QUICKLOGIC CORPORATION
Form 10-K
March 09, 2017
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K
S ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
FOR THE FISCAL YEAR ENDED JANUARY 1, 2017
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 o 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 o 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 o
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post such files). Yes x No o
Indicate by check mark if disclosure of delinquent filers pursuant to item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of “large accelerated filer,” “accelerated filer” and “smaller reporting company” in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer o Accelerated filer x

Non-accelerated filer o (Do not check if a smaller reporting company) Smaller Reporting Company o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes o No x

The aggregate market value of voting stock held by non-affiliates of the registrant as of July 3, 2016, the registrant's most recently completed second fiscal quarter, was $57,912,775 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 2, 2017, the registrant had 68,173,965 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 26, 2017, 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.

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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; and (xiv) 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 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 System on Chip, or SoCs, Field Programmable Gate Arrays, or FPGAs and embedded FPGA intellectual property. QuickLogic’s products enable smartphone, wearable and IoT device Original Equipment Manufacturers, or OEMs, to deliver highly differentiated, immersive user experiences and long battery life for their customers.

Our solutions are created from our new silicon platforms including its EOS™, ArcticLink® III, PolarPro®3, PolarPro II, PolarPro, and Eclipse II products (which together comprise our new product category). Our mature products include primarily pASIC®3 and QuickRAM® as well as programming hardware and design software. We plan to deliver our eFPGA intellectual property or IP product ArcticPro™ in 2017.

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, intellectual property 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 intellectual property 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 may deliver software algorithms that have been optimized for use in a QuickLogic silicon platform.

We also work with mobile processor manufacturers, sensor manufacturers, and/or voice recognition, sensor fusion and context awareness algorithm developers in the development of reference designs, Qualified Vendor Lists, or QVLs, or “Catalog” solutions. Through reference designs that incorporate our solutions, we believe mobile processor manufacturers, sensor manufacturers, and sensor and voice algorithm companies can expand the served available market for their respective products. Furthermore, should a solution development 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. We call this type of solution a Catalog solution and we are placing a greater emphasis on developing and marketing these types of solutions.

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 and ArcticLink 3 silicon platforms combine mixed signal physical functions and hard-wired logic alongside programmable logic. Our EOS S3 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

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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 and 40nm process nodes, and we have announced our intention to port this to 22nm fully depleted silicon-on-insulator, or FDSOI, technology in 2017. 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 would enable 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 intellectual property, reference platforms and system software to provide application solutions. We also work with mobile processor manufacturers and companies that supply sensor, algorithms and applications. 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. For our sensor processing solutions, we collaborate with sensor manufacturers to ensure interface compatibility. We also collaborate with sensor 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 an 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 49% of total revenue for the year ended January 1, 2017, as compared to 63% in 2015 and 69% in 2014.

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 2016, 2015 and 2014 refer to the fiscal years ended January 1, 2017, January 3, 2016 and December 28, 2014, respectively.

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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 and Wearables solutions that OEMs, are launching in conjunction with Google Android and Real-Time operating systems, as well as Apple iPhone, Apple iPad, and Apple Watch.

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, 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

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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 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 mobile device OEMs and ODMs. We have complete solutions incorporating our EOS S3, ArcticLink III S2, ArcticLink III VX and BX, PolarPro 3, PolarPro II, PolarPro, and Eclipse II solution platforms, packaging, IPs, custom logic, software drivers 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 wishing to expand their ecosystems. Our target mobile markets include: Tablets, Wearables, Smartphones and IoT. Our solutions typically fall into one of three categories: Sensor Processing, Display and Visual Enhancement, or Smart Connectivity.

Our new products are also being used in applications in our traditional markets, such as data communications, instrumentation and test and military-aerospace, where customers value the low power consumption, instant-on, IP security, reliability and fast time-to-market of our products.

