128,664	355,180	(2)

(1) 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 five million shares in 2010, 2013 and 2014. In May 2018, our board of directors authorized the repurchase of an additional 700,000 shares of common stock under our share repurchase program.

(2) The number represents the number of shares of our common stock that remain available for repurchase pursuant to our share repurchase program.

2019 Annual Meeting of Stockholders

We anticipate that the 2019 annual meeting of our stockholders will be held on May 20, 2019 in New York City, NY.

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.

	12/31/13	12/31/14	12/31/15	12/31/16	12/31/17	12/31/18
CEVA, Inc.	**100.00**	**119.19**	**153.48**	**220.43**	**303.22**	**145.15**
NASDAQ Composite	**100.00**	**114.75**	**122.74**	**133.62**	**173.22**	**168.30**
Morningstar Semiconductor	**100.00**	**125.05**	**122.90**	**160.33**	**217.16**	**200.36**

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, 2013, through December 31, 2018, with the cumulative total return on The NASDAQ Global Market (U.S.) Composite Index and the Morningstar Semiconductor Group Index.

This graph assumes the investment of $100 in our common stock (at the closing price of our common stock on December 31, 2013), the NASDAQ Global Market (U.S.) Composite Index and the Morningstar Semiconductor Group Index on December 31, 2013, and assumes dividends, if any, are reinvested.

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. SELECTED FINANCIAL DATA

The following selected financial data should be read in conjunction with, and are qualified by reference to, our consolidated financial statements and the related notes, as well as our "Management's Discussion and Analysis of Financial Condition and Results of Operations for the fiscal year ended December 31, 2018," both appearing elsewhere in this annual report.

	2014	2015	2016	2017	2018
	(in thousands)				
Consolidated Statements of Income Data:					
Revenues:					
Licensing and related revenue	$28,348	$32,135	$31,874	$42,899	$40,446
Royalties	22,460	27,364	40,779	44,608	37,431
Total revenues	50,808	59,499	72,653	87,507	77,877
Cost of revenues	5,000	5,424	6,086	6,953	7,951
Gross profit	45,808	54,075	66,567	80,554	69,926
Operating expenses:					
Research and development, net	25,828	28,113	30,838	40,385	47,755
Sales and marketing	9,815	10,168	11,540	12,572	12,161
General and administrative	8,054	8,184	8,567	10,488	10,354
Amortization of intangible assets	649	1,298	1,236	1,236	901
Total operating expenses	44,346	47,763	52,181	64,681	71,171
Operating income (loss)	1,462	6,312	14,386	15,873	(1,245)
Financial income, net	975	1,069	2,039	3,026	3,418
Revaluation of investment in other company	—	—	—	—	(870)
Other loss	(404)	—	—	—	—
Income before taxes on income	2,033	7,381	16,425	18,899	1,303
Income taxes	2,852	1,114	3,325	1,871	729
Net income (loss)	$(819)	$6,267	$13,100	$17,028	$574
Basic net income (loss) per share	$(0.04)	$0.31	$0.63	$0.78	$0.03
Diluted net income (loss) per share	$(0.04)	$0.30	$0.61	$0.75	$0.03

	2014	2015	2016	2017	2018
	(in thousands)				
Consolidated Balance Sheet Data:					
Working capital	$93,777	$87,044	$122,117	$136,281	$155,536
Total assets	207,005	212,649	242,495	276,812	277,263
Total long-term liabilities	7,961	7,571	8,349	9,347	9,632
Total stockholders' equity	$179,049	$186,095	$211,551	$244,670	$245,879

QUARTERLY FINANCIAL INFORMATION

	Three months ended							
	March 31, 2017	**June 30,**	**September 30,**	**December 31,**	**March 31, 2018**	**June 30,**	**September 30,**	**December 31,**
Revenues:								
Licensing and related revenue	$9,535	$10,337	$ 14,021	$ 9,006	$10,083	$10,038	$ 9,786	$ 10,539
Royalties	11,752	10,238	10,023	12,595	7,486	7,456	11,627	10,862
Total revenues	21,287	20,575	24,044	21,601	17,569	17,494	21,413	21,401
Cost of revenues	1,696	1,608	1,726	1,923	1,972	1,988	2,006	1,985
Gross profit	19,591	18,967	22,318	19,678	15,597	15,506	19,407	19,416
Operating expenses:								
Research and development, net	9,873	10,509	10,031	9,972	12,016	11,843	11,897	11,999
Sales and marketing	2,938	3,427	3,057	3,150	3,176	3,399	2,727	2,859
General and administrative	2,125	2,552	2,711	3,100	2,954	2,833	2,406	2,161
Amortization of intangible assets	309	309	309	309	359	92	225	225
Total operating expenses	15,245	16,797	16,108	16,531	18,505	18,167	17,255	17,244
Operating income (loss)	4,346	2,170	6,210	3,147	(2,908)	(2,661)	2,152	2,172
Financial income, net	571	755	821	879	927	777	831	883
Revaluation of investment in other company	—	—	—	—	—	—	—	(870)
Income (loss) before taxes on income	4,917	2,925	7,031	4,026	(1,981)	(1,884)	2,983	2,185
Income taxes expense (benefit)	810	(983)	1,181	863	201	206	440	(118)
Net income (loss)	$4,107	$3,908	$ 5,850	$ 3,163	$(2,182)	$(2,090)	$ 2,543	$ 2,303
Basic net income (loss) per share	$0.19	$0.18	$ 0.27	$ 0.14	$(0.10)	$(0.09)	$ 0.12	$ 0.11
diluted net income (loss) per share	$0.19	$0.17	$ 0.26	$ 0.14	$(0.10)	$(0.09)	$ 0.11	$ 0.10
Weighted average shares used to compute net income (loss) per share (in thousands):								
Basic	21,398	21,712	21,946	22,017	22,148	22,129	21,997	21,863
Diluted	22,187	22,563	22,683	22,801	22,148	22,129	22,428	22,197

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, 2018, both appearing elsewhere in this annual report.

Headquartered in Mountain View, California, CEVA is the leading licensor of signal processing platforms and a primary player in artificial intelligence (AI) processors for a smarter, connected world. We partner with semiconductor companies and OEMs worldwide to create power-efficient, intelligent and connected devices for a range of end markets, including mobile, consumer, automotive, industrial and Internet of Things (IoT).

Our ultra-low-power hardware and software IPs address many of the most complex technologies for imaging and computer vision, neural networks, sound and long- and short-range wireless. Our portfolio includes comprehensive platforms for 5G baseband processing in handsets and base station RAN, highly integrated cellular IoT solutions, DSP platforms incorporating voice input algorithms and software for voice-enabled devices, DSP platforms for advanced imaging and computer vision in any camera-enabled device, and a family of self-contained AI processors that address a wide range of edge applications. For short-range wireless, we offer the industry's most widely adopted IPs for Bluetooth (low energy and dual mode) and Wi-Fi (4/5/6 up to 4x4).

Our technologies are licensed to leading semiconductor and original equipment manufacturer (OEM) companies throughout the world. These companies incorporate our IP into application-specific integrated circuits ("ASICs") and application-specific standard products ("ASSPs") that they manufacture, market and sell to wireless, consumer, automotive and IoT companies. We believe that our licensing business is progressing well with strong interest, diverse customer base and a myriad of target markets. Our state-of-the-art technology has shipped in more than 10 billion chips to date for a wide range of diverse end markets. Every second, thirty devices sold worldwide are powered by CEVA.

We believe the adoption of our signal processing platforms and AI processors beyond our traditional cellular baseband market continues to progress. As a testament to this trend, during the fourth quarter and full year 2018, we concluded 13 and 48 licensing deals, respectively, all of which are for non-cellular baseband applications. Moreover, based on shipment data or our best estimates of the shipment data for the fourth quarter of 2018, shipments of CEVA-powered non-cellular baseband products reached an all-time quarterly record of 114 million units. This data is indicative of the continued traction our non-baseband customers are gaining with our signal processing IPs.

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

CEVA is firmly established in the largest space in the semiconductor industry – baseband for mobile handsets. In particular, in LTE smartphone markets, we continue to maintain a strong presence. During the third and fourth quarters of 2018, our customers shipped approximately 154 million LTE units. The growth over the same period in 2017 and over the first and second quarters of 2018 were primarily driven by the wide adoption of our advanced DSPs at the world’s most successful smartphone OEM in its new flagship models.

The royalty we derive from high-end smartphones is higher on average than that of mid- and low-tier smartphones due to more DSP content in high end premier smartphones that bear a higher royalty average selling price (“ASP”). As a result, in the third and fourth quarters of 2018, we benefitted from an ASP uplift in LTE-based modems due to the wide adoption of our technology in a series of high end flagship smartphones that launched. Looking ahead, our advanced DSPs and 5G platform for mobile broadband put us in a strong position to power 5G modems for handsets, fixed wireless and other UE use cases. Incorporating a range of DSPs and processors, including an AI processor dedicated to improving 5G processing efficiency, we believe our CEVA-PentaG is the most advanced cellular baseband IP in the industry today.

Our specialization and competitive edge in signal processing platforms for 5G base stations, handsets and NB-IoT put us in a strong position to capitalize on the emergence of 5G to address mass market adoption and benefit from new 5G usage models such as fixed wireless access, remote radio heads, cellular backhaul, small cells, and other machine type communications such as connected cars, smart cities and industrial markets.

Our broad Bluetooth and Wi-Fi IPs allow us to expand further into IoT applications and substantially increase our overall addressable market. In 2018, shipments of products incorporating our Bluetooth IP grew 50% year-over-year to reach 303 million devices. Our addressable market size for Bluetooth and Wi-Fi is expected to be more than 8.8 billion devices annually by 2022.

The growing market potential for voice assisted devices, as voice is becoming a primary user interface for IoT applications, including mobile, automotive and consumer devices, offers an additional growth segment for the company in voice-enabled devices such as smartphones, headsets, earbuds, smart speakers, smart home and automotive. To better address this market, we recently introduced our WhisPro speech recognition technology and our ClearVox voice input software that are offered in conjunction with our audio/voice DSPs. These highly-integrated platforms, plus our proven track record in audio/voice processing with more than 6 billion audio chips shipped to date, put us in a strong position to power audio and voice roadmaps across this new range of addressable end markets.

Our CEVA-XM4 and CEVA-XM6 imaging and vision platforms and deep learning capabilities provide highly compelling offerings for any camera-enabled device such as smartphones, tablets, automotive safety (ADAS), autonomous driving (AD), drones, robotics, security and surveillance, augmented reality (AR) and virtual reality (VR), drones, and signage. Per research from Yole Développement, camera-enabled devices incorporating computer vision and AI are expected to exceed 1 billion units by 2022. We have already signed more than fifty licensing agreements for our imaging and vision DSPs across those markets, where our customers can add camera-related enhancements such as smarter autofocus, better picture using super resolution algorithms, and better image capture in low-light environments. Other customers can add video analytics support to enable new services like augmented reality, gesture recognition and advanced safety capabilities in cars. This transformation in vision processing and neural net software are opportunities for us to expand our footprint and content in smartphones, drones, consumer cameras, surveillance, automotive ADAS and industrial IoT applications.

Beyond vision, neural networks are increasingly being deployed for a wide range of markets in order to make devices "smarter." These markets include IoT, smartphones, surveillance, automotive, robotics, medical and industrial. To address this significant and lucrative opportunity, we introduced NeuPro™ - a family of AI processors for deep learning at the edge. These self-contained AI processors bring the power of deep learning to the device, without relying on connectivity to the cloud. We believe this market opportunity for AI at the edge is on top of our existing product lines and represents new licensing and royalty drivers for the company in the coming years. During 2018, we signed three leading customers for our NeuPro AI processors targeting the ADAS, surveillance, and consumer camera markets.

As a result of our diversification strategy beyond baseband for handsets and our progress in addressing those new markets under the IoT umbrella, we expect significant growth in royalty revenues derived from non-handset baseband applications over the next few years due to a combination of higher unit shipments of Bluetooth and other connectivity products that bear lower ASPs, along with higher ASPs driven by base station and vision products.

At our first investor and analyst day held on January 14, 2019 in New York City, we presented our anticipated financial metrics for year 2022. We forecasted that our licensing revenue in 2022 will have grown approximately 10% to 20% from current levels, our royalty revenue will be approximately two times the current levels and our net income will be approximately three times the current levels.

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
- impairment 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.

Effective as of January 1, 2018, we have followed the provisions of Accounting Standards Codification (“ASC”) Topic 606, *Revenue* from *Contracts with Customers* (“ASC 606”). The guidance provides a unified model to determine how revenue is recognized. See Note 2 to our Consolidated Financial Statements for the year ended December 31, 2018 for further information regarding revenue recognition.

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 property, which in certain circumstances is modified for customer-specific requirements, (2) royalty revenues and (3) other revenues, which include revenues from support, training and sale of development systems. 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 license and related revenue 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 licenses 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 a customer can benefit from the software 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 licenses 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.

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.

Revenues from contracts that involve significant customization of our IP to customer-specific specifications are performance obligations we generally account for as performance obligations satisfied over time. Our performance 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. 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 its 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.

In addition to license fees, contracts with customers generally contain an agreement to provide for post contract support and training, 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. Training services are considered performance obligations satisfied over-time, and as such, revenues from training services are recognized as the training is performed.

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

We capitalize sales commission as costs of obtaining a contract when they are incremental and, if they are expected to be recovered, amortized consistently 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”. There is a two-phase process for impairment testing of goodwill. The first phase screens for potential impairment, while the second phase (if necessary) measures impairment. Goodwill impairment is deemed to exist if the net book value of a reporting unit exceeds its estimated fair value. In such a case, the second phase is then performed, and the reporting unit measures impairment by comparing the carrying amount of the reporting unit’s goodwill to the implied fair value of that goodwill. An impairment loss is recognized in an amount equal to the excess. For each of the three years for the period ended December 31, 2018, 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. We have not recorded any such impairment charge during the years presented.

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 establish 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 must make predictions of the amount 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, 2017 and 2018 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 13 to our Consolidated Financial Statements for the year ended December 31, 2018 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 new U.S. domestic and international tax provisions. A year after enactment, 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. Also, a number of U.S. states have not yet updated their laws to take into account the new federal legislation. As a result, there may be further impact of the new laws 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.

