QUICKLOGIC CORPORATION
Form 10-K
March 15, 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 30, 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: 000-22671

QUICKLOGIC CORPORATION

(Exact name of registrant as specified in its charter)

Delaware	77-0188504
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

1277 Orleans Drive Sunnyvale, CA 94089

(Address of principal executive offices, including zip code)

Registrant’s telephone number, including area code:

(408) 990-4000

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

Title of Each Class	Name of Exchange on which Registered
Common Stock, $0.001 par value	The NASDAQ Stock Market LLC

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

(Title of Class)

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 (§229.405 of this chapter) 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, or 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	[x]
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]

The aggregate market value of voting stock held by non-affiliates of the registrant as of July 1, 2018, the registrant’s most recently completed second fiscal quarter, was $99,873,301 based upon the last sales price reported for such date on the Nasdaq Global Market. For purposes of this disclosure, shares of common stock held by persons who hold

more than 5% of the outstanding shares of common stock and shares held by executive officers and directors of the registrant have been excluded in that such persons may be deemed to be affiliates. This determination is not necessarily conclusive.

At March 8, 2019, the registrant had 96,983,616 shares of common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Item 1 of Part 1 of this Form 10-K, Item 5 of Part II of this Form 10-K and Items 10, 11, 12, 13 and 14 of Part III of this Form 10-K incorporate information by reference from the Proxy Statement for the registrant’s Annual Meeting of Stockholders to be held on or about April 25, 2019, the "Proxy Statement". Except with respect to the information specifically incorporated by reference in this Form 10-K, the Proxy Statement is not deemed to be filed as part hereof.

QUICKLOGIC CORPORATION

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FORWARD-LOOKING STATEMENT

This Annual Report on Form 10-K, including the information contained in "Management's Discussion and Analysis of Financial Condition and Results of Operations", as well as information contained in "Risk Factors" in Item 1A and elsewhere in this Annual Report on Form 10-K, contains "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. We intend that these forward-looking statements be subject to the safe harbors created by those provisions. Forward-looking statements are generally written in the future tense and/or are preceded by words such as "will," "may," "should," "forecast," "could," "expect," "suggest," "believe," "anticipate," "intend," "plan," "future," "potential," "target," "seek," "continue," "if" or similar words. Forward-looking statements include statements regarding (1) our revenue levels, including the commercial success of our solutions, and new products, (2) the conversion of our design opportunities into revenue, (3) our liquidity, (4) our gross profit and breakeven revenue level and factors that affect gross profit and the breakeven revenue level, (5) our level of operating expenses, (6) our research and development efforts, (7) our partners and suppliers, (8) industry and market trends, (9) our manufacturing and product development strategies and (10) our competitive position.

The forward-looking statements contained in this Annual Report involve a number of risks and uncertainties, many of which are outside of our control. Factors that could cause actual results to differ materially from projected results include, but are not limited to, risks associated with (i) the conversion of our design opportunities into revenue; (ii) the commercial and technical success of our new products and our successful introduction of products and solutions incorporating emerging technologies or standards; (iii) our dependence on our relationships with third parties to manufacture our products and solutions; (iv) our dependence upon single suppliers to fabricate and assemble our products; (v) the liquidity required to support our future operating and capital requirements; (vi) our ability to accurately estimate quarterly revenue; (vii) our expectations about market and product trends; (viii) our future plans for partnerships and collaborations; (ix) our dependence upon a few customers for a significant portion of our total revenue; (x) our ability to forecast demand for our products; (xi) our dependence on our international business operations; (xii) our ability to attract and retain key personnel; (xiii) our ability to remain competitive in our industry; (xiv) our ability to achieve the expected benefits from our acquisition of SensiML Corporation and (xv) our ability to protect our intellectual property rights. Although we believe that the assumptions underlying the forward-looking statements contained in this Annual Report are reasonable, any of the assumptions could be inaccurate, and therefore there can be no assurance that such statements will be accurate. The risks, uncertainties and assumptions referred to above that could cause our results to differ materially from the results expressed or implied by such forward-looking statements include, but are not limited to, those discussed under the heading "Risk Factors" in Part I, Item 1A hereto and the risks, uncertainties and assumptions discussed from time to time in our other public filings and public announcements. All forward-looking statements included in this document are based on information available to us as of the date hereof. In light of the significant uncertainties inherent in the forward-looking statements included herein, the inclusion of such information should not be regarded as a representation by us or any other person that the results or conditions described in such statements or our objectives and plans will be achieved. Furthermore, past performance in operations and share price is not necessarily indicative of future performance. We disclaim any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

As used herein, "QuickLogic", the "Company", "we", "our" and similar terms include QuickLogic Corporation and its subsidiaries, unless the context indicates otherwise.

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PART I

ITEM 1. BUSINESS

(a) General Development of Business

QuickLogic Corporation (the "Company") was founded in 1988 and reincorporated in Delaware in 1999.

(b) Financial Information About Segments

See Item 8, "Financial Statements and Supplementary Data - Note 11 - Information Concerning Product Lines, Geographic Information, Accounts Receivable and Revenue Concentration.

Overview

QuickLogic Corporation was founded in 1988 and reincorporated in Delaware in 1999. Our vision is to transform the way people and devices interact with each other and their surroundings. Our mission is to provide innovative silicon and software platforms to successfully enable our customers to develop products that fundamentally change the end-user experience. Specifically, we are a fabless semiconductor company that develops low power, multi-core semiconductor platforms and intellectual property or IP for artificial intelligence or AI, voice and sensor processing. The solutions include embedded FPGA IP or eFPGA for hardware acceleration and pre-processing, and heterogeneous multi-core SoCs that integrate eFPGA with other processors and peripherals. The Analytics Toolkit from our recently acquired wholly-owned subsidiary, SensiML Corporation, or SensiML, completes the 'full stack' end-to-end solution with accurate sensor algorithms using AI technology. The full range of platforms, software tools and eFPGA IP enables the practical and efficient adoption of AI, voice and sensor processing across mobile, wearable, hearable, consumer, industrial, edge and endpoint IoT.

Our solutions are created from our new silicon platforms including our EOS™, QuickAI™, SensiML Analytics Studio, ArcticLink® III, PolarPro®3, PolarPro II, PolarPro, and Eclipse II products (which together comprise our new product category). Our mature products include primarily FPGA families named pASIC®3 and QuickRAM® as well as programming hardware and design software. In addition to delivering our own semiconductor solutions, we have an IP business that licenses our eFPGA technology for use in other semiconductor companies SoCs. We began delivering our eFPGA IP product ArcticPro™ in 2017, which is included in the new product revenue category. Through the acquisition of SensiML, we now have an AI software platform that includes Software-as-a-Service (SaaS) subscriptions for development, per unit license fees when deployed in production, and proof-of-concept services, all of which are also included in the new product revenue category.

Our solutions typically fall into one of three categories: Sensor Processing, Display and Visual Enhancement, and Smart Connectivity. Our solutions include a unique combination of our silicon platforms, IP cores, software drivers, and in some cases, firmware and application software. All of our silicon platforms are standard devices and must be programmed to be effective in a system. Our IP that enables always-on context-aware sensor applications includes our Flexible Fusion Engine, our Sensor Manager and Communications Manager technologies as well as IP that (i) improves multimedia content, such as our Visual Enhancement Engine, or VEE, technology, and Display Power Optimizer, or DPO, technology; and (ii) implements commonly used mobile system interfaces, such as Low Voltage Differential Signaling, or LVDS, Mobile Industry Processor Interface, or MIPI, and Secure Digital Input Output, or SDIO. We provide complete solutions by first architecting the solution jointly with our customer’s or ecosystem partner’s engineering group, selecting the appropriate solution platform and Proven System Blocks or PSBs, providing custom logic, integrating the logic, programming the device with the PSBs and/or firmware, providing software drivers or application software required for the customer’s application, and supporting the customer on-site during

integration, verification and testing. In many cases, we deliver software algorithms that have been optimized for use in a QuickLogic silicon platform.

Through the acquisition of SensiML, our core IP also includes the SensiML Analytics Toolkit that enables OEMs to develop AI software for a broad array of resource-constrained time-series sensor endpoint applications. These include a wide range of consumer and industrial sensing applications.

We also work with mobile processor manufacturers, sensor manufacturers, and voice recognition, sensor fusion and context awareness algorithm developers in the development of reference designs. Through reference designs that incorporate our solutions, we believe mobile processor manufacturers, sensor manufacturers, and sensor and voice algorithm companies can expand the available market for their respective products. Furthermore, should a solution developed for a processor manufacturer or sensor and/or sensor algorithm company be applicable to a set of common OEMs or Original Design Manufacturers or ODMs, we can amortize our Research and Development, or R&D, investment over that set of OEMs or ODMs. There may also be cases when platform providers that intend to use always-on voice recognition will dictate certain performance requirements for the combined software/hardware solution before the platform provider certifies and/or qualifies our product for use by end customers.

We have changed our manufacturing strategies to reduce the cost of our silicon solution platforms to enable their use in high volume, mass customization products. Our PolarPro 3E, PolarPro II and PolarPro solution platforms include an innovative logic cell architecture, which enables us to deliver twice the programmable logic in the same die size. Our EOS S3, EOS S3AI, QuickAI and ArcticLink III silicon platforms combine mixed signal physical functions and hard-wired logic alongside programmable logic. Our EOS S3, EOS S3AI and ArcticLink III solution platforms are manufactured on an advanced process node where we can benefit from smaller die sizes. We typically implement sophisticated logic blocks and mixed signal functions in hard-wired logic because it is very cost-effective and energy efficient. We use small form factor packages, which are less expensive to manufacture and include smaller pin counts. Reduced pin counts result in lower costs for our customer's printed circuit board space and routing. In addition, we have dramatically reduced the time we require to program and test our devices, which has reduced our costs and lowered the capital equipment required to program and test our devices. Furthermore, our SRAM reprogrammable silicon platforms can be programmed in-system by our customers, and therefore we do not incur programming cost, lowering the overall cost of ownership to our customers. We expect to continue to invest in silicon solution platforms and manufacturing technologies that make us cost and power consumption effective for high-volume, battery-powered applications.

Our ArcticPro eFPGA IP are currently developed on 65nm, 40nm and 22nm process nodes. The licensable IP is generated by a compiler tool that enables licensees to create an eFPGA block that they can integrate into their SoC without significant involvement by QuickLogic. We believe this flow enables a scalable support model for QuickLogic.

In addition to working directly with our customers, we partner with other companies that are experts in certain technologies to develop additional IP, reference platforms and system software to provide application solutions, particularly in the area of hardware acceleration for AI-type applications. We also work with mobile processor and communications semiconductor device manufacturers and companies that supply sensor, algorithms and applications. The depth of these relationships vary depending on the partner and the dynamics of the end market being targeted, but they are typically a co-marketing relationships that include joint account calls, promotional activities and/or engineering collaboration and developments, such as reference designs. For our sensor processing solutions, we collaborate with sensor manufacturers to ensure interface compatibility. We also collaborate with sensor and voice/audio software companies, helping them optimize their software technology on our silicon platforms in terms of performance, power consumption and user experience.

For our eFPGA strategy, we work with semiconductor manufacturing partners to ensure our eFPGA IP is proven for a given foundry and process node before it is licensed to a SoC company.

In order to grow our revenue from its current level, we depend upon increased revenue from our new products including existing new product platforms, eFPGA IP and platforms currently in development. We expect our business growth to be driven mainly by our silicon solutions and eFPGA IP and, therefore, our revenue growth needs to be strong enough to enable us to sustain profitability while we continue to invest in the development, sales and marketing

of our new solution platforms, IP and software. New products contributed 45% of total revenue for the year ended December 30, 2018, as compared to 48% in 2017 and 49% in 2016.

Recent Development

On January 3, 2019, we entered into an agreement with SensiML Corporation, or the SensiML Acquisition, to acquire all of its issued and outstanding common stock. We funded the acquisition with shares of our common stock. SensiML will operate as a division of QuickLogic and continue to develop, expand, and optimize its platform-independent software solutions to support SoCs from other semiconductor companies as well as QuickLogic SoCs, QuickAI™ Platforms and licensees of QuickLogic's ArcticPro™ eFPGA IP.

The SensiML Analytics Toolkit, which is used in many of the applications where our ArcticPro™ eFPGA IP plays a critical role, is an end-to-end software suite that provides OEMs a straightforward process for developing pattern matching sensor algorithms using machine learning technology that are optimized for ultra-low power consumption. The SensiML Analytics Toolkit enables OEMs to quickly and easily leverage the power of local AI in edge, endpoint and wearable designs without the need for significant Data Science or Firmware Engineering resources. The SensiML Analytics Toolkit automatically optimizes AI models to minimize power consumption in targeted SoCs and is designed specifically to leverage the inherent benefits of heterogeneous multi-core SoC architectures and eFPGA technology.

Available Information

Our corporate headquarters are located at 1277 Orleans Drive, Sunnyvale, California 94089. We can be reached at (408) 990-4000, and our website address is www.quicklogic.com. The information on our website is not incorporated herein by reference and is not a part of this Form 10-K. Our common stock trades on the Nasdaq Global Market under the symbol “QUIK.” Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to such reports are available, free of charge, on our website home page as soon as reasonably practicable after we electronically file such materials with, or furnish them to, the Securities and Exchange Commission, or SEC. Copies of the materials filed by the Company with the SEC are also available at the Public Reference Room at 100 F Street, N.E., Washington, D.C., 20549. Information regarding the operation of the Public Reference Room is available by calling the SEC at 1-800-SEC-0330. Reports, proxy and information statements and other information regarding issues that we file electronically with the SEC are also available on the SEC’s website at www.sec.gov.

Fiscal Year

Our fiscal year ends on the Sunday closest to December 31. References to fiscal years 2018, 2017 and 2016 refer to the fiscal years ended December 30, 2018, December 31, 2017 and January 1, 2017, respectively.