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 mobile system designer, or to add other functions to the solution, such as Universal Asynchronous Receiver Transmitter, or UARTs, keyboard scanning functions, Serial Peripheral Interface, or SPI, ports, which minimizes system size and cost, and InfraRed Data Association, or IRDA. 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.

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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.

Our product technology consists of five 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.

We also have our ViaLink programmable logic that uses proprietary and patented technology to meet the specific smart connectivity needs of the Radio Frequency, Memory and Display subsystems of mobile products: non-volatility and instant-on, very low standby power, low dynamic power, small form factor, single chip solutions that power cycle easily and quickly. 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 solution 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 intellectual property 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;
- Display and Visual Enhancement s such as VEE, DPO or LCD controller interfaces, LVDS and MIPI;
- Network IPs such as high speed Universal Asynchronous Receiver/Transmitters, or 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, our unique customer engagement model enables us to develop complete solutions for target customers who wish to bring differentiated, mobile 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. 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 and eFPGA IP licensing. 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 and cost-effectively. For our partners, we expand their reach into new segments and new use cases thereby expanding the served available market for their existing devices.

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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 and embedded FPGA intellectual property. QuickLogic's products enable smartphone, wearable and 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 and EOS 3 accomplish this result through the use of 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 targeted IoT endpoint applications the flexibility to make design changes post production while keeping power consumption low.

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 with mixed signal and visual enhancement capability to devices which 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 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 customers as we transition to this business model. We have identified and plan to continue to identify the customers we want to serve with our solutions. We are currently in different stages of engagement with a number of 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.

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 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.

One of our tier one customers, Samsung Electronics Co., Ltd. or Samsung" represented 33% of our total revenue for the year ended January 1, 2017 and 43% for the year ended January 3, 2016. 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.

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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 products and solutions. Our competitors include: (i) suppliers of ASSPs such as Toshiba; (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, 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. Mobile-oriented FPGAs have been adopted by OEMs 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. Finally, our solutions are very energy efficient as a result of our programmable logic and how we intelligently architect our IPs. They are very suitable for OEMs or ODMs offering mobile differentiated products.

Research and Development

We are focused on developing our solutions. Our solutions combine our silicon platforms with our IPs, software drivers, and other system software. Our future success will depend to a large extent 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 January 1, 2017, January 3, 2016, and December 28, 2014, were $12.3 million (107% of revenue), $14.1 million (75% of revenue), and $12.2 million (44% of revenue) respectively.

As of the end of 2016, our research and development staff consisted of 39 employees located in California and India.

- 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 targeted for mobile or battery powered embedded systems 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.

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- The Office of the CTO investigates future trends and requirements in order to define the next generation of solutions and platforms.

Manufacturing

We have close relationships with third-party manufacturers for our wafer fabrication, package assembly, and testing requirements to help 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 eSilicon Corporation, GLOBALFOUNDRIES, and Taiwan Semiconductor Manufacturing Company Limited, or TSMC. We outsource our product packaging primarily to Amkor Technology, Inc.. eSilicon produces our ArcticLink III VX and BX products, using a 65nm CMOS process on twelve-inch wafers at GLOBALFOUNDRIES and packaging at STATS-ChipPAC. GLOBALFOUNDRIES manufactures our EOS S3 Sensor Hub in a 40 nm CMOS process, and PolarPro 3E 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 and Sensor Hub products, using a 65nm CMOS process on twelve-inch wafers. We purchase products from eSilicon, 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 January 1, 2017, we had a total of 76 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 thirty active U.S. patents and have five 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 a total of eleven patents and have five pending applications. Our issued patents expire between 2018 and 2034.

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.

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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 2, 2017:

Name	Age	Position
Brian C. Faith	42	President and Chief Executive Officer; Director
Suping (Sue) Cheung	53	Chief Financial Officer and Vice President, Finance
Rajiv Jain	56	Vice President, Worldwide Operations
Timothy Saxe	61	Senior Vice President Engineering and Chief Technology Officer
E. Thomas Hart	75	Chairman of the Board
Andrew J. Pease	66	Director
Michael R. Farese	70	Director
Arturo Krueger	77	Director
Daniel A. Rabinovitsj	52	Director
Christine Russell	67	Director
Gary H. Tauss	62	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 20 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 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 Masters 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 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

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division in 1993. Dr. Saxe became GateField's Chief Executive Officer in February 1999 and served in that capacity until GateField was acquired by Actel 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.

