InvenSense Inc
Form 10-K
May 28, 2015
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, DC 20549

FORM 10-K

(Mark One)

x **Annual report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the fiscal year ended March 29, 2015**
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 001-35269

INVENSENSE, INC.

(Exact name of registrant as specified in its charter)

Delaware	**01-0789977**
(State or other jurisdiction of Incorporation or organization)	**(I.R.S. Employer Identification No.)**
1745 Technology Drive, Suite 200, San Jose, California	**95110**
(Address of principal executive offices)	**(Zip code)**

(408) 501-2200

(Registrant s telephone number, including area code)

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

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.001 Par Value	New York Stock Exchange LLC

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

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES ¨ NO x

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. YES ¨ NO x

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. YES x NO ¨

Indicate by check mark whether the registrant has submitted electronically 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 during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). YES x NO ¨

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

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

Large accelerated filer x	Accelerated filer ¨
Non-accelerated filer ¨	Smaller reporting company ¨
(Do not check if a smaller reporting company)	

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). YES ¨ NO x

Based on the closing sale price of the Common Stock on the New York Stock Exchange on the last day of our second fiscal quarter, the aggregate market value of the Common Stock held by non-affiliates of the registrant was approximately $1,527 million, which assumes 5,424 shares held by our former chief financial officer.

As of May 8, 2015, there were 91,029,000 shares of the registrant s common stock, $0.001 par value, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Information required in response to Part III of Form 10-K (Items 10, 11, 12, 13 and 14) is hereby incorporated by reference to portions of the Registrant s Proxy Statement for the Annual Meeting of Stockholders to be held in 2015. The Proxy Statement will be filed by the Registrant with the Securities and Exchange Commission no later than 120 days after the end of the registrant s fiscal year ended March 29, 2015.

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Special Note Regarding Forward-Looking Statements and Industry Data

This Annual Report on Form 10-K, including this Management s Discussion and Analysis of Financial Condition and Results of Operations, includes a number of forward-looking statements that involve many risks and uncertainties. Forward-looking statements are identified by the use of the words would , could , will , may , expect , believe , should , anticipate , outlook , if , future , intend , plan , estimate , predict , potential , targets , seek or continue and similar words and phrases, including the negatives of these terms, or other variations of these terms, that denote future events. These forward-looking statements include our expectations as to future sales of consumer electronics devices that could potentially integrate motion processors, our expectation that our products will remain a component of customers products throughout any such product s life cycle, our belief that users of our products are likely to introduce these products into other devices as well as to adopt our more advanced devices, our belief that certain end-markets pose large growth opportunities for motion processing functionality, our ability to protect our intellectual property in the United States and abroad, our freedom to manufacture and sell our product without infringing the intellectual property of third parties, our belief in the sufficiency of our cash flows to meet our needs and our future financial and operating results. These statements reflect our current views with respect to future events and our potential financial performance and are subject to risks and uncertainties that could cause our actual results and financial position to differ materially and adversely from what is projected or implied in any forward-looking statements included in this Annual Report on Form 10-K. These factors include, but are not limited to, the risks described under Item 1A of Part I Risk Factors, Item 7 of Part II Management s Discussion and Analysis of Financial Condition and Results of Operations, elsewhere in this Annual Report on Form 10-K and those discussed in other documents we file with the SEC. We make these forward-looking statements based upon information available on the date of this Annual Report on Form 10-K, and we have no obligation (and expressly disclaim any such obligation) to update or alter any forward-looking statements, whether as a result of new information or otherwise except as otherwise required by securities regulations.

As used herein, InvenSense, the Company, we, our, and similar terms refer to InvenSense, Inc., unless the context indicates otherwise.

InvenSense, MotionTracking, MotionProcessing, MotionProcessor, MotionFusion, MotionApps, DMP, AAR, and the InvenSense logo are trademarks of InvenSense, Inc. Other company and product names may be trademarks of the respective companies with which they are associated.

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PART I.

Item 1. Business.

Overview

We are the pioneer and a global market leader in devices and related software for sensor system on chip (Sensor SoC) for the motion and sound markets. Our motion solutions detect and track an object s motion in three-dimensional space. We assimilate information from gyroscopes, accelerometers, magnetometers (e.g., a compass), pressure sensors, and microphones to determine how a host device is moving, its direction, its elevation, and what it is hearing. We leverage our unique intellectual property in micro-electro-mechanical system (MEMS) design and manufacturing to reduce size, cost and power. Our proprietary algorithms improve speed and accuracy and our application programming interfaces (APIs) simplify the task of incorporating motion in end user applications.

While our solutions have broad applicability, we currently target the Mobile, Wearables, Smart Home, Gaming, Industrial, and Automotive markets. We utilize a fabless model, leveraging generally available CMOS and MEMS foundries and semiconductor packaging supply chains in combination with our own proprietary additions and improvements.