During the year ended December 31, 2018, we completed our accounting for the income tax effects of the Tax Act. We adjusted our net operating losses to account for the additional transition tax expense of $3.5 million added to the provisional amounts of $2 million recorded at December 31, 2017 for the enactment-date effects of the Tax Act, for a total transition tax expense of $5.5 million. As a result of utilizing our net operating losses, no tax expense was ultimately paid. We elected to account for 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 2019, 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.

In March 2016, the FASB issued ASU 2016-09, "Compensation - Stock Compensation (Topic 718), Improvements to Employee Share-Based Payment Accounting" ("ASU 2016-09"). ASU 2016-09 simplifies several aspects of the accounting for share-based payment transaction, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. For public companies, ASU 2016-09 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2016. We adopted ASU 2016-09 during the first quarter of 2017, at which time it changed our accounting policy to account for forfeitures as they occur. There was no material impact of the adoption of this standard on our financial statements. In addition, historically, excess tax benefits or deficiencies from our equity awards were recorded as additional paid-in capital in our consolidated balance sheets and were classified as a financing activity in our consolidated statements of cash flows. As a result of adoption during the first quarter of 2017, we prospectively record any excess tax benefits or deficiencies from our equity awards as part of our provision for income taxes in our consolidated statements of income during the reporting periods during which equity vesting occurs. Excess tax benefits for share-based payments are presented as an operating activity in the statements of cash flows rather than financing activity. We elected to apply the cash flow classification requirements related to excess tax benefits prospectively in accordance with ASU 2016-09 and prior periods have not been adjusted.

We estimate the fair value of options and stock appreciation right (“SAR”) awards on the date of grant using an option-pricing model. The value of the portion of an award that is ultimately expected to vest is recognized as an expense over the requisite service period in our consolidated statement of income. We recognize compensation expenses for the value of our options and SARs, which have graded vesting based on the accelerated attribution method over the requisite service period of each of the awards. Prior to January 1, 2017, we recognized compensation expenses for the value of our options and SARs, net of estimated forfeitures. Estimated forfeitures were based on actual historical pre-vesting forfeitures and the rate was adjusted to reflect changes in facts and circumstances, if any.

We recognize compensation expenses for the value of our restricted stock unit (“RSU”) awards, based on the straight-line method over the requisite service period of each of the awards. The fair value of each RSU is the market value as determined by the closing price of the common stock on the day of grant.

We use the Monte-Carlo simulation model for options and SARs granted. Expected volatility was calculated based upon actual historical stock price movements over the most recent periods ending on the grant date, equal to the expected option and SAR term. We have historically not paid dividends and have no foreseeable plans to pay dividends. The risk-free interest rate is based on the yield from U.S. Treasury zero-coupon bonds with an equivalent term. The Monte-Carlo model also considers the suboptimal exercise multiple which is based on the average exercise behavior of our employees over the past years, the contractual term of the options and SARs, and the probability of termination or retirement of the holder of the options and SARs in computing the value of the options and SARs. Although our management believes that their estimates and judgments about equity-based compensation expense are reasonable, actual results and future changes in estimates may differ substantially from our current estimates.

Impairment 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, “Investment Debt and Equity 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.

We recognize an impairment charge when a decline in the fair value of our investments in debt securities below the cost basis of such securities is judged to be other-than-temporary. The determination of credit losses requires significant judgment and actual results may be materially different from our estimates. Factors considered in making such a determination include the duration and severity of the impairment, the reason for the decline in value, the ability of the issuer to meet payment obligations and the potential recovery period . For securities that are deemed other-than-temporarily impaired, the amount of impairment is recognized in the statement of income and is limited to the amount related to credit losses, while impairment related to other factors is recognized in other comprehensive income (loss).

During the years ended December 31, 2016, 2017 and 2018, no other-than temporary impairment were recorded related to our marketable securities.

Recently Issued Accounting Pronouncement

(a) Leases

In February 2016, the FASB issued ASU 2016-02, “Leases (Topic 842),” which will replace the existing guidance in ASC 840, “Leases.” The updated standard aims to increase transparency and comparability among organizations by requiring lessees to recognize lease assets and lease liabilities on the balance sheet and requiring disclosure of key information about leasing arrangements. This ASU is effective for annual periods beginning after December 15, 2018, and interim periods within those annual periods. The provisions of ASU 2016-02 are to be applied using a modified retrospective approach. In July 2018, the FASB issued ASU No. 2018-11, "Targeted Improvements - Leases (Topic 842)." This update provides an optional transition method that allows entities to elect to apply the standard at the adoption date and recognizes a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. Consequently, the prior comparative period’s financials will remain the same as those previously presented. We have elected to apply the guidance at the beginning of the period of adoption and not restate comparative periods and elected the available practical expedients on adoption.

We currently estimate recording lease assets and liabilities in excess of $9.5 million on our consolidated balance sheets, with no material impact on our statement of income.

(b) Other accounting standards

In January 2016, the FASB issued ASU 2016-13, "Financial Instruments – Credit Losses on Financial Instruments," which requires that expected credit losses relating to financial assets measured on an amortized cost basis and available-for-sale debt securities be recorded through an allowance for credit losses. ASU 2016-13 limits the amount of credit losses to be recognized for available-for-sale debt securities to the amount by which carrying value exceeds fair value and also requires the reversal of previously recognized credit losses if fair value increases. The new standard will be effective for interim and annual periods beginning after January 1, 2020, and early adoption is permitted. We are currently evaluating whether to early adopt this standard and the potential effect of such adoption on our consolidated financial statements.

In January 2017, the FASB issued ASU No. 2017-04, "Intangibles: Goodwill and Other: Simplifying the Test for Goodwill Impairment." To simplify the subsequent measurement of goodwill, the amendments eliminate Step 2 from the goodwill impairment test. The annual, or interim, goodwill impairment test is performed by comparing the fair value of a reporting unit with its carrying amount. An impairment charge should be recognized for the amount by which the carrying amount exceeds the reporting unit's fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. In addition, the income tax effects of tax deductible goodwill on the carrying amount of the reporting unit should be considered when measuring the goodwill impairment loss, if applicable. The amendments also eliminate the requirements for any reporting unit with a zero or negative carrying amount to perform Step 2 of the goodwill impairment test. An entity still has the option to perform the qualitative assessment for a reporting unit to determine if the qualitative impairment test is necessary. The amendments should be applied on a prospective basis. The nature of and reason for the change in accounting principle should be disclosed upon transition. The amendments in this update should be adopted for annual or any interim goodwill impairment tests in fiscal years beginning after December 15, 2019. Early adoption is permitted on testing dates after January 1, 2017. We are currently evaluating the impact of adopting this new guidance on our consolidated financial statements, but the adoption is not expected to have a material impact on our financial statements.

In August 2017, the FASB issued ASU 2017-12, Derivatives and Hedging (Topic 815) - Targeted Improvements to Accounting for Hedging Activities ("ASU 2017-12"), which improves the financial reporting of hedging relationships to better portray the economic results of an entity's risk management activities in its financial statements and makes certain targeted improvements to simplify the qualification and application of the hedge accounting compared to current GAAP. This update is effective for fiscal years beginning after December 15, 2018, with early adoption permitted. We are currently evaluating the impact of the adoption of ASU 2017-12 on our consolidated financial statements.

RESULTS OF OPERATIONS

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

	2016	2017	2018
Consolidated Statements of Income Data:			
Revenues:			
Licensing and related revenue	43.9 %	49.0 %	51.9 %
Royalties	56.1 %	51.0 %	48.1 %
Total revenues	100.0%	100.0%	100.0%
Cost of revenues	8.4 %	7.9 %	10.2 %
Gross profit	91.6 %	92.1 %	89.8 %
Operating expenses:			
Research and development, net	42.4 %	46.2 %	61.3 %
Sales and marketing	15.9 %	14.4 %	15.6 %
General and administrative	11.8 %	12.0 %	13.3 %
Amortization of intangible assets	1.7 %	1.4 %	1.2 %
Total operating expenses	71.8 %	74.0 %	91.4 %
Operating income (loss)	19.8 %	18.1 %	(1.6)%
Financial income, net	2.8 %	3.5 %	4.4 %
Revaluation of investment in other company	—	—	(1.1)%
Income before taxes on income	22.6 %	21.6 %	1.7 %
Income taxes	4.6 %	2.1 %	1.0 %
Net income	18.0 %	19.5 %	0.7 %

Discussion and Analysis

Below we provide information on the significant line items in our consolidated statements of income 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

	2016	2017	2018
Total revenues (in millions)	$72.7	$87.5	$77.9
Change year-on-year	—	*20.4%*	*(11.0)%*

We derive a significant amount of revenues from a limited number of customers. Sales to Spreadtrum represented 15%, 23% and 27% of our total revenues for 2018, 2017 and 2016, 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, three royalty paying customers each represented 10% or more of our total royalty revenues for 2018, and collectively represented 76% of our total royalty revenues for 2018. Two royalty paying customers each represented 10% or more of our total royalty revenues for 2017, and collectively represented 70% of our total royalty revenues for 2017. Two royalty paying customers each represented 10% or more of our total royalty revenues for 2016, and collectively represented 80% of our total royalty revenues for 2016. 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,		
	2016	2017	2018
DSP products (DSP cores and platforms):			
Baseband for handset and other devices	69%	64 %	61 %

Other non-baseband (audio, imaging and vision)	15%	22 %	15 %
Connectivity products (Bluetooth, Wi-Fi and SATA/SAS)	16%	14 %	24 %

We expect to continue to generate a significant portion of our revenues for 2019 from the above products and services.

Licensing and related revenue

	2016	2017	2018
Licensing and related revenue (in millions)	$31.9	$42.9	$40.4
Change year-on-year	—	*34.6%*	*(5.7)%*

Licensing and related revenues in 2017 and 2018 surpassed the $40 million level for the first time in CEVA's history. Historically, CEVA recorded levels of $20 million or $30 million per year. This new elevated level of licensing and related revenue is a direct outcome of our diversification strategy that was put in place in 2014, concurrently with the acquisition of RivieraWaves. The decrease in licensing and related revenues from 2017 to 2018 principally reflected a decrease in vision and base station related licensing deals, partially offset by higher revenues from licensing of connectivity IPs of Bluetooth and Wi-Fi related products. The increase in licensing and related revenues from 2016 to 2017 principally reflected strong demand throughout the year for our products, in particular vision, deep neural networks, 5G base stations, backhaul and cellular IoT, offset by lower handset baseband licensing deals.

Our higher licensing and related revenue in recent years reflect organic growth and investments in our research and development efforts that have strengthened our successful diversification strategy to develop and license products outside our traditional handset baseband markets. A steady growth in licensees in diversified markets is the key driver for new royalty streams, in addition to incremental revenues from our existing royalty sources. At our investor and analyst day in January 2019, we disclosed that we have 40 royalty paying customers today and additionally, 60 customers are actively designing new chips incorporating our technologies, which we expect to gradually roll out for production over the coming years. We believe that this customer base will approximately double our annual royalty revenue in 2022. Our licensing business made solid progress in 2018, with 49 license agreements signed, including 16 first-time customers. These customers are targeting a range of large and diversified markets, including 5G, cellular IoT, AI, Bluetooth and Wi-Fi connectivity. With more than 140 signed in the previous three years, we form the foundation necessary for significant market share expansion and royalty revenue growth in the coming years.

Licensing and related revenue accounted for 51.9% of our total revenues for 2018, compared with 49.0% and 43.9% of our total revenues for 2017 and 2016, respectively.

Royalty Revenues

	2016	2017	2018
Royalty revenues (in millions)	$40.8	$44.6	$37.4
Change year-on-year	—	*9.4 %*	*(16.1)%*

We generate royalty revenues from our customers who ship units of chips incorporating our technologies. Until the end of 2017, our royalties were invoiced and recognized on a quarterly basis in arrears as we receive quarterly shipment reports from our licensees. As of January 1, 2018, we adopted the new revenue accounting standard known as ASC 606. Under the new standard, our royalty revenues represent what our customers shipped during any quarter in 2018, 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.

Based on internal data and Strategy Analytics' provisional worldwide shipment data, CEVA's worldwide market share of handset baseband chips that incorporate our technologies represented approximately 24%, 36% and 35% of the worldwide baseband volume in 2018, 2017 and 2016, respectively, and accounted for approximately 77%, 82% and 91% of our total royalty revenues for 2018, 2017 and 2016, respectively.

Our 2018 royalty business was impacted by headwinds in the handset market and the slower than originally anticipated expansion at our base station customers. Nevertheless, we continued to strengthen our footprint in our non-baseband markets, with shipments of more than 370 million devices, up 41% year over year. In particular, in the fast-growing Bluetooth space, we shipped more than 300 million devices in 2018. The increase in royalty revenues from 2016 to 2017 reflects higher non-handset baseband licensing revenues in recent years that contributed to higher-non handset baseband royalties in 2017, mainly from a new base station royalty payer, Bluetooth market expansion and vision based products, slightly offset by lower handset baseband royalties due to softness at low tier smartphone shipments.

As we enter 2019, we expect the elevated inventories in handsets to add to the usual seasonal weakness in our near-term royalties. With that said, we do expect continued expansion at our non-handset and base station customers, along with a recovery in handsets in the latter part of 2019. All in all, we are very excited by the market adoption of our leading-edge technologies in key growth areas, and believe we are on track to more than double our royalty revenue business in 2022.

The five largest royalty-paying customers accounted for 86% of our total royalty revenues for 2018, compared to 88% of our total royalty revenues for 2017 and 92% of our total royalty revenues for 2016.

Our customers reported sales of 929 million chipsets incorporating our technologies in 2018, compared to 1,156 million in 2017 and 1,076 million in 2016. The decrease in units shipped in 2018 as compared to 2017 was attributable to a significant decrease in handset market volume shipments, partially offset by an increase in Bluetooth shipments. The increase in units shipped in 2017 as compared to 2016 was also attributable to a significant increase in Bluetooth shipments and first time ramp up volumes from our vision customers.