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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 new products, eFPGA IP Product 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 mobile 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™, ArcticLink® III, PolarPro®3, PolarPro II, PolarPro, and Eclipse II products. We also launched a business that licenses our FPGA technology for use in other semiconductor companies' SoCs and plan to deliver our 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 product 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.

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 31, 2017 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 March 21, 2016 from the sale of our equity securities, and the credit line we may be able to draw down from Silicon Valley

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Bank under the Third Amendment to the Third Amended and Restated Loan and Security Agreement dated as of February 10, 2016, we may need to obtain additional funds through strategic divesture, 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.

We currently depend on a limited number of significant customers, including Samsung, 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 January 1, 2017. For example, during our fourth quarter and our fiscal year ended January 1, 2017, Samsung accounted for 29% and 33%, respectively, of our total revenue. Additionally, during our fourth quarter and our fiscal year ended January 1, 2017, two customers, including Samsung accounted for 39% and 48%, respectively, of our total revenue. We expect this high level of customer concentration to continue as we expect to continue to target 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.

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 could be materially adversely affected.

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

We depend upon eSilicon, GLOBALFOUNDRIES, TSMC and Amkor 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 impact our time to market and revenue.

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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 impact 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 which is used to program our products to customer specifications. The programming equipment is manufactured to our specifications and has significant

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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

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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 tragic events of terrorism on 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.

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 affect 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

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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. Also, 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 recent U.S. presidential election, the United Kingdom's vote to exit 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.

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

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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, 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 and have 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 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.

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.

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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

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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.

Although we are listed on the Nasdaq Global Market and our shares are currently in compliance with the listing requirements of the Nasdaq Global Market, we may not be able to meet the continued listing requirements of Nasdaq in the future, which require, among other things, a minimum bid price of $1.00 per share for common shares listed on the exchange. While we would consider implementation of customary options, including a reverse stock split, if our common stock does not trade at the required level that regains compliance, and if we are unable to satisfy the Nasdaq criteria for maintaining our listing, our securities could be subject to delisting. As a consequence of any such delisting, our shareholders would likely find it more difficult to dispose of or to obtain accurate quotations as to the prices of our securities, and there is likely to be less liquidity in our stock. In the event of a delisting, we could face significant material adverse consequences including a limited availability of market quotations for our securities; a limited amount of news and analyst coverage for our company; and a decreased ability to issue additional securities or obtain additional financing in the future.

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

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assurance 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 December 2018. 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.

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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 January 1, 2017:		
Fourth Quarter (through January 1, 2017)	$1.51	$0.76
Third Quarter (through October 2, 2016)	$1.03	$0.76
Second Quarter (through July 3, 2016)	$1.20	$0.89
First Quarter (through April 3, 2016)	$1.62	$1.04
Fiscal Year Ended January 3, 2016:		
Fourth Quarter (through January 3, 2016)	$1.73	$1.10
Third Quarter (through September 27, 2015)	$1.93	$1.11
Second Quarter (through June 28, 2015)	$2.10	$1.49
First Quarter (through March 29, 2015)	$3.27	$1.81

Stockholders

The closing price of our common stock on the Nasdaq Global Market was $1.62 per share on February 27, 2017. As of February 27, 2017 there were 68,162,715 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.

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Stock Performance Graph

The following graph compares the cumulative total return to stockholders of our common stock from January 1, 2012 to January 1, 2017 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 January 1, 2012 in QuickLogic's common stock and in each of the other two indices and the reinvestment of all dividends, if any, through January 1, 2017

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.