Industry Background

Consumer Electronics, or CE, products are a strong growth market for semiconductor products and sensor software algorithms, and the needs of this market bring a unique set of requirements. Three important trends in this market are (i) toward mobile devices, either handheld or worn on the body, (ii) an increasing adoption of sensors, and (iii) devices with wireless connectivity to the cloud. Important industry trends affecting the large market for mobile devices include the need for high bandwidth that enables the same user experience consumers are accustomed to on the personal computer, or PC, such as internet browsing, social networking and streaming video, product miniaturization and the need to increase battery life. Increased local computing power in mobile devices, coupled with more ubiquitous wireless access to the cloud and lower cost sensors has been enabling the development of more intelligent software applications and consumer use cases. Many of these product requirements were, and continue to be, driven by innovations from the Smartphone, Wearables and Hearables solutions that OEMs are launching in conjunction with Google Android and Real-Time operating systems, as well as Apple iPhone, Apple iPad, Apple

Watch and Apple Earpods.

While advances in cost-effective cloud storage and power-efficient wireless technology have enabled consumer device manufacturers to enhance device connectivity and offload some processing to the cloud, there continues to be a trend for feature-rich mobile devices to suffer from shorter battery lives. This challenge places a burden on the designers and manufacturers of these mobile CE products as they try to tailor multiple products with

limited engineering resources. Lastly, the fast pace at which consumer taste for these features changes exacerbates the development challenges and risks in launching successful products to the marketplace.

Another important trend is shrinking product life cycles. This drives a need for faster and lower risk product development. There is intense pressure on the bill of materials, or BOM, cost of these devices, including per unit component costs and non-recurring development costs. As more people experience the advantages of a mobile lifestyle at home, they demand the same advantages in their professional lives. We believe that the trend toward mobile, handheld products that have a PC-like and cloud user experience, small form factor and maximize battery life will be prominent in the computing, industrial, medical and military markets. One such example is the trend of Smartphone and Tablet makers to offer the new, smaller form factor Wearables.

We believe these industry trends are shifting the demand among different classes of core silicon. The following are the four main classes of non-memory core silicon:

- Microcontrollers, or MCUs, are typically small, low-power devices on a single integrated circuit that contain a processor core, memory and a number of peripherals. They are designed to be programmed with software for embedded applications;
- Application Specific Standard Products, or ASSPs, other than processors, are fixed function devices designed to address a relatively narrow set of applications. These devices typically integrate a number of common peripherals or functions and the functionality of these devices is fixed prior to wafer fabrication;
- Programmable Logic Devices, or PLDs, are general-purpose devices, which can be used by a variety of electronic systems manufacturers and are customized after purchase for a specific application. FPGAs are a subset of PLDs and are typically used to implement complex system functions; and
- Application Specific Integrated Circuits, or ASICs, are custom devices designed and fabricated to meet the needs of one specific application for one end-customer. Structured ASICs, a sub-category of ASICs, provide a limited amount of custom content to broaden the applicability of a device for additional applications.

ASSPs are offered broadly to the market, making it challenging for a system designer to create differentiated products from these devices alone. In many situations, the available ASSPs may not directly implement the desired function and the system designer is required to use a combination of ASSPs to achieve the desired result at the expense of increased cost, product size and power consumption. As standards evolve or new standards are developed, ASSPs may not be available to implement desired functions.

System designers can customize their products using programmable logic ASICs or MCUs. The competitive dynamic between these classes of core silicon are well understood. High development risks, development costs and opportunity costs are incurred when using ASICs to produce custom devices with very low unit production cost. Suppliers of programmable logic devices, which have lower development and market risks and development costs relative to ASICs, have aggressively reduced the unit cost of their products over time, making programmable logic devices the solution of choice for custom products unless the volume is very high. These cost reduction efforts have significantly increased the volume required to justify the total cost of an ASIC.

Consumer devices incorporate complex, rapidly changing technology, require rapid product proliferation, and have short product life and development cycles. Therefore, most mobile designers design their products from a base platform, or reference design, provided to them by the vendor of the processor they have selected for their design. To differentiate their products from their competition, OEMs and ODMs may require some level of customization at either the hardware or software level. Designers have only a few viable options to modify the base platform for their needs. Since mobile system designers require very low power consumption to maximize battery life in their applications, the high power consumption of conventional FPGAs is incompatible with their design goals. This effectively limits the average mobile system designer to ASSPs, small PLDs, mobile-oriented FPGAs, and MCUs to create a virtual level playing field among mobile system designers, and makes product proliferation

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and differentiation extremely hard to achieve. ASICs with their long development cycles, long lead times and high non-recurring development costs are only used in very high volume mainstream consumer products.

The traditional military and industrial markets are well served by existing core silicon. Much of this market uses complex ASSPs since price, power and size are not particularly critical design considerations. When there is a strong need for a custom solution in high volume applications, designers turn to an ASIC and, in low to medium volume applications, they use FPGAs. QuickLogic FPGAs have a loyal following in certain segments of these markets, particularly when instant-on, energy efficiency, high reliability or intellectual property security is important. These markets are expected to follow a typical mature product trend, as compared with the predicted growth in our business in the consumer market.

Markets and Product Technology

We market our solutions primarily to consumer and industrial device OEMs and ODMs. We have complete solutions incorporating our EOS S3, EOS3 LV, EOS S3AI, ArcticLink III S2, ArcticLink III VX and BX, PolarPro 3, PolarPro II, PolarPro, and Eclipse II solution platforms, packaging, IPs, custom logic, software drivers, SensiML Analytics Toolkit and our architecture consulting. We partner with target customers in our focus markets to architect and design solutions and to integrate and test our solutions in our customers' products. A solution can be based on our programmable technology, which enables customized designs, low power, flexibility, rapid time-to-market, longer time-in-market and lower total cost of ownership. From a mobile system designer's perspective, a solution's function is known and complete, and consequently can be designed into systems with a minimum amount of effort and risk. We are capable of providing complete solutions because of our investment in developing the low power IP and software required to implement specific functions, along with sensor software algorithms optimized for our architecture. Because we are involved with our customers at the definition stage of their products, we are able to architect solutions that typically have more than one IP, absorbing more functionality traditionally implemented with multiple ASSPs. In cases where our solution has multiple IPs, significant system performance or battery life improvements can be realized by enabling direct data transfers between the IPs, or by offloading more processing tasks from the host processor to our solution. In some cases, we develop the IPs and either software or firmware ourselves and, in other cases, we utilize third parties to develop the mixed signal physical layers, logic and/or software.

We market our solutions to OEMs and ODMs offering differentiated mobile products, to processor vendors wishing to expand their served available market, and to sensor manufacturers and sensor processing software companies wishing to expand their ecosystems. Our target mobile markets include Tablets, Wearables, Hearables, Smartphones, Consumer Electronics and Consumer/Industrial IoT. Our solutions typically fall into one of three categories: Sensor Processing, Display and Visual Enhancement, or Smart Connectivity.

The fact that we use our programmable technology to customize these solutions provides two advantages over conventional ASSPs that are based on ASIC technology. Foremost is the fact that our solutions can be tailored for a specific customer's requirements. Once we have developed IPs, it is easy to combine IPs with a platform's fixed logic and utilize the remaining programmable logic to provide a unique set of features to a customer/partner or to add other functions to the solution, such as a variety of interface, I/O, hardware acceleration, and/or processor offloading. We are able to develop these solutions from a common solution platform, and partner with system designers to implement a range of solutions, or products, that address different geographic and market requirements. By using programmable technology instead of ASIC technology, we reduce the development time, development risk and total cost of ownership and are able to bring solutions to market far more quickly than other custom silicon alternatives.

By using our silicon platforms, our IPs, our software, and our in-depth architecture knowledge, we can deliver energy efficient custom solutions that blend the benefits of traditional ASSPs with the flexibility, product proliferation, differentiation and low total cost of ownership advantages of programmable logic.

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Our product technology consists of six major elements:

First, our programmable logic allows us to hardware customize our platforms. We have two distinct types of programmable logic. We have an SRAM-reprogrammable logic architecture that utilizes a standard CMOS-logic process to meet the specific needs of the sensor and I/O subsystems of mobile devices: very low standby power, low dynamic power, and in-system reprogrammable technology. Our SRAM-reprogrammable logic is the basis of our ArcticPro eFPGA IP Licensing initiative, and is the logic used in our EOS S3, EOS S3 LV, and EOS S3AI products.

We also have our ViaLink programmable logic that uses proprietary and patented technology to meet the specific smart connectivity needs when the characteristics of non-volatility and instant-on, very low standby power, low dynamic power, small form factor, single chip solutions that power cycle easily and quickly are required. Hardware customization gives our devices the ability to execute key actions faster than software implementations, and at lower power.

Second, our ArcticLink and EOS S3, EOS S3 LV, and EOS S3AI platforms combine mixed signal physical functions, hard-wired logic and programmable logic on one device. Mixed signal capability supports the trend toward serial connectivity in mobile applications, where designers benefit from lower pin counts, simplified printed circuit board, or PCB, layouts, simplified PCB interconnect and reduced signal noise. Adding hard-wired IP enables us to deliver more logic at lower cost and lower power while the programmable logic allows us to provide solutions that can be rapidly customized to differentiate products, add features and reduce system development costs. This combination of mixed signal, hard-wired logic and programmable logic enables us to deliver low cost, small form factor solutions that can be customized for particular customer or market requirements while lowering the total cost of ownership.

Third, we develop and integrate innovative IP cores, intelligent data processing IP cores, or standard interfaces used in mobile products. We offer:

- Sensor Processing IPs such as Flexible Fusion Engine, or FFE, Sensor Manager, or Communications Manager;
- Hardware Acceleration / Processor Offloading IPs such as various digital filter and matrix multiplication functions;
- Display and Visual Enhancement s such as VEE, DPO or LCD controller interfaces, LVDS and MIPI;
- Network IPs such as high speed UARTs, to enable connectivity to Bluetooth devices;
- Storage IPs such as Secure Digital High Capacity, or SDHC; and
- Other IPs such as I2S, PCM, I2C, IRDA, PWM, and other general purpose interfaces.

Fourth, we develop and optimize a software framework for use in conjunction with our sensor processing silicon platforms.

Fifth, through SensiML, we develop and optimize an end-to-end software suite that provides developers a practical means for developing IoT sensor algorithms using AI. Each component of the software suite handles specific steps to progress from initial raw sensor data collection using prototype hardware to optimized firmware code generation, validation and testing, and post-ship algorithm updates and continuous learning enhancements. SensiML Data Capture Lab is a full-featured client tool that enables rapid, efficient, and collaborative multi-user data collection, cleansing, labeling, and metadata annotation of custom application datasets. SensiML Analytics Studio is a cloud service component that uses labeled datasets to deliver device-optimized firmware for a chosen endpoint product. SensiML Test App is used to quickly and efficiently validate final device firmware and test for the proper behavior, accuracy, and performance of the algorithm empirically on actual endpoint hardware. Lastly, the SensiML Application Programmer's Interface (API) is a simplified interface to extend the SensiML algorithms and manage advanced features like edge model tuning and continuous learning updates to the cloud.

Sixth, our unique customer engagement model enables us to develop complete solutions for target customers who wish to bring differentiated, products to market quickly and cost-effectively. We partner with customers to define solutions specific to their requirements and combine all of the above technologies using one of our solution platforms, proven logic IP cores, custom FPGA logic, software drivers, firmware and application software and SensiML Analytics toolkit. We then work with these customers to integrate and test solutions in their systems. The benefit of providing complete solutions is that we effectively become a virtual extension of our customers' engineering organization.

Marketing, Sales and Customers

We are a sub-system integrator that monetizes solutions through silicon sales, eFPGA IP licensing and SensiML Analytics Toolkit subscriptions and per unit royalties.. We specialize in enhancing the user experience in leading edge mobile devices and products. For our customers, we enable hardware and sensor algorithmic differentiation quickly, cost-effectively and at low power. For our partners, we expand their reach into new segments and new use cases thereby expanding the served available market for their existing devices.

Our vision is to transform the way people and devices interact with each other and their surroundings. Our mission is to provide innovative platforms to successfully enable our customers to develop products that fundamentally change the end-user experience. Specifically, we develop low power SoCs, FPGAs, embedded FPGA intellectual property and the SensiML Analytics Toolkit for AI Software. QuickLogic's products enable smartphone, wearable, hearbles, tablet, Consumer Electronics, and Consumer/Industrial IoT device OEMs to deliver highly differentiated, immersive user experiences and long battery life for their customers.

Our multi-core sensor processing products such as ArcticLink 3 S1, ArcticLink 3 S2, EOS 3, EOS S3 LV, and EOS S3AI accomplish this result with general purpose and targeted cores, which provide an extremely power-efficient approach for real-time multi-modal (vision, motion, voice, location, biometric and environmental) sensor processing independently of the cloud. Our embedded FPGA technology gives SoC developers targeting IoT endpoint applications the flexibility to make design changes post production while keeping power consumption low. Our SensiML Analytics Toolkit is cutting-edge software that enables ultra-low power IoT endpoints that implement AI to transform raw sensor data into meaningful insight at the device itself. The Toolkit also provides an end-to-end development platform spanning data collection, labeling, algorithm and firmware auto generation, and testing.

Market leading companies need to deliver new products quickly and cost-effectively. We believe our programmable technology allows us to deliver customizable solutions with low power consumption and high IP security, while meeting system performance and BOM cost requirements. We believe our solutions allow OEMs and ODMs to rapidly bring new and differentiated products to market quickly and cost-effectively. Our solutions enable energy and cost-efficient solutions on design platforms from which a range of products can be introduced.

We recognize that our markets require a range of solutions, and we intend to work with market leading companies to combine silicon solution platforms, packaging technology, sensor software algorithms, software drivers and firmware, to meet the product proliferation, high bandwidth, time-to-market, time-in-market and form factor requirements of mobile device manufacturers. We expect solutions to range from devices that include mixed signal and visual enhancement capability to devices that provide off-load engines from the host processor to save power and extend system battery life. We intend to continue to define and implement compelling solutions for our target customers and partners.