Our current strategy is to continue targeting consumer electronics and industrial markets with integrated motion and sound devices that meet or exceed the performance and cost requirements of customers, are easy to integrate and set industry performance benchmarks. Our ability to secure new customers depends on winning competitive processes, known as design wins. These selection processes are typically lengthy, and, as a result, our sales cycles will vary based on the market served, whether the design win is with an existing or a new customer and whether our product being designed into our customer s device is a first generation or subsequent generation product. Because the sales cycle for our products is long, we can incur design and development support expenditures in circumstances where we do not ultimately recognize any net revenue for an extended period of time or at all. We do not receive long-term purchase commitments from any of our customers, all of whom purchase our products on a purchase order basis. While product life cycles in our target market vary by application, once one of our solutions is incorporated into a customer s design, we believe that it will likely remain a component of the customer s product for its life cycle because of the time and expense associated with redesigning the product or substituting an alternative solution or customer device certification protocols. This dynamic is also supported by the increased likelihood that once a customer introduces one of our products into one of their devices, we believe they are likely to introduce it into others. Additionally, once a customer introduces one of our lower functionality sensors into their platforms, we believe they will become more likely to adopt our more advanced integrated MotionTracking and audio devices.

We were incorporated in California in June 2003 and reincorporated in Delaware in October 2004. Our principal executive offices are located at 1745 Technology Drive Suite 200, San Jose, CA 95110. Our telephone number is (408) 501-2200. Our website is located at www.invensense.com and our investor relations website is located at ir.invensense.com

Our fiscal year is a 52 or 53 week period ending on the Sunday closest to March 31. Our three most recent fiscal years ended on March 29, 2015 (fiscal year 2015), March 30, 2014 (fiscal year 2014) and March 31, 2013 (fiscal year 2013). Fiscal years 2015, 2014 and 2013 were each comprised of 52 weeks.

Our net revenue was $372.0 million, $252.5 million, and $208.6 million for fiscal years 2015, 2014 and 2013, respectively, and our net income (loss) was $(1.1) million, $6.1 million and $51.7 million for these periods, respectively.

We utilize a fabless business model, which means we work with third parties in Asia to provide both wafer fabrication as well as assembly packaging services, while the critical test and calibration functions are performed

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in our wholly owned subsidiary located in Hsinchu, Taiwan. We design our products and solutions in California, Massachusetts, China, Taiwan, Korea, Japan, France, Canada, Slovakia, and Italy. We sell our products to manufacturers of consumer electronics devices, original design manufacturers and contract manufacturers through our direct worldwide sales organization and through our channel of distributors. We are headquartered in San Jose, California and had 644 employees worldwide as of March 29, 2015.

Industry Background

Over the last decade, advances in technology have led to a rapid growth and proliferation of industrial and consumer electronics devices used for communication, entertainment, convenience and business that include sensor technology. In order to differentiate products and increase sales in intensely competitive markets, mobile, automotive, wearable, industrial and smart home electronics device manufacturers have been eager to adopt new sensor device-based features and functionalities, expand use cases and create new, compelling motion-, gesture- and sound-based interfaces and interactive experiences. Today, using motion, imaging, sound, and location sensor technologies, manufacturers have successfully introduced motion-based features which enable optical image stabilization, platform stabilization, gaming, navigation and health and fitness applications. More advanced motion sensing and voice and motion processing capabilities facilitate motion and sound based video gaming, voice and motion based device control, navigation, health and fitness and advanced display functionality. The momentum behind the adoption of motion and audio interfaces in consumer electronics and other applications illustrates how technology can change the way end-users interact with their electronics devices, as well as set expectations for future electronic products.

Key MEMS Based Motion and Audio Sensors

MEMS based motion sensors are widely adopted in consumer, industrial and automotive applications. Use of MEMS based audio sensors has grown significantly in the consumer electronics markets. While the size, power consumption, cost, manufacturing methods, calibration requirements, performance and other design complexities involved with MEMS motion and MEMS audio sensors have been steadily improving leading to the mass adoption in multiple markets.

We believe the following five principal types of sensors are important:

Accelerometers (G-sensors) measure linear acceleration and tilt angle. Single and multi-axis accelerometers detect the combined magnitude and direction of linear, rotational and gravitational acceleration. They can be used to provide motion sensing functionality. For example, a device with an accelerometer can detect rotation from vertical to horizontal state in a fixed location. As a result, accelerometers along with motion processing algorithms are primarily used for simple motion sensing applications in consumer devices, such as changing the screen of a mobile device from portrait to landscape orientation, pedometers and even activity classification.

Gyroscopes (Gyros) measure the angular rate of rotational movement about one or more axes. Gyroscopes can measure complex motion accurately in free space, tracking the position and rotation of a moving object. In contrast, accelerometers primarily detect the fact that an object has moved or is moving in a particular direction. Unlike accelerometers and compasses, gyroscopes are not affected by errors related to external environmental factors, such as gravitational and magnetic fields. Hence, gyroscopes greatly enhance the responsiveness of the motion sensing capabilities in devices and are used for advanced motion sensing applications in consumer devices, such as full gesture recognition, movement detection and motion simulation.