	1/1/2012	12/30/2012	12/29/2013	12/28/2014	1/3/2016	1/1/2017
QuickLogic Corporation	100.00	86.54	148.46	123.08	43.46	53.46
S&P 500 Index	100.00	116.00	153.58	174.60	177.01	198.18
S&P Semiconductors Index	100.00	96.58	131.30	177.08	178.63	228.56

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

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ITEM 6. SELECTED FINANCIAL DATA

	Fiscal Years				
	2016	2015	2014	2013	2012
	(in thousands, except per share amount)				
Statements of Operations:					
Revenue	$11,421	$18,956	$27,845	$26,072	$14,944
Cost of revenue	7,648	11,411	16,796	17,305	7,878
Gross profit	3,773	7,545	11,049	8,767	7,066
Operating expenses:					
Research and development	12,265	14,144	12,186	8,375	8,743
Selling, general and administrative	10,310	10,619	11,663	12,002	10,481
Restructuring costs[1]	—	295	—	181	—
Loss from operations	(18,802)	(17,513)	(12,800)	(11,791)	(12,158)
Gain on sale of TowerJazz Semiconductor Ltd. shares [2]	—	—	—	181	—
Interest expense	(175)	(82)	(85)	(54)	(61)
Interest income and other expense, net	(106)	(107)	(126)	(157)	(77)
Loss before income taxes	(19,083)	(17,702)	(13,011)	(11,821)	(12,296)
Provision for income taxes	65	146	68	455	18
Net loss	$(19,148)	$(17,848)	$(13,079)	$(12,276)	$(12,314)
Net loss per share:					
Basic	$(0.29)	$(0.32)	$(0.23)	$(0.27)	$(0.29)
Diluted	$(0.29)	$(0.32)	$(0.23)	$(0.27)	$(0.29)
Weighted average shares:					
Basic	65,377	56,472	55,401	45,762	41,831
Diluted	65,377	56,472	55,401	45,762	41,831

	January 1, 2017	January 3, 2016	December 28, 2014	December 29, 2013	December 30, 2012
	(in thousands)				
Balance Sheet Data:					
Cash and cash equivalents	$14,870	$ 19,136	$ 30,050	$ 37,406	$ 22,578
Working capital	$9,042	$ 19,132	33,395	$ 37,801	$ 24,840
Total assets	$21,844	$ 28,461	$ 41,139	$ 49,126	$ 31,024
Long-term obligations, excluding current portion	$49	$ 2,341	$ 1,267	$ 254	$ 407
Total stockholders' equity	$11,988	20,325	$ 35,567	$ 40,598	$ 27,278

(1) We incurred restructuring costs of $295,000 and $181,000 in 2015 and 2013, respectively. In 2015, we implemented a restructuring plan to re-align the organization to support our sensor processing provider business model and growth strategy. The expenses in 2013 relate to the Company's effort to consolidate and streamline its engineering organization.

(2) During the second quarter of 2013, we sold our remaining 42,970 ordinary shares of TowerJazz, which reflect the 1-to-15 reverse stock split. This sale resulted in a gain of $181,000.

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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 enable OEMs to maximize battery life for highly differentiated, immersive user experiences with Smartphone, Wearable, Tablet and IoT devices. We deliver these benefits through industry leading ultra-low power customer programmable SoC semiconductor solutions, embedded software, and algorithm solutions for always-on voice and sensor processing, and enhanced visual experiences. In addition to our delivering our own semiconductor solutions, we have an IP business that licenses our FPGA technology for use in other semiconductor companies SoCs.

We are also a fabless semiconductor company that designs, markets, and supports primarily silicon solutions, as well as Field Programmable Gate Arrays, or FPGAs, software drivers, associated design software and programming hardware, and, eFPGA IP called ArcticPro. Our solutions are created from our new silicon platforms including our EOS™, ArcticLink® III, PolarPro®3, PolarPro II, PolarPro, and Eclipse II products (which together comprise our new product category). Our mature products include primarily pASIC®3 and QuickRAM® as well as programming hardware and design software.