Geographic Revenue Analysis

	2016		**2017**		**2018**	
	(in millions, except percentages)					
United States	$9.2	*12.6%*	$7.2	*8.2 %*	$8.3	*10.7%*
Europe, Middle East (EME) (3)	$10.9	*15.0%*	$11.0	*12.6%*	$17.4	*22.3%*
Asia Pacific (APAC) (1) (2)	$52.6	*72.4%*	$69.3	*79.2%*	$52.2	*67.0%*
(1) China	$30.0	*41.3%*	$41.1	*46.9%*	$33.7	*43.2%*
(2) S. Korea	$15.5	*21.4%*	$17.8	*20.4%*	$8.0	*10.3%*
(3) Germany	*)	*)	*)	*)	$13.9	*17.8%*

*) Less than 10%

Due to the nature of our license agreements and the associated potential large individual contract amounts, the geographic spilt of revenues both in absolute dollars and percentage terms generally varies from period to period.

The increase in revenues in absolute dollars and percentage terms in the United States from 2017 to 2018 reflected higher licensing and royalty revenues mainly due to more connectivity design starts, licensing activities and royalty contribution. The decrease in revenues in absolute dollars and percentage terms in the United States from 2016 to 2017 reflected lower licensing and royalty revenues mainly due to less design starts and licensing activities, and a continued design-out of two of our handset baseband customers.

The increase in revenues in absolute dollars and percentage in the EME region from 2017 to 2018 primarily reflected higher royalty revenues due to a share gain at a large U.S. handset OEM coupled by higher ASP for LTE shipments, offset by lower licensing revenues. The slight increase in revenues in absolute dollars and the decrease in percentage in the EME region from 2016 to 2017 primarily reflected lower licensing revenues for base station applications offset by higher royalty revenues, mainly from handset baseband products.

The decrease in revenues in absolute dollars and percentage in the APAC region from 2017 to 2018 primarily reflected significantly lower handset baseband royalties following a challenging year for the entire cellular industry, in particular in the first half of 2018. The increase in revenues in absolute dollars in the APAC region from 2016 to 2017 primarily reflected higher licensing activities associated with many of our newer non-handset baseband customers and technologies for base stations and vision, as well as higher royalties, mainly from a first time base station customer that ramped up production in 2017.

Cost of Revenues

	2016	**2017**	**2018**
Cost of revenues (in millions)	$6.1	$7.0	$8.0
Change year-on-year	—	*14.2%*	*14.4%*

Cost of revenues accounted for 10.2% of our total revenues for 2018, compared to 7.9% of our total revenues for 2017 and 8.4% of our total revenues for 2016. The absolute dollar increase in cost of revenues for 2018 as compared to 2017 principally reflected higher salary and related costs, and the amortization of intangible assets. The absolute dollar increase in cost of revenues for 2017 as compared to 2016 principally reflected higher salary and related costs, higher third party IP costs (associated with the NB-IoT product line), higher payments to the Israeli Innovation Authority of the Ministry of Economy and Industry in Israel (the “IIA”) and higher non-cash equity-based compensation expenses, partially offset by lower customization work for our licensees.

Cost of revenues includes labor-related costs and, where applicable, costs related to overhead, subcontractors, materials, travel, royalty expenses payments to the IIA, amortization of acquired intangible assets (NB-IoT technologies) and non-cash equity-based compensation expenses. Non-cash equity-based compensation expenses included in cost of revenues for the years 2018, 2017 and 2016 were $588,000, $459,000 and $246,000, 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 intangible assets related to the purchase of a license of NB-IoT technologies in the first quarter of 2018. Our amortization charges were $0.3 million for 2018. As of December 31, 2018, the net amount of intangible assets related to the purchase of a license of NB-IoT technologies was $1.9 million.

We anticipate that our cost of revenues will increase in 2019 as compared to prior years, partially due to higher expenses of approximately $1.7 million for engineering customization related expenses that will be allocated from our research and developments costs to cost of revenue on a 5G related license deal that was concluded in 2018.

Operating Expenses

	2016	2017	2018
	(in millions)		
Research and development, net	$30.8	$40.4	$47.8
Sales and marketing	$11.5	$12.6	$12.2
General and administration	$8.6	$10.5	$10.3
Amortization of intangible assets	$1.2	$1.2	$0.9
Total operating expenses	$52.1	$64.7	$71.2
Change year-on-year	—	*24.0%*	*10.0%*

The increase in total operating expenses for 2018 as compared to 2017 principally reflected higher salary and employee related costs, mainly due to higher headcount, and higher non-cash equity-based compensation expenses. The increase in total operating expenses for 2017 as compared to 2016 principally reflected lower research grants received from the IIA, higher non-cash equity-based compensation expenses and higher salary and related costs, mainly due to higher headcount associated with accelerated strategic research and development programs and collaborations with our customers to expedite their production ramps.

Research and Development Expenses, Net

	2016	2017	2018
Research and development expenses, net (in millions)	$30.8	$40.4	$47.8
Change year-on-year	—	*31.0%*	*18.2%*

The net increase in research and development expenses for 2018 as compared to 2017 principally reflected higher salary and employee related costs, mainly due to higher headcount, higher project-related expenses, lower research grants received from the IIA and higher non-cash equity-based compensation expenses. The net increase in research and development expenses for 2017 as compared to 2016 principally reflected higher salary and related costs, mainly due to higher headcount associated with accelerated strategic research and development programs and collaborations with our customers to expedite their production ramp-ups, lower research grants received from the IIA and higher non-cash equity-based compensation expenses associated with our employee retention efforts. The average number of research and development personnel in 2018 was 238, compared to 217 in 2017 and 194 in 2016. The number of research and development personnel was 254 at December 31, 2018 as compared to 228 in 2017 and 199 in 2016.

We anticipate that our research and development expenses cost will continue to increase in 2019. With our newly announced products and continued momentum with our existing licensing business, we will continue to innovate and reinforce our leadership, but with disciplined investments in research and developments costs. The increase will be approximately $4 million, mainly associated with investments in headcount, employee-related costs and EDA tools.

Research and development expenses, net of related government grants and French research tax benefits applicable to Crédit Impôt Recherche (“CIR”), were 61.3% of our total revenues for 2018, as compared with 46.2% for 2017 and 42.4% for 2016. We recorded research grants under funding programs of $3,352,000 in 2018, compared with $4,137,000 in 2017 and $6,410,000 in 2016. We recorded CIR benefits of $2,065,000, $1,555,000 and $1,485,000 for 2018, 2017 and 2016, 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 2018, 2017 and 2016 were $5,141,000, $3,839,000 and $2,860,000, respectively. Research and development expenses are net of related government research grants 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

	2016	**2017**	**2018**
Sales and marketing expenses (in millions)	$11.5	$12.6	$12.2
Change year-on-year	—	*8.9 %*	*(3.3)%*

The decrease in sales and marketing expenses for 2018 as compared to 2017 principally reflected lower salary and employee related costs. The increase in sales and marketing expenses for 2017 as compared to 2016 principally reflected higher salary and related costs and higher non-cash equity-based compensation expenses.

Sales and marketing expenses as a percentage of our total revenues were 15.6% for 2018, as compared with 14.4% for 2017 and 15.9% for 2016. The total number of sales and marketing personnel was 32 in 2018, as compared with 36 in 2017 and 35 in 2016. 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 2018, 2017 and 2016 were $1,587,000, $1,428,000 and $922,000, respectively.

General and Administrative Expenses

	2016	2017	2018
General and administrative expenses (in millions)	$8.6	$10.5	$10.3
Change year-on-year	—	*22.4%*	*(1.3)%*

The slight decrease in general and administrative expenses for 2018 as compared to 2017 principally reflected lower professional service fees, partially offset by higher salary and related employee costs. The increase in general and administrative expenses for 2017 as compared to 2016 principally reflected higher professional service fees and higher non-cash equity-based compensation expenses.

General and administrative expenses as a percentage of our total revenues were 13.3% for 2018, as compared with 12.0% for 2017 and 11.8% for 2016. The total number of general and administrative personnel was 32 in 2018, as compared with 26 in 2017 and 23 in 2016. 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 and non-cash equity-based compensation expenses. Non-cash equity-based compensation expenses included in general and administrative expenses for the years 2018, 2017 and 2016 were $3,051,000, $2,967,000 and $2,208,000, respectively.

Amortization of Intangible Assets

Our amortization charges were $0.9 million, $1.2 million and $1.2 million for 2018, 2017 and 2016 respectively. The charges were incurred in connection with the amortization of intangible assets associated with the acquisition of RivieraWaves in July 2014. As of December 31, 2018, the net amount of intangible assets associated with the acquisition of RivieraWaves was $0.8 million.

Financial Income, net

	2016	2017	2018
	(in millions)		
Financial income, net	$2.04	$3.03	$3.42
of which:			
Interest income and gains and losses from marketable securities, net	$2.23	$3.05	$3.66
Foreign exchange loss	$(0.19)	$(0.02)	$(0.24)

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 2018 as compared to 2017 reflected higher yields. The increase in interest income and gains and losses from marketable securities, net, for 2017 as compared to 2016 reflected higher combined cash, bank deposits and marketable securities balances held and higher 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. This has resulted in a foreign exchange loss of $0.24 million, $0.02 million and $0.19 million for 2018, 2017 and 2016, respectively.

Revaluation of investment in other company

We recorded a loss of $870 in 2018 related to revaluation of our investment in other company, in which we hold in cost.

Provision for Income Taxes

During the years 2018, 2017 and 2016, we recorded tax expenses of $0.7 million, $1.9 million and $3.3 million, respectively. The decrease in provision for income taxes in 2018 as compared to 2017 principally reflected lower income before taxes on income, partially offset by a tax benefit of $1.8 million in 2017 due to the release of a tax provision as a result of the completion of a tax audit in a certain foreign tax jurisdiction. The decrease in provision for income taxes in 2017 as compared to 2016 principally reflected a tax benefit of $1.8 million due to the release of a tax provision as a result of the completion of a tax audit in a certain foreign tax jurisdiction, partially offset by higher income before taxes on income and a one-time recording of a deferred tax asset due to a change in the estimation for taxable income for future years. 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. Currently, our Israeli and Irish subsidiaries are taxed at rates substantially lower than U.S. tax rates.

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%.

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 and the standard rate of 33.33% for taxable profit above €500,000. In 2019, the standard corporate income tax rate is reduced to 31%, with the first €500,000 of taxable profit still being subject to the reduced 28% rate. In 2020, a corporate income tax rate of 28% will become the new standard rate for all taxable profits. In 2021, the corporate income tax rate will be reduced to 26.5%. In 2022, the standard corporate income tax rate will be further reduced to 25%.

Our Israeli subsidiary is entitled to various tax benefits by virtue of the “Approved Enterprise” and/or “Benefited Enterprise” status granted to its eight investment programs, as defined by the Israeli Investment Law. In accordance with the Investment Law, our Israeli subsidiary’s first seven investment programs were subject to corporate tax rate of 23% in 2018, and our Israeli subsidiary’s eighth investment programs was subject to corporate tax rate of 10% in 2018. However, our Israeli subsidiary is eligible for the erosion of tax basis with respect to its first seven investment programs, and this resulted in an increase in the taxable income attributable to the eighth investment program, which was subject to a reduced tax rate of 10% in 2018. The tax benefits under our Israeli subsidiary’s active investment programs are scheduled to gradually expire starting in 2020.

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.

On December 22, 2017, the U.S. President signed into law federal tax legislation commonly referred to as the Tax Cuts and Jobs Act (the “Tax Act”). The Tax Act provides for significant and wide-ranging changes to the U.S. Internal Revenue Code. Broadly, the implications most relevant to us include: a) a reduction in the U.S. federal corporate income tax rate from 35% to 21%, with various “base erosion” rules that may effectively limit the tax deductibility of certain payments made by our U.S. entities to our non-U.S. affiliates and additional limitations on deductions attributable to interest expense; and b) adopting elements of a territorial tax system. To transition into the territorial tax system, the Tax Act included a one-time tax on cumulative retained earnings of U.S.-owned foreign subsidiaries, at a rate of 15.5% for earnings represented by cash or cash equivalents, and 8.0% for the balance of such earnings. In connection with our completed analysis of the impact of the Tax Act, and after utilization of existing tax loss carryforwards and foreign tax credit carryforwards, we did not incur a tax payment.

In January 2018, FASB released guidance on the accounting for taxes on the global intangible low-taxed income (“GILTI”) provisions of the Tax Act. The GILTI provisions impose a tax on foreign income in excess of a deemed return on tangible assets of foreign corporations. The guidance indicates that either (i) accounting for deferred taxes relating to GILTI inclusions, or (ii) treating any taxes on GILTI inclusions as period cost, are both acceptable methods subject to an accounting policy election. We have elected to treat the GILTI tax as a period expense rather than provide U.S. deferred taxes on foreign temporary differences that are expected to generate GILTI income when they reverse in future years.

For more information about our provision for income taxes, see Note 13 to the attached Notes to Consolidated Financial Statement for the year ended December 31, 2018.

LIQUIDITY AND CAPITAL RESOURCES

As of December 31, 2018, we had approximately $22.3 million in cash and cash equivalents, $46.1 million in short term bank deposits, $77.5 million in marketable securities, and $21.9 million in long term bank deposits, totaling $167.8 million, as compared to $183.3 million at December 31, 2017. The decrease in 2018 as compared to 2017 principally reflected a repurchase of 655,876 shares of common stock for an aggregate consideration of approximately $20.0 million, offset by cash provided by operating activities.

Out of total cash, cash equivalents, bank deposits and marketable securities of $167.8 million at year end 2018, $136.4 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.

During 2018, we invested $41.3 million of cash in bank deposits and marketable securities with maturities up to 51 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 $56.4 million. During 2017, we invested $101.9 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 $77.3 million. During 2016, we invested $85.0 million of cash in bank deposits and marketable securities with maturities up to 59 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 $66.4 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. We did not recognize any other-than-temporarily-impaired charges on marketable securities in 2018, 2017 and 2016. 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, 2018.