Another use for gyroscopes is to measure jitter in hands or walking motion for image stabilization applications called Optical Image or Electronic Image Stabilization. The specialized gyros measure hand and body motion in two or three axis, which is then used to move optics and/or images electronically. Since body motions are angular, gyroscopes are the only type of motion sensors that can

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be used for precise low noise detection. The stabilization methods remove blur and/or jitter from still images and video streams which greatly enhance user satisfaction in smartphone, digital still, video, car and drone cameras.

Magnetic Sensors (Compasses) detect magnetic fields and measure their absolute position relative to the Earth s magnetic north and nearby magnetic materials. Information from magnetic sensors can also be used to correct errors from other motion sensors, such as gyroscopes. One example of how compass sensors are used in consumer devices is reorienting a displayed map to match up with the general direction a user is facing. Many smartphones and tablet devices incorporate compasses to enable enhanced gaming and location-based applications.

Pressure Sensors (Barometers) measure relative and absolute altitude through the analysis of changing atmospheric pressure. Pressure sensors can be used in consumer devices for sports and fitness or location-based applications where information can be used for elevations or counting flights of stairs climbed to get a more accurate calorie count.

Audio Sensors (Microphones) detect audible sound, as well as ultrasound in some use cases. The audio signal received by a microphone is delivered to circuits that convert it to a digital signal to be processed, transmitted, played back or stored. Microphones are used in devices like mobile phones, digital still and video cameras, laptops, headsets, smart watches, remote controls, cars and even industrial applications. Multiple microphones are often used in mobile phones and cars to ensure high quality pick up of the desired audio signal.

The InvenSense Solution

We have developed proprietary, intelligent, integrated Sensor SoC devices that enable intuitive and immersive user interfaces using motion and audio. As a result of our modular and scalable platform architecture, our current and planned products span increasing levels of integration, from standalone single-chip gyroscopes to fully integrated multi-sensor, multi-axis, multi-core systems-on-chip. In fiscal years 2011 and 2012, the majority of our product volume was derived from our two-axis and three-axis gyroscopes. In September 2011, we announced that our six-axis Sensor SoC devices were available for high volume shipment and began shipments in our fourth quarter of fiscal year 2012. In January 2013, we announced that our nine-axis Sensor SoC devices were available and in February 2014, we announced the sampling of our seven-axis Motion Tracking platform. In January 2015, we announced the world s first integrated motion sensor with multi-core processing that integrates a 6-axis MEMS sensor, tri-core sensor hub, embedded Flash and SRAM, and software framework.

Our Sensor SoC devices are comprised of several fundamental proprietary components:

Our MEMS-based motion sensors combined with our mixed-signal circuitry for signal processing provide the functionality required to measure motion in three-dimensional space. The high performance of our sensors is enabled by our proprietary fabrication platform.

Our MotionFusion technology consists of a low-power hardware acceleration engine we refer to as a Digital Motion Processor (DMP) and on-chip sensor algorithm firmware. MotionFusion technology calibrates the sensors in runtime and intelligently converts raw sensor data from multiple sensors into application-specific data for mobile applications. For example, MotionFusion can compute indoor/outdoor position for location-based services, user activity (e.g. running, walking, driving) and step count. MotionFusion can also assist camera subsystems to produce better quality photographs and video by reducing blur and jitter.

Our MotionApps platform provides application programming interfaces (API) that simplify access to complex functionality commonly needed by our customers while simultaneously accelerating integration of sensors into operating systems. This platform utilizes the output from the MotionFusion layer to enable system designers to use the sensor data in their applications without the need to understand detailed motion sensor outputs and develop related motion interface algorithms. We design

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our MotionApps platform to be interoperable with major mobile operating systems, such as Google s Android and Microsoft s Windows. In addition, we have developed numerous system level APIs for various third-party applications and motion sensors.

The competitive advantages of our technology and solutions are:

The foundation of our Sensor SoC devices is our patented fabrication platform, which enables integration of standard MEMS with CMOS (also known as CMOS-MEMS) in a small, cost-effective wafer-level solution. Combining a MEMS wafer with an industry standard CMOS wafer reduces the number of MEMS manufacturing steps, enables wafer-level testing, and the use of wafer-level packaging, thereby reducing back-end costs of packaging and testing and improving overall product yield and performance. In addition to our CMOS-MEMS process, we have developed low-cost, high-throughput proprietary test and calibration systems, which further reduce back-end costs. We believe we have pioneered a technological breakthrough in high-volume manufacturing of low-cost, high-performance MEMS motion processors. Combining this unique high-volume fabrication capability with our other core proprietary technologies, we are able to deliver our Sensor SoC devices with industry-leading integration and cost-effectiveness.

Our MotionApps platform promotes faster adoption and accelerates time-to-market for our customers. We achieve this by providing easy-to-use APIs that can be easily integrated into different operating systems, calibration algorithms and an applications engine that supports pre-configured motion-processing applications. These features eliminate the need for our customers to develop separate software libraries, thereby reducing the time required to develop motion-based applications. In addition, our MotionApps platform enables device manufacturers with limited motion interface experience to rapidly incorporate higher level motion-enabled applications in their products. To further accelerate adoption of our products, we have been collaborating with major operating systems providers, such as Google, and processor and microcontroller providers to incorporate our solutions into their reference designs.