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, custom logic, 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 IPs range from that those enable always-on context-aware sensor applications, such as our FFE, and our Sensor Manager and Communications Manager technologies, to IP that (i) improves multimedia content, such as our VEE technology, and DPO; and (ii) implements commonly used mobile system interfaces, such as LVDS, MIPI, and 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 IPs, providing custom logic, integrating the logic, programming the device with the IPs 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.

We also work with mobile processor manufacturers, sensor manufacturers, and/or voice recognition, sensor fusion and context awareness algorithm developers in the development of reference designs, QVLs, or “Catalog” solutions. Through reference designs that incorporate our solutions, we believe mobile processor manufacturers, sensor manufacturers, and sensor algorithm companies can expand the served available market for their respective products. Furthermore, should a solution development for a processor manufacturer or sensor and/or sensor algorithm company be applicable to a set of common OEMs or ODMs, we can amortize our R&D investment over that set of OEMs/ODMs. We call this type of solution a Catalog solution and we are placing a greater emphasis on developing and marketing these types of solutions.

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 by silicon solutions and eFPGA IP and therefore our solutions 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 and IPs. The gross margin associated with our solutions is generally lower than the gross

margin of our FPGA products, which is primarily due to the price sensitive nature of the higher volume mobile consumer opportunities that we are pursuing with our solutions. The gross margin from our eFPGA IP licensing is generally higher than the gross margins of our semiconductor device due to the nature of IP having a lower cost of sales.

In order to grow and diversify our revenue from its current level, we are partnering with Tier 1 foundries to license our eFPGA software tool in addition to the sale of our new and existing products. We are expecting revenue growth from eFPGA IP licensing starting in fiscal year 2017.

We continue to seek to expand our revenue, including pursuing high-volume sales opportunities in our target market segments, by providing solutions incorporating our intellectual property, 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

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opportunities will increase our revenue, we believe these opportunities may decrease our gross profit as a percentage of revenue.

During 2016, we generated total revenue of $11.4 million which represents a 40% decrease from 2015. Our new product revenue during 2016 was $5.6 million, which represents a 53% decrease from 2015 while our mature product revenue during 2016 was $5.8 million, which represents a 16% decrease from 2015. We shipped our new products into four of our targeted mobile market segments: Smartphones, Wearables, Mobile Enterprise, and Tablets. Overall, we reported a net loss of $19.1 million for 2016 compared to a net loss of $17.8 million for 2015.

We have experienced net losses in the recent years and expect such losses to continue through at least the year ending December 31, 2017 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 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 which 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 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 our standard warranty policy. See Note 2 to the Consolidated Financial Statements for our standard warranty policy. We record an allowance for sales returns. We have not had a history of significant product returns.

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

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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, due to our small customer base and limited CSSP engagements, any significant unanticipated changes in demand 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 the Company's 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 which 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 10 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 and 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

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of net operating loss carryforwards, amounted to $79.2 million, tax effected as of the end of 2016. 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 schedule reversals of deferred tax liabilities, uncertainty of projecting future taxable income and results of recent operations. As of January 1, 2017, we have federal and state income tax net operating loss (NOL) carryforwards of approximately $148.7 million and $57.4 million, which will expire at various dates from 2017 through 2037. The Company has research credit carryforwards of approximately $4.0 million for federal and $4.1 million for state income tax purposes as of January 1, 2017, If not utilized, the federal carryforwards will expire at various dates from 2018. 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 $79.2 million, tax-effected, as of the end of 2016, due to uncertainties related to our ability to utilize our U.S. deferred tax assets before they expire.