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 2018 was $8.6 million and consisted of net income of $0.6 million, adjustments for non-cash items of $16.4 million, and changes in operating assets and liabilities of $8.4 million. Adjustments for non-cash items primarily consisted of $4.2 million of depreciation and amortization of intangible assets, $10.4 million of equity-based compensation expenses, $0.8 million of amortization of premiums on available-for-sale marketable securities and $0.9 million of revaluation of investment in other company in which we hold at cost. The decrease in cash from changes in operating assets and liabilities primarily consisted of an increase in trade receivables of $0.5 million, an increase in prepaid expenses and other assets of $3.9 million (mainly as a result of an increase in French research tax credits which is generally refunded every three years), an increase in accrued interest on bank deposits of $0.6 million, an increase in deferred tax, net, of $2.2 million, a decrease in deferred revenues of $0.8 million, a decrease in accrued expenses and other payables of $0.5 million, and a decrease in accrued payroll and related benefits of $0.5 million.

Cash provided by operating activities in 2017 was $24.5 million and consisted of net income of $17.0 million, adjustments for non-cash items of $13.1 million, and changes in operating assets and liabilities of $5.6 million. Adjustments for non-cash items primarily consisted of $3.3 million of depreciation and amortization of intangible assets, $8.7 million of equity-based compensation expenses and $1.2 million of amortization of premiums on available-for-sale marketable securities. The decrease in cash from changes in operating assets and liabilities primarily consisted of an increase in trade receivables of $1.4 million, an increase in prepaid expenses and other current assets of $2.5 million, an increase in deferred tax, net of $1.4 million, a decrease in deferred revenues of $1.9 million and a decrease in income tax payable of $1.5 million, partially offset by an increase in accrued expenses and other payables of $1.3 million and an increase in accrued payroll and related benefits of $1.8 million.

Cash provided by operating activities in 2016 was $14.5 million and consisted of net income of $13.1 million, adjustments for non-cash items of $10.0 million, and changes in operating assets and liabilities of $8.6 million. Adjustments for non-cash items primarily consisted of $2.6 million of depreciation and amortization of intangible assets, $6.2 million of equity-based compensation expenses and $1.1 million of amortization of premiums on available-for-sale marketable securities. The decrease in cash from changes in operating assets and liabilities primarily consisted of an increase in trade receivables of $11.0 million, an increase in prepaid expenses and other current assets of $0.6 million, and an increase in deferred tax, net, of $0.6 million, partially offset by an increase in deferred revenues of $3.5 million and an increase in income tax payable of $0.7 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 provided by investing activities in 2018 was $9.8 million, as compared to net cash used in investing activities of $28.8 million in 2017 and net cash used in investing activities of $21.0 million in 2016. We had a cash outflow of $19.7 million with respect to investments in marketable securities and a cash inflow of $23.5 million with respect to maturity, and sale, of marketable securities during 2018. Included in the cash inflow during 2018 was net proceeds of $11.3 million from bank deposits. We had a cash outflow of $54.9 million with respect to investments in marketable securities and a cash inflow of $32.8 million with respect to maturity, and sale, of marketable securities during 2017. Included in the cash outflow during 2017 was net investment of $2.6 million in bank deposits. We had a cash outflow of $43.5 million with respect to investments in marketable securities and a cash inflow of $28.8 million with respect to maturity and sale of marketable securities during 2016. Included in the cash outflow during 2016 was net investment of $3.9 million in bank deposits. Capital equipment purchases of computer hardware and software used in engineering development, furniture and fixtures amounted to approximately $3.3 million in 2018, $4.1 million in 2017 and $2.4 million in 2016. We had a cash outflow of $2.0 million in 2018 from the purchase of a license of NB-IoT technologies.

Financing Activities

Net cash used in financing activities in 2018 was $17.8 million, as compared to net cash provided by financing activities of $7.5 million in 2017 and net cash provided by financing activities of $6.2 million in 2016.

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 five million shares in 2010, 2013 and 2014. In May 2018, our board of directors authorized the repurchase of an additional 700,000 shares of common stock. In 2018, we repurchased 655,876 shares of common stock at an average purchase price of $30.51 per share for an aggregate purchase price of $20.0 million. In 2017, we did not repurchase shares of our common stock. In 2016, we repurchased 180,013 shares of common stock at an average purchase price of $18.98 per share for an aggregate purchase price of $3.4 million. As of December 31, 2018, 355,180 shares of common stock remained authorized for repurchase pursuant to our share repurchase program.

In 2018, 2017 and 2016, we received $2.2 million, $7.5 million and $9.6 million, respectively, from the exercise of stock-based awards.

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, 2018:

	Payments Due by Period ($ in thousands)				
	Total	**Less than 1 year**	**1-3 years**	**3-5 years**	**More than 5 years**
Operating Lease Obligations – Leasehold properties	3,322	1,431	1,858	33	—
Purchase Obligations – design tools	1,764	1,764	—	—	—
Other purchase Obligations	584	584	—	—	—
Total	5,670	3,779	1,858	33	—

Operating leasehold obligations principally relate to our offices in Israel, Ireland, 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, 2018, our income tax payable, net of withholding tax credits, included $2,739,000 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, 2018, the amount of accrued severance pay was $9,632,000. 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, $606,000 is unfunded.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements, as such term is defined in recently enacted rules by the Securities and Exchange Commission, that have or are reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that are material to investors.

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. This has resulted in a foreign exchange loss of $0.24 million, $0.02 million and $0.19 million for 2018, 2017 and 2016, 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 2018, 2017 and 2016, we recorded accumulated other comprehensive loss of $68,000, $5,000 and $3,000, 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, 2018, the amount of other comprehensive loss from our forward and option contracts, net of taxes, was $68,000, which will be recorded in the consolidated statements of income during the following six months. We recognized a net loss of 0.35 million and a net gain of $0.19 million and a net gain of $0.16 million for 2018, 2017 and 2016, 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. Accordingly, as of December 31, 2018, we believe the losses associated with our investments are temporary and no impairment loss was recognized in 2018. 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 $3.66 million in 2018, $3.05 million in 2017 and $2.23 million in 2016. The increase in interest income and gains and losses from marketable securities, net, for 2018 as compared to 2017 reflected higher yields. The increase in interest income and gains and losses from marketable securities, net, for 2017 as compared to 2016 reflected higher combined cash, bank deposits and marketable securities balances held and higher 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, 2018.

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, 2018. 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, 2018.

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 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 2019 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 2019 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 2019 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 2019 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 2019 Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item is incorporated herein by reference to the 2019 Proxy Statement.

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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, 2018 and 2017.

Consolidated Statements of Income for the Years Ended December 31, 2018, 2017 and 2016.

Consolidated Statements of Comprehensive Income (Loss) for the Years Ended December 31, 2018, 2017 and 2016.

Statements of Changes in Stockholders' Equity for the Years Ended December 31, 2018, 2017 and 2016.

Consolidated Statements of Cash Flows for the Years Ended December 31, 2018, 2017 and 2016.

Notes to the Consolidated Financial Statements.

2. Financial Statement Schedules:

Schedule II: Valuation and Qualifying Accounts.

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.

EXHIBIT INDEX

Exhibit Number	Description
3.1(1)	Amended and Restated Certificate of Incorporation of the Registrant
3.2(2)	Certificate of Ownership and Merger (merging CEVA, Inc. into ParthusCeva, Inc.)
3.3(3)	Amended and Restated Bylaws of the Registrant
3.4(4)	Amendment to the Amended and Restated Certificate of Incorporation of the Registrant
4.1(5)	Specimen of Common Stock Certificate
10.1†(6)	CEVA, Inc. 2000 Stock Incentive Plan
10.2(6)†	CEVA, Inc. 2002 Stock Incentive Plan
10.3†(13)	CEVA, Inc. 2003 Director Stock Option Plan
10.4†(6)	Parthus 2000 Share Option Plan
10.5†(17)	CEVA, Inc. 2002 Employee Stock Purchase Plan (filed with this Annual Report on Form 10-K)
10.6(1)	Form of Indemnification Agreement
10.7†(7)	Employment Agreement between the Registrant and Gideon Wertheizer dated as of November 1, 2002
10.8†(7)	Employment Agreement between the Registrant and Issachar Ohana dated as of November 1, 2002
10.9†(8)	Personal and Special Employment Agreement between the Registrant and Yaniv Arieli dated as of August 18, 2005
10.10†(9)	Form of Nonstatutory Stock Option Agreement under the CEVA, Inc. 2002 Stock Incentive Plan
10.11†(9)	Form of Israeli Stock Option Agreement under the CEVA, Inc. 2002 Stock Incentive Plan
10.12†(9)	Form of Nonstatutory Stock Option Agreement under the CEVA, Inc. 2000 Stock Incentive Plan
10.13†(9)	Form of Israeli Stock Option Agreement under the CEVA, Inc. 2000 Stock Incentive Plan
10.14†(9)	Form of Nonstatutory Stock Option Agreement under the CEVA, Inc. 2003 Director Stock Option Plan

10.15†(10)	Form of Nonstatutory Stock Option Agreement for Directors under the CEVA, Inc. 2000 Stock Incentive Plan
10.16†(10)	Yaniv Arieli's Amended and Restated Nonstatutory Stock Option Agreement under the CEVA, Inc. 2002 Stock Incentive Plan, dated as of August 3, 2007
10.17†(11)	Amendment, dated July 22, 2003, to the Employment Agreement by and between Issachar Ohana and CEVA, Inc., dated November 1, 2002
10.18†(12)	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
10.19†(17)	CEVA, Inc. 2011 Stock Incentive Plan (filed with this Annual Report on Form 10-K)
10.22†(14)	Form of Stock Appreciation Right Agreement under the CEVA, Inc. 2011 Stock Incentive Plan
10.23†(14)	Form of Israeli Stock Appreciation Right Agreement under the CEVA, Inc. 2011 Stock Incentive Plan
10.24†(14)	Form of Israeli Restricted Stock Unit Agreement for employees under the CEVA, Inc. 2011 Stock Incentive Plan
10.25†(14)	Form of Restricted Stock Unit Agreement for employees under the CEVA, Inc. 2011 Stock Incentive Plan
10.26†(14)	Form of Restricted Stock Unit Agreement for non-employee directors under the CEVA, Inc. 2011 Stock Incentive Plan
10.27†(14)	Form of Restricted Stock Unit Agreement for Israeli non-employee directors under the CEVA, Inc. 2011 Stock Incentive Plan
10.28†(14)	Israeli Sub-plan under the CEVA, Inc. 2011 Stock Incentive Plan
10.29†(15)	2018 Incentive Plan for Issachar Ohana, EVP Worldwide Sales, effective as of January 1, 2018 (portions of this exhibit is redacted).
10.30†(15)	2018 Executive Bonus Plan for Gideon Wertheizer and Yaniv Arieli, effective as of January 1, 2018 (portions of the description of the 2018 Executive Bonus Plan are redacted).
10.31†(16)	2019 Incentive Plan for Issachar Ohana, EVP Worldwide Sales, effective as of January 1, 2019 (portions of this exhibit is redacted).
10.32†(16)	2019 Executive Bonus Plan for Gideon Wertheizer and Yaniv Arieli, effective as of January 1, 2019 (portions of the description of the 2019 Executive Bonus Plan are redacted).
21.1*	Subsidiaries of the Registrant
23.1*	Consent of Kost Forer Gabbay & Kasierer, a member of Ernst & Young Global
24.1*	Power of Attorney (See signature page of this Annual Report on Form 10-K)

31.1*	Rule 13a-14(a)/15d-14(a) Certification of Chief Executive Officer
31.2*	Rule 13a-14(a)/15d-14(a) Certification of Chief Financial Officer
32*	Section 1350 Certification of Chief Executive Officer and Chief Financial Officer
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Labels Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

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(1) Filed as an exhibit to CEVA's registration statement on Form 10, as amended, initially filed with the Commission on June 3, 2002 (registration number 000-49842), and incorporated herein by reference.

(2) Filed as an exhibit to CEVA's Report on Form 8-K, filed with the Commission on December 8, 2003, and incorporated hereby by reference.

(3) Filed as an exhibit to CEVA's Current Report on Form 8-K, filed with the Commission on September 14, 2018, and incorporated hereby by reference.

(4) Filed as an exhibit to CEVA's Report on Form 8-K, filed with the Commission on July 22, 2005, and incorporated hereby by reference.

(5) Filed as an exhibit to CEVA's registration statement on Form S-1, as amended, initially filed with the Commission on July 30, 2002 (registration number 333-97353), and incorporated herein by reference.

(6) Filed as an exhibit to CEVA's 2007 Annual Report on Form 10-K, filed with the Commission on March 14, 2008, and incorporated hereby by reference.

(7) Filed as an exhibit to CEVA's 2002 Annual Report on Form 10-K, filed with the Commission on March 28, 2003, and incorporated hereby by reference.

(8) Filed as an exhibit to CEVA's Quarterly Report on Form 10-Q, filed with the Commission on November 9, 2005, and incorporated hereby by reference.

(9) Filed as an exhibit to CEVA's Quarterly Report on Form 10-Q, filed with the Commission on August 9, 2006, and incorporated hereby by reference.

(10) Filed as an exhibit of the same number to CEVA's Quarterly Report on Form 10-Q, filed with the Securities and Exchange Commission on August 9, 2007, and incorporated hereby by reference.

(11) Filed as Exhibit 10.27 to CEVA's Quarterly Report on Form 10-Q, filed with the Securities and Exchange Commission on November 9, 2007, and incorporated hereby by reference.

(12) Filed as Exhibit 99.1 to CEVA's Current Report on Form 8-K, filed with the Securities and Exchange Commission on November 7, 2007, and incorporated hereby by reference.

(13) Filed as Exhibit 10.8 to CEVA's Annual Report on Form 10-K filed with the Commission on March 15, 2012, and incorporated hereby by reference.

(14) Filed as an exhibit to CEVA's Annual Report on Form 10-K filed with the Commission on March 11, 2016, and incorporated hereby by reference.

(15)

Filed as an exhibit to CEVA's Current Report on Form 8-K, filed with the Securities and Exchange Commission on February 2, 2018, and incorporated hereby by reference.

(16) Filed as an exhibit to CEVA's Current Report on Form 8-K, filed with the Securities and Exchange Commission on February 13, 2019, and incorporated hereby by reference.

(17) Filed as an exhibit to CEVA's Annual Report on Form 10-K filed with the Commission on March 1, 2018, and incorporated hereby by reference.

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

* Filed herewith.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

CONSOLIDATED FINANCIAL STATEMENTS

AS OF DECEMBER 31, 2018

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CEVA, INC.