Our fabrication platform enables the integration of multiple motion sensors, such as gyroscopes and accelerometers, on a single chip with processing capability. Our latest generation of Sensor SoC devices embed a three-axis gyroscope, three-axis accelerometer, pressure sensor, sensor hub processing, and algorithm firmware on the same chip, enabling a turn-key sensor subsystem. As a result of integrating multiple sensors, our products can eliminate the traditional calibration steps required with discrete solutions as well as offload the intensive motion interface computation requirements from the host processor. Over time, we believe we can integrate more advanced features and functionalities into our solution.

Most MEMS devices are manufactured in proprietary in-house fabrication facilities utilizing numerous fabrication steps, esoteric substrates and MEMS-specific manufacturing processes that are not compatible for integration with standard CMOS fabrication processes. Our patented fabrication process allows us to utilize a fabless business model without relying on specialty foundries for MEMS manufacturing. Our fabless model enables cost-effective, high-volume production and provides us with the flexibility to quickly react to our customers needs. Additionally, our ability to perform wafer-level testing combined with our close collaborative relationships with third-party foundries enables us to better control the manufacturing process and product yields, resulting in lower cost and improved device performance and reliability.

Technology

Our contextually aware motion tracking inertial sensor technology is comprised of our core proprietary components: 1. Our MotionApps platform, including application programming interfaces (APIs), user navigation tracking algorithms, activity profile libraries, sensor calibration algorithms, and sensor fusion algorithms in firmware that intelligently assimilate data from multiple sensors and other data and algorithmic output; 2. Our

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patented fabrication platform; 3. Our advanced MEMS motion sensor designs; and 4. Our application specific mixed-signal circuitry for sensor signal detection and processing. All of our key technology components are critical to providing our complete, differentiated user contextual aware application solutions.

Our audio technology includes three core components: MEMS elements designed specifically for high-quality audio sensing; Application Specific Integrated Circuits (ASICs) the circuits that take the raw sensor output and process it for transmission; and packaging technology, which is a very important part of the acoustic design of the microphone. We are one of the few microphone suppliers that develop all three components of the entire microphone, giving us better control of the overall acoustic system. This advantage allows us to better support our customers needs and deliver differentiated products to market. Besides standard MEMS microphones that have two separate die one for the MEMS element, and one for the ASIC, we have developed a patented CMOS-MEMS integrated platform for microphones, analogous to our inertial sensor technology.

Products

Motion tracking inertial sensor devices, such as those available from us, are rapidly becoming a key function in many consumer devices including smartphones, tablets, gaming consoles, and smart TVs as they provide an intuitive way for consumers to interact with their electronic devices by tracking motion in free space and delivering these motions as input commands. Accurately tracking complex user motions requires the use of motion sensors such as gyroscopes, accelerometers, compasses, and pressure sensors, fusing the sensor outputs into a single and accurate data stream for use as input commands in consumer electronics devices, and ongoing run-time calibration to ensure an optimal user experience.

Our 6-axis M-2 Series product family enables Always-On , high performance, context-aware and location tracking applications in handheld and wearable consumer electronics products. The M-2 Series product family also includes the world s first integrated 7-axis MotionTracking SoC to combine a 3-axis gyroscope, 3-axis accelerometer and pressure sensor in the same silicon die. The M-2 Series also includes our third generation Digital Motion Processor (DMP), capable of processing complex 9-axis MotionFusion algorithms and features a new autonomous run-time calibration feature to ensure tight performance tolerances over the lifetime of the product. The size advantage of the integrated 7- and 9-axis devices and now ultra-low power for Always-On applications, versus using higher power discrete devices for each sensor function, is compelling for space constrained applications, improved application performance and for better overall user experience.

Our most advanced motion products include our new FireFly product family, the first of which the M-3 Series, is a tri-core device including an open platform, customer programmable processor as well Digital Motion Processors. The device comes with the InvenSense Framework, which provides our customers an easy to use platform for time to market while achieving strong performance characteristics. Our FireFly devices are targeted to multiple markets and are especially well suited for wearables and handsets providing a platform for customers to add value added features.

Microphones are key sensors in many consumer electronics devices. They provide the input for key use cases in some devices. For instance, a mobile phone s key use case is transmission of speech; and the entire speech pickup is done by microphones, and their performance is critical to the user experience with mobile phone voice calls. Although communication is the primary purpose, as a sensor, microphones can help enhance the interaction with the devices by enhancing the information around context and location.

Patented Fabrication Platform

The cornerstone of our technology is our patented InvenSense Fabrication Platform, which we believe gives us a sustainable and differentiated competitive advantage. Our patented fabrication platform is a standard six mask MEMS-specific bulk silicon fabrication process that enables direct bonding of MEMS components with related signal conditioning and logic circuitry that are fabricated using standard complementary metal oxide

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semiconductor (CMOS) processes. CMOS is a pervasive semiconductor technology used by nearly every semiconductor vendor and available at many foundries for fabrication of semiconductor devices. MEMS is a well-established technology that leverages several fundamental principles of semiconductor fabrication to manufacture micron-size physical structures in small form factors. We use MEMS processes to create wafers containing the structural layers used for our motion and audio sensors, and standard CMOS fabrication technology to create wafers to provide drive and signal conditioning circuits, as well as the logic circuitry that processes sensor signals to deliver complete MotionTracking and audio devices.