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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		
	2016	2015	2014
Statements of Operations:			
Revenue	100 %	100 %	100 %
Cost of revenue	67 %	60 %	60 %
Gross profit	33 %	40 %	40 %
Operating expenses:			
Research and development	107 %	75 %	44 %
Selling, general and administrative	90 %	56 %	42 %
Restructuring costs	— %	2 %	— %
Loss from operations	(164)%	(93)%	(46)%
Interest expense	(2)%	— %	— %
Interest income and other expense, net	(1)%	(1)%	— %
Loss before income taxes	(167)%	(94)%	(46)%
Provision for income taxes	1 %	1 %	— %
Net loss	(168)%	(95)%	(46)%

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Comparison of Fiscal Years 2016 and 2015

Revenue. The table below sets forth the changes in revenue for fiscal year ended January 1, 2017, as compared to fiscal year ended January 3, 2016 (in thousands, except percentage data):

	Fiscal Years							
	2016			2015				
	Amount	% of Total Revenues		Amount	% of Total Revenues		Year-Over-Year Change	
Revenue by product family [1]:								
New products	$5,622	49	%	$12,020	63	%	$(6,398)	(53)%
Mature products	5,799	51	%	6,936	37	%	(1,137)	(16)%
Total revenue	$11,421	100	%	$18,956	100	%	$(7,535)	(40)%

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[1] For all periods presented: New products include all products manufactured on 180 nanometer or smaller semiconductor processes. Mature products include all products produced on semiconductor processes larger than 180 nanometers.

The decrease in new product revenue in 2016 was primarily due to lower shipments to Samsung which had designed our ArcticLink III VX product into its tablet platform and also due to lower shipments of connectivity products. In 2016, shipments of ArcticLink III were $4.4 million compared to $8.3 million in 2015. Revenue from connectivity products was $1.0 million in 2016 compared to $3.5 million in 2015. Revenue generated from Samsung accounted for 68% of our new product revenue and 33% of our total revenue in 2016. The decrease in mature product revenue is due primarily to decreased orders from our customers in the aerospace, test and instrumentation sectors. We anticipate that our revenue from tablets and mature products will continue to decline over time.

Gross Profit. The table below sets forth the changes in gross profit for fiscal year 2016 as compared to fiscal year 2015 (in thousands, except percentage data):

	Fiscal Years							
	2016			2015				
	Amount	% of Total Revenues		Amount	% of Total Revenues		Year-Over-Year Change	
Revenue	$11,421	100	%	$18,956	100	%	$(7,535)	(40)%
Cost of revenue	7,648	67	%	11,411	60	%	(3,763)	(33)%
Gross Profit	$3,773	33	%	$7,545	40	%	$(3,772)	(50)%

The decrease in gross profit was primarily due to a reduction in sales of both new and matured products, which was due to fluctuations in end-customers' revenue forecasts. The gross margin decrease of 7% in 2016 compared to 2015 was due to the decrease of (i) high margin matured product revenue by $1.1 million and (ii) a $6.4 million reduction in lower margin new product revenue. The effect of price reductions in 2016 on gross profit was approximately $120,000 or 1%. The sale of inventories that were previously written-off was $106,000 and $201,000 in 2016 and 2015 respectively. Inventory written-down in 2016 was $296,000 compared to $229,000 in 2015.

Our semiconductor products have historically had a 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 CSSPs and products, we believe our product life cycle will be shorter, which will increase

the potential for obsolescence. We also regularly review the cost of inventories against estimated market value and record a lower of cost or market reserve, or LCM reserve, for inventories that have a cost in excess of estimated market value. This 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. There were no adjustments to the LCM reserve in fiscal year 2016.

