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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
Form 10-K

(Mark One)

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

For the fiscal year ended December 28, 2019

OR

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

Commission file no. 001-36414

iROBOT CORPORATION
(Exact name of registrant as specified in its charter)

Delaware	**77-0259335**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*

8 Crosby Drive
Bedford, MA 01730
(Address of principal executive offices, including zip code)

(781) 430-3000
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.01 par value	IRBT	The Nasdaq Stock Market LLC

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

Indicate by check-mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☑ No ☐

Indicate by check-mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☑

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☑ No ☐

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

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

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

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

The aggregate market value of the Common Stock held by nonaffiliates of the registrant was approximately $2.5 billion based on the last reported sale of the Common Stock on The Nasdaq Global Select Market on June 28, 2019, the last business day of the registrant's most recently completed second fiscal quarter.

As of January 31, 2020, there were 28,352,390 shares of the registrant's Common Stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

The registrant intends to file a definitive Proxy Statement pursuant to Regulation 14A within 120 days of the end of the fiscal year ended December 28, 2019. Portions of such Proxy Statement are incorporated by reference into Part III of this Form 10-K.

iROBOT CORPORATION

ANNUAL REPORT ON FORM 10-K
Year Ended December 28, 2019

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PART I

ITEM 1. *BUSINESS*

This Annual Report on Form 10-K (this "Annual Report") contains forward-looking statements. All statements other than statements of historical facts contained in this Annual Report, including statements regarding our future results of operations and financial position, business strategy, plans and objectives of management for future operations, and plans for product development, launches and manufacturing are forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. We discuss certain of these risks in greater detail in the "Risk Factors" section and elsewhere in this Annual Report. Also, these forward-looking statements speak only as of the date of this Annual Report, and we have no plans to update our forward-looking statements to reflect events or circumstances occurring after the date of this Annual Report. We caution readers not to place undue reliance upon any such forward-looking statements.

iRobot and its stylized logo, Roomba, Clean Base, NorthStar, Create, iAdapt, Aware, Home Base, Looj, Braava, Braava jet, AeroForce, Better Together, Mirra, Root, Terra, vSLAM and Virtual Wall are trademarks of iRobot Corporation (together with its subsidiaries, "iRobot", the "Company", "we", "us" or "our").

Overview

iRobot is a leading global consumer robot company that designs and builds robots that empower people to do more both inside and outside the home. Our consumer robots help people find smarter ways to clean and accomplish more in their daily lives. iRobot's portfolio of solutions features proprietary technologies for the connected home and advanced concepts in cleaning, mapping and navigation, human-robot interaction, and physical solutions. Leveraging this portfolio, our engineers are building an ecosystem of robots to empower the smart home. For more than 25 years, we have been a pioneer in the robotics and consumer products industries.

Since our founding in 1990, we have developed expertise in the disciplines necessary to design, build, sell and support durable, high-performance and cost-effective robots through the close integration of software, electronics and hardware. Our core technologies serve as reusable building blocks that we adapt and expand to create next-generation robotic platforms. We believe that this approach accelerates the time to market, while also reducing the costs and risks associated with product development. Our significant expertise in consumer needs, robot design, engineering, and smart home technologies and trends positions us to capitalize on the growth we expect in the market for robot-based consumer products. Since the introduction of the Roomba robotic vacuum cleaner ("RVC") in 2002, we have sold more than 30 million consumer robots worldwide to become a global, market-leading consumer robotics innovator with a strong presence in major geographic regions worldwide.

During 2017, we expanded our global operations with the acquisition of two of our major distributors in Japan and Europe. In April 2017, we acquired the iRobot-related distribution business of Sales On Demand Corporation ("SODC"), based in Tokyo, Japan for approximately $16.6 million in cash. In October 2017, we acquired our largest European distributor, Robopolis SAS ("Robopolis"), a French company, for a final purchase price of $169.4 million in cash, net of acquired cash of $38.0 million. These acquisitions provided us more direct control of 75% of our global revenue through a direct presence in countries such as Austria, Belgium, France, Germany, Japan, the Netherlands, Portugal and Spain. Following the completion of the SODC and Robopolis acquisitions, we integrated these organizations into our company, and continue to take steps to consolidate various systems that we believe will further streamline and automate key processes.

In 2019, iRobot sold more than $1.2 billion in consumer robots while navigating more challenging market conditions marked by intensified price competition in EMEA and the United States, and more moderate RVC growth in the United States due in part to the direct and indirect impacts of higher tariffs on RVCs made in and imported from China. Our commitment to innovation and funding critical research and development projects continued to yield tangible results through new product launches and new and enhanced features and functionality. In addition to launching the Roomba i7 and i7+ in major international markets during 2019, we introduced our deepest cleaning RVCs, the Roomba s9 and s9+, and the Braava jet m6, our advanced robotic mop. We also took steps to commercialize our robotic lawn mower during 2019. Other highlights in 2019 included the commencement of production at a new Roomba manufacturing facility in Malaysia, the implementation of new pricing and promotional tactics aimed at restoring U.S. RVC growth and defending our leadership position in EMEA, and the acquisition of Root Robotics, Inc. ("Root Robotics"), which enhances our commitment to Science, Technology, Engineering and Math ("STEM") through new educational robots.

Our total revenue for 2019 was $1,214.0 million, which represents an 11.1% increase from revenue of $1,092.6 million for 2018. Domestic revenue grew $42.6 million, or 7.6%, and international revenue increased by $78.8 million, or 14.8%, primarily as a result of sales of new products that have been launched since the second half of 2018.

Strategy

In 2002, iRobot created the home robot cleaning category with the introduction of its Roomba vacuuming robot. Today, we are a global enterprise that has sold more than 30 million consumer robots worldwide, including more than nine million connected robots. Our long-term strategy is to grow RVC category leadership by increasing the penetration of Roomba in existing markets worldwide, diversify beyond RVCs with our Braava robot mop and Terra robot mower, and continue to develop and launch new products into current and new markets. As our customer base grows, iRobot is creating an ecosystem of intelligent, connected robots with increasingly powerful new features and better performance that are designed for integration with other connected devices that empower the smart home.