One of the significant advantages of our patented fabrication platform is enabling the integration of standard MEMS with CMOS (also known as CMOS-MEMS) in a small, cost-effective wafer-level solution. Combining a MEMS wafer with an industry standard CMOS wafer reduces the number of MEMS manufacturing steps, enables wafer-level testing, and the use of wafer-level packaging, thereby reducing back-end costs of packaging and testing and improving overall product yield and performance. In addition to our CMOS-MEMS process, we have developed low-cost, high-throughput proprietary test and calibration systems, which further reduce back-end costs. We believe we have pioneered a technological breakthrough in high-volume manufacturing of low-cost, high-performance MEMS motion processors. Combining this unique high-volume fabrication capability with our other core proprietary technologies, we are able to deliver our Sensor SoC devices with industry-leading integration and cost-effectiveness. We have successfully employed our patented fabrication platform in the high-volume production of 150 mm and 200 mm wafers.

Markets and Customers

Our customers include several of the world s largest mobile, automotive, wearable, industrial and smart home makers and many diverse smaller customers. These customers are in multiple market segments, including smartphones, tablets, wearables, console and portable video gaming devices, digital television and set-top box remote controls, fitness accessories, sports equipment, digital still cameras, automobiles, ultra-books, laptops, hearing aids, stabilization systems, tools, navigation devices, remote controlled toys and other household consumer and industrial devices.

Seasonality of Business

Our business is subject to seasonality because of the nature of our target markets. At present, virtually all of our motion interface products are sold in the consumer electronics market. Sales of consumer electronics tend to be weighted towards holiday periods and periods when our customers typically introduce their own new products. Many consumer electronics manufacturers typically experience seasonality in sales of their products. Holiday seasonality affects the timing and volume of orders for our products as our customers tend to increase production of their products that incorporate our solutions in the second and third quarters of our fiscal year in order to build inventories for the holiday season. Sales of our products tend to correspondingly and generally increase during these quarters and to significantly decrease in the fourth quarter of our fiscal year.

Backlog

Backlog refers to orders we received from our customers or distributors for delivery in the future. As of March 29, 2015, our backlog from customers was $64.3 million, compared to $29.1 million as of March 30, 2014. Due to the short period between receipt of orders and shipment of products to customers, backlog may not be a reliable indicator of future fiscal quarter or fiscal year sales.

Sales and Marketing

We sell our products through our direct worldwide sales organization and through our indirect channel of distributors to manufacturers of consumer electronics devices, original design manufacturers and contract manufacturers.

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Our product marketing, business development and application solution engineering teams focus on leveraging our core sensor SoC devices for motion and sound devices across end markets. These teams are responsible for all new applications and market specific engagements, providing customized technical and application support, and identifying opportunities and strategic relationships. Furthermore, they work closely with ecosystem partners to further promote and enable the motion and audio interface market, an increasingly important component of our business development efforts. For example, these teams are engaged with leading application providers and may also engage with microcontroller suppliers, operating system platform vendors, independent software developers, and system solution platform vendors. Further, the technical marketing and application engineering teams actively engage with new customers during their design-in processes to educate them on the value proposition of our sensor system on chip devices, identify how they could utilize our solutions in their products and provide them with the most suitable solutions, application programming interfaces (APIs) and potential reference designs. We believe these activities could result in continued adoption of our intelligent sensor SoC devices by new customers.

We work directly with large original equipment manufacturer (OEM) customers and other manufacturers who influence product designs to assist them in developing solutions and applications that may lead to more demand for our products. Early adoptees in new market segments typically take six to twelve months to evaluate their need for motion interface before the start of any development activities, which typically take an additional six to twelve months. For customers that have already adopted motion interface, we typically undertake a shorter sales cycle. If successful, this process culminates in the use of our product in their system, which we refer to as a design win. Volume production can begin shortly after the design win. For our larger OEM customers, we believe that our direct customer engagement approach, ecosystem partnerships and adoption of our APIs into major software operating systems provides us with significant differentiation in the customer sales process by aligning us more closely with the changing needs of these OEM customers and their end markets. We actively utilize field application engineers as part of our sales process to better engage the customer with our products. To effectively service our other customers, we achieve greater reach and operating leverage by using manufacturers representatives and distributors.

Our external marketing strategy is focused on building our brand and driving customer demand for our motion and audio devices. Our internal marketing organization is responsible for branding, industry analyst relations, collateral generation, channel marketing developer and sales support activities. We focus our resources on programs, tools and activities that can be leveraged by our global channel partners to extend our marketing reach, such as sales tools and collateral, product awards and technical certifications, training, regional seminars and conferences, webinars and various other demand-generation activities.