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, 2018 and 2017, the related consolidated statements of income, comprehensive income, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2018, 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 consolidated financial position of the Company at December 31, 2018 and 2017, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, 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, 2018, 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 4, 2019 expressed an unqualified opinion thereon.

Adoption of Accounting Standards Update (ASU) No. 2014-09, Revenue from Contracts with Customers (Topic 606):

As discussed in Note 2 to the consolidated financial statements, the Company changed its method of accounting for revenue in 2018 due to the adoption of Accounting Standards Update (ASU) No. 2014-09, Revenue from Contracts with Customers (Topic 606), and the related amendments.

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.

/s/KOST FORER GABBAY & KASIERER

A Member of Ernst & Young Global

Tel Aviv, Israel

March 4, 2019

We have served as the Company's auditor since 1999.

CEVA, INC.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Stockholders of CEVA, Inc.

Opinion on Internal Control over Financial Reporting

We have audited CEVA, Inc.`s (the “Company”) internal control over financial reporting as of December 31, 2018, 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, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, 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, 2018 and 2017, and the related consolidated statements of income, changes in stockholders' equity and cash flows for each of the three years in the period ended December 31, 2018 and the related notes, and our report dated March 4, 2019 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 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.

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 4, 2019

CEVA, INC.

CONSOLIDATED BALANCE SHEETS

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

	December 31, 2017	December 31, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	$21,739	$22,260
Short-term bank deposits	34,432	46,139
Marketable securities (Note 3)	82,664	77,469
Trade receivables	16,494	26,156
Prepaid expenses and other current assets	3,747	5,264
Total current assets	159,076	177,288
Long-term assets:		
Bank deposits	44,518	21,864
Severance pay fund	8,910	9,026
Deferred tax assets (Note 13)	3,643	5,924
Property and equipment, net (Note 5)	6,926	7,344
Goodwill	46,612	46,612
Intangible assets, net (Note 6)	1,742	2,700
Investments in other company	1,806	936
Other long-term assets	3,579	5,569
Total long-term assets	117,736	99,975
Total assets	$276,812	$277,263
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Trade payables	$392	$632
Deferred revenues	4,399	3,593
Accrued expenses and other payables (Note 7)	3,927	4,344
Accrued payroll and related benefits	14,077	13,183
Total current liabilities	22,795	21,752
Long-term liabilities:		
Accrued severance pay	9,347	9,632
Total long-term liabilities	9,347	9,632
Stockholders' equity (Note 8):		
Preferred stock:		
$0.001 par value: 5,000,000 shares authorized; none issued and outstanding	—	—
Common stock:		
	22	22

$0.001 par value: 60,000,000 shares authorized; 23,595,160 shares issued at December 31, 2017 and 2018; 22,064,007 and 21,787,860 shares outstanding at December 31, 2017 and 2018, respectively		
Additional paid in-capital	217,417	223,250
Treasury stock at cost (1,531,153 and 1,807,300 shares of common stock at December 31, 2017 and 2018, respectively)	(26,056)	(39,132)
Accumulated other comprehensive loss (Note 10)	(586)	(1,114)
Retained earnings	53,873	62,853
Total stockholders' equity	244,670	245,879
Total liabilities and stockholders' equity	$276,812	$277,263

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

CEVA, INC.

CONSOLIDATED STATEMENTS OF INCOME

(U.S. dollars in thousands, except per share data)

	Year Ended December 31,		
	2016	**2017**	**2018**
Revenues:			
Licensing and related revenue	$31,874	$42,899	$40,446
Royalties	40,779	44,608	37,431
Total revenues	72,653	87,507	77,877
Cost of revenues	6,086	6,953	7,951
Gross profit	66,567	80,554	69,926
Operating expenses:			
Research and development, net	30,838	40,385	47,755
Sales and marketing	11,540	12,572	12,161
General and administrative	8,567	10,488	10,354
Amortization of intangible assets (Note 6)	1,236	1,236	901
Total operating expenses	52,181	64,681	71,171
Operating income (loss)	14,386	15,873	(1,245)
Financial income, net (Note 12)	2,039	3,026	3,418
Revaluation of investment in other company (Note 12)	—	—	(870)
Income before taxes on income	16,425	18,899	1,303
Income taxes (Note 13)	3,325	1,871	729
Net income	$13,100	$17,028	$574
Basic net income per share	$0.63	$0.78	$0.03
Diluted net income per share	$0.61	$0.75	$0.03
Weighted average shares used to compute net income per share (in thousands):			
Basic	20,850	21,771	22,034
Diluted	21,565	22,561	22,503

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

CEVA, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(U.S. dollars in thousands)

	Year Ended December 31,		
	2016	**2017**	**2018**
Net income:	$13,100	$17,028	$574
Other comprehensive loss before tax:			
Available-for-sale securities:			
Changes in unrealized losses	(95)	(99)	(612)
Reclassification adjustments included in net income	9	—	67
Net change	(86)	(99)	(545)
Cash flow hedges:			
Changes in unrealized losses	158	183	(431)
Reclassification adjustments for (gains) losses included in net income	(161)	(189)	354
Net change	(3)	(6)	(77)
Other comprehensive loss before tax	(89)	(105)	(622)
Income tax benefit related to components of other comprehensive loss	(11)	(16)	(94)
Other comprehensive loss, net of taxes	(78)	(89)	(528)
Comprehensive income	$13,022	$16,939	$46

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				**Accumulated**		
	Number of shares outstanding	**Amount**	**Additional paid-in capital**	**Treasury stock**	**other comprehensive income (loss)**	**Retained earnings**	**Total stockholders' equity**
Balance as of January 1, 2016	20,529,933	$ 21	$ 208,744	$ (51,798)	$ (419)	$ 29,547	$ 186,095
Net income	—	—	—	—	—	13,100	13,100
Other comprehensive loss	—	—	—	—	(78)	—	(78)
Equity-based compensation	—	—	6,236	—	—	—	6,236
Purchase of Treasury stock	(180,013)	(1)	—	(3,416)	—	—	(3,417)
Issuance of Treasury stock upon exercise of stock-based awards	923,580	1	(2,877)	15,707	—	(3,216)	9,615
Balance as of December 31, 2016	21,273,500	$ 21	$ 212,103	$ (39,507)	$ (497)	$ 39,431	$ 211,551
Net income	—	—	—	—	—	17,028	17,028
Other comprehensive loss	—	—	—	—	(89)	—	(89)
Equity-based compensation	—	—	8,693	—	—	—	8,693
Issuance of Treasury stock upon exercise of stock-based awards	790,507	1	(3,379)	13,451	—	(2,586)	7,487
Balance as of December 31, 2017	22,064,007	$ 22	$ 217,417	$ (26,056)	$ (586)	$ 53,873	$ 244,670
Net income	—	—	—	—	—	574	574
Other comprehensive loss	—	—	—	—	(528)	—	(528)
Equity-based compensation	—	—	10,367	—	—	—	10,367
Purchase of Treasury stock	(655,876)	—	—	(20,008)	—	—	(20,008)
Issuance of treasury stock upon exercise of stock-based awards	379,729	—	(4,534)	6,932	—	(149)	2,249
Cumulative effect of adoption of new accounting standard (Note 2)	—	—	—	—	—	8,555	8,555
Balance as of December 31, 2018	21,787,860	$ 22	$ 223,250	$ (39,132)	$ (1,114)	$ 62,853	$ 245,879
					$ (1,046)		

Accumulated unrealized loss from available-for-sale securities, net of taxes of $177	
Accumulated unrealized loss from hedging activities, net of taxes of $9	$ (68)
Accumulated other comprehensive loss, net as of December 31, 2018	$ (1,114)

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,		
	2016	**2017**	**2018**
Cash flows from operating activities:			
Net income	$13,100	$17,028	$574
Adjustments required to reconcile net income to net cash provided by operating activities:			
Depreciation	1,399	2,014	2,915
Amortization of intangible assets	1,236	1,236	1,242
Equity-based compensation	6,236	8,693	10,367
Realized loss, net on sale of available-for-sale marketable securities	9	—	67
Amortization of premiums on available-for-sale marketable securities	1,064	1,179	773
Unrealized foreign exchange (gain) loss, net	75	(42)	155
Revaluation of investment in other company	—	—	870
Changes in operating assets and liabilities:			
Trade receivables	(10,966)	(1,446)	(463)
Prepaid expenses and other assets	(622)	(2,478)	(3,855)
Accrued interest on bank deposits	(195)	151	(557)
Deferred tax, net	(613)	(1,375)	(2,187)
Trade payables	(190)	(184)	226
Deferred revenues	3,495	(1,859)	(806)
Accrued expenses and other payables	(277)	1,259	(493)
Accrued payroll and related benefits	(94)	1,807	(527)
Income taxes payable	668	(1,493)	96
Accrued severance pay, net	134	(21)	215
Net cash provided by operating activities	14,459	24,469	8,612
Cash flows from investing activities:			
Purchase of property and equipment	(2,387)	(4,135)	(3,319)
Purchase of intangible assets	—	—	(1,960)
Investment in bank deposits	(41,476)	(47,027)	(21,596)
Proceeds from bank deposits	37,594	44,450	32,892
Investment in available-for-sale marketable securities	(43,537)	(54,882)	(19,666)
Proceeds from maturity of available-for-sale marketable securities	8,022	9,296	10,122
Proceeds from sale of available-for-sale marketable securities	20,754	23,512	13,354
Net cash provided by (used in) investing activities	(21,030)	(28,786)	9,827
Cash flows from financing activities:			
Purchase of Treasury Stock	(3,417)	—	(20,008)
Proceeds from exercise of stock-based awards	9,615	7,487	2,249
Net cash provided by (used in) financing activities	6,198	7,487	(17,759)

Effect of exchange rate changes on cash and cash equivalents	(135)	168	(159)
Increase (decrease) in cash and cash equivalents	(508)	3,338	521
Cash and cash equivalents at the beginning of the year	18,909	18,401	21,739
Cash and cash equivalents at the end of the year	$18,401	$21,739	$22,260

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,		
	2016	**2017**	**2018**
Supplemental information of cash-flows activities:			
Cash paid during the year for:			
Income and withholding taxes	$3,287	$5,203	$4,294
Non-cash transactions:			
Cumulative effect of adoption of new accounting standard	$—	$—	$8,555
Property and equipment purchases incurred but unpaid at period end	$86	$—	$14
Intangible assets purchased but unpaid at period end	$—	$—	$750

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

CEVA, INC.

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 signal processing IPs, including comprehensive platforms for 5G baseband processing in handsets and base station RAN, highly integrated cellular IoT solutions (NB-IoT and Cat-M), DSP platforms incorporating voice input algorithms and software for voice enabled devices, DSP platforms for advanced imaging and computer vision in any camera-enabled device, and a family of self-contained AI processors that address a wide range of edge applications. For short-range wireless, we offer the industry's most widely adopted IPs for Bluetooth (low energy and dual mode) and Wi-Fi (4/5/6 up to 4x4) platforms.

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 wireless, consumer electronics and automotive companies for incorporation into a wide variety of end products.

Basis of presentation:

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

***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.

***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.

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 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.

CEVA, INC.

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

***Principles of consolidation*:**

The consolidated financial statements incorporate the financial statements of the Company and all of its subsidiaries. All significant 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 1.76%, 1.85% and 2.16% during 2016, 2017 and 2018, 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 and Equity 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 recognizes an impairment charge when a decline in the fair value of its investments in debt securities below the cost basis of such securities is judged to be other-than-temporary. Factors considered in making such a determination include the duration and severity of the impairment, the reason for the decline in value and the potential recovery period. For securities that are deemed other-than-temporarily impaired ("OTTI"), the amount of impairment is recognized in the statement of income and is limited to the amount related to credit losses, while impairment related to other factors is recognized in other comprehensive income (loss). The Company did not recognize OTTI on its marketable securities in 2016, 2017 and 2018.

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 1.97%, 2.26% and 2.57% during 2016, 2017 and 2018, respectively.

CEVA, INC.

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

***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 - 25 (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. If such asset 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.

An asset to be disposed is reported at the lower of its carrying amount or fair value less selling costs. No impairment was recorded in 2016, 2017 and 2018.

***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 the only reporting unit.

There is a two-phase process for impairment testing of goodwill. The first phase screens for potential impairment, while the second phase (if necessary) measures impairment. Goodwill impairment is deemed to exist if the net book value of a reporting unit exceeds its estimated fair value. In such case, the second phase is then performed, and the Company measures impairment by comparing the carrying amount of the reporting unit's goodwill to the implied fair value of that goodwill. An impairment loss is recognized in an amount equal to the excess. For each of the three years in the period ended December 31, 2018, no impairment of goodwill has been identified.

***Intangible assets, net**:*

Acquired intangible assets with definite lives are amortized over their estimated useful lives. The Company amortizes intangible assets on a straight-line basis with definite lives over periods ranging from one and a half to seven years.

Intangible assets with definite lives are reviewed for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Recoverability of these assets is measured by comparison of their carrying amounts to 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. The Company did not record any impairments during the years ended December 31, 2016, 2017 and 2018.

CEVA, INC.

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

***Investments in other company**:*

The Company's non-marketable equity securities are investments in privately held companies without readily determinable market values.

Prior to January 1, 2018, the Company accounted for its non-marketable equity securities at cost less impairment. As of December 31, 2017, non-marketable equity securities accounted for under the cost method had a carrying value of $1,806.

Effective January 1, 2018, the Company adopted Accounting Standards Update ("ASU") 2016-01, which changed the way it accounts for non-marketable securities on a prospective basis. Under the new ASU, equity investments that do not have readily determinable fair values and do not qualify for the net asset value practical expedient are eligible for the measurement alternative. For the Company's equity investment in private company equity securities which do not have readily determinable fair values, the Company has elected the measurement alternative defined as cost, less impairment, plus or minus adjustments resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. The investment is reviewed periodically to determine if its value has been impaired and adjustments are recorded as necessary.

During the year ended December 31, 2018, the Company recorded a loss of $870 related to revaluation of its investment in a private company based on observable price changes. During the years ended December 31, 2016 and 2017, no impairment loss was identified.

***Revenue recognition**:*

Effective as of January 1, 2018, the Company has followed the provisions of ASC Topic 606, *Revenue from Contracts with Customers* ("ASC 606"). The guidance provides a unified model to determine how revenue is recognized. See Note 2 for further details.