Operating Expenses. The table below sets forth the changes in operating expenses for fiscal year 2016 as compared to fiscal year 2015 (in thousands, except percentage data):

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	Fiscal Years							
	2016			2015				
	Amount	% of Total Revenues		Amount	% of Total Revenues		Year-Over-Year Change	
R&D expense	$12,265	107	%	$14,144	75	%	$(1,879)	(13)%
SG&A expense	10,310	90	%	10,619	56	%	(309)	(3)%
Restructuring costs	—	—	%	295	2	%	(295)	100 %
Total operating expenses	$22,575	197	%	$25,058	133	%	$(2,483)	(10)%

Research and Development Expense. Our research and development or R&D expenses consist primarily of personnel, overhead and other costs associated with engineering process improvements, programmable logic design, CSSP design and software development. Research and development expense was $12.3 million and $14.1 million in 2016 and 2015, respectively, which represented 107% and 75% of revenue for those periods. The $1.9 million decrease in R&D expenses in 2016 as compared to 2015 is attributable to cost cutting measures implemented in 2016, which resulted in a decrease of outside services cost by $892,000 and salaries cost by $723,000.

Selling, General and Administrative Expense. Our selling, general and administrative or SG&A expenses consist primarily of personnel and related overhead costs for sales, marketing, finance, administration, human resources and legal functions. SG&A expense was $10.3 million and $10.6 million in 2016 and 2015, respectively, which represented 90% and 56% of revenue for those periods. The $309,000 decrease in SG&A expenses in 2016 as compared to 2015 is attributable primarily to the decrease in salaries cost of $638,000, attributable to cost reduction measures implemented in 2016, which was partially offset by higher outside services costs of $342,000.

Interest Expense and Interest Income and Other Expense, net

The table below sets forth the changes in interest expense and interest income and other expense, net for 2016 as compared to 2015 (in thousands, except percentage data):

	Fiscal Years		Year-Over-Year Change	
	2016	2015	Amount	Percentage
Interest expense	$(175)	$(82)	$ 93	113 %
Interest income and other expense, net	(106)	(107)	(1)	(1)%
	$(281)	$(189)	$ 92	49 %

The change in interest expense increased by $93,000 in 2016 compared to 2015 due to additional draw down of $4.0 million from our line of credit in 2016. The change in interest income and other expense, net was due primarily to a decrease in foreign exchange losses in 2016 as compared to 2015.

We conduct a portion of our research and development activities in India and we have sales and marketing activities in various countries outside of the United States. Most of these international expenses are incurred in local currency. Foreign currency transaction gains and losses are included in interest and other income (expense), net, as they occur. We do not use derivative financial instruments to hedge our exposure to fluctuations in foreign currency and, therefore, our results of operations are and will continue to be susceptible to fluctuations in foreign exchange gains or losses.

Provision for Income Taxes. The table below sets forth the changes in provision for income taxes in 2016 as compared to 2015 (in thousands, except percentage data) :

	Fiscal Years		Year-Over-Year Change	
	2016	2015	Amount	Percentage
Income tax provision	$65	$146	$ (81)	(55)%

The income tax expense for 2016 and 2015 is primarily from our foreign operations which are cost-plus entities.

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As of the end of 2016, our ability to utilize our U.S. deferred tax assets in future periods is uncertain and, accordingly, we have recorded a full valuation allowance against the related U.S. deferred tax assets. We will continue to assess the realizability of deferred tax assets in future periods.

Comparison of Fiscal Years 2015 and 2014

Revenue. The table below sets forth the changes in revenue for fiscal year 2015 as compared to fiscal year 2014 (in thousands, except percentage data):

	Fiscal Years							
	2015			2014				
	Amount	% of Total Revenues		Amount	% of Total Revenues		Year-Over-Year Change	
Revenue by product family [1]:								
New products	$12,020	63	%	$19,311	69	%	$(7,291)	(38)%
Mature products	6,936	37	%	8,534	31	%	(1,598)	(19)%
Total revenue	$18,956	100	%	$27,845	100	%	$(8,889)	(32)%

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[1] For all periods presented: New products include all products manufactured on 180 nanometer or smaller semiconductor processes. Mature products include all products produced on semiconductor processes larger than nanometers.