Manufacturing

Substantially all of our wafers are currently provided by Taiwan Semiconductor Manufacturing Corporation, Limited (TSMC) and GLOBALFOUNDRIES Inc. For our MotionTracking devices, wafer foundries manufacture both the MEMS and CMOS wafers, perform the critical wafer level bonding step of our patented fabrication process and deliver the final combined CMOS-MEMS wafer product to our wholly owned subsidiary in Hsinchu, Taiwan for proprietary wafer level testing prior to forwarding to our assembly vendors. For our audio devices, wafer foundries manufacture both the MEMS and ASIC wafers and deliver the wafers to our assembly vendors for multi-chip packaging and final test. We currently outsource our assembly packaging operations primarily to Lingsen Precision Industries, Limited, Siliconware Precision Industries Co. Limited, Advanced Semiconductor Engineering, Inc. and Amkor Technology, Inc. The assembled products are then forwarded to our Taiwan facility for final calibration and outgoing functionality test and/or shipment to our customers or distributors.

Over the last three years, we have been able to increase our annual manufacturing capacity in order to meet the volume demands of our customers, as well as potential additional demand. We continued to expand our CMOS-MEMS manufacturing capacity in fiscal year 2015, shipping wafers in high volumes from both TSMC and GLOBALFOUNDRIES Inc., as well as expanding our captive wafer sort, sensor test, and calibration testing facilities in Taiwan.

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Research and Development

We have assembled an experienced team of engineers with core competencies in MEMS design and fabrication, CMOS mixed-signal design, and software development. Through our research and development efforts, we have developed a collection of intellectual property and know-how that we are able to leverage across our products and end markets. Our research and development efforts are generally targeted at five areas:

In the area of **our patented fabrication platform**, we intend to continue to invest in our process technology to further refine our technology platform with respect to overall form factor, product performance and process yield enhancement and to expand the platform to enable us to further develop our product offerings beyond what is currently achievable.

With our heritage in high-volume fabless MEMS manufacturing, we believe we are uniquely positioned to help enable a **fabless MEMS ecosystem**. We maintain a fabrication shuttle program that allows universities and industry peers to license and leverage our technology in the development of CMOS-MEMS based solutions.

In the area of **MEMS development and design**, we intend to expand our portfolio of products, exploring new ways of integrating various sensors in a monolithic processor that eliminates the need for discrete sensors. We are expanding our CMOS-MEMS integration beyond electrostatic sensing to include other types of transduction. We are also investing in the development of systems expertise in new markets and applications that leverage our core capabilities.

In the area of **CMOS design and integration**, our initiatives include developing analog and digital IC design capabilities and circuit development intellectual property to facilitate our MEMS development roadmap, improving our sensor performance, and adding new functions to our products.

In the area of **software and algorithms**, our software initiatives include expanding into open platforms that include both ARM and DSP based SoC s running motion and audio features. Software initiatives include a SoC infrastructure on a software architecture that is modular, scalable, and easy to use, including sensor optimized tool chains. The result is an easy to use SoC that enables ultra-low power processing with advanced features. The algorithm initiatives include improvements in traditional motion fusion, as well as additional motion algorithms that incorporate higher level functionality such as context, activity classification, location, gestures, and imaging. Additionally, InvenSense Positioning Library (IPL) software delivers sensor assisted positioning in places where other geo-location technologies such as global navigation satellite system (GNSS) alone can t provide desired accuracy or availability. The IPL incorporates important advancements that allow use of inertial sensors in typical smart phones to deliver continuous and accurate position, velocity, and orientation in driving and pedestrian use cases, even in GNSS challenged environments.

Through our research and development efforts, we intend to continually expand our portfolio of patents and to enhance our intellectual property position. As of March 29, 2015, we had 299 employees involved in research and development. Our engineering design teams are primarily located in Bratislava, Slovakia; Calgary, Canada; Milan of Italy; Shanghai, China; Boston and San Jose, United States. For fiscal years 2015, 2014, and 2013, we incurred $90.6 million, $48.4 million and $24.6 million, respectively, in research and development costs.

Intellectual Property Rights

We primarily rely on patent, trademark, copyright and trade secrets laws, confidentiality procedures, and contractual provisions to protect our technology. We focus our patent efforts in the United States, and, when justified by cost and strategic importance, we file corresponding foreign patent applications in strategic jurisdictions, such as Europe, the Republic of Korea, Taiwan, and China. We have more than 120 issued U.S. patents and 90 issued foreign patents which will expire between December 2016 and January 2033, and have more than 550 additional patent applications pending in the United States and foreign countries.

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Our issued patents and certain of our pending patent applications relate to our patented fabrication platform, which allows us to reduce back-end costs and form factor, to create hermetically sealed cavities for MEMS sensors and to improve performance, reliability and integration, and to our sensor designs, which reduce sensitivity to interference from environmental sounds and vibrations, enabling higher performance and accuracy. In addition, we have issued patents and other pending patent applications that relate to mixed-signal circuits and architectures, which have a wide variety of applications, and to algorithms, software and application development for location, activity tracking and context sensing, and which (for example) facilitate offloading motion and other sensor interface computations from main application processors to our chips.