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 support, training and sale of development systems.

CEVA, INC.

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

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 software 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.

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.

Revenues from contracts that involve significant customization of the Company's IP to customer-specific specifications are performance obligations the Company generally accounts for as performance obligations satisfied over time. The company's performance 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. 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.

In addition to license fees, 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 12 months. Training services are considered performance obligations satisfied over-time, and revenues from training services are recognized as the training is performed.

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

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

CEVA, INC.

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

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 14 for further details). Cost of product revenue includes materials, subcontractors, amortization of acquired intangible assets (NB-IoT technologies) 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 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 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 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.

The Company recorded grants in the amounts of $6,410, $4,137 and $3,352 for the years ended December 31, 2016, 2017 and 2018, 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.

CEVA, INC.

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

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 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 to "Research and development expenses" in the consolidated statements of income. During the years ended December 31, 2016, 2017 and 2018, the Company recorded CIR benefits in the amount of $1,485, $1,555 and $2,065, 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.

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 100% 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.

Total contributions for the years ended December 31, 2016, 2017 and 2018 were $1,020, $988 and $1,048, respectively.

Accrued severance pay:

The liability of CEVA's Israeli subsidiary for severance pay for employees hired prior to August 1, 2016 is 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 that employee as of the balance sheet date. The Israeli subsidiary's liability 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 the balance sheet date. 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.

Effective August 1, 2016, the Israeli subsidiary's agreements with new employees in Israel are under Section 14 of the Severance Pay Law, 1963. 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, 2016, 2017 and 2018, were $1,348, $1,413 and $1,818, respectively.

CEVA, INC.

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

***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.

In March 2016, the FASB issued ASU 2016-09, “Compensation - Stock Compensation (Topic 718), Improvements to Employee Share-Based Payment Accounting” (“ASU 2016-09”). ASU 2016-09 simplifies several aspects of the accounting for share-based payment transaction, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. For public companies, ASU 2016-09 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2016. The Company adopted ASU 2016-09 during the first quarter of 2017, at which time it changed its accounting policy to account for forfeitures as they occur. There was no material impact of the adoption of this standard on the Company’s financial statements. In addition, historically, excess tax benefits or deficiencies from the Company’s equity awards were recorded as additional paid-in capital in its consolidated balance sheets and were classified as a financing activity in its consolidated statements of cash flows. As a result of adoption during the first quarter of 2017, the Company prospectively records any excess tax benefits or deficiencies from its equity awards as part of its provision for income taxes in its consolidated statements of income during the reporting periods during which equity vesting occurs. Excess tax benefits for share-based payments are presented as an operating activity in the statements of cash flows rather than financing activity. The Company elected to apply the cash flow classification requirements related to excess tax benefits prospectively in accordance with ASU 2016-09 and prior periods have not been adjusted.

The Company estimates the fair value of options and stock appreciation right (“SAR”) awards on the date of grant using an option-pricing model. The value of the portion of an award that is ultimately expected to vest is recognized as an expense over the requisite service period in the Company’s consolidated statements of income. The Company recognizes compensation expenses for the value of its options and SARs, which have graded vesting based on the accelerated attribution method over the requisite service period of each of the awards. Prior to January 1, 2017, the Company recognized compensation expenses for the value of its options and SARs, net of estimated forfeitures. Estimated forfeitures were based on actual historical pre-vesting forfeitures and the rate was adjusted to reflect changes in facts and circumstances, if any.

The Company recognizes compensation expenses for the value of its restricted stock unit (“RSU”) awards, based on the straight-line method over the requisite service period of each of the awards. The fair value of each RSU is the market value as determined by the closing price of the common stock on the day of grant.

The Company uses the Monte-Carlo simulation model for options and SARs granted. The Monte-Carlo simulation model uses the assumptions noted below. Expected volatility was calculated based upon actual historical stock price movements over the most recent periods ending on the grant date, equal to the expected option and SAR term. The Company has historically not paid dividends and has no foreseeable plans to pay dividends. The risk-free interest rate is based on the yield from U.S. Treasury zero-coupon bonds with an equivalent term. The Monte-Carlo model also considers the suboptimal exercise multiple which is based on the average exercise behavior of the Company's employees over the past years, the contractual term of the options and SARs, and the probability of termination or retirement of the holder of the options and SARs in computing the value of the options and SARs.

CEVA, INC.

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

The fair value for the Company's stock options and SARs (other than share issuances in connection with the employee stock purchase plan, as detailed below) granted to employees and non-employees directors was estimated using the following assumptions (neither options nor SARs were granted during 2017 and 2018):

	2016 (*
Expected dividend yield	0%
Expected volatility	38% - 49%
Risk-free interest rate	0.5%- 2.4%
Expected forfeiture (employees)	—
Expected forfeiture (executives)	5%
Contractual term of up to (years)	10
Suboptimal exercise multiple (employees)	—
Suboptimal exercise multiple (executives)	2.4

(* During 2016, the Company granted stock options only to its non-employee directors.

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:

	2016	**2017**	**2018**
Expected dividend yield	0%	0%	0%
Expected volatility	29% - 57%	28% - 46%	35% - 42%
Risk-free interest rate	0.3%- 0.5%	0.5%- 1.1%	0.7%- 2.2%
Expected forfeiture	0%	0%	0%
Contractual term of up to (months)	24	24	24

During the years ended December 31, 2016, 2017 and 2018, the Company recognized equity-based compensation expense related to stock options, SARs, RSUs and employee stock purchase plan as follows:

	Year ended December 31,		
	2016	**2017**	**2018**
Cost of revenue	$246	$459	$588
Research and development, net	2,860	3,839	5,141
Sales and marketing	922	1,428	1,587
General and administrative	2,208	2,967	3,051
Total equity-based compensation expense	$6,236	$8,693	$10,367

As of December 31, 2018, there was $217 of unrecognized compensation expense related to unvested stock options, SARs and employee stock purchase plan . This amount is expected to be recognized over a weighted-average period of 1.1 years. As of December 31, 2018, there was $11,432 of unrecognized compensation expense related to unvested RSUs. This amount is expected to be recognized over a weighted-average period of 1.5 years.

CEVA, INC.

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

***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 and derivative instruments are carried at fair value. See Note 4 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 determined that its 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. While the Company monitors 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 the Company deposit its funds fails or is subject to other adverse conditions in the financial or credit markets. To date the Company has experienced no loss of principal or lack of access to its invested cash or cash equivalents; however, the Company can provide no assurance that access to its invested cash and cash equivalents will not be affected if the financial institutions in which the Company holds its cash and cash equivalents fail. 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; accordingly, as of December 31, 2018, the Company believes the losses associated with its investments are temporary and no impairment loss was recognized during 2018. 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.

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 judgments on its ability to collect outstanding receivables and provides allowances for the portion of receivables for which collection becomes doubtful. Provisions are made based upon a specific review of all significant outstanding receivables. In determining the provision, the Company considers the expected collectability of receivables.

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

CEVA, INC.

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

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 effective portion of 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. Any gain or loss on a derivative instrument in excess of the cumulative change in the present value of future cash flows of the hedged item is recognized in current earnings during the period of change. As of December 31, 2017 and 2018, the notional principal amount of the Hedging Contracts to sell U.S. dollars held by the Company was $0 and $9,100, respectively.

Advertising expenses:

Advertising expenses are charged to consolidated statements of income as incurred. Advertising expenses for the years ended December 31, 2016, 2017 and 2018 were $1,033, $1,118 and $1,080, 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.

CEVA, INC.

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

***Net income per share of common stock*:**

Basic net income per share is computed based on the weighted average number of shares of common stock outstanding during each year. Diluted net income 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,		
	2016	**2017**	**2018**
Numerator:			
Net income	$13,100	$17,028	$574
Denominator (in thousands):			
Basic weighted-average common stock outstanding	20,850	21,771	22,034
Effect of stock-based awards	715	790	469
Diluted weighted-average common stock outstanding	21,565	22,561	22,503
Basic net income per share	$0.63	$0.78	$0.03
Diluted net income per share	$0.61	$0.75	$0.03

The weighted-average number of shares related to outstanding options, SARs and RSUs excluded from the calculation of diluted net income per share, since their effect was anti-dilutive, were 282,696, 29,892 and 161,362 shares for the years ended December 31, 2016 , 2017 and 2018, respectively.

***Recently Issued Accounting Pronouncement*:**

(a) Leases

In February 2016, the FASB issued ASU 2016-02, "Leases (Topic 842)," which will replace the existing guidance in ASC 840, "Leases." The updated standard aims to increase transparency and comparability among organizations by requiring lessees to recognize lease assets and lease liabilities on the balance sheet and requiring disclosure of key information about leasing arrangements. This ASU is effective for annual periods beginning after December 15, 2018, and interim periods within those annual periods. The provisions of ASU 2016-02 are to be applied using a modified retrospective approach. In July 2018, the FASB issued ASU No. 2018-11, "Targeted Improvements - Leases (Topic 842)." This update provides an optional transition method that allows entities to elect to apply the standard on the adoption date and recognize a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. Consequently, the prior comparative period’s financials will remain the same as those previously presented. The Company has elected to apply the guidance at the beginning of the period of adoption and not restate comparative periods and elected the available practical expedients on adoption.

The Company currently estimates recording lease assets and liabilities in excess of $9,498 on its consolidated balance sheets, with no material impact on its statement of income.

(b) Other accounting standards

In January 2016, the FASB issued ASU 2016-13, “Financial Instruments – Credit Losses on Financial Instruments,” which requires that expected credit losses relating to financial assets be measured on an amortized cost basis and available-for-sale debt securities be recorded through an allowance for credit losses. ASU 2016-13 limits the amount of credit losses to be recognized for available-for-sale debt securities to the amount by which carrying value exceeds fair value and also requires the reversal of previously recognized credit losses if fair value increases. The new standard will be effective for interim and annual periods beginning after January 1, 2020, and early adoption is permitted. The Company is currently evaluating whether to early adopt this standard and the potential effect of such adoption on its consolidated financial statements.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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In January 2017, the FASB issued ASU No. 2017-04, Intangibles: Goodwill and Other: Simplifying the Test for Goodwill Impairment. To simplify the subsequent measurement of goodwill, the amendments eliminate Step 2 from the goodwill impairment test. The annual, or interim, goodwill impairment test is performed by comparing the fair value of a reporting unit with its carrying amount. An impairment charge should be recognized for the amount by which the carrying amount exceeds the reporting unit's fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. In addition, the income tax effects of tax deductible goodwill on the carrying amount of the reporting unit should be considered when measuring the goodwill impairment loss, if applicable. The amendments also eliminate the requirements for any reporting unit with a zero or negative carrying amount to perform Step 2 of the goodwill impairment test. An entity still has the option to perform the qualitative assessment for a reporting unit to determine if the qualitative impairment test is necessary. The amendments should be applied on a prospective basis. The nature of and reason for the change in accounting principle should be disclosed upon transition. The amendments in this update should be adopted for annual or any interim goodwill impairment tests in fiscal years beginning after December 15, 2019. Early adoption is permitted on testing dates after January 1, 2017. The Company is currently evaluating the impact of adopting this new guidance on its consolidated financial statements, but the adoption is not expected to have a material impact.

In August 2017, the FASB issued ASU 2017-12, Derivatives and Hedging (Topic 815) - Targeted Improvements to Accounting for Hedging Activities ("ASU 2017-12"), which improves the financial reporting of hedging relationships to better portray the economic results of an entity's risk management activities on its financial statements and makes certain targeted improvements to simplify the qualification and application of the hedge accounting compared to current GAAP. This update is effective for fiscal years beginning after December 15, 2018, with early adoption permitted. The Company is currently evaluating the impact of the adoption of ASU 2017-12 on its consolidated financial statements.

NOTE 2: REVENUE RECOGNITION

In May 2014, the FASB issued new guidance related to revenue recognition, which outlines a comprehensive revenue recognition model and supersedes most prior revenue recognition guidance. ASC 606 requires a company to recognize revenue as control of goods or services transfers to a customer at an amount that reflects the expected consideration to be received in exchange for those goods or services. It defines a five-step approach for recognizing revenue, which may require a company to use more judgment and make more estimates than under the prior guidance. The Company adopted ASC 606 on January 1, 2018 for all open contracts on the date of initial application, and applied the standard using modified retrospective approach, with the cumulative effect of applying ASC 606 recognized as an adjustment to the opening retained earnings balance. Results for reporting periods beginning after January 1, 2018 are presented under ASC 606, while prior period amounts are not adjusted and continue to be reported under the accounting standards in effect for the prior periods. The Company recorded a net increase to opening retained earnings of $8,555 as of January 1, 2018 due to the cumulative impact of adopting ASC 606. The impact to revenues for the year ended December 31, 2018 was an increase of $4,078, as a result of adopting ASC 606.

With respect to the Company’s licensing business, the adoption of ASC 606 had a significant impact on the Company’s financial statements as certain deliverables may now be considered as distinct performance obligations separate from other performance obligations, and will be measured using the relative standalone selling price basis, and recognized as revenue accordingly. Under the accounting standards in effect during prior periods, revenue earned on licensing arrangements involving multiple elements were allocated to each element based on the “residual method” when Vendor Specific Objective Evidence (“VSOE”) of fair value existed for all undelivered elements and VSOE did not exist for one of the delivered elements. If VSOE of fair value did not exist for the undelivered elements, the revenue would have been deferred until all elements of the arrangement were delivered or VSOE was developed for the undelivered elements, whichever came first.

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With respect to the Company's royalty business, ASC 606 had a significant impact as well. Under the accounting standards in effect during prior periods, the Company recognized sales-based royalties as revenues during the quarter when such royalties were reported by licensees, which reflected the licensees' prior quarter sales and when all other revenue recognition criteria were met. Under ASC 606, the Company is required to estimate and recognize sales-based royalties during the period when the associated sales occurred. Accordingly, the Company has an increase in unbilled receivables of $8,597 in the statement of financial position.