The decrease in new product revenue was primarily due to lower shipments to Samsung which had designed our ArcticLink III VX product into its tablet platform and also due to lower shipments of connectivity product Eclipse II. In 2015 shipments of ArcticLink III were $8.3 million compared to $15.0 million in 2014. Revenue generated from Samsung accounted for 68% of our new product revenue and 43% of our total revenue in 2015. Eclipse II revenue in 2015 was $1.2 million compared to $2.6 million in 2014. The decrease in revenue from ArcticLink III and Eclipse II products was partially offset by revenue from other new products. The decrease in mature product revenue is due primarily to decreased orders from our customers in the aerospace, test and instrumentation sectors.

Gross Profit. The table below sets forth the changes in gross profit for fiscal year 2015 as compared to fiscal year 2014 (in thousands, except percentage data):

	Fiscal Years							
	2015			2014				
	Amount	% of Total Revenues		Amount	% of Total Revenues		Year-Over-Year Change	
Revenue	$18,956	100	%	$27,845	100	%	$(8,889)	(32)%
Cost of revenue	11,411	60	%	16,796	60	%	(5,385)	(32)%
Gross Profit	$7,545	40	%	$11,049	40	%	$(3,504)	(32)%

The decrease in gross profit was primarily due to reduction in sales of both new and matured products. Effect of price reductions in 2015 on gross profit was approximately $702,000 or 4%. The gross profit margin percentage in 2015 as compared to 2014 was flat at 40% despite lower sales and price reductions in 2015 compared to 2014, due to a higher relative concentration of our product mix in mature products, which have higher gross margins than the new products

and also due to restructuring plan implemented in the second quarter of 2015. The sale of previously reserved inventories was $201,000 and $603,000 in 2015 and 2014 respectively. Inventory write down in 2015 was $229,000 compared to $119,000 in 2014.

Operating Expenses. The table below sets forth the changes in operating expenses for fiscal year 2015 as compared to fiscal year 2014 (in thousands, except percentage data):

	Fiscal Years								
	2015			2014					
	Amount	% of Total Revenues		Amount	% of Total Revenues		Year-Over-Year Change		
R&D expense	$14,144	75	%	$12,186	44	%	$1,958	16	%
SG&A expense	10,619	56	%	11,663	42	%	(1,044)	(9)	%
Restructuring Costs	295	2	%	—	—	%	295	100	%
Total operating expenses	$25,058	133	%	$23,849	86	%	$1,209	5	%

Research and Development Expense. Our R&D expenses consist primarily of personnel, overhead and other costs associated with engineering process improvements, programmable logic design, CSSP design and software development. Research and development expense was $14.1 million and $12.2 million in 2015 and 2014, respectively, which represented 75% and 44% of revenue for those periods. The $2.0 million increase in R&D expenses in 2015 as compared to 2014 is attributable primarily to a $1.4 million increase in compensation expense due to increased headcount, $1.1 million increase in the cost of outside services due to an increase in third-party chip design costs, and a $170,000 increase in equipment and supplies costs. These increases were partially offset by a reduction in IP purchases of $261,000, and lower stock-based compensation cost of $226,000.

Selling, General and Administrative Expense. Our SG&A expenses consist primarily of personnel and related overhead costs for sales, marketing, finance, administration, human resources and legal. SG&A expense was $10.6 million and $11.7 million in 2015 and 2014, respectively, which represented 56.0% and 41.9% of revenue for those periods. The $1.0 million decrease in SG&A expenses in 2015 as compared to 2014 was attributable primarily to the decrease in stock-based compensation of $643,000 and lower outside services costs of $545,000, which was partially offset by higher depreciation costs of $151,000.

Restructuring Costs. In June 2015, we implemented a restructuring plan to re-align the organization to support our sensor processing provider business model and growth strategy. This re-alignment resulted in a reduction of nine employees or 9% of the global workforce. Pursuant to the restructuring plan, we recorded $295,000 of restructuring liabilities in 2015, consisting primarily of employee severance-related costs.

Interest Expense and Interest Income and Other Expense, net

The table below sets forth the changes in interest expense and interest income and other expense, net for 2015 as compared to 2014 (in thousands, except percentage data):