We intend to continue to file additional patent applications with respect to our technology and inventions. We do not know whether any of our pending patent applications will result in the issuance of patents or whether the examination process will require us to narrow our claims. Even if granted, there can be no assurance that these issued pending patent applications will provide us with protection. Our intellectual property strategy is to, where feasible, defend our intellectual property across the various aspects of our solution. While we license intellectual property and software libraries from third parties, none of these is fundamental to our MotionTracking and audio devices or fabrication platforms.

Employees

As of March 29, 2015, our total headcount was 644, comprised of 299 employees in research and development, 195 employees in manufacturing operations, 82 employees in sales and marketing, and 68 employees in a general and administrative capacity. None of our employees are represented by a labor union with respect to his or her employment with us. We have not experienced any work stoppages, and we consider our relations with our employees to be good.

Competition

We compete with companies that may have substantially greater financial and other resources with which to pursue engineering, manufacturing, marketing and distribution of their products. We currently and primarily compete with the following companies: Analog Devices, Inc., Epson Toyocom Corporation, Kionix, Inc. (a wholly owned subsidiary of Rohm Co., Ltd.), Knowles Corporation, MEMSIC, Inc., Murata Manufacturing Co., Ltd., Panasonic Corporation, Robert Bosch GmbH, Maxim Integrated Products, Inc., Sony Corporation and STMicroelectronics N.V. (STMicro). Currently, we believe STMicro is our primary competitor in the consumer motion sensing market. Over time, we expect continued competition from motion sensor competitors as well as competition from new entrants into the motion interface market.

The principal methods of competition of motion and sound technology include the following:

- The design and volume production of new products that anticipate the motion/sound and integration needs of customers next generation products and applications.
- Scalable operations to meet customers volume and timing demands.
- A declining manufacturing and operating cost structure.
- Identification of new and emerging markets, applications and technologies and developing products for these markets.
- Product pricing points, performance and cost effectiveness.
- The recruitment and retention of key employees.
- Intellectual property, including patents and trademarks.

High product quality, reliability and customer support.

Financial stability.

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Manufacturing, distribution and marketing capability.

Brand recognition.

Size of customer base.

Strength and length of key customer relationships.

We believe we are competitive with respect to these factors, particularly because our products are typically smaller in size, are highly integrated, and achieve high performance specifications at lower price points than competitive products. However, most of our current competitors have longer operating histories, significantly greater resources, greater brand recognition and a larger base of customers than we do.

Available Information

Our website address is www.invensense.com. The following filings are made available free of charge through our investor relations website when such reports are available on the SEC s website: Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, and our Proxy Statements for our annual meetings of stockholders. We also provide a link to the section of the website at www.sec.gov that has all of our public filings, including Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, all amendments to those reports, our Proxy Statements, and other ownership related filings. Further, a copy of this Annual Report on Form 10-K is located at the SEC s Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. Information on the operation of the Public Reference Room can be obtained by calling the SEC at 1-800-SEC-0330.

The contents of our websites are not intended to be incorporated by reference into this Annual Report on Form 10-K or in any other report or document we file with the SEC, and any references to our websites are intended to be inactive textual references only.

Additional information required by this Item 1 are incorporated by reference in Item 6, Selected Financial Data , Item 7, Management s Discussion and Analysis of Financial Condition and Results of Operations and Item 8, Financial Statements and Supplementary Data of this Annual Report on Form 10-K.

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Item 1A. Risk Factors.

Our operations and financial results are subject to various risks and uncertainties, including those described below, which could adversely affect our business, financial condition, results of operations, cash flows, and the trading price of our common stock.

Our operating results are subject to substantial fluctuations due to a number of factors that could adversely affect our business and our stock price.

Our net revenue and operating results have fluctuated in the past and are likely to fluctuate in the future. These fluctuations may occur on a quarterly and annual basis and are due to a number of factors, many of which are beyond our control. These factors include, among others:

changes in end-user demand for the products manufactured and sold by our customers;

the receipt, reduction, cancellation or delay of significant orders by customers;

the gain or loss of a significant customer;

market acceptance of our products and our customers products;

our ability to develop, introduce and market new products and technologies on a timely basis;

delays in our customers ability to manufacture and ship products that incorporate our products caused by internal and external factors unrelated to our business and beyond our control;

new product announcements and introductions by us or our competitors;

incurrence of research and development and related new product expenditures;

seasonality or cyclical fluctuations in our markets;

fluctuations in manufacturing yields;

significant warranty claims, including those not covered by our suppliers;

write-downs of inventory for excess quantity, changes in business priorities, technological obsolescence and erosion in net realizable value;

changes in our product mix or customer mix;

intellectual property disputes;

loss of key personnel or the shortage of available skilled workers;

the effects of competitive pricing pressures, including decreases in average selling prices of our products; and

The foregoing factors are difficult to forecast, and these, as well as other factors, could materially adversely affect our quarterly or annual operating results. In addition, a significant amount of our operating expenses are relatively fixed in nature due to our significant sales, and research and development costs. Any failure to adjust spending quickly enough to compensate for a net revenue shortfall could magnify its adverse impact on our results of operations.