To successfully execute our plan for 2020, including driving revenue growth, further diversifying our product portfolio, and positioning ourselves for improved profitability in 2021 and beyond, we plan to execute against the following priorities:

- Continue expanding Roomba's global household penetration:
    - Deliver on our product and digital roadmaps that can further differentiate Roomba and elevate the user experience, in part by leveraging our substantial and ongoing investment in software;
    - Fuel near-term growth and defend RVC market share in the United States and abroad through a combination of pricing, promotion and marketing initiatives; and
    - Evolve our go-to-market capabilities and increase direct sales to customers through our HOME App and on irobot.com by leveraging our large, growing and engaged base of customers worldwide.
- Pursue product diversification and build position within the smart home ecosystem:
    - Drive adoption of Braava through both traditional promotional and marketing initiatives as well as through new marketing programs that capitalize on the large and growing installed base of Roomba customers;
    - Enhance Terra's capabilities along with developing and advancing the go-to-market and sales plans that will enable us to commercialize this robot;
    - Establish the necessary partnerships and technology alliances that will enable our products to help consumers enjoy greater benefits from the smart home; and
    - Support the growth of iRobot's educational robot product offerings as an extension of our STEM efforts and ongoing commitment to making robotic technology more accessible to educators, students and parents.
- Improve long-term operational profitability:
    - Continuously cost-optimize the sourcing and integration of key product components and sub-assemblies, and increasingly automate the manufacturing process as part of our efforts to lower production costs;
    - Mitigate exposure to tariffs on products imported from China through a dual-track strategy of pursuing an exemption to those tariffs and ramping production volumes in Malaysia; and
    - Control spending while continuing to make investments in areas that we believe are critical to long-term success.

Technology

Since introducing the Roomba in 2002, we have continuously pursued innovation and introduced a wide of range of powerful features and functionality that have been favorably received by customers, helped extend our consumer robot technology and category leadership, and have further expanded and diversified our product portfolio. Over the past several years, we have focused on research and development initiatives aimed at advancing overall cleaning efficacy and performance, strengthening our robots' mapping and navigation capabilities, enabling our Roomba and Braava robots to work together, improving user interaction via cloud connectivity and app development, and facilitating integration between our products and other connected devices as part of a smart home ecosystem.

We plan to continue to leverage opportunities, enabled by our growing connected product portfolio, to invest in developing technologies and interfaces for our products to provide a convenient, personalized, feature-rich and effective user experience. By leveraging our robust connectivity and cloud infrastructure through Amazon Web Services and the ever-increasing processing power in our robots, we have built a Home Knowledge Cloud that can quickly and cost-effectively support over-the-air delivery of new digital features and enhanced functionality for customers globally. This infrastructure also allows us to collect valuable performance data that helps us improve the effectiveness of our support teams, informs our product roadmaps and facilitates integration with other connected devices in the smart home. iRobot plans to continue to identify additional ways to advance the smart home experience by enabling a broader understanding of the home's space, enabled through Roomba's spatial awareness of the home.

Across our expanding range of consumer robots, we are dedicated to developing market-leading robotic solutions that provide compelling value to consumers worldwide. We believe that from our customers' perspective, the core value of our robots is the ability to efficiently and effectively perform a physical mission - the task for which the robot was initially purchased. In addition, we focus on adding new features and functionality that allow our robots to perform longer, without customer interaction, making them fit more seamlessly into our customers' lifestyles and easier to use.

Products

We sell various products designed for use inside and outside of the home. We believe our home robot cleaning products deliver compelling and unique value to customers by delivering a better way to clean that frees people from repetitive, time consuming home cleaning tasks. To ensure the continued acceptance of our robots, we plan to continue to invest in the digital, data and physical products necessary to further improve the robots' autonomy to complete missions, and enhance the robots' performance and ease of use so that the robots fit seamlessly into the lifestyle of their owners. During 2019, we took important steps to deliver robots that can work together to vacuum and mop at the direction of the user. We also delivered new digital features that provide for a more personalized and more efficient cleaning experience, including recommendations for maintenance and cleaning schedules, specified room cleaning missions versus cleaning entire floors, and recharging just enough to complete the mission. In addition, we continued to enhance the mapping and spatial awareness capabilities of our consumer cleaning robots, which we believe is critical for improving the smart home experience by enabling a broader range of connected devices in the home to work more seamlessly together. Our products consist of the following robot families:

Roomba

We currently offer multiple Roomba floor vacuuming robots at varying price points ranging from approximately $250 to $1,099 based upon features and performance characteristics. The Roomba family of robotic vacuum cleaners encompass the following product series:

- 600 Series: The Roomba 600 series robots offer a three-stage cleaning system that thoroughly vacuums every section of the floor multiple times, as well as a brush design that enables the robot to handle fibers like hair, pet fur, lint and carpet fuzz. We offer versions of the 600 Series with and without WiFi connectivity.
- e5 Series: Introduced in September 2018, the e5 is an affordable, highly featured product with WiFi connectivity. The e5 Series offers iRobot’s Dirt Detect technology, dual multi-surface brushes, and a high efficiency filter to handle pet allergens. The e5 Series’ navigation technology helps ensure that the robot thoroughly vacuums every section of the floor multiple times.
- 900 Series: The Roomba 900 series robots help keep floors cleaner throughout the entire home with intelligent visual navigation, recharge and resume capability, and clean map reporting via the iRobot HOME App to show where the Roomba cleaned and provide other performance data such as cleaning duration and coverage area.
- i7 Series: Introduced in September 2018, the i7 Series brought a new level of intelligence and automation to robotic vacuum cleaners with the ability to learn, map and adapt to a home’s floor plan and 10 times more suction power than the 600 Series. The Roomba i7+ includes all the features of i7 plus the ability for the robot to empty its own bin into the Clean Base with Automatic Dirt Disposal. This brings a level of automation that allows users to forget about vacuuming for weeks at a time.
- s9 Series: Introduced in May 2019, the s9 Series represents the most powerful, deepest cleaning Roomba to date with 40 times more suction power than the 600 Series, advanced sensors to automatically increase suction on rugs or carpets, new brushes that further improve the robot’s ability to clean corners and along walls, and sophisticated navigation and mapping capabilities for efficient, customized room cleaning. The Roomba s9+ includes all of the features of the s9 plus the Clean Base with Automatic Dirt Disposal, which uses an anti-allergen system that traps pollen and mold allergens and prevents them from escaping the robot or the Clean Base Charging Station.