Our business model is two-fold. For the consumer market, it includes a focused customer strategy in which we target market-leading customers, who primarily serve the market for differentiated mobile products. Our belief is that a large majority of our revenue will continue to come from less than 100 consumer customers as we transition to this business

model. For the consumer customers, we have identified and plan to continue to identify the customers we want to serve with our solutions, and are currently in different stages of engagement with a number of these customers. The other half of the business model is targeted at the IoT customers that are deploying AI solutions. This go-to-market strategy focuses on a broader sales and marketing approach. Unlike the consumer market, the IoT market for AI solutions is made up of hundreds, if not thousands, of individual customers. We have identified reference designs, evaluation systems and evaluation software kits that we can enable our channel sales partners to

sell to these customers. We believe our solutions are resonating with our target customers who value the differentiated user experience, lower power consumption, platform design capability, rapid time-to-market, longer time-in-market and low total cost of ownership available through the use of our solutions.

We sell our products through a network of sales managers in North America, Europe and Asia. In addition to our corporate headquarters in Sunnyvale, California, we have international sales operations in China, Japan, Taiwan, South Korea and the United Kingdom. Our sales personnel and independent sales representatives are responsible for sales and application support for a given region, focusing on major strategic accounts, and managing our channel sales partners such as distributors.

Our customers typically order our products through our distributors. Currently, we have two distributors in North America and a network of sixteen distributors throughout Europe and Asia to support our international business.

We also have a military, industrial and mobile product customer base that purchases our mature silicon products. We expect to continue to offer silicon devices to these customers.

Three of our customers represented 12%, 10%, 10% of our total revenue for the year ended December 30, 2018 and 11% and 19% for the year ended December 31, 2017, respectively. In addition, a significant portion of our revenue comes from sales to customers located outside of the United States. See Note 11 to the Consolidated Financial Statements for information on our revenue by geography, market segment and key customers.

In the past, there has not been a predictable seasonal pattern to our business. However, we may experience seasonal patterns in the future due to global economic conditions, the overall volatility of the semiconductor industry and the inherent seasonality of the mobile and consumer markets.

Backlog

We do not believe that backlog as of any particular date is indicative of future results. A majority of our quarterly shipments typically are booked during the quarter. Our sales are made primarily pursuant to standard purchase orders issued by OEM customers and distributors.

Competition

A number of companies offer products that compete with one or more of our semiconductor products and solutions. Our semiconductor competitors include: (i) suppliers of ASSPs such as DSP Group; (ii) suppliers of mobile and/or application processors; (iii) suppliers of ASICs; (iv) suppliers of mobile-oriented FPGAs such as Lattice; and (v) suppliers of low power microcontrollers such as Atmel (a subsidiary of Microchip Technology), ST Microelectronics and NXP. Our existing competitors for conventional FPGAs include suppliers of low power CPLDs and FPGAs such as Lattice, Xilinx, Intel and MicroSemi.

ASSPs offer proven functionality which reduces development time, risk and cost, but it is difficult to offer a differentiated product using standard devices, and ASSPs that meet the system design objectives are not always available. Conventional programmable logic may be used to create custom functions that provide product differentiation or make up for deficiencies in available ASSPs. PLDs require more designer input since the designer has to develop and integrate the IP and may have to develop the software to drive the IP. PLDs are more expensive and consume more power than ASSPs or ASICs, but they offer fast time-to-market and are typically reprogrammable. OEMs have adopted mobile-oriented FPGAs in the mobile product market, but offer very little in terms of hard logic blocks that may decrease power consumption or selling price to the OEM. ASICs have a large development cost and risk and a long time to market. As a result, ASICs are generally only used for single designs with very high volumes.

MCUs offer extensive software flexibility, but often do not offer sensor software algorithms, the lowest power, nor any hardware flexibility. Our solutions enable custom functions and system designs with fast time-to-market and longer time-in-market since they are customized by us using our solution platforms that contain programmable logic. In addition, because they are complete solutions, they reduce the system development cost and risk.

Since the AI software market is nascent, particularly for the edge and endpoint applications, there are no direct competitors to the SensiML analytics software platform at this point.

Competitors for our eFPGA IP licensing product include a few of startup companies.

Research and Development

We are focused on developing our solutions and platforms. Our solutions combine our silicon platforms with our IPs, software drivers, and other system software, and may include SensiML software for AI applications. Our future success will depend largely on our ability to rapidly develop, enhance and introduce our solutions that meet emerging industry standards and satisfy changing customer requirements. We have made and expect to continue to make substantial investments in research and development. Our research and development expenses for the years ended December 30, 2018, December 31, 2017, and January 1, 2017 were $9.9 million (79% of revenue), $9.6 million (79% of revenue), and $12.3 million (107% of revenue), respectively.

As of March, 15, 2019, our research and development staff consists of 48 employees located in California, India, and Oregon.

- Our system software group creates the drivers and other system code required to connect our silicon devices to Application Processors, drivers and microcode to support our sensor hubs.
- Our platform engineering group develops low power programmable devices and system IP that can be used in standalone solution platforms such as PolarPro 3E, or combined in solution platforms such as EOS S3.
- Our EDA software group develops the design libraries, interface routines and place and route software that allow our engineers to use third party design environments to develop designs that are incorporated into our programmable devices, and develops the design tools that support algorithm development for our sensor hubs.
- Our hardware group develops and verifies IP Blocks that can be programmed into our programmable logic and develops reference designs to showcase and verify our solutions.
- Our product engineering group oversees product manufacturing and process development with our third party foundries, and is involved in ongoing process improvements to increase yields and optimize device characteristics.
- The Office of the CTO investigates future trends and requirements in order to define the next generation of solutions and platforms.
- Our SensiML group develops and maintains all software with respect to the SensiML Analytics Software Suite.

Manufacturing

We have close relationships with third-party manufacturers for our wafer fabrication, package assembly, and testing requirements to help us ensure stability in the supply of our products and to allow us to focus our internal efforts on product and solution design and sales.

We currently outsource our wafer manufacturing, primarily to GLOBALFOUNDRIES and Taiwan Semiconductor Manufacturing Company Limited, or TSMC. We outsource our product packaging primarily to Amkor Technology, Inc. and STATS-ChipPAC. GLOBALFOUNDRIES manufactures our EOS S3, EOS S3 LV, and EOS S3AI Sensor Platform in a 40 nm CMOS process, and PolarPro 3E, ArcticLink III VX and BX, and ArcticLink 3 S2 Sensor Hub, in a 65 nm CMOS process. TSMC manufactures our pASIC 3, QuickRAM and certain QuickPCI products, using a 0.35 micron complementary metal oxide semiconductor, or CMOS, process. TSMC also manufactures our Eclipse and other mature products, PolarPro III, ArcticLink 3 S1 Sensor Hub products, using a

65nm CMOS process on twelve-inch wafers. We purchase products from GLOBALFOUNDRIES, and TSMC on a purchase order basis.

Outsourcing of wafer manufacturing enables us to take advantage of the high volume economies of scale offered by these suppliers. We may establish additional foundry relationships as such arrangements become economically useful or technically necessary.

Employees

As of December 30, 2018, we had 82 employees worldwide. We believe our future success depends in part on our continued ability to attract, hire and retain qualified personnel. None of our employees are represented by a labor union and we believe our employee relations are favorable.

Intellectual Property

We believe that it is important to maintain a large patent portfolio to protect our innovations. We currently hold twenty four active U.S. patents and have three pending applications for additional U.S. patents. Our patents contain claims covering various aspects of programmable integrated circuits, programmable interconnect structures and programmable metal devices. In Europe and Asia, we have been granted eleven patents and have five pending applications. Our issued patents expire between 2019 and 2037.

In most cases, revenue will decline from a decrease in demand for our mature products long before the expiration of pending or issued patents relating to the underlying technology in such products. The decision to cease maintaining a patent is made based on the importance of the patent in our current or future product offerings.

We have seven trademarks registered with the U.S. Patent and Trademark Office.

Executive Officers and Directors

Our executive officers are appointed by, and serve at the discretion of, our Board of Directors. There are no family relationships among our directors and officers.

The following table sets forth certain information concerning our current executive officers and directors as of March 8, 2019:

Name	Age	Position
Brian C. Faith	44	President and Chief Executive Officer; Director
Suping (Sue) Cheung	55	Chief Financial Officer and Vice President, Finance
Rajiv Jain	58	Vice President, Worldwide Operations
Timothy Saxe	63	Senior Vice President Engineering and Chief Technology Officer
E. Thomas Hart	77	Chairman of the Board
Andrew J. Pease	68	Director
Michael R. Farese	72	Director
Arturo Krueger	79	Director
Daniel A. Rabinovitsj	54	Director
Christine Russell	68	Director
Gary H. Tauss	64	Director

Brian C. Faith joined QuickLogic in June 1996. Mr. Faith was promoted to CEO in June 2016 after having served as Vice President of Worldwide Marketing and Vice President of Worldwide Sales & Marketing between 2008 and 2016. Mr. Faith during the last 21 years has held a variety of managerial and executive leadership positions in engineering, product line management, marketing and sales. Mr. Faith has also served as the Chairman of the Marketing Committee for the CE-ATA Organization. He holds a B.S. degree in Computer Engineering from Santa Clara University and was an Adjunct Lecturer at Santa Clara University for Programmable Logic courses.

Suping (Sue) Cheung (Ph.D.) joined QuickLogic in May 2007. Dr. Cheung was promoted to Chief Financial Officer in February 2017 after having served as Vice President of Finance and Chief Accounting Officer since August 2016. Prior to this role, Dr. Cheung served as QuickLogic's Principal Accounting Officer in addition to Corporate Controller since May 2015, Corporate Controller from 2008 to April 2015 and Assistant Controller from 2007 to 2008. Prior to joining QuickLogic, Dr. Cheung was a Senior Manager of SEC Reporting and Technical Accounting at Dell SonicWALL from 2006 to 2007 and was the Senior Accounting Manager at VeriFone System, Inc. from 2005 to 2006. Prior to 2005, Dr. Cheung held various senior accounting and financial management roles in both publicly traded and privately held companies. Dr. Cheung began her career with PricewaterhouseCoopers (PWC) where she served as an auditor and as a tax consultant. Dr. Cheung holds a Ph.D. in Business Administration and a Masters in Accounting from the Florida International University in Miami. She is a Certified Public Accountant.

Rajiv Jain joined QuickLogic in August 1992. Mr. Jain has served as our Vice President of Worldwide Operations since April 2014. Prior to this role, Mr. Jain served as QuickLogic's Senior Director of Operations and Development Engineering from 2011 to 2014, Senior Director of System Solutions and Process Technology from 2009 to 2011, Director of Process Technology from 1997 to 2009, and Senior Process Technologist from 1992 to 1997. Prior to joining QuickLogic, Mr. Jain was a Senior Yield Engineer at National Semiconductor from 1991 to 1992, where he focused on BiCMOS product yield improvements, and at Monolithic Memories from 1985 to 1988, where he focused on BiPolar product yield and engineering wafer sort improvements. Mr. Jain holds a Master's degree in Chemical Engineering from the University of California, Berkeley and a B.S. degree in Chemical Engineering from the University of Illinois, Champaign/Urbana.

Timothy Saxe (Ph.D.) joined QuickLogic in May 2001. Dr. Saxe has served as our Senior Vice President of Engineering and Chief Technology Officer since August 2016 and Senior Vice President and Chief Technology Officer since November 2008. Previously, Dr. Saxe has held a variety of executive leadership positions in QuickLogic including Vice President of Engineering and Vice President of Software Engineering. Dr. Saxe was Vice President of FLASH Engineering at Actel Corporation, a semiconductor manufacturing company, from November 2000 to February 2001. Dr. Saxe joined GateField Corporation, a design verification tools and services company formerly known as Zycad, in June 1983 and was a founder of their semiconductor manufacturing division in 1993. Dr. Saxe became GateField's Chief Executive Officer in February 1999 and served in that capacity until Actel Corporation acquired GateField in November 2000. Dr. Saxe holds a B.S.E.E. degree from North Carolina State University, and an M.S.E.E. degree and a Ph.D. in Electrical Engineering from Stanford University.

Information regarding the backgrounds of our directors is set forth under the caption "Proposal One, Election of Directors" in our Proxy Statement, which information is incorporated herein by reference.

ITEM 1A. RISK FACTORS

In addition to other information in this Annual Report on Form 10-K and in other filings we make with the Securities and Exchange Commission, the following risk factors should be carefully considered in evaluating our business as they may have a significant impact on our business, operating results and financial condition. If any of the following risks actually occurs, our business, financial condition, results of operations and future prospects could be materially and adversely affected. Because of the following factors, as well as other variables affecting our operating results, past financial performance should not be considered as a reliable indicator of future performance and investors should not use historical trends to anticipate results or trends in future periods.

If we fail to successfully develop, introduce and sell new products, eFPGA IP Product, SensiML Software subscriptions/licenses, and other new solutions or if our design opportunities do not generate the revenue we expect, we may be unable to compete effectively in the future and our future gross margins and operating results will be lower.

The market for differentiated consumer devices is highly competitive and dynamic, with short end market product life cycles and rapid obsolescence of existing products. To compete successfully, we must obtain access to advanced fabrication capacity and dedicate significant resources to specify, design, develop, manufacture and sell new or enhanced solutions that provide increasingly higher levels of performance, low power consumption, new features, meeting current and emerging industry standards, reliability and/or cost savings to our customers. Due to the short product life cycle of these devices, our revenue is subject to fluctuation in a short period of time and our ability to grow our business depends on accelerating our design win activity. We often make significant investments in solutions, sensor algorithm software and silicon platform development, selling and marketing, long before we generate revenue, if any, from our efforts. The markets we are targeting typically have higher volumes and greater price pressure than our traditional business. In addition, we quote opportunities in anticipation of future cost reductions and may aggressively price products to gain market share. In order to react quickly to opportunities or to obtain favorable wafer prices, we make significant investments in and commitments to purchase inventories and capital equipment before we have firm commitments from customers.