Under ASC 606, an entity recognizes revenue when or as it satisfies a performance obligation by transferring IP license or services to the customer, either at a point in time or over time. The Company recognizes most of its revenues at a point in time upon delivery of its IP. The Company recognizes revenue over time on significant license customization contracts that are covered by contract accounting standards using cost inputs to measure progress toward completion of its performance obligations, which is similar to the method prior to the adoption of ASC 606.

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:

	2019	**2020**	**2021**
License and related revenues	$12,567	$3,948	$1,500

In connection with the adoption of ASC 606, the Company is required to capitalize incremental costs that are related to sales during the period, consisting primarily of sales commissions earned when contracts are signed. As of January 1, 2018, the date the Company adopted ASC 606, the Company capitalized $239 in contract acquisition costs related to contracts that were not completed. For contracts that have a duration of less than one year, the Company follows ASC 606's practical expediency, and expenses these costs when incurred; for contracts with life exceeding one year, the Company records these costs in proportion to each completed contract performance obligation. For the year ended December 31, 2018, the amount of amortization was $120, and there was no impairment loss in relation to costs capitalized. Deferred sales commission amounted to $223 as of December 31, 2018.

<u>Disaggregation of revenue:</u>

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

	Year ended December 31, 2018 (audited)		
	Licensing and related revenues	**Royalties**	**Total**
Primary geographical markets			
United States	$6,260	$ 2,094	$8,354
Europe and Middle East	3,672	13,698	17,370
Asia Pacific	30,514	21,639	52,153
Total	$40,446	$ 37,431	$77,877
Major product/service lines			
DSP products (DSP cores and platforms)	$25,369	$ 34,097	$59,466
Connectivity products (Bluetooth, Wi-Fi and SATA/SAS)	15,077	3,334	18,411
Total	$40,446	$ 37,431	$77,877
Timing of revenue recognition			
Products transferred at a point in time	$30,744	$ 37,431	$68,175
Products and services transferred over time	9,702	—	9,702
Total	$40,446	$ 37,431	$77,877

CEVA, INC.

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

Contract balances:

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

	December 31, 2018
Trade receivables	$ 9,971
Unbilled receivables (associated with licensing and other)	6,745
Unbilled receivables (associated with royalties)	9,440
Deferred revenues (short-term contract liabilities)	3,593

The Company receives payments from customers based upon contractual payment schedules; trade receivable 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 quarter, 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, 2018, the Company recognized $3,728 that was included in deferred revenues (short-term contract liability) balance at January 1, 2018.

In accordance with ASC 606, the disclosure of the impact of adoption to the Company's condensed consolidated statements of income and balance sheets is as follows:

	Year ended December 31, 2018		
	As reported	Balance without adopting ASC 606	Effect of change higher/(lower)
Revenues:			
Licensing and related revenue	$40,446	$ 35,873	$ 4,573
Royalties	37,431	37,926	(495)
Total revenues	77,877	73,799	4,078
Cost of revenues	7,951	7,951	—
Gross profit	69,926	65,848	4,078
Operating expenses:			
Sales and marketing	12,161	12,139	22
Other operating expenses	59,010	59,010	—
Total operating expenses	71,171	71,149	22
Operating loss	(1,245)	(5,301)	4,056
Financial income, net	3,418	3,418	—
Revaluation of investment in other company	(870)	(870)	—
Income (loss) before taxes on income	1,303	(2,753)	4,056
Income taxes	729	356	373
Net income (loss)	$574	$ (3,109)	$ 3,683
Basic net income (loss) per share	$0.03	$ (0.14)	$ 0.17
Diluted net income (loss) per share	$0.03	$ (0.14)	$ 0.16

CEVA, INC.

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

	December 31, 2018		
	As reported	Balance without adopting ASC 606	Effect of change higher/(lower)
Assets:			
Trade receivables	$26,156	$ 12,875	$ 13,281
Prepaid expenses and other current assets	$5,264	$ 6,307	$ (1,043)
Stockholders' equity:			
Retained earnings	$62,853	$ 50,615	$ 12,238

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.

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)
(*in thousands, except share data*)

NOTE 3: MARKETABLE SECURITIES

The following is a summary of available-for-sale marketable securities at December 31, 2017 and 2018:

	As at December 31, 2018			
	Amortized cost	**Gross unrealized gains**	**Gross unrealized losses**	**Fair value**
Available-for-sale - matures within one year:				
Corporate bonds	$6,094	$ —	$ (32)	$6,062
	6,094	—	(32)	6,062
Available-for-sale - matures after one year through five years:				
Certificate of deposits	747	—	—	747
Government bonds	501	—	(5)	496
Corporate bonds	71,350	134	(1,320)	70,164
	72,598	134	(1,325)	71,407
Total	$78,692	$ 134	$ (1,357)	$77,469

	As at December 31, 2017			
	Amortized cost	**Gross unrealized gains**	**Gross unrealized losses**	**Fair value**
Available-for-sale - matures within one year:				
Corporate bonds	$11,803	$ 3	$ (12)	$11,794
	11,803	3	(12)	11,794
Available-for-sale - matures after one year through five years:				
Certificate of deposits	747	—	—	747
Government bonds	501	—	(6)	495
Corporate bonds	70,291	14	(677)	69,628
	71,539	14	(683)	70,870
Total	$83,342	$ 17	$ (695)	$82,664

CEVA, INC.

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, 2017 and 2018, 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, 2018	$16,580	$ (192)	$52,590	$ (1,165)
As of December 31, 2017	$49,921	$ (411)	$22,960	$ (284)

As of December 31, 2017 and 2018, management believes the impairments are not other than temporary and therefore the impairment losses were recorded in accumulated other comprehensive income (loss).

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

	Year ended December 31,		
	2016	2017	2018
Gross realized gains from sale of available-for-sale marketable securities	$24	$47	$4
Gross realized losses from sale of available-for-sale marketable securities	$(33)	$(47)	$(71)

CEVA, INC.

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

NOTE 4: 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, foreign currency derivative contracts and investment in other company at fair value. 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. Investment in other company is classified within Level III as the Company estimates the value based on valuation methods using the observable transaction price on the transaction date and other unobservable inputs, including volatility, as well as rights and obligations of the securities it holds.

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, 2018**	**Level I**	**Level II**	**Level III**
Assets:				
Marketable securities:				
Certificate of deposits	$ 747	—	$ 747	—
Government bonds	496	—	496	—
Corporate bonds	76,226	—	76,226	—
Investment in other company (1)	936	—	—	936
Liabilities:				
Foreign exchange contracts	77	—	77	—

(1) Non- marketable equity securities remeasured during the year ended December 31, 2018.

CEVA, INC.

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

Description	December 31, 2017	Level I	Level II	Level III
Assets:				
Marketable securities:				
Certificate of deposits	$ 747	—	$ 747	—
Government bonds	495	—	495	—
Corporate bonds	81,422	—	81,422	—

NOTE 5: PROPERTY AND EQUIPMENT, NET

Composition of assets, grouped by major classifications, is as follows:	As at December 31, 2017	2018
Cost:		
Computers, software and equipment	$ 13,570	$ 16,431
Office furniture and equipment	797	832
Leasehold improvements	2,756	2,880
	17,123	20,143
Less – Accumulated depreciation	(10,197)	(12,799)
Property and equipment, net	$ 6,926	$ 7,344

The Company recorded depreciation expenses in the amount of $2,014 and $2,915 for the years ended December 31, 2017 and 2018, respectively.

NOTE 6: INTANGIBLE ASSETS, NET

	Weighted Average	Year ended December 31, 2017 Gross Carrying	Accumulated Amortization	Net	Year ended December 31, 2018 Gross Carrying	Accumulated Amortization	Net

	Amortization Period (Years)	**Amount**			**Amount**		
Intangible assets –amortizable:							
Customer relationships	4.5	$272	$ 211	$61	$272	$ 272	$—
Customer backlog	1.5	93	93	—	93	93	—
Core technologies	5.1	5,796	4,115	1,681	5,796	4,955	841
NB-IoT technologies	7.0	—	—	—	2,200	341	1,859
Total intangible assets		$6,161	$ 4,419	$1,742	$8,361	$ 5,661	$2,700

CEVA, INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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Future estimated annual amortization charges are as follows:

2019	1,155
2020	314
2021	314
2022	314
2023	314
2024	289
	$2,700

The Company recorded amortization expense in the amount of $1,236 and $1,242 for the years ended December 31, 2017 and 2018, respectively.

NOTE 7: ACCRUED EXPENSES AND OTHER PAYABLES

	As at December 31,	
	2017	**2018**
Engineering accruals	$977	$884
Professional fees	792	752
Government grants	791	417
Income taxes payable, net	45	141
Facility related accruals	290	259
Intangible assets	—	750
Other	1,032	1,141
Total	$3,927	$4,344

NOTE 8: STOCKHOLDERS' EQUITY

a. Common stock:

Holders 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 four million shares in 2010 and 2013. In October 2014, the Company's Board of Directors authorized the repurchase by the Company of an additional one million shares of common stock. In May 2018, the Company's Board of Directors authorized the repurchase by the Company of an additional 700,000 shares of common stock.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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As of December 31, 2018, 355,180 shares of common stock remained authorized for repurchase under to the Company's share repurchase program.

In 2016, the Company repurchased 180,013 shares of common stock at an average purchase price of $18.98 per share for an aggregate purchase price of $3,417. In 2017, the Company did not repurchase any shares of its common stock. In 2018, the Company repurchased 655,876 shares of common stock at an average purchase price of $30.51 per share for an aggregate purchase price of $20,008.

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. RSUs granted to employees under stock incentive plans vest as to 1/3 on each 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.

In connection with the Company's acquisition of RivieraWaves, on July 7, 2014, the Company issued an aggregate of 113,000 SARs to 27 employees of RivieraWaves who joined the Company in connection with the acquisition. The value of these grants was not included in the acquisition price of RivieraWaves. The SARs were granted outside of the Company's existing equity plans and were granted as a material inducement to such individuals entering into employment with the Company, in accordance with NASDAQ Listing Rule 5635(c)(4). All of the SARs were priced at $15.17, the fair market value on the grant date, and vest over four years, with 25% of the SARs vesting after one year and the remaining vest in equal portions over the following 36 months, such that all such SARs vested as of December 31, 2018, subject to the employee's continuous service through each vesting date. The SARs have a ceiling limit for maximum income capped at 400%, expire seven years from the grant date and are subject to the terms and condition of the individual SAR agreements. The SAR grants were approved by the compensation committee of the Board of Directors of the Company.

CEVA, INC.

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(*in thousands, except share data*)

A summary of the Company’s stock option and SARs activities and related information for the year ended December 31, 2018, 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	729,017	$ 19.77	5.2	$ 19,229
Granted	—	—		
Exercised	(22,530)	16.07		
Forfeited or expired	(3,670)	22.67		
Outstanding at the end of the year (2)	702,817	$ 19.88	4.3	$ 2,708
Exercisable at the end of the year (3)	623,718	$ 19.14	4.0	$ 2,648

(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) Due to the ceiling imposed on the SAR grants, the outstanding amount equals a maximum of 642,300 shares of the Company's common stock issuable upon exercise.

(3) Due to the ceiling imposed on the SAR grants, the exercisable amount equals a maximum of 565,851 shares of the Company's common stock issuable upon exercise.

The weighted average fair value of options granted during the year ended December 2016 was $12.9 per share. In 2017 and 2018, the Company did not grant options and/or SARs.

The total intrinsic value of options and SARs exercised during the years ended December 31, 2016, 2017 and 2018 was $12,282, $15,188 and $384, respectively.

The options and SARs granted to employees of the Company and its subsidiaries and the options granted to non-employee directors of the Company which were outstanding as of December 31, 2018 have been classified into a range of exercise prices as follows:

	Outstanding			Exercisable		
Exercise price (range)	Number of options and SARs	Weighted average remaining contractual life (years)	Weighted average exercise price	Number of options and SARs	Weighted average remaining contractual life (years)	Weighted average exercise price
14.16-18.62	346,863	3.2	$ 15.68	344,527	3.2	$ 15.66
19.36-19.83	182,995	5.0	$ 19.44	163,050	4.9	$ 19.43
24.86-30.60	172,959	5.7	$ 28.75	116,141	4.9	$ 29.06
	702,817	4.3	$ 19.88	623,718	4.0	$ 19.14

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.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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A summary of the Company's RSU activities and related information for the year ended December 31, 2018, is as follows:

	Number of RSUs	Weighted average Grant-Date fair value
Unvested as at the beginning of the year	560,616	$ 29.31
Granted	328,896	34.14
Vested	(280,890)	28.09
Forfeited	(44,232)	35.12
Unvested at the end of the year	564,390	$ 32.28

Stock Plans

As of December 31, 2018, 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, 2018, options, SARs and RSUs to purchase 1,037,600 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 2,350,000 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), 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, 2018, there were no outstanding equity awards remaining in the 2002 Plan.

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, outside 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 February 2021.

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.

CEVA, INC.

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

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. Specifically, 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 July 2018, based on the new parameters, the directors of the Company received a grant of RSUs in the aggregate amount of 28,896 RSUs. 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.

The Company's Board of Directors or a committee thereof may grant additional options to purchase common stock with a vesting schedule to be determined by the Board of Directors in recognition of services provided by a non-employee director in his or her capacity as a director.

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 2,700,000 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, 2018, 211,204 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.

CEVA, INC.

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

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.

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 9: DERIVATIVES AND HEDGING ACTIVITIES

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

	As at December 31, 2017	As at December 31, 2018
Derivative liabilities:		
Derivatives designated as cash flow hedging instruments:		
Foreign exchange option contracts	$ —	$ 14
Foreign exchange forward contracts	—	63
Total	$ —	$ 77

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

CEVA, INC.

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

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

	Year ended December 31,		
	2016	**2017**	**2018**
Derivatives designated as cash flow hedging instruments:			
Foreign exchange option contracts	$67	$90	$(146)
Foreign exchange forward contracts	91	93	(285)
	$158	$183	$(431)

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

	Year ended December 31,		
	2016	**2017**	**2018**
Derivatives designated as cash flow hedging instruments:			
Foreign exchange option contracts	$(67)	$(90)	$132
Foreign exchange forward contracts	(94)	(99)	222
	$(161)	$(189)	$354

The Company recorded in cost of revenues and operating expenses, a net gain of $161 and $189, and a net loss of $354 during the years ended December 31, 2016, 2017 and 2018, respectively, related to its Hedging Contracts.