Braava

We currently offer the Braava family of automatic floor mopping robots designed exclusively for hard-surface floors at price points ranging from $199 to $499. The Braava robots automatically dust and damp mop hard-surface floors using popular cleaning cloths or our specially designed reusable microfiber cloths and include a special reservoir that dispenses liquid throughout the cleaning cycle to keep the cloth damp. The Braava family of floor mopping robots encompass the following product series:

- 200 Series: The Braava jet 200 series robot mop navigates under and around objects and furniture, reaches into corners and uses Precision Jet Spray and a vibrating clean head to remove dirt and stains.
- 300 Series: With the ability to operate in separate mop or sweep modes, the Braava jet 300 series robot mop offers greater coverage than the 200 Series and is compatible with a wide range of iRobot and third-party cleaning cloths.
- m Series: Introduced in May 2019, the Braava jet m Series is the most advanced Braava robot mop yet, with Roomba-like features and functionality, including a dedicated charging station and the same navigation and mapping technology found in the most advanced Roombas with extensive coverage and strong dirt and stain

removal capability. Leveraging ImprintLink technology allows the Braava jet m Series and Roomba 900, i7, and s9 robots to automatically clean in sequence - vacuuming and then mopping.

Terra

We are in the process of bringing a new, highly differentiated robotic lawn mower product to the consumer marketplace. Unlike current robotic lawn mowers that rely on dedicated boundary wires to keep the lawn mower confined to a designated area, the Terra t7 is being designed with a state-of-the-art mapping and navigation system that provides greater flexibility to determine where it will mow as well as avoid obstacles and cut in efficient, straight lines. We conducted beta trials in 2019 in both Germany and the United States and we plan to use the feedback gained during those trials to further enhance Terra's capabilities and advance the go-to-market and sales activities necessary to support limited online sales over the coming quarters, followed by an expected larger scale commercial launch in key regional markets.

Root

With the acquisition of Root Robotics in April 2019, we also offer a robot designed to help children learn how to code. The addition of the Root Robotics team helps broaden the impact of our STEM efforts and reinforces our commitment to making robotic technology more accessible to educators, students and parents.The Root coding robot, priced at $199, is designed to make coding easy and natural to learn. Using the engaging Root Coding App, kids of any age can learn coding fundamentals while they play, explore, and create.

Strategic Alliances

In addition to our internal technology development, we leverage relevant robotic technologies through licensing, acquisitions, venture investments and/or other partnerships. These strategic alliances are an important part of our product development, advanced research and distribution strategies. We rely on strategic alliances to provide technology and complementary product offerings to drive market adoption of our robotic products.

We seek to form relationships with organizations that can provide best-in-class technology or market advantages for establishing iRobot technology. In 2019, we began a Smart Home Partner Program that enables select third parties to partner closely with iRobot in using certain data available in iRobot's Home Knowledge Cloud to deliver enhanced product features and customer value. Consistent with our position on customer data privacy, our customer data is not accessible to third parties unless the customer affirmatively opts into the program and acknowledges that this home understanding data will be used in support of these related integrations. Additionally, we are advancing technology alliances with other smart home device companies that will enable our respective products to be integrated more tightly and thereby work together more seamlessly.

Sales and Distribution Channels

We sell our consumer products through distributor and retail sales channels, as well as our on-line store. For the fiscal years ended December 28, 2019, December 29, 2018 and December 30, 2017, sales to non-U.S. customers accounted for 50.3%, 48.7%, and 48.8% of total revenue, respectively. For the fiscal years ended December 28, 2019, December 29, 2018 and December 30, 2017, the Company generated 21.3%, 17.3% and 13.5% of total revenue from one of its retailers (Amazon), respectively.

In the United States and Canada, we sell our consumer products primarily through a network of national retailers. Certain smaller domestic retail operations are supported by distributors to whom we sell our products directly. With the acquisition of SODC and Robopolis, iRobot directly services retailers in Japan and countries that were previously serviced by Robopolis, including Austria, Belgium, France, Germany, Netherlands, Portugal and Spain. In support of sales in the United States, Canada, Japan and the seven European countries previously serviced by Robopolis, we maintain in-house sales, marketing and product management teams. In China, retailers are serviced by two local distributors. Due to the special needs of this market, we maintain a local sales, marketing and product team to support the distributors, manage the local marketing plan and meet product needs. Throughout the rest of the world, our products are sold primarily through a network of in-country distributors who resell to retail stores in their respective countries. These distributors are supported by our international sales and product marketing team.

Our retail and distributor networks are our primary distribution channels for our products. We have established valuable databases and customer lists that allow us to target directly those consumers most likely to purchase a new robot or upgrade. With Wi-Fi connectivity implemented across Roomba 675 and higher models, iRobot can more directly provide customer support via the iRobot HOME App. In addition, connectivity enables us to provide direct marketing material and push new features/fixes to robots in the field. We believe that we maintain a close connection with our customers in each of our markets, which provides an enhanced position from which to improve our distribution and product offerings.

Customer Service and Support

We also provide ongoing customer service and support. Consumer customer service representatives, the majority of whom are employees of outsourced service organizations or our distribution partners, are extensively trained on the technical intricacies of our consumer products. Because of the connected nature of our new robot technology, our customer service representatives are able to access robot information remotely to identify issues and behaviors relevant in troubleshooting and addressing customer questions and concerns.

Marketing and Brand

We market our consumer robots to end-user customers through our extensive network of retail partners with the support of our sales and marketing teams as well as in collaborations with in-country distributors. In addition, we sell directly to consumers through iRobot's e-commerce channels around the world. For consumers seeking information about our products, the iRobot website showcases our brand, allows consumers to learn more about our products, including the latest product innovations, and enables direct-to-consumer sales. The website also plays an important after-sales role for owners seeking spare parts and accessories, as well as for trouble-shooting possible issues and contacting customer support.

Our marketing strategy is to drive consumer awareness and interest in iRobot's product portfolio, most notably Roomba robot vacuums and Braava robot mops as well as, to a lesser extent, Terra robot lawn mowers. Our sales and marketing expenses represented 19.1%, 19.3% and 18.3% of our total revenue in 2019, 2018 and 2017, respectively. We expect to continue to invest in national advertising, consumer and industry trade shows, direct marketing and public relations to drive consumer demand and further build brand awareness. With over nine million connected robots in the field, we continue to explore marketing opportunities that enable us the leverage this large, global and growing installed base of consumers.

Marketing highlights in 2019 included supporting the launches of the Roomba s9/s9+ and Braava jet m6 in most major markets worldwide, the international introduction of the Roomba i7/i7+ and Terra t7 beta trials in Germany and the United States. In addition, we continued to execute critical marketing, public relations and consumer service efforts that complement our traditional demand generation activities in ways that sought to amplify the iRobot and applicable product brands, generate consumer interest in our products and perpetuate customer word-of-mouth, to encourage repeat purchases by existing customers and inspire new customers to buy our products.