We expect our business growth to be driven by new products, which currently include EOS™, Quick AI, SensiML, ArcticLink® III, PolarPro®3, PolarPro II, PolarPro, Eclipse II products. We also launched a business that licenses our FPGA technology for use in other semiconductor companies' SoCs and delivered our first eFPGA IP product ArcticPro™ in 2017. The new product revenue growth of our new products and eFPGA IP product needs to be strong enough to achieve profitability. The gross margin associated with our new products is generally lower than the gross margin of our mature products, due primarily to the price-sensitive nature of the higher volume mobile consumer opportunities that we are pursuing with new products and eFPGA IP product. Because the product life cycle of mobile products is short, we must replace revenue at the end of a product life cycle with sales from new design opportunities. While we expect revenue and gross profit growth from new products and eFPGA IP product will offset the expected decline in revenue and gross profit from our mature products, there is no assurance whether or when this will occur. In order to increase our revenue from its current level, we depend upon increased revenue from our existing new products, especially solutions based on our EOS S3, ArcticLink and PolarPro solution platforms, the eFPGA IP product and the development of additional new products and solutions.

If (i) we are unable to design, produce and sell new products, eFPGA IP, SensiML and other products and solutions that meet design specifications, address customer requirements and generate sufficient revenue and gross profit; (ii) market demand for our new products, eFPGA IP product and other products fails to materialize; (iii) we are unable to obtain adequate fabrication capacity on a timely basis; (iv) we are unable to develop new silicon platforms or solutions in a timely manner; or (v) our customers do not successfully introduce products incorporating our devices, or choose a competing offering, our revenue and gross margin of the new products and eFPGA IP product will be

materially harmed, which could have an overall adverse and potentially disproportionate effect on our business, results of operations and financial condition.

Two of our products target new unproven markets, and if these markets do not develop, or if our products do not meet their needs, the loss of or reduction in orders could adversely affect our revenue and harm our business financial condition, operating results and cash flows.

eFPGA: We have history and experience in developing, selling and supporting FPGA products and incorporating FPGA IP developed by us into our platform solutions. The eFPGA market is a developing market with unknown requirements and demand. Our current FPGA architectures and their performance may not be a good fit for the eFPGA Market. eFPGA IP is designed for specific foundry/process node combinations, and the ones we have chosen to target may be different from what our customers require. The software developed by us for eFPGA may be delayed or may not meet the needs of the eFPGA Market. The support required by a customer to incorporate the eFPGA may be much higher than expected which may delay new engagements or lead to high costs. The incorporated eFPGA IP may have an unexpected result in the customer's chip leading to compensation demands. The expected NRE and royalty rates we expect to charge for the eFPGA may not be competitive, which may have a material adverse effect on our business, results of operations and financial condition.

SensiML: Mainstream AI runs on powerful processors and large FPGAs. SensiML's AI solution targets end point solutions that use low power processors. The end point AI market is a developing market with unknown requirements and demand. The current SensiML solution may not be a good fit to the evolving needs of the end-point AI market. The support required for customer evaluations and implementation may be higher than expected which may delay engagements and lead to higher costs. The expected SaaS licensing fees and royalty rates we expect to charge for the SensiML solutions may not be competitive, which may have a material adverse effect on our business, results of operations and financial condition.

If our AI products are not low touch, the cost of addressing the fragmented AI market will be high which will delay market penetration, result in reduced revenues or require increased expenses, any of which could adversely affect our revenue and harm our business financial condition, operating results and cash flows.

The end point AI market consists of many different use cases, with each individual use case having a modest volume even though the aggregate volume is large. This is quite different from the mobile consumer market which consists of a few large customers and use cases. In order to scale in the fragmented AI end point market, our products will have to be extremely low touch so that the cost of support is low and scalable across many customers. The current EOS S3AI solution and SensiML solutions may not be sufficiently low touch to address this market in a cost-effective manner, or in the volume required. Higher than expected costs, or lower than expected volume may have a material adverse effect on our business, results of operations and financial condition.

We have incurred losses in the past years since 2011 and anticipate that we will incur continued losses through at least the next year, we may not be able to generate sufficient revenue or raise additional financing to fund future losses, and we may not be able to sustain sufficient liquidity to continue to operate as a going concern.

We have experienced net losses in the past years and expect such losses to continue through at least the year ending December 29, 2019 as we continue to develop new products, applications and technologies. Our new products and products currently under development have been generating lower gross margin as a percentage of revenue than our mature products due to the markets that we have targeted and the larger order quantities associated with these applications. Whether we can achieve cash flow levels sufficient to support our operations cannot be accurately predicted, and our investment portfolio is subject to a degree of interest rate and liquidity risk. Unless such cash flow levels are achieved, in addition to the proceeds that we received on May 29, 2018 from the sale of our equity securities, and the credit line we may be able to draw down from Heritage Bank of Commerce under the Loan and Security Agreement dated as of September 28, 2018 and the Amended and Restated Loan and Security Agreement dated December 21, 2018, by and between our company and Heritage Bank of Commerce, we may need to obtain additional funds through strategic divestiture, or sell debt or equity securities, or some combination thereof, to provide funding for our operations. Such additional funding may not be available on commercially reasonable terms, or at all.

If we are unable to generate sufficient sales from its new products or adequate funds are not available when needed, our liquidity, financial condition and operating results would be materially and adversely affected, and we may not be able to operate our business without significant changes in our operations or at all.

Our products are subject to a lengthy sales cycle and our customers may cancel or change their product plans after we have expended substantial time and resources in the design of their products.

Our customers often evaluate our products for six months or more before designing them into their systems, and they may not commence volume shipments for up to an additional six to twelve months, if at all. During this lengthy sales cycle, our potential customers may cancel or change their product plans. Customers may also discontinue products incorporating our devices at any time or they may choose to replace our products with lower cost semiconductors. In addition, we are working with leading customers in our target markets to define our future products. If customers cancel, reduce or delay product orders from us, or choose not to release products that incorporate our devices after we have spent substantial time and resources developing products or assisting customers with their product design, our revenue levels may be less than anticipated and our business, results of operations and financial condition may be materially adversely affected.

We currently depend on a limited number of significant customers, for a significant portion of our revenue and the loss of or reduction in orders from such significant customers could adversely affect our revenue and harm our business financial condition, operating results and cash flows.

A small number of end-customers represented a significant portion our total revenue in our fiscal year ended December 30, 2018. During our fiscal year ended December 30, 2018, three customers, including Samsung, accounted for 12%, 10% and 10%, respectively, of our total revenue. We expect to maintain this high level of customer concentration as we continue to market our solutions to leading manufacturers of high-volume mobile applications. As in the past, future demand from these customers may fluctuate significantly from quarter to quarter. These customers typically order products with short requested delivery lead times, and do not provide a commitment to purchase product past the period covered by purchase orders, which may be rescheduled or canceled. In addition, our manufacturing lead times are longer than the delivery lead times requested by these customers, and we make significant purchases of inventory and capital expenditures in anticipation of future demand. If revenue from any significant customer were to decline substantially, we may be unable to offset this decline with increased revenue and gross margin from other customers and we may purchase excess inventories. These factors could have a material adverse impact on our business, results of operations and financial condition.

We may make a significant investment in long-lived assets for the production of our products based upon historical and expected demand. If demand for our products or gross margin generated from our products does not meet our expectations or if we are unable to collect amounts due from significant customers, we may be required to write-off inventories, provide for uncollectible accounts receivable or incur charges against long-lived assets, which may have a material adverse effect on our business, results of operations and financial condition.

We depend upon partnering with other companies to offer voice, motion, and other solutions into our platform.

In addition to working directly with our customers, we partner with other companies that are experts in certain technologies to create more complete solutions. The depth of these relationships varies depending on the partner and the dynamics of the end market being targeted, but these relationships are typically a co-marketing relationship that includes joint account calls, promotional activities and/or engineering collaboration and developments. The propriety code provided by these partners may be an integral part of the solutions that we offer our customers. If we are unable to obtain competitive pricing (NRE, royalty) and prompt quality support by our partner, our solution may not be competitive. In addition, if the quality of our partner’s solution does not meet our customer’s requirements, it may delay or prevent the incorporation of our product by the customer. There may also be delays and additional expenses to improve or update the partner’s solution to meet current market needs. If we are unable to maintain a close working relationship with our partners it would hinder our ability to continue to develop and introduce leading solutions effectively in the future, which may have a material adverse effect on our business, results of operations and financial condition.

We depend on our relationships with third parties to manufacture our new products.

We depend upon GLOBALFOUNDRIES, TSMC, Amkor and STAT-chipPAC to manufacture our new products. The inability of any one of these companies to continue manufacture of our new products for any reason would require us to identify and qualify a new foundry to manufacture our new products. This would be time consuming, difficult and result in unforeseen operational problems. Alternate foundries might not be available to

fabricate our new products, or if available, might be unwilling or unable to offer services on acceptable terms and our ability to operate our business or deliver our products to our customers could be severely impaired.

We depend upon third parties for silicon IP, detailed registered-transfer level, or RTL, design, physical design, verification and assembly of our silicon platforms and any failure to meet our requirements in a timely fashion may adversely affect our time to market and revenue.

Our move to a variable cost or outsourced engineering development model allows us access to the best design resources for developing new silicon platforms. This includes access to leading edge silicon IP as well as RTL design and physical design expertise. However, outsourcing the design of a complex silicon platform typically involves multiple companies in multiple locations, which may increase the risk of costly design errors. Any delays or errors in the design of our new silicon platforms could significantly increase the cost of development as well as adversely affect our time to market, which may have a material adverse effect on our business, results of operations and financial condition.

We depend upon partnering with other companies to develop IP, reference platforms, algorithm and system software.

In addition to working directly with our customers, we partner with other companies that are experts in certain technologies to develop additional intellectual property, reference platforms, algorithms and system software to provide application solutions. We also work with mobile processor manufacturers and companies that supply sensor, storage, networking or graphics components for embedded systems. The depth of these relationships varies depending on the partner and the dynamics of the end market being targeted, but is typically a co-marketing relationship that includes joint account calls, promotional activities and/or engineering collaboration and developments, such as reference designs. If we are unable to license new technologies, maintain a close working relationship with our partners, fail to continue to develop and introduce leading technologies or if these technologies fail to generate the revenue we expect, we may not be able to compete effectively in the future, which may have a material adverse effect on our business, results of operations and financial condition.

We depend upon third parties to fabricate, assemble, test and program our products, and to provide logistics services. Any problems at these third parties could adversely affect our business, results of operations and financial condition.

We contract with third parties to fabricate, assemble, test and program our devices, and vendors for logistics. In general, each of our devices is fabricated, assembled and programmed by a single supplier, and the loss of a supplier, transfer of manufacturing to a new location, expiration of a supply agreement or the inability of our suppliers to manufacture our products to meet volume, performance, quality and cost targets could have a material adverse effect on our business. Our relationship with our suppliers could change as a result of a merger or acquisition. If for any reason these suppliers or any other vendor becomes unable or unwilling to continue to provide services of acceptable quality, at acceptable costs and in a timely manner, our ability to operate our business or deliver our products to our customers could be severely impaired. We would have to identify and qualify substitute suppliers, which could be time consuming, difficult and result in unforeseen operational problems, or we could announce an end-of-life program for these products. Alternate suppliers might not be available to fabricate, assemble, test and program our devices or, if available, might be unwilling or unable to offer services on acceptable terms. In addition, if competition for wafer manufacturing capacity increases, if we need to migrate to more advanced wafer manufacturing technology, or if competition for assembly services increases, we may be required to pay or invest significant amounts to secure access to this capacity. The number of companies that provide these services is limited and some of them have limited operating histories and financial resources. In the event our current suppliers refuse or are unable to continue to provide these services to us, or if we are unable to secure sufficient capacity from our current suppliers on commercially reasonable terms, we may be unable to procure services from alternate suppliers in a timely manner, if at all. Moreover, our reliance on a limited number of suppliers subjects us to reduced control over delivery schedules,

quality assurance and costs. This lack of control may cause unforeseen product shortages or may increase our cost to manufacture and test our products.

We utilize third party logistics services, including transportation, warehouse and shipping services. These service providers are subject to interruptions that affect their ability to service us, including the availability of

transportation services, disruptions related to work stoppages, volatility in fuel prices and security incidents or natural events at manufacturing, shipping or receiving points or along transportation routes.

In the event any of our third party suppliers or vendors were to experience financial, operational, production or quality assurance difficulties resulting in a reduction or interruption in supply or providing services to us, our business, results of operations and financial condition may be materially adversely affected.

If we fail to adequately forecast demand for our products, we may incur product shortages or excess product inventories.

Our agreements with certain suppliers require us to provide forecasts of our anticipated manufacturing orders, and place binding manufacturing commitments in advance of receiving purchase orders from our customers. We are limited in our ability to increase or decrease our forecasts under such agreements. Other manufacturers supply us with product on a purchase order basis. The allocation of capacity is determined solely by our suppliers, over which we have no direct control. Additionally, we may place orders with our suppliers in advance of customer orders to allow us to quickly respond to changing customer demand or to obtain favorable product costs. Furthermore, we provide our suppliers with equipment that is used to program our products to customer specifications. The programming equipment is manufactured to our specifications and has significant order lead times. These factors may result in product shortages or excess product inventories. Obtaining additional supply in the face of product, programming equipment or capacity shortages may be costly, or not possible, especially in the short-term since most of our products and programming equipment are supplied by a single supplier. If we fail to adequately forecast demand for our products, our business, the relationship with our customers, our results of operations and financial condition could be materially adversely affected.