NOTE 10: 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, 2017			Year ended December 31, 2018		
	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	$(502)	$ 5	$(497)	$(586)	$ —	$(586)
Other comprehensive income (loss) before reclassifications	(83)	163	80	(521)	(380)	(901)
Amounts reclassified from accumulated other comprehensive income (loss)	(1)	(168)	(169)	61	312	373
Net current period other comprehensive income (loss)	(84)	(5)	(89)	(460)	(68)	(528)
Ending balance	$(586)	$ —	$(586)	$(1,046)	$ (68)	$(1,114)

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

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
	Year ended December 31,			
	2016	**2017**	**2018**	
Unrealized gains (losses) on cash flow hedges	$4	$4	$(7)	Cost of revenues
	132	162	(308)	Research and development
	12	10	(13)	Sales and marketing
	13	13	(26)	General and administrative
	161	189	(354)	Total, before income taxes
	18	21	(42)	Income tax expense
	143	168	(312)	Total, net of income taxes
Unrealized gains (losses) on available-for-sale marketable securities	(9)	—	(67)	Financial income, net
	(1)	(1)	(6)	Income tax benefit
	(8)	1	(61)	Total, net of income taxes
	$135	$169	$(373)	Total, net of income taxes

CEVA, INC.

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

NOTE 11: GEOGRAPHIC INFORMATION AND MAJOR CUSTOMER AND PRODUCT DATA

a. Summary information about geographic areas:

FASB ASC No. 280, "Segment Reporting," establishes standards for reporting information about operating segments. Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision maker in deciding how to allocate resources and in assessing performance. The Company manages its business on a basis of one reportable segment: the licensing of intellectual property 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,		
	2016	**2017**	**2018**
Revenues based on customer location:			
United States	$9,134	$7,188	$8,354
Europe, Middle East (3)	10,901	11,007	17,370
Asia Pacific (1) (2)	52,618	69,312	52,153
	$72,653	$87,507	$77,877
(1) China	$30,030	$41,059	$33,672
(2) S. Korea	$15,512	$17,842	$7,989
(3) Germany	*)	*)	$13,873

*) Less than 10%

	2017	**2018**
Long-lived assets by geographic region:		
Israel	6,196	6,599
France	383	451
United States	185	156

Other	162	138
	$6,926	$7,344

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,		
	2016	**2017**	**2018**
Customer A	27%	23 %	15 %
Customer B	19%	17 %	*)
Customer C	*)	*)	19 %

*) Less than 10%

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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, 2016	2017	2018
DSP products (DSP cores and platforms)	84%	86 %	76 %
Connectivity products (Bluetooth, Wi-Fi and SATA/SAS)	16%	14 %	24 %

CEVA, INC.

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

NOTE 12: SELECTED STATEMENTS OF INCOME DATA

a. Financial income, net:

	Year ended December 31,		
	2016	2017	2018
Interest income	$3,300	$4,233	$4,499
Loss on available-for-sale marketable securities, net	(9)	—	(67)
Amortization of premium on available-for-sale marketable securities, net	(1,064)	(1,179)	(773)
Foreign exchange loss, net	(188)	(28)	(241)
Total	$2,039	$3,026	$3,418

b. Revaluation of investment in other company:

The Company recorded a loss of $870 in 2018 related to revaluation of its investment in other company, in which it holds at cost.

The following table summarizes the total carrying value of the Company's investment in other company held as of December 31, 2018 including cumulative unrealized downward adjustments made to the initial cost basis of the investment:

Initial cost basis	$1,806
Downward adjustments	(870)
Total carrying value at the end of the period	$936

NOTE 13: 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: a federal corporate rate reduction from 35% to 21%; creation of the base erosion anti-abuse tax (“BEAT”), a new minimum tax such as Global Intangible Low Taxed Income (“GILTI”); 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.

CEVA, INC.

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

In connection with its analysis of the impact of the Tax Act, the Company had $16,053K 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.

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 "global intangible low taxed income" ("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 is the excess of a shareholder's CFCs' net income over a routine or ordinary return. 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 costs in the year the GILTI tax is incurred.

The BEAT provisions in the Tax Act eliminates the U.S. deduction of certain base-erosion payments made to related foreign corporations, and impose a minimum tax if greater than regular tax. The Company is not currently subject to this tax and therefore has not included any tax impacts of BEAT in its consolidated financial statements for the year ended December 31, 2018.

The Tax Act amended section 163(j) to disallow a deduction for net business interest expense of any taxpayer in excess of 30% of a business's adjusted taxable income plus floor plan financing interest. The Company has low amounts of interest expense and therefore there is currently no material limitation.

The Tax Act limits the carryover of net operating losses to 80% of taxable income and eliminates carryback (with special rules for certain insurance and farming businesses), generally effective for losses arising in tax years beginning after 2017. Losses incurred before January 1, 2018 have not changed and are not limited to the 80% of taxable income and are carried forward 20 years. The Company has fully utilized all pre-2018 net operating losses. Any future net operating losses generated will be subject to the 80% of taxable income limitation.

The Tax Act repealed the exceptions to the section 162(m) $1 million deduction limitation for commissions and performance-based compensation. The new law clarified that the definition of "covered employee" includes the principal executive officer, principal financial officer, and the three other highest paid officers. The new law provides that once an employee is treated as a covered employee, the individual remains a covered employee for all future years, including with respect to payments made after the death of a covered employee. The Company is aware of the new regulation. However, the new regulation currently has no material impact on the Company's U.S. taxable income calculation.

The Tax Act amended 168(k) provisions to allow 100% expensing for investments in depreciable property for property other than real property or certain utility property and certain businesses with floor plan indebtedness. This applies to investments subsequent to September 27, 2017 and before January 1, 2023. The Company has conformed to the provisions as applicable.

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

1. Irish Subsidiaries

The Irish operating subsidiary qualified for a 12.5% tax rate on its trade. Interest income earned by the Irish subsidiary is taxed at a rate of 25%. As of December 31, 2018, the open tax years, subject to review by the applicable taxing authorities for the Irish subsidiary, are 2013 and subsequent years.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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2. Israeli Subsidiary

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 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.

Income not eligible for Approved Enterprise benefits or Benefited Enterprise benefits is taxed at a regular rate, which was 23% in 2018, 24% in 2017 and 25% in 2016.

In December 2016, the Israeli Parliament approved the Economic Efficiency Law (Legislative Amendments for Applying the Economic Policy for the 2017 and 2018 Budget Years), 2016 which reduces the corporate income tax rate to 24% (instead of 25%) effective on January 1, 2017 and to 23% effective on January 1, 2018.

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 Company, 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 law, which is located in the center of Israel (where our Israeli subsidiary is currently located), will be subject to tax at a rate of 12% on profits deriving from intellectual property (in development area A - a tax rate of 7.5%). 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%.

The Company expects to apply the Technological Preferred Enterprise tax track from tax year 2020 and onwards. Accordingly, the above changes in the tax rates relating to Technological Preferred Enterprises were taken into account in the computation of deferred taxes as of December 31, 2018.

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.

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As of December 31, 2018, the open tax years, subject to review by the applicable taxing authorities for the Israeli subsidiary, are 2014 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 €500,000 and the standard corporate income tax rate of 33.33% for taxable profit above €500,000. In 2019, the standard corporate income tax rate is reduced to 31%, with the first €500,000 of taxable profit still being subject to the 28% rate. In 2020, the 28% corporate income tax rate will become the new standard rate for all taxable profits. In 2021, the standard corporate income tax rate will be reduced to 26.5%. In 2022, the standard corporate income tax rate will be reduced to 25%.

As of December 31, 2018, the open tax years subject to review by the applicable taxing authorities for the French subsidiary are 2017 and subsequent years.

c. Taxes on income comprised of:

	Year ended December 31,		
	2016	**2017**	**2018**
Domestic taxes:			
Current	$6	$(227)	$3
Deferred	—	—	—
Foreign taxes:			
Current	3,932	3,473	2,913
Deferred	(613)	(1,375)	(2,187)
	$3,325	$1,871	$729

Income before taxes on income:

Domestic	$(3,488)	$(5,946)	$(5,680)
Foreign	19,913	24,845	6,983
	$16,425	$18,899	$1,303

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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,		
	2016	**2017**	**2018**
Income before taxes on income	$16,425	$18,899	$1,303
Theoretical tax at U.S. statutory rate	5,585	6,426	274
Foreign income taxes at rates other than U.S. rate	(1,831)	(2,304)	369
Approved and benefited enterprises benefits (*)	(2,767)	(2,698)	(239)
Subpart F	538	737	563
Non-deductible items	682	294	217
Non-taxable items	(505)	(529)	(434)
Changes in uncertain tax position	505	(1,757)	16
Stock-based compensation expense	—	(1,503)	(62)
Deemed mandatory repatriation	—	1,916	3,542
Impacts of GILTI	—	—	880
Changes in valuation allowance	1,212	2,076	(5,005)
Other, net	(94)	(787)	608
Taxes on income	$3,325	$1,871	$729
(*)Basic and diluted earnings per share amounts of the benefit resulting from the "Approved Enterprise" and "Benefited Enterprise" status	$0.13	$0.12	$0.01

e. Deferred taxes on income:

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

	As at December 31,	
	2017	**2018**
Deferred tax assets		
Operating loss carryforward	$13,069	$9,505
Accrued expenses and deferred revenues	1,057	1,274
Temporary differences related to R&D expenses	2,118	3,194

Equity-based compensation	1,956	2,724
Tax credit carry forward	1,866	1,381
Other	476	705
Total gross deferred tax assets	20,542	18,783
Valuation allowance	(16,590)	(12,745)
Net deferred tax assets	$3,952	$6,038
Deferred tax liabilities		
Intangible assets	$275	$114
Other	34	—
Total deferred tax liabilities	$309	$114
Net deferred tax assets (*)	$3,643	$5,924

(*) Net deferred taxes for the years ended December 31, 2017 and 2018 are all from foreign jurisdictions.

CEVA, INC.

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

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. The net change in the valuation allowance primarily reflects a decrease in deferred tax assets on operating loss carryforward.

As of December 31, 2018, 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 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,	
	2017	**2018**
Beginning of year	$3,784	$2,224
Additions for current year tax positions	1,188	575
Additions for prior year’s tax positions	255	—
Reductions for prior year’s tax positions	—	(60)
Decrease as a result of the completion of a tax audit for prior years	(3,003)	—
Balance at December 31	$2,224	$2,739

As of December 31, 2017 and 2018, there were $2,224 and $2,739, 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, 2017 and 2018 because such interest and penalties did not have a material impact on the Company’s financial statements.

During the year ended December 31, 2017, the Company recorded a tax benefit of $1,805 as a result of the completion of a tax audit for prior years in a certain foreign tax jurisdiction. This amount included a release of $130 in accrued interest related to unrecognized tax benefits. The reduction in the unrecognized tax benefits balance for prior years as a result of the completion of the tax audit for the year ended December 31, 2017 was $3,003.

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, 2018, CEVA and its subsidiaries had net operating loss carryforwards for California income tax purposes of approximately $8,249, which are available to offset future California taxable income. Such loss carryforwards begin to expire in 2030.

As of December 31, 2018, CEVA’s Irish subsidiary had foreign operating losses of approximately $60,252, which are available to offset future taxable income indefinitely. As of December 31, 2018, CEVA’s French subsidiaries had foreign operating losses of approximately $4,602, which are available to offset future taxable income indefinitely.

CEVA, INC.

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

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 2010.

NOTE 14: 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, 2018, 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.

Rent expenses for the years ended December 31, 2016, 2017 and 2018, were $1,259, $1,417 and $1,481, respectively.

As of December 31, 2018, future purchase obligations and minimum rental commitments for leasehold properties and operating leases with non-cancelable terms are as follows:

Minimum rental commitments	Commitments for other lease	Other purchase obligations	Total

	for leasehold properties	**obligations**		
2019	1,431	1,764	584	3,779
2020	1,624	—	—	1,624
2021	234	—	—	234
2022	33	—	—	33
Total	$ 3,322	$ 1,764	$ 584	$5,670

c. Royalties:

The Company participated in programs sponsored by the Israeli government for the support of research and development activities. Through December 31, 2018, 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, 2016, 2017 and 2018 amounted to $539, $1,016 and $842, respectively. As of December 31, 2018, the aggregate contingent liability to the IIA (including interest) amounted to $23,288.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

CEVA, INC.
By: /S/ Gideon Wertheizer
Gideon Wertheizer
Chief Executive Officer
March 4, 2019

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Gideon Wertheizer and Yaniv Arieli or either of them, his true and lawful attorneys-in-fact and agents, with full power of substitution and re-substitution, for him and in his name, place and stead, in any and all capacities to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto and other documents in connection therewith, with the SEC, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or either of them, or their or his substitutes or substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report on Form 10-K has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/S/ GIDEON WERTHEIZER Gideon Wertheizer	Chief Executive Officer and Director (Principal Executive Officer & Director)	March 4, 2019
/S/ YANIV ARIELI Yaniv Arieli	Chief Financial Officer and Treasurer (Principal Financial Officer and Principal Accounting Officer)	March 4, 2019
/S/ PETER MCMANAMON Peter McManamon	Director and Chairman	March 4, 2019

/S/ ELIYAHU AYALON Eliyahu Ayalon	Director	March 4, 2019
/S/ ZVI LIMON Zvi Limon	Director	March 4, 2019
/S/ BRUCE MANN Bruce Mann	Director	March 4, 2019
/S/ MARIA MARCED Maria Marced	Director	March 4, 2019
/S/ SVEN-CHRISTER-NILSSON Sven-Christer Nilsson	Director	March 4, 2019
/S/ LOUIS SILVER Louis Silver	Director	March 4, 2019

CEVA, INC.

SCHEDULE II — VALUATION AND QUALIFYING ACCOUNTS

	Balance at beginning of period	Additions	Deduction	Balance at end of period
Year ended December 31, 2018				
Allowance for doubtful accounts	$ —	$ —	$ —	$ —
Year ended December 31, 2017				
Allowance for doubtful accounts	$ —	$ —	$ —	$ —
Year ended December 31, 2016				
Allowance for doubtful accounts	$ 25	$ —	$ 25	$ —