In April 2017, we acquired SODC, launching new iRobot offices in Japan. In October 2017, we acquired our largest European distributor, Robopolis, launching new iRobot offices in seven countries, including Austria, Belgium, France, Germany, Netherlands, Portugal and Spain. These acquisitions enabled us to assume greater control and consistency in our approach to all market activities including sales, marketing, branding, channel relationships and customer service. As a result, since completing these acquisitions, we have continued to successfully grow our international revenue and broaden our relationships with on-line and regional retailers in key markets outside of the United States.

Manufacturing

Our core competencies are the design, development and marketing of robots. Our manufacturing strategy is to outsource non-core competencies, such as the production of our robots, to third-party entities skilled in manufacturing. By relying on the outsourced manufacture of our robots, we can focus our engineering expertise on the design of robots and associated technologies.

Manufacturing a new product requires a close relationship between our product designers and the manufacturing organizations. Using multiple engineering techniques, our products are introduced to the selected production facility at an early-development stage and the feedback provided by manufacturing is incorporated into the design before tooling is finalized and mass production begins. As a result, we believe that we can significantly reduce the time required to move a product from its design phase to mass production deliveries, with improved quality and yields.

We outsource the manufacturing of our consumer products to four contract manufacturers with plants in Southern China. In late 2019, we added additional manufacturing capacity in Malaysia with one of our existing contract manufacturers and we anticipate that a second contract manufacturer will be qualified for production in Malaysia in 2020. We expect that manufacturing volumes in Malaysia will ramp up in 2020, including potential production of an additional Roomba model. We believe that manufacturing our products in Malaysia will help mitigate our exposure to current and prospective tariffs on products imported from China. We believe that we have taken steps to diversify our manufacturing so that overall volumes are relatively well balanced across our four contract manufacturers and a substantial majority of volume is dual sourced. Our production processes give us the capacity to produce up to 25,000 robots a day, helping us to meet demand for peak seasons.

Under our agreements with our contract manufacturers, manufacturers supply us with specified quantities of products that align with demand forecasts that we establish based upon historical trends and analysis from our sales and product management functions.

Research and Development

We believe that our future success depends upon our ability to continue to develop new products and product accessories, and enhancements to and applications for our existing products. For the years ended December 28, 2019, December 29, 2018 and December 30, 2017, our research and development expenses were $141.6 million, $140.6 million and $113.1 million, or 11.7%, 12.9% and 12.8% of revenue, respectively. We intend to continue our investment in research and development to respond to and anticipate customer needs, and to enable us to introduce new products over the next few years that will continue to address our existing and adjacent market sectors.

Our research and development is conducted by teams dedicated to particular projects. Our research and development efforts are primarily located at our headquarters in Bedford, Massachusetts and our office in Pasadena, California.

Competition

The market for robots is highly competitive, rapidly evolving and subject to changing technologies, shifting customer needs and expectations and the likely increased introduction of new products. A number of established companies have developed robots that compete directly with our product offerings, and many of our competitors have significantly more financial and other resources than we possess. Our robot cleaning competitors include consumer electronics and consumer appliance companies such as Samsung, LG, Panasonic, Xiaomi, Cecotec, Hitachi, Electrolux, Midea and Shark, traditional floor cleaning brands with robotic offerings such as Dyson, Bissell and Hoover, and firms primarily focused on robotic cleaning such as Ecovacs, Roborock, Neato and iLife. In addition to dedicated robot vacuum and robot mop products, certain robot cleaning products offered by competitors combine the functionality of robot vacuums and mops into a single product.

While we believe many of our customers purchase our Roomba floor vacuuming robots and Braava mopping robots as a supplement to, rather than a replacement for, their traditional vacuum cleaners and wet floor cleaning methods, we do compete in some cases with providers of traditional cleaning products. We expect that the primary competition for our Terra robot mower will be providers of traditional human-operated lawn mowers and lawn care services.

We believe that the principal competitive factors in the market for robots include product features, performance for the intended mission, total cost of system operation and overall perceived value, including maintenance and support, ease of use, integration with existing equipment, quality, reliability, customer support, brand and reputation.

Our ability to remain competitive will depend to a great extent upon our ongoing performance in the areas of product development and customer support, particularly as it relates to delivering exceptional value to customers. We remain committed to funding the enhancement of our products and the development of new products, as well as investing in the various sales, marketing and support activities we believe are necessary to stimulate customer demand and maintain and improve customer satisfaction.

Intellectual Property

We believe that our continued success depends in large part on our proprietary technology, the technical competence and ability of our employees to continue to innovate. The ownership of intellectual property rights is an important factor in our business. This includes patents, copyrights, trademarks, service marks, trade dress and other forms of intellectual property rights in the United States and a number of foreign countries. The Company currently holds a significant number of patents and has filed numerous additional patent applications. As of December 28, 2019, we held 501 U.S. patents, more than 1,000 foreign patents, additional design registrations, and have more than 1,500 patent applications pending worldwide. While our U.S. patents will begin to expire in 2022, no single intellectual property right is solely responsible for protecting our products. We will continue to file and prosecute patent (or design registration, as applicable) applications when and where appropriate to attempt to protect our rights in our proprietary technologies. We also encourage our employees to continue to invent and develop new technologies so as to maintain our competitiveness in the marketplace. It is possible that our current patents, or patents which we may later acquire, may be successfully challenged or invalidated in whole or in part. It is also possible that we may not obtain issued patents for our pending patent applications or other inventions we seek to protect. In that regard, we sometimes permit certain intellectual property to lapse or go abandoned under appropriate circumstances. It is also possible that we may not develop proprietary products or technologies in the future that are patentable, or that any patent issued to us may not provide us with any competitive advantages, or that the patents of others will harm or altogether preclude our ability to do business.

Our registered U.S. trademarks include iRobot and its stylized logo, Roomba, Clean Base, NorthStar, Create, iAdapt, Aware, Home Base, Looj, Braava, Braava jet, AeroForce, Better Together, Mirra, Root, Terra, vSLAM and Virtual Wall. Our marks iRobot, Roomba, Braava, Braava jet, Root, Terra, Virtual Wall, and certain other trademarks, have also been registered in selected foreign countries.