We entered into informal partnerships with certain third parties for the development of solutions. Our business could be adversely affected if such informal partnerships fail to grow as we expected.

Our approach to developing solutions for potential customers involves developing solutions for and aligning our roadmap with application processor, sensor, and flash memory vendors. We have entered into informal partnerships with other parties that involve the development of solutions that interface with their devices or standards. These informal partnerships also may involve joint marketing campaigns and sales calls. If the informal partnerships do not grow as expected or if they are significantly reduced or terminated by acquisition or other means, our business, results of operations and financial condition could be materially adversely effected and we may be required to write-off related inventories and long-lived assets.

Our business could be advisedly affected by undetected errors or defect in our products.

Difficulties encountered during the complex semiconductor manufacturing process can render a substantial percentage of semiconductor devices nonfunctional. New manufacturing techniques or fluctuations in the manufacturing process may change the performance distribution and yield of our products. We have, in the past, experienced manufacturing runs that have contained substantially reduced or no functioning devices, or that generated devices with below normal performance characteristics. Our reliance on third party suppliers may extend the period of time required to analyze and correct these problems. Once corrected, our customers may be required to redesign or re-qualify their products. As a result, we may incur substantially higher manufacturing costs, shortages of inventories or reduced customer demand.

Yield fluctuations frequently occur in connection with the manufacture of newly introduced products, with changes in product architecture, with manufacturing at new facilities, on new fabrication processes or in conjunction with new backend manufacturing processes. Newly introduced solutions and products are often more complex and more difficult to produce, increasing the risk of manufacturing related defects. New manufacturing facilities or processes

are often more complex and take a period of time to achieve expected quality levels and manufacturing efficiencies. While we test our products, including our software development tools, they may still contain errors or defects that are found after we have commenced commercial production. Undetected errors or defects may also result from new manufacturing processes or when new intellectual property is incorporated into our products. If our products or software development tools contain undetected or unresolved defects, we may lose market share,

experience delays in or loss of market acceptance, reserve or scrap inventories or be required to issue a product recall. In addition, we would be at risk of product liability litigation if defects in our products were discovered. Although we attempt to limit our liability to end users through disclaimers of special, consequential and indirect damages and similar provisions, we cannot assure you that such limitations of liability will be legally enforceable.

We may be unable to accurately estimate quarterly revenue, which could adversely affect the trading price of our stock.

Due to our relatively long product delivery cycle and the inability of our customers in the rapidly evolving mobile market to confirm product requirements on a timely basis, we may have low visibility to product demand or estimated revenue in any given quarter. If our customers cannot provide us with accurate delivery lead times, we may not be able to deliver product to our customers in a timely fashion. Furthermore, our ability to respond to increased demand is limited to inventories on hand or on order, the capacity available at our contract manufacturers and our capacity to program products to customer specifications. If we fail to accurately estimate customer demand, or if our available capacity is less than needed to meet customer demand, we may not be able to accurately estimate our quarterly revenue, which may have a material adverse effect on our results of operations and financial condition, and our stock price could be materially fluctuate as a result.

We will be unable to compete effectively if we fail to anticipate product opportunities based upon emerging technologies and standards or fail to develop products and solutions that incorporate these technologies and standards in a timely manner.

We spend significant resources designing and developing silicon solution platforms, IP and software and reference designs, and adopting emerging technologies. We intend to develop additional products and solutions and to adopt new technologies in the future. If system manufacturers adopt alternative standards or technologies, if an industry standard or emerging technology that we have targeted fails to achieve broad market acceptance, if customers choose low power offerings from our competitors, or if we are unable to bring the technologies or solutions to market in a timely and cost-effective manner, we may be unable to generate significant revenue from our research and development efforts. As a result, our business, results of operations and financial condition could be materially adversely affected, and we may be required to write-off related inventories and long-lived assets.

The semiconductor business is subject to downward price pressure.

The market for our products has been characterized by declining selling prices, and we anticipate that our average selling prices will decrease in future periods, although the timing and amount of these decreases cannot be predicted with any certainty. The pricing pressure in the semiconductor industry in past years has been due to a large number of factors, many of which were not easily foreseeable, such as currency crisis, industry-wide excess manufacturing capacity, weak economic growth, the slowdown in capital spending that followed the "dot-com" collapse, the reduction in capital spending by telecom companies and satellite companies, and the effects of the terrorism since September 11, 2001. Similar to past years, recent unfavorable economic conditions have resulted in a tightening of the credit markets. If signs of improvement in the global economy do not progress as expected and global economic conditions worsen, we may experience a decline in our average selling prices. In addition, our competitors have in the past, and may again in the future, lower prices in order to increase their market share. Continued downward price pressure in the industry may harm our competitive position and materially and adversely affect our financial condition, cash flows, and results of operations.

Our future operating results are likely to fluctuate and therefore may fail to meet expectations, which could cause our stock price to decline.

Our operating results have varied widely in the past and are likely to do so in the future. In addition, our past operating results may not be an indicator of future operating results.

Factors that could cause our operating results to fluctuate include, without limitation: (i) successful development and market acceptance of our products and solutions; (ii) our ability to accurately forecast product volumes and mix, and to respond to rapid changes in customer demand; (iii) changes in sales volume or expected

sales volume, product mix, average selling prices or production variances that affect gross profit; (iv) the effect of end-of-life programs; (v) a significant change in sales to, or the collectability of accounts receivable from, our largest customers; (vi) our ability to adjust our product features, manufacturing capacity and costs in response to economic and competitive pressures; (vii) our reliance on subcontract manufacturers for product capacity, yield and quality; (viii) our competitors' product portfolio and product pricing policies; (ix) timely implementation of efficient manufacturing technologies; (x) errors in applying or changes in accounting and corporate governance rules; (xi) the issuance of equity compensation awards or changes in the terms of our stock plan or employee stock purchase plan; (xii) mergers or acquisitions; (xiii) the impact of import and export laws and regulations; (xiv) the cyclical nature of the semiconductor industry and general economic, market, political and social conditions in the countries where we sell our products and the related effect on our customers, distributors and suppliers; and (xv) our ability to obtain capital, debt financing and insurance on commercially reasonable terms. Although certain of these factors are out of our immediate control, unless we can anticipate and be prepared with contingency plans that respond to these factors, our business, results of operations and financial condition could be materially adversely affected, which could cause our stock price to significantly fluctuate or decline.

In particular, since we derived in 2018 and expect to continue to derive a significant portion of our revenue from China, our business development plans, results of operations and financial condition may be materially adversely affected by significant political, social and economic developments in China. A slowdown in economic growth in China could adversely impact our customers, prospective customers, suppliers, distributors and partners in China, which could have a material adverse effect on our results of the operations and financial condition. There is no guarantee that economic downturns, whether actual or perceived, any further decrease in economic growth rates or an otherwise uncertain economic outlook in China will not occur or persist in the future, that they will not be protracted or that governments will respond adequately to control and reverse such conditions, any of which could materially and adversely affect our business, financial condition and results of operations.

We may also encounter periods of industry wide semiconductor oversupply, resulting in pricing pressure, as well as undersupply, resulting in a risk that we could be unable to fulfill our customers' requirements. The semiconductor industry has historically been characterized by wide fluctuations in the demand for, and supply of, its products. These fluctuations have resulted in circumstances when supply of and demand for semiconductors has been widely out of balance. An industry wide semiconductor oversupply could result in severe downward pricing pressure from customers. In a market with undersupply of manufacturing capacity, we would have to compete with larger foundry and assembly customers for limited manufacturing resources. In such an environment, we may be unable to have our products manufactured in a timely manner, at a cost that generates adequate gross profit or in sufficient quantities. Since we outsource all of our manufacturing and generally have a single source of wafer supply, test, assembly and programming for our products, we are particularly vulnerable to such supply shortages and capacity limitations. As a result, we may be unable to fulfill orders and may lose customers. Any future industry wide oversupply or undersupply of semiconductors could therefore have a material adverse effect on our business, results of operations and financial condition.

We may be unable to successfully grow our business if we fail to compete effectively with others to attract and retain our executive officers, and other key management or technical personnel.

We believe our future success depends upon our ability to attract and retain highly competent personnel. Our employees are at-will and not subject to employment contracts. We could potentially lose the services of any of our senior management personnel at any time due to a variety of factors that could include, without limitation, death, incapacity, military service, personal issues, retirement, resignation or competing employers. Our ability to execute current plans could be adversely affected by such a loss. We may fail to attract and retain qualified technical, sales, marketing and managerial personnel required to continue to operate our business successfully. Personnel with the expertise necessary for our business are scarce and competition for personnel with proper skills is intense.

In addition, new hires frequently require extensive training before they achieve desired levels of productivity. Additionally, attrition in personnel can result from, among other things, changes related to acquisitions, retirement and disability. We may not be able to retain existing key technical, sales, marketing and managerial employees or be successful in attracting, developing or retaining other highly-qualified technical, sales, marketing and managerial personnel, particularly at such times in the future as we may need to fill a key position. If we are unable to continue to develop and retain existing executive officers or other key employees or are unsuccessful in attracting new highly-qualified employees, our financial condition, cash flows, and results of operations could be materially and adversely affected.

We may have increasing difficulty attracting and retaining qualified outside board members.

The directors and management of publicly traded corporations are increasingly concerned with the extent of their personal exposure to lawsuits and shareholder claims, as well as governmental and creditor claims that may be made against them in connection with their positions with publicly held companies. Outside directors are becoming increasingly concerned with the availability of directors' and officers' liability insurance to pay on a timely basis the costs incurred in defending shareholder claims. Directors' and officers' liability insurance is expensive and difficult to obtain. The SEC and the NASDAQ Stock Market have also imposed higher independence standards and certain special requirements on directors of public companies. Accordingly, it may become increasingly difficult to attract and retain qualified outside directors to serve on our board of directors.

Our company's global operations are subject to risks and uncertainties.

Most of our products are manufactured outside of the United States at manufacturing facilities operated by our suppliers in Asia and South Asia.

A significant portion of our total revenue comes from sales to customers located outside the United States. We anticipate that sales to customers located outside the United States will continue to represent a significant portion of our total revenue in future periods. In addition, most of our domestic customers sell their products outside of North America, thereby indirectly exposing us to risks associated with foreign commerce and economic instability. In addition to overseas sales offices, we have significant research and development activities in India.

International operations are subject to certain risks inherent in conducting business outside the U.S., such as changes in currency exchange rates, tax laws, price and currency exchange controls, export and import restrictions, environmental regulations, protection of intellectual property rights, nationalization, expropriation and other governmental action. Accordingly, our operations and revenue are subject to a number of risks associated with foreign commerce, including the following: (i) staffing and managing foreign offices; (ii) managing foreign distributors; (iii) collecting amounts due; (iv) political and economic instability; (v) foreign currency exchange fluctuations; (vi) changes in tax laws, import and export regulations, tariffs and freight rates; (vii) timing and availability of export

licenses; (viii) supplying products that meet local environmental regulations; and (ix) inadequate protection of intellectual property rights. In addition, we incur costs in foreign countries that may be difficult to reduce quickly because of employee related laws and practices in those foreign countries. Our global operations also may be adversely affected by political events and domestic or international terrorist events and hostilities. Current events, including the United Kingdom's expected exit from the European Union, potential changes in immigration policies and tax reform proposals, create a level of uncertainty for multi-national companies.

As U.S. companies continue to expand globally, increased complexity exists due to the possibility of renegotiated trade deals, revised international tax law treaties, and changes to the U.S. corporate tax code. These uncertainties could have a material adverse effect on our business and our results of operations and financial condition. As we continue to expand our business globally, our success will depend, in part, on our ability to anticipate and effectively manage these and other risks.

Rising concern of international tariffs, including tariffs applied to goods traded between the United States and China, could materially and adversely affect our business and results of operations.

Since the beginning of 2018, there has been increasing rhetoric, in some cases coupled with legislative or executive action, from several U.S. and foreign leaders regarding tariffs against foreign imports of certain materials. More specifically, there have been three rounds of U.S. tariffs on Chinese goods taking effect in July, August and September 2018 (some of which prompted retaliatory Chinese tariffs on U.S. goods). The institution of trade tariffs both globally and between the U.S. and China specifically carries the risk of negatively affecting China's overall economic condition, which could have a negative impact on us as we derived and expect to continue to derive a significant amount of revenue from China. Imposition of tariffs could cause a decrease in the sales of our products to customers located in China or other customers selling to Chinese end users, which would directly impact our business and operating results.

Exchange rate fluctuations could adversely affect our company's results of operations and financial condition.

We denominate sales of our products to foreign countries exclusively in U.S. dollars. As a result, any increase in the value of the U.S. dollar relative to the local currency of a foreign country will increase the price of our products in that country so that our products become relatively more expensive to customers in their local currency which may cause sales of our products in that foreign country to decline. If the local currency of a foreign country in which we conduct business strengthens against the U.S. dollar, our payroll and other local expenses will be higher, and since sales are transacted in U.S. dollars, would not be offset by any increase in revenue. To the extent any such risks materialize, our business, results of operations and financial condition could be materially adversely affected.

Our solutions face competition from suppliers of ASSPs, suppliers of integrated application processors, low power FPGAs, low power MCUs, suppliers of ASICs, suppliers of eFPGA IP, and suppliers of sensor algorithm software whose software is running on competitors' devices.