The average selling prices of our products have historically decreased over time and will likely continue to do so, which could have a material adverse effect on our net revenue and gross margins if we cannot reduce our costs.

We expect the average selling prices of our products to decrease as a result of several factors. We offer volume pricing discounts to our significant customers. These discounts may offset the revenue expected from such customers and impact our gross margins. In addition, competitive pricing pressures, new product

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introductions by our competitors, shifts in customers product architectures, and product end-of-life programs may cause a reduction in our average selling prices. We have experienced and may continue to experience substantial period-to-period fluctuations in future operating results due to the erosion of the average selling prices of our products. If we are unable to offset any reductions in our average selling prices by increasing our sales volumes, introducing new products with higher gross margins or implementing product manufacturing or internal cost reduction programs, our net revenue and gross margins will decline, which could have a material adverse effect on our results of operations.

We currently depend on a limited number of customers and distributors for a material portion of our net revenue, the loss of and a substantial reduction in orders, or default in payments from these customers would significantly reduce our net revenue, increase our credit risk and adversely impact our operating results.

Historically, large purchases by a relatively limited number of customers and distributors have accounted for a substantial portion of our revenue. Our revenue is generated on the basis of purchase orders with our customers and distributors rather than long-term purchase commitments. We expect that sales to these customers and distributors will continue to account for a substantial portion of our net revenue for the foreseeable future. The loss of, or a substantial reduction in orders and default in payments from any of these customers and distributors would have a significant negative impact on our business and our operating results. For fiscal 2015, two customers accounted for 30% and 28% of total revenue. For fiscal 2014 one customer accounted for 35% of total net revenue.

We are subject to order and shipment uncertainties, and differences between our estimates of customer demand and actual results could negatively affect our inventory levels, sales and operating results.

Changes in the customer demand for our products may affect our revenue, cost of goods sold, gross margin percentage and inventory level. Our products are manufactured by third-party manufacturers according to our estimates of customer demand, which requires us to make separate demand forecast assumptions for every customer, each of which may introduce significant variability into our aggregate estimates. Our limited visibility into future customer demand and the product mix could lead to inadequate or excess purchase of raw material, obsolete inventory which could adversely affect our net revenue, gross margin and operating results. Moreover, because products with motion interface platforms have only recently been introduced into many of our target markets, many of our customers could have difficulty accurately forecasting demand for their products and the timing of their new product introductions, which ultimately affects their demand for our products.

We generally place orders for products with some of our suppliers approximately three to four months prior to the anticipated delivery date, with order volumes based on our forecasts of demand from our customers. Accordingly, if we inaccurately forecast demand for our products, we may be unable to obtain adequate and cost-effective foundry or assembly capacity from our third-party manufacturers to meet our customers delivery requirements, or we may accumulate excess inventories. On occasion, we have been unable to adequately respond to unexpected increases in customer purchase orders and therefore were unable to benefit from this incremental demand. In addition, our third-party manufacturers may prioritize orders placed by other companies that order higher volumes of products or otherwise qualify for more favorable treatment, many of whom are larger and more established than us. In the event that manufacturing capacity is reduced or eliminated at one or more of our third-party manufacturers facilities, we could have difficulties fulfilling our customer orders, and our net revenue and results of operations could decline.

Historically, because of this limited visibility, at times our actual results have been different from our forecasts of customer demand. Some of these differences have been material, leading to net revenue and margin forecasts different from the results we were actually able to achieve. These differences may occur in the future. Conversely, if we were to underestimate customer demand or if sufficient manufacturing capacity were unavailable, we could be unable to take advantage of net revenue opportunities, potentially lose market share and damage our customer relationships and market reputation, and be subject to contractual penalties for not meeting

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customer demand. In addition, any significant future cancellations or deferrals of product orders could materially and adversely impact our profit margins, increase our inventory write-downs due to product obsolescence and restrict our ability to fund our operations.

Our intellectual property is integral to our business. If we are unable to protect our intellectual property, our business could be adversely affected.

Our success depends in part upon our ability to protect our intellectual property. To accomplish this, we rely on a combination of intellectual property rights, including patents, copyrights, trademarks and trade secrets in the United States and in selected foreign countries where we believe filing for such protection is advantageous and cost-justified. Our ability to use and prevent others from using our patented fabrication platform, which is the subject of several patents and patent applications, is crucial to our success. Effective patent, copyright, trademark and trade secret protection may be unavailable, limited or not applied for in some countries. Some of our products and technologies are not covered by any patent or patent application. We cannot guarantee that:

- any of our present or future patents or patent claims will not lapse or be invalidated, circumvented, challenged or abandoned;
- our intellectual property rights will provide competitive advantages to us;
- our ability to assert our intellectual property rights against potential competitors or to settle current or future disputes will not be limited by our agreements with third parties;
- any of our pending or future patent applications will be issued or have the coverage originally