Our means of protecting our proprietary rights may not be adequate, and our competitors may independently develop technology that is similar to ours. Legal protections afford only limited protection for our technology. The laws of many countries do not protect our proprietary rights to as great an extent as do the laws of the United States. Despite our efforts to protect our proprietary rights, unauthorized parties have in the past attempted, and may in the future attempt, to copy aspects of our products or to obtain and use information that we regard as proprietary. Some of our competitors seek to compete primarily through aggressive pricing and low-cost structures while infringing on our intellectual property.

On October 15, 2019, we initiated a patent infringement lawsuit in federal district court in Massachusetts against SharkNinja Operating LLC and its related entities ("SharkNinja") for infringement of 5 patents for technology related to robotic vacuum cleaners. In addition, we sought a preliminary injunction against SharkNinja for infringement of three U.S. patents. SharkNinja has in parallel sought declarations of non-infringement of thirteen U.S. patents owned by iRobot. On November 26, 2019, the federal district court in Massachusetts denied iRobot's motion for a preliminary injunction.

Previously, in 2017, we initiated a multi-party litigation at the U.S. International Trade Commission ("ITC") as well as in federal district court in Massachusetts based on claims of patent infringement. In November 2018, the ITC issued a Notice of Final Determination confirming that U.S. Patent No. 9,038,233 is valid and infringed, and that the infringing products for bObsweep, Inc., bObsweep USA, Hoover, and Shenzhen Silver Star Intelligent Technology Co., Ltd. should be barred from importation into the United States. Prior to the issuance of the Final Determination, iRobot entered into confidential settlements with Shenzhen Zhiyi Technology Co. Ltd. d/b/a iLife, Micro-Star International, Black & Decker, and Matsutek.

There is no guarantee that we will prevail on other patent infringement claims against third parties. Third parties may also design around our proprietary rights, which may render our protected products less valuable, if the design around is favorably received in the marketplace. In addition, if any of our products or the technology underlying our products is covered by third-party patents or other intellectual property rights, we could be subject to various legal actions. We cannot assure you that our products do not infringe patents held by others or that they will not in the future. We have received in the past communications from third parties relating to technologies used in our various robot products that have alleged infringement of patents or violation of other intellectual property rights. Some of these allegations have resulted in actions filed against iRobot in foreign jurisdictions. In response to these communications, we have contacted these third parties to convey our good faith belief that we do not infringe the patents in question or otherwise violate those parties' rights. Where an action has been filed, we will defend iRobot against the allegations. We cannot assure you that we will not receive further correspondence from these parties, not be subject to additional allegations of infringement from others, and cannot assure you that iRobot will prevail in any ongoing or subsequently filed actions. Litigation may be necessary to enforce our intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others, or to defend against claims of infringement or invalidity, misappropriation, or other claims. Any such litigation could result in substantial costs and diversion of our resources. Moreover, any settlement of or adverse judgment resulting from such litigation could require us to obtain a license to continue to use the technology that is the subject of the claim, or otherwise restrict or prohibit our use of the technology. Any required licenses may not be available to us on acceptable terms, if at all. If we attempt to design around the technology at issue or to find another provider of suitable alternative technology to permit us to continue offering applicable software or product solutions, our continued supply of software or product solutions could be disrupted or our introduction of new or enhanced software or products could be significantly delayed.

Seasonality

Historically, we have experienced higher revenue in the second half of the year compared to the first half of the year due in large part to increased demand around the December holiday season. In 2019, 2018 and 2017, our second-half consumer product revenue represented 59.0%, 59.4% and 60.2% of our annual consumer product revenue, respectively. We have also experienced higher selling and marketing expenses in the second half of the year compared to the first half of the year due to increase marketing campaigns to support seasonal holiday demand. In 2019, 2018 and 2017, our selling and marketing expense in the second half of the year represented 58.9%, 63.3% and 61.3% of our selling and marketing expense for full fiscal year, respectively. We expect that the majority of our revenue and selling and marketing expenses will continue to be generated in the second half of any given fiscal year unless or until we successfully introduce new products, such as Terra, that have potential to generate stronger sales during the first half of the year.

Regulations

Our business requires compliance with a variety of laws and regulations in the United States and abroad regarding privacy, data protection, and data security. In particular, we are subject to numerous U.S. federal, state, and local laws and regulations and foreign laws and regulations regarding privacy and the collection, sharing, use, processing, disclosure, and protection of personal information and other user data, including the General Data Protection Regulation ("GDPR") and California Consumer Privacy Act. In addition, the global nature of our business operations also creates various domestic and foreign regulatory challenges and subjects us to laws and regulations such as the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act, and similar anti-bribery and anti-corruption laws in other jurisdictions. Our products may be subject to U.S. export controls, including the United States Department of Commerce’s Export Administration Regulations, various economic and trade sanctions regulations established by the Treasury Department’s Office of Foreign Assets Controls and trade policies and tariffs established by the governments of the United States, China and other jurisdictions where we do business.

The laws in each of these areas - in particular those related to data privacy - are continually changing and evolving in unpredictable ways. New laws and regulations in any of these areas, as well as compliance with these laws (and their derivatives) may have an adverse effect on our business. If we fail to comply with these laws, we may be subject to significant liabilities and other penalties.

We are also subject to international and U.S. federal, state, and local laws and regulations designed to protect the environment, regulate energy efficiency and to regulate the discharge of materials into the environment. We believe that our policies, practices, and procedures are properly designed to prevent unreasonable risk of environmental damage and associated financial liability. To date, environmental control regulations have not had a significant adverse effect on our overall operations.

Employees

As of December 28, 2019, we had 1,128 full-time employees. Approximately 31% of our employees are based outside of the United States. None of our employees in the United States are represented by a labor union. In certain foreign subsidiaries, labor unions or workers’ councils represent some of our employees. We believe that we have a good relationship with our employees.

Prior Line of Business

In 2016, we sold our defense and security business and exited the remote presence business, as part of a strategic initiative to capitalize on the substantial opportunities available to us within consumer robot markets.

Available Information

We were incorporated in California in August 1990 under the name IS Robotics, Inc. and reincorporated as IS Robotics Corporation in Massachusetts in June 1994. We reincorporated in Delaware as iRobot Corporation in December 2000. We conduct operations and maintain a number of subsidiaries in the United States and abroad, including operations in Austria, Belgium, China, France, Germany, Hong Kong, Japan, Netherlands, Portugal, Spain, and the United Kingdom. We also maintain iRobot Securities Corporation, a Massachusetts securities corporation, to invest our cash balances on a short-term basis. Our website address is www.irobot.com. We have included our website address as an inactive textual reference only. The information on, or that can be accessed through, our website is not part of, or incorporated by reference into, this Annual Report. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), are available free of charge through the investor relations page of our website as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission. Alternatively, these reports may be accessed at the SEC’s website at www.sec.gov.