We face competition from companies that offer ASSPs. While it is difficult to provide a unique solution through the use of ASSPs, ASSPs generally are cost-effective standard products with short lead times. In certain design opportunities, ASSPs can be combined to achieve system design objectives. Manufacturers of integrated application processors often integrate new features when they introduce new products. A system designer could elect the use of an integrated processor that includes the features offered in our solutions and/or a widely accepted feature of our solutions could be integrated into a competitor's ASSP. Some vendors offer low power FPGAs that can be adopted by a mobile device for hardware differentiation that is similar in functionality, physical size, power consumption and price to what we offer with our programmable logic-based solutions. We also face competition from low power MCU companies. While MCUs cannot be customized at the hardware level for product differentiation, they do have the ability to run custom software algorithms written in standard C code, which may yield similar functionality as what we can provide with our products. Companies that supply ASICs, which may be purchased for a lower price at higher volumes and typically have greater logic capacity, additional features and higher performance than our products. In addition, we face competition from companies that provide sensor algorithm software, which may be licensed directly by an OEM, or licensed for use through an MCU company. If we are unable to successfully compete with companies that supply ASSPs, lower power FPGAs, MCUs, ASICs, eFPGA IP, or sensor algorithm software in any of the following areas, our business, results of operations and financial condition will be materially adversely affected:

(i) the development of new products, solutions and advanced manufacturing technologies; (ii) the quality, power characteristics, performance characteristics, price and availability of devices, programming hardware and software development tools; (iii) the ability to engage with companies that provide synergistic products and services, including algorithms that may be preloaded into our device at configuration; (iv) the incorporation of industry standards in our products and solutions; (v) the diversity of

product offerings available to customers; and (vi) the quality and cost-effectiveness of design, development, manufacturing and marketing efforts.

Our industry is in the midst of a consolidation phase which could result in stronger and better resourced competitors in the markets in which the company competes.

Mergers and acquisitions activity is at a high level in the semiconductor industry, as large companies have perceived attractive opportunities in today's market to acquire new technologies and product lines by buying smaller companies. If our small and mid-sized competitors become targets of M&A activity and some of them are actually acquired by larger companies with much greater resources than us, we would face heightened competition that could result in lost sales and eroded margins.

We may not be able to achieve the anticipated synergies and benefits from business acquisitions, including our recent acquisition of SensiML Corporation.

Part of our business strategy is to acquire businesses that we believe can complement our current business activities, both financially and strategically. Acquisitions, including the SensiML Acquisition, involve many complexities, including, but not limited to, risks associated with the acquired business' past activities, difficulties in integrating personnel and human resource programs, integrating technology systems and other infrastructures under the Company's control, unanticipated expenses and liabilities, and the impact on our internal controls and compliance with the regulatory requirements under the Sarbanes-Oxley Act of 2002. There is no guarantee that our acquisitions will increase the profitability and cash flow of the Company, and our efforts could cause unforeseen complexities and additional cash outflows, including financial losses. As a result, the realization of anticipated synergies or benefits from acquisitions may be delayed or substantially reduced.

Litigation could adversely impact our consolidated financial position.

We have been and may be in the future involved in various litigation matters arising in the ordinary course of business, including, but not limited to, litigation relating to employment matters, commercial transactions, intellectual property matters, contracts, environmental matters and matters related to compliance with governmental regulations. Litigation is inherently uncertain and unpredictable. The potential risks and uncertainties include, but are not limited to, such factors as the costs and expenses of litigation and the time and attention required of management to attend to litigation. An unfavorable resolution of any particular legal claim or proceeding, and/or the costs and expenses incurred in connection with a legal claim or proceeding, could have a material and adverse effect on our results of operations and financial condition.

We may be unable to adequately protect our intellectual property rights and may face significant expenses as a result of future litigation.

Protection of intellectual property rights is crucial to our business, since that is how we keep others from copying our innovations and those of third parties that are central to our existing and future products. From time to time, we receive letters alleging patent infringement or inviting us to license other parties' patents. We evaluate these requests on a case-by-case basis. These situations may lead to litigation if we reject the offer to obtain the license.

In the past, we have been involved in litigation relating to our alleged infringement of third party patents or other intellectual property rights. This type of litigation is expensive and consumes large amounts of management time and attention.

Because it is critical to our success that we continue to prevent competitors from copying our innovations, we intend to continue to seek patent and trade secret protection for our products. The process of seeking patent protection can be long and expensive, and we cannot be certain that any currently pending or future applications will actually result in issued patents or that, even if patents are issued, they will be of sufficient scope or strength to provide meaningful protection or any commercial advantage to us. Furthermore, others may develop technologies that are similar or superior to our technology or design around the patents we own. We also rely on trade secret protection for our technology, in part through confidentiality agreements with our employees, consultants and other

third parties. However, these parties may breach these agreements and we may not have adequate remedies for any breach. In any case, others may come to know about or determine our trade secrets through a variety of methods. In addition, the laws of certain territories in which we develop, manufacture or sell our products may not protect our intellectual property rights to the same extent as the laws of the United States.

The market price of our common stock may fluctuate significantly and could lead to securities litigation.

Stock prices for many companies in the technology and emerging growth sectors have experienced wide fluctuations that have often been unrelated to the operating performance of such companies. In the past, securities class action litigation has often been brought against companies following periods of volatility in the market price of its securities. In the future, we may be the subject of similar litigation. Securities litigation could result in substantial costs and divert management’s attention.

We may engage in manufacturing, distribution or technology agreements that involve numerous risks, including the use of cash, erosion of margins due to royalty obligations or revenue sharing and diversion of resources.

We have entered into and, in the future, intend to enter into agreements that involve numerous risks, including the use of significant amounts of our cash; royalty obligations or revenue sharing; diversion of resources from other development projects or market opportunities; our ability to collect amounts due under these contracts; and market acceptance of related products and solutions. If we fail to recover the cost of these or other assets from the cash flow generated by the related products, our assets will become impaired and our results of operations and financial condition could be materially adversely affected.

Our business is subject to the risks of earthquakes, other catastrophic events and business interruptions for which we may maintain limited insurance.

Our operations and the operations of our suppliers are vulnerable to interruption by fire, earthquake, power loss, flood, terrorist acts and other catastrophic events beyond our control. In particular, our headquarters are located near earthquake fault lines in the San Francisco Bay Area. In addition, we rely on certain suppliers to manufacture our products and would not be able to qualify an alternate supplier of our products for several quarters. Our suppliers often hold significant quantities of our inventories, which, in the event of a disaster, could be destroyed. In addition, our business processes and systems are vulnerable to computer viruses, break-ins and similar disruptions from unauthorized tampering. Any catastrophic event, such as an earthquake or other natural disaster, the failure of our computer systems or networks, including due to computer viruses, security breaches, war or acts of terrorism, could significantly impair our ability to maintain our records, pay our suppliers, or design, manufacture or ship our products and could subject us to third party liabilities. The occurrence of any of these events could also affect our customers, distributors and suppliers and produce similar disruptive effects upon their business. If there is an earthquake or other catastrophic event near our headquarters, our customers’ facilities, our distributors' facilities or our suppliers’ facilities, our business could be seriously harmed.

We do not maintain sufficient business interruption and other insurance policies to compensate us for all losses that may occur. Any losses or damages incurred by us as a result of a catastrophic event or any other significant uninsured loss could have a material adverse effect on our business.

There may be some potential effects of system outages or data security breaches, which could adversely affect our operations, financial results or reputation.

We face risks from electrical or telecommunications outages, computer hacking or other general system failure. We rely heavily on our internal information and communications systems and on systems or support services from third

parties to manage our operations efficiently and effectively. Any of these are subject to failure. System-wide or local failures that affect our information processing could have a material adverse effect on our business, financial condition, results of operations and cash flows. In addition, a system failure or data security breach could also result in the unintentional disclosure of confidential information about us, our customers or our employees, which could result in our incurring costs for remedial or preventative actions, damage our reputation with customers and reduce demand for our products and services. Further, insurance coverage does not generally protect from

normal wear and tear, which can affect system performance. Any applicable insurance coverage for an occurrence could prove to be inadequate. Coverage may be or become unavailable or inapplicable to any risks then prevalent.

Our Certificate of Incorporation, Bylaws and Delaware law contain provisions that could discourage a takeover that is beneficial to stockholders.

Provisions of our Certificate of Incorporation, our Bylaws and Delaware law could have the effect of discouraging takeover attempts that certain stockholders might deem to be in their interest. These anti-takeover provisions may make us a less attractive target for a takeover bid or merger, potentially depriving shareholders of an opportunity to sell their shares of common stock at a premium over prevailing market prices as a result of a takeover bid or merger.

If we do not maintain compliance with the listing requirements of the Nasdaq Global Market, our common stock could be delisted, which could, among other things, reduce the price of our common stock and the levels of liquidity available to our stockholders.

Our common stock is currently listed on the Nasdaq Global Market. In order to maintain that listing, we must satisfy minimum financial and other continued listing requirements and standards, including those regarding director independence and independent committee requirements, minimum stockholders' equity, minimum share price, and certain corporate governance requirements. There can be no assurances that we will be able to comply with the applicable listing standards.

On January 18, 2019, we received a letter, or Notice, from the Listing Qualifications staff of The Nasdaq Stock Market LLC, or Nasdaq, indicating that, based upon the closing bid price of our common stock for the last 30 consecutive business days, we no longer meet the requirement of the Nasdaq Global Market to maintain a minimum bid price of $1 per share, as set forth in Nasdaq Listing Rule 5450(a)(1).

In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we have been provided a period of 180 calendar days, or until July 17, 2019, in which to regain compliance. In order to regain compliance with the minimum bid price requirement, the closing bid price of our stock must be at least $1 per share for a minimum of ten consecutive business days during this 180-day period. In the event that we do not regain compliance within this 180-day period, we may be eligible to seek an additional compliance period of 180 calendar days if it meets the continued listing requirement for market value of publicly held shares and all other initial listing standards for the Nasdaq Capital Market, with the exception of the bid price requirement, and provides written notice to Nasdaq of its intent to cure the deficiency during this second compliance period, by effecting a reverse stock split, if necessary. However, if it appears to the Nasdaq Staff that we will not be able to cure the deficiency, or if we are otherwise not eligible, Nasdaq will provide notice to us that our common stock will be subject to delisting.

Although the Notice does not result in the immediate delisting our common stock from the Nasdaq Global Market and we intend to monitor the closing bid price of our common stock to allow a reasonable period for the price to rebound from its recent decline while considering its available options to regain compliance, there can be no assurance that we will be able to regain compliance with the minimum bid price requirement or maintain compliance with the other listing requirements.

Changes to existing accounting pronouncements or taxation rules or practices may cause adverse revenue fluctuations, affect our reported financial results or how we conduct our business.

Generally accepted accounting principles in the United States, or GAAP, are promulgated by, and are subject to the interpretation of the Financial Accounting Standards Board, or FASB, and the SEC. New accounting pronouncements

or taxation rules and varying interpretations of accounting pronouncements or taxation practices have occurred and may occur in the future. Any future changes in accounting pronouncements or taxation rules or practices may have a significant effect on how we report our results and may even affect our reporting of transactions completed before the change is effective. In addition, a review of existing or prior accounting practices may result in a change in previously reported amounts. This change to existing rules, future changes, if any, or the

questioning of current practices may adversely affect our reported financial results, our ability to remain listed on the Nasdaq Global Market, or the way we conduct our business and subject us to regulatory inquiries or litigation.

If, in the future, we conclude our internal control over financial reporting is not effective, investors could lose confidence in the reliability of our financial statements, which could result in a decrease in the value of our common stock.

As directed by Section 404 of the Sarbanes-Oxley Act of 2002, the SEC adopted rules requiring public companies to include a report of management on the companies' internal control over financial reporting in their annual reports on Form 10-K, including an assessment by management of the effectiveness of the filing company's internal control over financial reporting. In addition, the independent registered public accounting firm auditing a public company's financial statements must attest to the effectiveness of the company's internal control over financial reporting. There is a risk that in the future we may identify internal control deficiencies that suggest that our controls are no longer effective. This could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements, which could cause the market price of our common stock to decline and make it more difficult for us to finance our operations.

Both our customers and we are subject to laws, regulations and similar requirements, changes to which may adversely affect our business, results of operations and financial condition.

Both our customers and we are subject to laws, regulations and similar requirements that affect our business, results of operations and financial condition, including, but not limited to, the areas of commerce, import and export control, financial disclosures, intellectual property, income and other taxes, anti-trust, anti-corruption, labor, environmental, health and safety. Our compliance in these areas may be costly, especially in areas where there are inconsistencies between the various jurisdictions in which we operate. While we have implemented policies and procedures to comply with laws and regulations, there can be no assurance that our employees, contractors, suppliers or agents will not violate such laws and regulations or our policies. Any such violation or alleged violation could materially and adversely affect our business, financial condition, cash flows and results of operations. Any changes or potential changes to laws, regulations or similar requirements, or our ability to respond to these changes, may significantly increase our costs to maintain compliance or result in our decision to limit our business, products or jurisdictions in which we operate, any of which could materially and adversely affect our results of operations and financial condition. Federal and state regulatory agencies, including the United States Federal Communications Commission and the various state public utility commissions and public service commissions, regulate most of our domestic telecommunications customers. Similar government oversight also exists in the international market. While we may not be directly affected by this legislation, such regulation of our customers may negatively impact our business. For instance, the sale of our products may be affected by the imposition upon certain of our customers of common carrier tariffs and the taxation of telecommunications services. These regulations are continuously reviewed and changed by the various governmental agencies. Changes in current or future laws or regulations, in the United States or elsewhere, could materially and adversely affect our results of operations and financial condition.

The Dodd-Frank Wall Street Reform and Consumer Protection Act includes provisions regarding certain minerals and metals, known as conflict minerals, mined from the Democratic Republic of Congo and adjoining countries. These provisions require companies to undertake due diligence procedures and report on the use of conflict minerals in its products, including products manufactured by third parties. Compliance with these provisions has caused and will continue to cause us to incur costs to determine whether our supply chain is conflict free and we may face difficulties if our suppliers are unwilling or unable to verify the source of their materials. Our ability to source these minerals and metals may also be adversely impacted. In addition, our customers may require that we provide them with a certification and our inability to do so may disqualify us as a supplier.

We have implemented import and export control procedures to comply with United States regulations but we are still exposed to potential risks from import and export activity.