ITEM 1A. ***RISK FACTORS***

We operate in a rapidly changing environment that involves a number of risks, some of which are beyond our control. This discussion highlights some of the risks which may affect future operating results. These are the risks and uncertainties we believe are most important for you to consider. Additional risks and uncertainties not presently known to us, which we currently deem immaterial or which are similar to those faced by other companies in our industry or business in general, may also impair our business operations. If any of the following risks or uncertainties actually occurs, our business, financial condition and operating results would likely suffer.

We operate in an emerging market, which makes it difficult to evaluate our business and future prospects.

Robots represent a new and emerging market. Accordingly, our business and future prospects are difficult to evaluate. We cannot accurately predict the extent to which demand for consumer robots will increase, if at all. You should consider the challenges, risks and uncertainties frequently encountered by companies using new and unproven business models in rapidly evolving markets. These challenges include our ability to:

- generate sufficient revenue and gross margin to maintain profitability;
- acquire and maintain market share in our consumer market;
- attract and retain customers of our consumer robots;
- attract and retain engineers and other highly-qualified personnel; and
- expand our product offerings beyond our existing robots.

If we fail to successfully address these and other challenges, risks and uncertainties, our business, results of operations and financial condition would be materially harmed.

Our business currently depends solely on our consumer robots, and our sales growth and operating results would be negatively impacted if we are unable to enhance our current consumer robots or develop new consumer robots at competitive prices or in a timely manner, or if the consumer robot market does not achieve broad market acceptance.

We primarily derive our revenue from consumer robot sales. For the foreseeable future, we expect that our revenue will be derived solely from sales of consumer robots in general, and home floor care products in particular. Accordingly, our future success depends upon our ability to further penetrate the consumer home care market, to enhance our current consumer products and to develop and introduce new consumer products offering enhanced performance and functionality at competitive prices. The development and application of new technologies involves time, substantial costs and risks. Our inability to achieve significant sales of our newly introduced robots, or to enhance, develop and introduce other products in a timely manner, or at all, would materially harm our sales growth and operating results.

Even if consumer robots gain wide market acceptance, our robots may not adequately address market requirements and may not continue to gain market acceptance. If robots generally, or our robots specifically, do not gain wide market acceptance, we may not be able to achieve our anticipated level of growth, and our revenue and results of operations would suffer.

We face intense competition from other providers of robots, including diversified technology providers, as well as competition from providers offering alternative products, which could negatively impact our results of operations and cause our market share to decline.

A number of companies have developed or are developing robots that will compete directly with our product offerings. Many current and potential competitors are larger in size and more broadly diversified with substantially greater financial, marketing, research and manufacturing resources than we possess, and there can be no assurance that our current and future competitors will not be more successful than us. We also face competition from manufacturers of lower-cost devices, which may further drive down the average selling price in the marketplace for floor cleaning products. Moreover, while we believe many of our customers purchase our floor vacuuming robots as a supplement to, rather than a replacement for, their traditional vacuum cleaners, we also compete with providers of traditional vacuum cleaners.

The global market for robots is highly competitive, rapidly evolving and subject to changing technologies, shifting customer needs and expectations and the likely increased introduction of new products. Our ability to remain competitive will depend to a great extent upon our ongoing performance in the areas of product development and customer support.

In the event that the robot market expands further, we expect that competition will intensify as additional competitors enter the market and current competitors expand their product lines. Companies competing with us may introduce products that are competitively priced, have increased performance or functionality, or incorporate technological advances that we have not yet developed or implemented. Increased competitive pressure could result in a loss of sales or market share or cause us to lower prices for our products, any of which would harm our business and operating results.

Some of our competitors aggressively discount their products and services in order to gain market share, which has resulted in pricing pressures, reduced profit margins and lost market share. In addition, new products may have lower selling prices or higher costs than legacy products, which could negatively impact our gross margins and operating results.

We cannot assure you that our products will continue to compete favorably or that we will be successful in the face of increasing competition from new products and enhancements introduced by existing competitors or new companies entering the markets in which we provide products. Our failure to compete successfully could cause our revenue and market share to decline, which would negatively impact our results of operations and financial condition.

Any efforts to expand our product offerings beyond our current markets or to develop new products may not succeed, which could negatively impact our operating results.

Efforts to expand our product offerings beyond our current markets or to develop new products may not succeed and may divert management resources from existing operations and require us to commit significant financial resources to an unproven business, either of which could significantly impair our operating results. Any new product that we develop may not be introduced in a timely or cost-effective manner, may contain defects, or may not achieve the market acceptance necessary to generate sufficient revenue. Moreover, efforts to expand beyond our existing markets may never result in new products that achieve market acceptance, create additional revenue or become profitable.

Our financial results often vary significantly from quarter-to-quarter due to a number of factors, which may lead to volatility in our stock price.

Our quarterly revenue and other operating results have varied in the past and are likely to continue to vary significantly from quarter-to-quarter in the future. These fluctuations may be due to numerous factors including:

- the size, timing and mix of orders from retail stores and distributors for our consumer robots;
- the mix of products that we sell in the period;
- disruption of supply of our products from our manufacturers;
- disruptions to our supply chain due to inclement weather, labor disruptions or other factors beyond our control;
- seasonality in the sales of our products;
- the timing of new product introductions;
- unanticipated costs incurred in the introduction of new products;
- costs and availability of labor and raw materials;
- costs of freight;
- changes in our rate of returns for our consumer products;
- our ability to introduce new products and enhancements to our existing products on a timely basis; and
- warranty costs associated with our consumer products.

We cannot be certain that our revenues will grow at rates that will allow us to maintain profitability during every fiscal quarter, or even every fiscal year. We base our current and future expense levels on our internal operating plans and sales forecasts, including forecasts of holiday sales for our consumer products. A significant portion of our operating expenses, such as research and development expenses, certain marketing and promotional expenses and employee wages and salaries, do not vary directly with sales and are difficult to adjust in the short term. As a result, if sales for a quarter are below our expectations, we might not be able to reduce operating expenses for that quarter. Accordingly, a sales shortfall during a fiscal quarter, and in particular the fourth quarter of a fiscal year, could have a disproportionate effect on our operating results for that quarter or that year. Because of quarterly fluctuations, we believe that quarter-to-quarter comparisons of our operating results are not necessarily meaningful. Moreover, our operating results may not meet expectations of equity research analysts or investors. If this occurs, the trading price of our common stock could fall substantially either suddenly or over time.

We depend on a limited number of manufacturers, and our reputation and results of operations would be harmed if these manufacturers fail to meet our requirements.

We depend on a limited number of manufacturers, employing a dual-source strategy to mitigate potential manufacturing disruptions, and we have safety stock strategies for low-volume products that are not dual sourced. The majority of our contract manufacturing locations for our robots are currently located in China and we added additional manufacturing capacity in Malaysia in late 2019, where we expect to ramp up production in 2020. These manufacturers manage the supply chain for all of the raw materials and provide all facilities and labor required to manufacture our products. If these companies were to terminate their arrangements with us or fail to provide the required capacity and quality on a timely basis, there would be a disruption in manufacturing our products until replacement contract manufacturing services could be obtained or volume transferred to an alternative manufacturing partner, each of which is a costly and time-consuming process. We cannot assure you that we would be able to establish alternative manufacturing arrangements on acceptable terms or in a timely manner.

Our reliance on these contract manufacturers involves certain risks, including the following:

- lack of direct control over production capacity and delivery schedules;
- lack of direct control over quality assurance, manufacturing yields and production costs;
- lack of enforceable contractual provisions over the production and costs of consumer products;
- risk of loss of inventory while in transit;

- risks associated with international commerce, including unexpected changes in legal and regulatory requirements, changes in tariffs and trade policies, risks associated with the protection of intellectual property and political and economic instability; and
- risks that our attempts to add additional manufacturing resources may be significantly delayed and thereby create disruptions in production of our products.

Any interruption in the manufacture of our products would be likely to result in delays in shipment, lost sales and revenue and damage to our reputation in the market, all of which would harm our business and results of operations. In addition, because our purchase contracts with suppliers are typically denominated in U.S. dollars, changes in currency exchange rates may impact our suppliers who operate in local currency, which may cause our suppliers to seek price concessions on future orders.

If we fail to maintain or increase consumer robot sales through our distribution channels, our operating results would be negatively impacted.

We do not have long-term contracts regarding purchase volumes with any of our retail partners. As a result, purchases generally occur on an order-by-order basis, and the relationships, as well as particular orders, can generally be terminated or otherwise materially changed at any time prior to delivery, by our retail partners. A decision by a major retail partner, whether motivated by competitive considerations, financial difficulties, economic conditions or otherwise, to decrease its purchases from us, to reduce the shelf space for our products or to change its manner of doing business with us could significantly damage our consumer product sales and negatively impact our business, financial condition and results of operations. In addition, during recent years, various retailers, including some of our partners, have experienced significant changes and difficulties, including consolidation of ownership, increased centralization of purchasing decisions, restructuring, bankruptcies and liquidations. These and other financial problems of some of our retailers increase the risk of extending credit to these retailers. A significant adverse change in a retail partner relationship with us or in a retail partner's financial position could cause us to limit or discontinue business with that partner, require us to assume more credit risk relating to that partner's receivables or limit our ability to collect amounts related to previous purchases by that partner, all of which could harm our business and financial condition. Disruption of the iRobot on-line store could also decrease our consumer robot sales.

If critical components of our products that we currently purchase from a small number of suppliers become unavailable, we may incur delays in shipment, which could damage our business.

We and our outsourced manufacturers obtain hardware components, various subsystems, raw materials and batteries from a limited group of suppliers, some of which are sole suppliers. We do not have long-term agreements with all of these suppliers obligating them to continue to sell components or products to us. If we or our outsourced manufacturers are unable to obtain components from third-party suppliers in the quantities and of the quality that we require, on a timely basis and at acceptable prices, we may not be able to deliver our products on a timely or cost-effective basis to our customers, which could cause customers to terminate their contracts with us, reduce our gross margin and seriously harm our business, results of operations and financial condition. Moreover, if any of our suppliers become financially unstable, we may have to find new suppliers. It may take several months to locate alternative suppliers, if required, or to re-tool our products to accommodate components from different suppliers. We may experience significant delays in manufacturing and shipping our products to customers and incur additional development, manufacturing and other costs to establish alternative sources of supply if we lose any of these sources. We cannot predict if we will be able to obtain replacement components within the time frames that we require at an affordable cost, or at all.

Cybersecurity risks could adversely affect our business and disrupt our operations.

The threats to network and data security are increasingly diverse and sophisticated. Despite our efforts and processes to prevent breaches, our devices, as well as our servers, computer systems, and those of third parties that we use in our operations are vulnerable to cybersecurity risks, including cyber attacks such as viruses and worms, phishing attacks, distributed denial-of-service attacks, and similar disruptions from unauthorized tampering with our servers and computer systems or those of third parties that we use in our operations, which could lead to interruptions, delays, loss of critical data, and loss of consumer confidence. In addition, we may be the target of email scams that attempt to acquire sensitive information or company assets. Despite our efforts to create security barriers to such threats, we may not be able to entirely mitigate these risks. Any cyber attack that attempts to obtain our data and assets, disrupt our service, or otherwise access our systems, or those of third parties we use, if successful, could adversely affect our business, operating results, and financial condition, be expensive to remedy, and damage our reputation.

If we suffer data breaches involving the designs, schematics or source code for our products, our brand, business and financial results could be adversely affected.

We attempt to securely store our designs, schematics and source code for our products as they are created. A breach, whether physical, electronic or otherwise, of the systems on which this sensitive data is stored could lead to damage or piracy of our products. If we or our partners are subject to data security breaches, we may have a loss in sales or increased costs arising from the restoration or implementation of additional security measures, either of which could materially and adversely affect our brand, business and financial results.

We operate our business in jurisdictions where intellectual property theft or compromise is common.

Currently, we maintain significant operations in China, where a majority of our products are manufactured. Subject to contractual confidentiality obligations, we are required to share significant product design materials with third-parties necessary for the design and manufacture of our products. We cannot be sure that our data or intellectual property will not be compromised through cyber-intrusion, theft or other means, particularly when the data or intellectual property is held by partners in foreign jurisdictions. Should our intellectual property be compromised, it may be difficult to enforce our rights in China and other foreign jurisdictions in which we operate.