Our products, solutions, technology and software are subject to import and export control laws and regulations, which, in some instances, may impose restrictions on business activities, or otherwise require licenses or other authorizations from agencies such as the U.S. Department of State, U.S. Department of Commerce and U.S. Department of the Treasury. These restrictions may impact deliveries to customers or limit development and manufacturing alternatives. We have import and export licensing and compliance procedures in place for purposes of conducting our business consistent with U.S. and applicable international laws and regulations, and we periodically review these procedures to maintain compliance with the requirements relating to import and export regulations. If we are not able to remain in compliance with import and export regulations, we might be subject to investigation, sanctions or penalties by regulatory authorities. Such penalties can include civil, criminal or administrative remedies such as loss of export privileges. We cannot be certain as to the outcome of an evaluation, investigation, inquiry or other action or the impact of these items on our operations. Any such action could adversely affect our financial results and the market price of our common stock.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our principal administrative, sales, marketing, research and development and final testing facility is located in a building of approximately 34,000 square feet in Sunnyvale, California. This facility is leased through March 2020. In October 2018, we submitted a nine-month termination notice to the landlord to end the lease in July 2019. On February 13, 2019, we entered into an agreement to lease approximately 24,164 square feet of premises located at 2220 Lundy Avenue, San Jose, California for a period of five years, effective April 15, 2019 to use as its new headquarters. In October 2018, the Company leased a facility for Research and Development in San Diego, California, the lease of which expires in July 2020. On February 28, 2019, SensiML Corporation, our newly acquired subsidiary, entered into an agreement to lease approximately 925 square feet of facility space in Beaverton, Oregon, which expires in March 2021. We lease a 9,400 square foot facility in Bangalore, India for the purpose of software development. This facility is leased through June 2021. We also lease office space in Shanghai, China; in London, England; in Taipei, Taiwan; and in Seongnam City, South Korea. We believe that our existing facilities are adequate for our current needs.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we are involved in legal actions arising in the ordinary course of business, including but not limited to intellectual property infringement and collection matters. Absolute assurance cannot be given that third-party assertions will be resolved without costly litigation in a manner that is not adverse to our financial position, results of operations or cash flows or without requiring royalty or other payments in the future, which may adversely impact gross profit. We are not currently a party to any material pending legal proceedings.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

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

Market Information

Our common stock has been traded on the Nasdaq Global Market under the symbol "QUIK" since October 15, 1999, the date of our initial public offering. The following table sets forth, for the periods indicated, the high and low closing sales prices for our common stock, as reported on the Nasdaq Global Market:

	High	Low
Fiscal Year Ended December 30, 2018:		
Fourth Quarter (through December 30, 2018)	$1.09	$0.56
Third Quarter (through September 30, 2018)	$1.19	$1.00
Second Quarter (through July 1, 2018)	$1.75	$1.08
First Quarter (through April 1, 2018)	$2.19	$1.48
Fiscal Year Ended December 31, 2017:		
Fourth Quarter (through December 31, 2017)	$1.87	$1.48
Third Quarter (through October 1, 2017)	$1.75	$1.25
Second Quarter (through July 2, 2017)	$1.72	$1.16
First Quarter (through April 2, 2017)	$2.34	$1.15

Stockholders

The closing price of our common stock on the Nasdaq Global Market was $0.78 per share on February 25, 2019. As of February 25, 2019 there were 96,970,351 shares of common stock outstanding that were held of record by 164 stockholders. The actual number of stockholders is greater than this number of holders of record since this number does not include stockholders whose shares are held in trust by other entities.

Dividend Policy

We have never declared or paid any dividends on our capital stock. We currently expect to retain future earnings, if any, for use in the operation and expansion of our business and do not anticipate paying any cash dividends in the foreseeable future.

Equity Compensation Plan Information

The information required by this item regarding equity compensation plans is set forth under the caption "Equity Compensation Plan Summary" in our Proxy Statement which information is incorporated by reference herein.

Stock Performance Graph

The following graph compares the cumulative total return to stockholders of our common stock from December 29, 2013 to December 30, 2018 to the cumulative total return over such period of (i) the S&P 500 Index and (ii) the S&P Semiconductors Index. The graph assumes that $100 was invested on December 29, 2013 in QuickLogic's common

stock and in each of the other two indices and the reinvestment of all dividends, if any, through December 30, 2018

The information contained in the Performance Graph shall not be deemed to be “soliciting material” or to be “filed” with the SEC, nor shall such information be incorporated by reference into any future filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent that QuickLogic specifically incorporates it by reference into any such filing. The graph is presented in accordance with

SEC requirements. Stockholders are cautioned against drawing any conclusions from the data contained therein, as past results are not necessarily indicative of future performance.

	12/29/2013	12/28/2014	1/3/2016	1/1/2017	12/31/2017	12/30/2018
QuickLogic Corporation	100.00	82.90	29.27	36.01	45.08	19.71
S&P 500	100.00	113.69	115.26	129.05	157.22	150.33
S&P Semiconductor	100.00	134.87	136.05	174.08	237.31	222.16

The stock price performance included in this graph is not necessarily indicative of future stock price performance.

ITEM 6. SELECTED FINANCIAL DATA

	Fiscal Years				
	2018	2017	2016	2015	2014
	(in thousands, except per share amount)				
Statements of Operations:					
Revenue	$12,629	$12,149	$11,421	$18,956	$27,845
Cost of revenue	6,295	6,627	7,648	11,411	16,796
Gross profit	6,334	5,522	3,773	7,545	11,049
Operating expenses:					
Research and development	9,948	9,572	12,265	14,144	12,186
Selling, general and administrative	9,982	9,900	10,310	10,619	11,663
Restructuring costs[(1)]	—	—	—	295	—
Loss from operations	(13,596)	(13,950)	(18,802)	(17,513)	(12,800)
Interest expense	(108)	(115)	(175)	(82)	(85)
Interest income and other expense, net	77	21	(106)	(107)	(126)
Loss before income taxes	(13,627)	(14,044)	(19,083)	(17,702)	(13,011)
Provision for income taxes	152	87	65	146	68
Net loss	$(13,779)	$(14,131)	$(19,148)	$(17,848)	$(13,079)
Net loss per share:					
Basic and diluted	$(0.15)	$(0.18)	$(0.29)	$(0.32)	$(0.23)
Weighted average shares:					
Basic and diluted	89,110	77,291	65,377	56,472	55,401

	December 30, 2018	December 31, 2017	January 1, 2017	January 3, 2016	December 28, 2014
	(in thousands)				
Balance Sheet Data:					
Cash and cash equivalents	$26,463	$ 16,527	$14,870	$ 19,136	$ 30,050
Working capital	$15,576	$ 12,619	$9,042	$ 19,132	$ 33,395
Total assets	$36,086	$ 24,636	$21,844	$ 28,461	$ 41,139
Long-term obligations, excluding current portion	$124	$ 369	$49	$ 2,341	$ 1,267
Total stockholders' equity	$17,255	$ 14,878	$11,988	$ 20,325	$ 35,567

(1) We incurred restructuring costs of $295,000 and $181,000 in 2015. In 2015, we implemented a restructuring plan to re-align the organization to support our sensor processing provider business model and growth strategy.

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

The following discussion of our financial condition and results of operations should be read in conjunction with the financial statements and related notes included in this Annual Report on Form 10-K. This discussion may contain forward-looking statements based upon current expectations that involve risks and uncertainties including those discussed under Part I, Item 1A, "Risk Factors." These risks and uncertainties may cause actual results to differ materially from those discussed in the forward-looking statements.

Overview

We develop low power, multi-core semiconductor platforms and IP for AI, voice and sensor processing. The solutions include an eFPGA for hardware acceleration and pre-processing, and heterogeneous multi-core SoCs that integrate eFPGA with other processors and peripherals. The SensiML Analytics Toolkit from our recently acquired wholly owned subsidiary, SensiM completes the "full stack" end-to-end solution with accurate sensor algorithms using AI technology. The full range of platforms, software tools and eFPGA IP enables the practical and efficient adoption of AI, voice and sensor processing across mobile, wearable, hearable, consumer, industrial, edge and endpoint IoT applications.

Our solutions are created from our new silicon platforms including our EOS™, QuickAI™, SensiML Analytics Studio, ArcticLink® III, PolarPro®3, PolarPro II, PolarPro, and Eclipse II products (which together comprise our new product category). Our mature products include primarily FPGA families named pASIC®3 and QuickRAM® as well as programming hardware and design software. In addition to delivering our own semiconductor solutions, we have an IP business that licenses our eFPGA technology for use in other semiconductor companies SoCs. We began delivering our eFPGA IP product ArcticPro™ in 2017, which is included in the new product revenue category. Through the acquisition of SensiML, we now have an IoT AI software platform that includes SaaS subscriptions for development, per unit license fees when deployed in production, and proof-of-concept services – all of which are also included in the new product revenue category.

Our semiconductor solutions typically fall into one of three categories: Sensor Processing, Display and Visual Enhancement, and Smart Connectivity. Our solutions include a unique combination of our silicon platforms, IP cores, software drivers, and in some cases, firmware and application software. All of our silicon platforms are standard devices and must be programmed to be effective in a system. Our IP that enables always-on context-aware sensor applications includes our Flexible Fusion Engine, our Sensor Manager and Communications Manager technologies as well as IP that (i) improves multimedia content, such as our Visual Enhancement Engine, or VEE, technology, and Display Power Optimizer, or DPO, technology; and (ii) implements commonly used mobile system interfaces, such as Low Voltage Differential Signaling, or LVDS, Mobile Industry Processor Interface, or MIPI, and Secure Digital Input Output, or SDIO. We provide complete solutions by first architecting the solution jointly with our customer's or ecosystem partner's engineering group, selecting the appropriate solution platform and Proven System Blocks. or PSBs, providing custom logic, integrating the logic, programming the device with the PSBs and/or firmware, providing software drivers or application software required for the customer's application, and supporting the customer on-site during integration, verification and testing. In many cases, we deliver software algorithms that have been optimized for use in a QuickLogic silicon platform.

Through the acquisition of SensiML, our core IP also includes the SensiML AI Toolkit that enables OEMs to develop AI software for a broad array of resource-constrained time-series sensor endpoint applications. These include a wide range of consumer and industrial sensing applications.

We also work with mobile processor manufacturers, sensor manufacturers, and voice recognition, sensor fusion and context awareness algorithm developers in the development of reference designs. Through reference designs that incorporate our solutions, we believe mobile processor manufacturers, sensor manufacturers, and sensor and voice algorithm companies can expand the available market for their respective products. Furthermore, should a solution developed for a processor manufacturer or sensor and/or sensor algorithm company be applicable to a set of common OEMs or Original Design Manufacturers, or ODMs, we can amortize our Research and Development, or R&D, investment over that set of OEMs or ODMs. There may also be cases when platform providers that intend to

use always-on voice recognition will dictate certain performance requirements for the combined software/hardware solution before the platform provider certifies and/or qualifies our product for use by end customers.

Our ArcticPro eFPGA IP are currently developed on 65nm, 40nm and 22nm process nodes. The licensable IP is generated by a compiler tool that enables licensees to create an eFPGA block that they can integrate into their SoC without significant involvement by QuickLogic. We believe this flow enables a scalable support model for QuickLogic.

In addition to working directly with our customers, we partner with other companies that are experts in certain technologies to develop additional IP, reference platforms and system software to provide application solutions, particularly in the area of hardware acceleration for AI-type applications. We also work with mobile processor and communications semiconductor device manufacturers and companies that supply sensor, algorithms and applications. The depth of these relationships vary depending on the partner and the dynamics of the end market being targeted, but they are typically a co-marketing relationship that includes joint account calls, promotional activities and/or engineering collaboration and developments, such as reference designs. For our sensor processing solutions, we collaborate with sensor manufacturers to ensure interface compatibility. We also collaborate with sensor and voice/audio software companies, helping them optimize their software technology on our silicon platforms in terms of performance, power consumption and user experience.

For our eFPGA strategy, we work with semiconductor manufacturing partners to ensure our eFPGA IP is proven for a given foundry and process node before it is licensed to a SoC company.

In order to grow our revenue from its current level, we depend upon increased revenue from our new products including existing new product platforms, eFPGA IP and platforms currently in development. We expect our business growth to be driven mainly by our silicon solutions, eFPGA IP and SensiML AI Software. Therefore, our revenue growth needs to be strong enough to enable us to sustain profitability while we continue to invest in the development, sales and marketing of our new solution platforms, IP and software. New products contributed 45% of total revenue for 2018, as compared to 48% in 2017 and 49% in 2016. We are expecting revenue growth from eFPGA IP licensing and Quick AI starting in fiscal year 2019.

We continue to seek to expand our revenue, including pursuing high-volume sales opportunities in our target market segments, by providing solutions incorporating IP, or industry standard interfaces. Our industry is characterized by intense price competition and by lower margins as order volumes increase. While winning large volume sales opportunities will increase our revenue, we believe these opportunities may decrease our gross profit as a percentage of revenue.

During 2018, we generated total revenue of $12.6 million, which represents a 4% increase from 2017. Our new product revenue during 2018 was $5.7 million, which represents a 2% decrease from 2017, while our mature product revenue during 2018 was $6.9 million, which represents a 9% increase from 2017. We shipped our new products into four of our targeted mobile market segments: Smartphones, Wearables, Mobile Enterprise, and Tablets. We also started generating revenue from the new Artificial Intelligence or AI market in 2018. Overall, we reported a net loss of $13.8 million for 2018 compared to a net loss of $14.1 million for 2017.

We have experienced net losses in the recent years and expect such losses to continue through at least the year ending December 29, 2019 as we continue to develop new products, applications and technologies. Whether we can achieve cash flow levels sufficient to support our operations cannot be accurately predicted. Unless such cash flow levels are achieved in addition to the proceeds we received from our recent sale of our equity securities, we may need to borrow additional funds or sell debt or equity securities, or some combination thereof, to provide funding for our operations, and such additional funding may not be available on commercially reasonable terms, or at all.

Critical Accounting Policies and Estimates

The methods, estimates and judgments we use in applying our most critical accounting policies have a significant impact on the results we report in our consolidated financial statements. The SEC has defined critical

accounting policies as those that are most important to the portrayal of our financial condition and results of operations and require us to make our most difficult and subjective judgments, often as a result of the need to make estimates of matters that are inherently uncertain. Based on this definition, our critical policies include revenue recognition including determination of the Stand-Alone Selling Price, or SSP, for each distinct performance obligation, sales returns and allowances, valuation of inventories including identification of excess quantities and product obsolescence, allowance for doubtful accounts, valuation of long-lived assets, measurement of stock-based compensation and accounting for income taxes. We believe that we apply judgments and estimates in a consistent manner and that such consistent application results in consolidated financial statements and accompanying notes that fairly represent all periods presented. However, any factual errors or errors in these judgments and estimates may have a material impact on our financial statements.

Revenue Recognition

We supply standard products that must be programmed before they can be used in an application. Our products may be programmed by us, distributors, end-customers or third parties.

We adopted Accounting Standards Update, or ASU, No. 2014-09, Revenue from Contracts with Customers (Topic 606) and related ASU No. 2016-08, ASU No. 2016-10, ASU No. 2016-12 and ASU No. 2016-20, which provide supplementary guidance, and clarifications, effective January 1, 2018. We adopted ASC 606 using the modified retrospective method. The results for the reporting period beginning after January 1, 2018, are presented in accordance with the new standard, although comparative information for the prior year has not been restated and continues to be reported under the accounting standards and policies in effect for those periods. Adoption of the new standard did not have a significant impact on the current period revenues or on the prior year Consolidated Financial Statements. No transition adjustment was required to our retained earnings as of January 1, 2018. Under the new standard revenue is recognized as follows:

Revenue is recognized upon transfer of control of promised products or services to customers in an amount that reflects the consideration we expect to receive in exchange for those products or services.

We determine revenue recognition through the following steps:

- Identification of the contract, or contracts, 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.

As part of its assessment of each contract, the Company evaluates certain factors including the customer’s ability to pay, or credit risk. For each contract, the Company considers the promise to transfer products, each of which is distinct, to be the identified performance obligations. In determining the transaction price, the price stated on the purchase order is typically fixed and represents the net consideration to which the Company expects to be entitled, and therefore there is no variable consideration. As the Company’s standard payment terms are less than one year, the Company has elected, as a practical expedient, to not assess whether a contract has a significant financing component. The Company allocates the transaction price to each distinct product based on its relative standalone selling price. The product price as specified on the purchase order is considered the standalone selling price as it is an observable source that depicts the price as if sold to a similar customer in similar circumstances.

Product Revenue

We generate most of our revenue by supplying standard hardware products, which must be programmed before they can be used in an application. Our contracts with customers are generally for products only, and do not include other performance obligations such as services, extended warranties or other material rights.

We recognize hardware product revenue at the point of time when control of products is transferred to the customers, when our performance obligation is satisfied, which typically occurs upon shipment from our manufacturing site or our headquarters.

Intellectual Property and Software License Revenue

We also generate revenue from licensing IP, software tools and royalty from licensing our technology.

We recognize IP and Software License revenue at the point of time when the control of IP or software license has been transferred.

Some of the IP and Software Licensing 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. We determine the standalone selling prices based on our overall pricing objectives, taking into consideration market conditions and other factors, including the value of our contracts, type of the customer, customer tier, type of the technology used, customer demographics, geographic locations, and other factors.

Maintenance Revenue

We recognize revenue from maintenance ratably over the term of the underlying maintenance contract term. Renewals of maintenance contracts create new performance obligations that are satisfied over the term with the revenues recognized ratably over the term.

Royalty Revenue

We recognize royalty revenue when the later of the following events occurs: a) The subsequent sale or usage occurs; b) The performance obligation to which some or all of the sales-based royalty has been allocated has been satisfied.

Deferred Revenue

Receivables are recognized in the period we ship the product. Payment terms on invoiced amounts are based on contractual terms with each customer. When we receive consideration, or such consideration is unconditionally due, prior to transferring goods or services to the customer under the terms of a sales contract, we record deferred revenue, which represents a contract liability. We recognize deferred revenue as net sales once control of goods and/or services have been transferred to the customer and all revenue recognition criteria have been met and any constraints have been resolved. We defer the product costs until recognition of the related revenue occurs.

Assets Recognized from Costs to Obtain a Contract with a Customer

We recognize an asset for the incremental costs of obtaining a contract with a customer if it expects the benefit of those costs to be longer than one year. We have concluded that none of the costs we have incurred to obtain and fulfill our FASB Accounting Standards Codification, or ASC, 606 contracts meet the capitalization criteria, and as such, there are no costs deferred and recognized as assets on the consolidated balance sheet at December 30, 2018.

Practical Expedients and Exemptions

(i) Taxes collected from customers and remitted to government authorities and that are related to the sales of our products are excluded from revenues.

(ii) Sales commissions are expensed when incurred because the amortization period would have been one year or less. These costs are recorded in Selling, general and administrative expense in the Condensed Consolidated Statements of Income.

(iii) We do not disclose the value of unsatisfied performance obligations for (i) contracts with original expected lengths of one year or less or (ii) contracts for which we recognize revenue at the amount to which we have the right to invoice for the services performed.

We record allowance for sales returns. Amounts recorded for sales returns for the year ended December 30, 2018 were $156,000.

Revenue Recognition Prior to the Adoption of ASC Topic No. 606 on January 1, 2018

We supply standard products which must be programmed before they can be used in an application. The Company's products may be programmed by us, distributors, end-customers or third parties.

We recognize revenue as products are shipped if evidence of an arrangement exists, delivery has occurred, the sales price is fixed or determinable, collection of the resulting receivable is reasonably assured and product returns are reasonably estimable. Revenue is recognized upon shipment of programmed and unprogrammed parts to both OEM customers and distributors, provided that legal title and risk of ownership have transferred. Parts held by distributors may be returned for quality reasons only under its standard warranty policy. We record allowance for sales returns. Amounts recorded for sales returns were not material for the years ended December 30, 2018 and December 31, 2017, and $93,000 for the year ended and January 1, 2017.

We account for our IP license revenues and related services in accordance with ASC No. 985-605, Software Revenue Recognition. Revenues are recognized when persuasive evidence of an arrangement exists and no further obligation exists, delivery has occurred, the license fee is fixed or determinable, and collection is reasonably assured. A license may be perpetual or time limited in its application. Our IP license agreement contains multiple elements including post-contract customer support. For multiple element arrangements involving software and other software-related deliverables, vendor-specific objective evidence of fair value, or VSOE, must exist to allocate the total fee among all delivered and non-essential undelivered elements of the arrangement. If undelivered elements of the arrangement are essential to the functionality of the product, revenue is deferred until the essential elements are delivered. If VSOE does not exist for one or more non-essential undelivered elements, revenue is deferred until such evidence exists for the undelivered elements, or until all elements are delivered, whichever is earlier. VSOE of each element is based on historical evidence of stand-alone sales of these elements to third parties including substantive renewal rate as stated in the agreement. When VSOE does not exist for undelivered items, the entire arrangement fee is recognized ratably over the performance period.

Cost of Revenue

We record all costs associated with its product sales in cost of revenue. These costs include the cost of materials, contract manufacturing fees, shipping costs and quality assurance. Cost of revenue also includes indirect costs such as warranty, excess and obsolete inventory charges, general overhead costs and depreciation.

Valuation of Inventories

Inventories are stated at the lower of standard cost or net realizable value. Standard cost approximates actual cost on a first-in, first-out basis. We routinely evaluate quantities and values of our inventories in light of current market

conditions and market trends and record reserves for quantities in excess of demand and product obsolescence. The evaluation may take into consideration historic usage, expected demand, anticipated sales price, the stage in the product life cycle of our customers' products, new product development schedules, the effect new products might have on the sale of existing products, product obsolescence, customer design activity, customer concentrations, product merchantability and other factors. Market conditions are subject to change. Actual consumption of inventories could differ from forecasted demand and this difference could have a material impact on our gross margin and inventory balances based on additional provisions for excess or obsolete inventories or a benefit from inventories previously written down. We also regularly review the cost of inventories against estimated market value and record a lower of cost or market reserve for inventories that have a cost in excess of estimated market value, which could have a material impact on our gross margin and inventory balances based on additional write-downs to net realizable value or a benefit from inventories previously written down.

Our semiconductor products have historically had an unusually long product life cycle and obsolescence has not been a significant factor in the valuation of inventories. However, as we pursue opportunities in the mobile market and continue to develop new products, we believe our new product life cycle will be shorter, which could increase the potential for obsolescence. A significant decrease in demand could result in an increase in excess inventory on hand. Although we make every effort to ensure the accuracy of our forecasts of future product demand, any significant unanticipated changes in demand or frequent new product developments could have a significant impact on the value of our inventory and our results of operations.

Valuation of Long-Lived Assets

We assess annually whether the value of identifiable long-lived assets, including property and equipment, have been impaired and when events or changes in circumstances indicate that the carrying value of an asset or asset group may not be recoverable. Our assessment of possible impairment is based on our ability to recover the carrying value of an asset or asset group from their expected future pre-tax cash flows, undiscounted and without interest charges, of the related operations. If these cash flows are less than the carrying value of the asset or asset group, we recognize an impairment loss for the difference between estimated fair value and carrying value, and the carrying value of the related assets is reduced by this difference. The measurement of impairment requires management to estimate future cash flows and the fair value of long-lived assets. Based on this analysis, there are no significant impairments to our long-lived assets.

Measurement of Stock-Based Compensation

We account for stock-based compensation under the provisions of the amended authoritative guidance and related interpretations, which require the measurement and recognition of expense related to the fair value of stock-based compensation awards. The fair value of stock-based compensation awards is measured at the grant date and re-measured upon modification, as appropriate. Determining the appropriate fair value model and calculating the fair value of stock-based awards at the date of grant require judgment.

We use the Black-Scholes option pricing model to estimate the fair value of employee stock options and rights to purchase shares under our 2009 Stock Plan and 2009 Employee Stock Purchase Plan, or ESPP, consistent with the provisions of the amended authoritative guidance. This fair value is expensed on a straight-line basis over the requisite service period of the award. Using the Black-Scholes pricing model requires us to develop highly subjective assumptions, including the expected term of awards, expected volatility of our stock, expected risk-free interest rate and expected dividend rate over the term of the award. Our expected term of awards is based primarily on our historical experience with similar grants. Our expected stock price volatility for both stock options and ESPP shares is based on the historic volatility of our stock, using the daily average of the opening and closing prices and measured using historical data appropriate for the expected term. The risk-free interest rate assumption approximates the risk-free interest rate of a Treasury Constant Maturity bond with a maturity approximately equal to the expected term of the stock option or ESPP shares.

In addition to the assumptions used in the Black-Scholes pricing model, the amended authoritative guidance requires that we recognize compensation expense only for awards ultimately expected to vest; therefore, we are required to develop an estimate of the historical pre-vest forfeiture experience and apply this to all stock-based awards. The fair value of restricted stock awards, or RSAs, and restricted stock units, or RSUs, is based on the closing price of our common stock on the date of grant. RSA and RSU awards which vest with service are expensed over the requisite service period. RSAs and RSU awards that are expected to vest based on the achievement of a performance goal are expensed over the estimated vesting period. We regularly review the assumptions used to compute the fair value of our stock-based awards and we revise our assumptions as appropriate. In the event that assumptions used to compute the fair value of our stock-based awards are later determined to be inaccurate or if we change our assumptions

significantly in future periods, stock-based compensation expense and our results of operations could be materially impacted. See Note 11 to the Consolidated Financial Statements.

Accounting for Income Taxes

As part of the process of preparing our financial statements, we are required to estimate our income taxes in each of the jurisdictions in which we operate. This process involves estimating our actual current tax exposure together with assessing temporary differences resulting from different tax and accounting treatment of items, such as deferred revenue, allowance for doubtful accounts, the impact of equity awards, depreciation and amortization, and employee-related accruals. These differences result in deferred tax assets and liabilities, which are included on our balance sheets. We must then assess the likelihood that our deferred tax assets will be recovered from future taxable income. To the extent we believe that recovery is not likely, we must establish a valuation allowance. To the extent we establish a valuation allowance or increase this allowance in a period, we must include an expense within the tax provision in the statements of operations.

Significant management judgment is required in determining our provision for income taxes, deferred tax assets, liabilities and any valuation allowance recorded against our net deferred tax assets. Our deferred tax assets, consisting primarily of net operating loss carryforwards, depreciation and amortization, amounted to $55.0 million, tax effected, as of the end of 2018. In evaluating our ability to recover our deferred tax assets within the jurisdiction from which they arise, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, uncertainty of projecting future taxable income and results of recent operations. As of December 30, 2018, we had federal and state income tax net operating loss, or NOL, carryforwards of approximately $157.4 million and $63.6 million, respectively, which will expire at various dates from 2019 through 2038. Federal NOL generated in 2018 can be carried forward indefinitely. We had research credit carryforwards of approximately $4.1 million for federal and $4.6 million for state income tax purposes as of December 30, 2018. If not utilized, the federal carryforwards will expire at various dates from 2019. The California credit can be carried forward indefinitely. We believe that it is more likely than not that the deferred tax assets and benefits from these federal and state NOL and credit carryforwards will not be realized. In recognition of this risk, we have recorded a valuation allowance of $55.0 million, tax-effected, as of the end of 2018, due to uncertainties related to our ability to utilize our U.S. deferred tax assets before they expire.

Results of Operations

The following table sets forth the percentage of revenue for certain items in our statements of operations for the periods indicated:

	Fiscal Years		
	2018	2017	2016
Statements of Operations:			