We collect, store, process, and use customer data, including certain personal and robot-specific information, which subjects us to governmental regulation and other legal obligations related to privacy, information security, and data protection, and any security breaches or our actual or perceived failure to comply with such legal obligations could harm our business.

Our latest Roomba products, as well as additional products in development, collect, store, process, and use certain customer data, which subjects us to governmental regulation and other legal obligations related to privacy, information security, and data protection, and any security breaches or our actual or perceived failure to comply with such legal obligations could harm our business. We collect, store, process, and use personal information and other user data, and we rely on third parties that are not directly under our control to do so as well. If our security measures, some of which are managed by third parties, are breached or fail, unauthorized persons may be able to obtain access to or acquire sensitive user data, which may expose us to a risk of loss, litigation, or regulatory proceedings. Depending on the nature of the information compromised, in the event of a data breach or other unauthorized access to or acquisition of our user data, we may also have obligations to notify users about the incident, and we may need to provide some form of remedy, such as a subscription to a credit monitoring service, for the individuals affected by the incident. In addition, the regulatory environment surrounding information security and privacy is increasingly demanding, with frequent imposition of new and changing requirements. For example, the European Union's ("EU") General Data Protection Regulation ("GDPR"), which became effective in May 2018, and the California Consumer Privacy Act, which became effective in January 2020, impose significant requirements on how we collect, process and transfer personal data, as well as significant fines for non-compliance. Compliance with changes in privacy and information security laws and standards may result in significant expense due to increased investment in technology and the development of new operational processes. Moreover, a growing number of legislative and regulatory bodies have adopted consumer notification requirements in the event of unauthorized access to or acquisition of certain types of personal data. Such breach notification laws continue to evolve and may be inconsistent from one jurisdiction to another. Complying with these obligations could cause us to incur substantial costs and could increase negative publicity surrounding any incident that compromises user data.

Further, we may be or become subject to data localization laws mandating that data collected in a foreign country be processed and stored only within that country. Russia adopted such a law in 2014, and it is expected that China will do so as well. If China or another country in which we have customers were to adopt a data localization law, we could be required to expand our data storage facilities there or build new ones in order to comply. The expenditure this would require, as well as costs of compliance generally, could harm our financial condition.

Acquisitions and potential future acquisitions may be difficult to integrate, divert the attention of key personnel, disrupt our business, dilute stockholder value and impair our financial results.

As part of our business strategy, we have recently acquired, and we intend to continue to consider additional acquisitions of, companies, technologies and products that we believe could accelerate our ability to compete in our core markets or allow us to enter new markets. For example, in April 2017, we acquired the iRobot-related distribution business of Sales On Demand Corporation ("SODC"), a privately-held corporation based in Tokyo, Japan, and in October 2017, we acquired Robopolis SAS ("Robopolis"), a privately-held corporation distributing iRobot products from offices in seven European countries. In April 2019, iRobot acquired Root Robotics, Inc. ("Root Robotics"), a privately-held corporation designing and selling an educational robot platform for STEM education.

Acquisitions and combinations are accompanied by a number of risks, including the difficulty of integrating the operations and personnel of the acquired companies, the potential disruption of our ongoing business, the potential distraction of management, potential difficulty in managing and maintaining key customer relationships, expenses related to the acquisition and potential unknown liabilities associated with acquired businesses. Any inability to integrate completed acquisitions or combinations in an efficient and timely manner could have an adverse impact on our results of operations. In addition, we may not be able to recognize any expected synergies or benefits in connection with our acquisitions of SODC, Robopolis, Root Robotics or any future acquisitions or combinations. If we are not successful in completing acquisitions or combinations that we may pursue in the future, we may incur substantial expenses and devote significant management time and resources without a successful result. In addition, future acquisitions could require use of substantial portions of our available cash, or result in dilutive issuances of securities or an increase in our levels of debt.

Our service providers may experience business interruptions, delays, or quality control issues, which may negatively impact our business and operating results.

As we expand our operations, we expect to use additional enterprise resource planning systems and account and technology service providers that may also be essential to managing our business. Our ability to manage our business would suffer if one or more of our providers suffer an interruption in their business, or experience delays, disruptions or quality control problems in their operations, or we have to change or add systems and services. While we conduct reasonable diligence on our service providers, we may not always be able to control the quality of the systems and services we receive from these providers, which could impair our ability to maintain appropriate internal controls over financial reporting and complete timely and accurate financial reporting, and may impact our business, operating results and financial condition.

Our valuation estimates for our recently completed and future acquisitions are based upon assumptions that may differ from actual results.

Charges to earnings as a result of acquisitions may adversely affect our operating results in the foreseeable future, which could have a material and adverse effect on the market value of our common stock. In particular, we have allocated the cost of acquiring businesses to the individual assets acquired and liabilities assumed, including various identifiable intangible assets such as acquired technology, acquired trade names and acquired customer relationships based on their respective fair values. Our estimates of fair value are based upon assumptions believed to be reasonable, but which are inherently uncertain. After we complete an acquisition, the following factors could result in material charges and adversely affect our operating results and may adversely affect our cash flows:

- costs incurred to combine the operations of businesses we acquire, such as transitional employee expenses and employee retention, redeployment or relocation expenses;
- impairment of goodwill or intangible assets;
- amortization of intangible assets acquired;
- a reduction in the useful lives of intangible assets acquired;
- identification of or changes to assumed contingent liabilities, both income tax and non-income tax related after our final determination of the amounts for these contingencies or the conclusion of the measurement period (generally up to one year from the acquisition date), whichever comes first;
- charges to our operating results to eliminate certain duplicative pre-merger activities, to restructure our operations or to reduce our cost structure; and
- charges to our operating results resulting from expenses incurred to effect the acquisition.

We depend on the experience and expertise of our senior management team and key technical employees, and the loss of any key employee may impair our ability to operate effectively.

Our success depends upon the continued services of our senior management team and key technical employees. Each of our executive officers, key technical personnel and other employees could terminate his or her relationship with us at any time. The loss of any member of our senior management team might significantly delay or prevent the achievement of our business objectives and could materially harm our business and customer relationships. In addition, because of the highly technical nature of our robots, the loss of any significant number of our existing engineering and project management personnel could have a material adverse effect on our business and operating results. In addition, increased turnover, particularly on the senior management team, with insufficient development of leadership talent and succession plans, could diminish employee confidence and increase risks for retaining key employees.

If we are unable to attract and retain additional skilled personnel, we may be unable to grow our business.

To execute our growth plan, we must attract and retain additional, highly-qualified personnel. Competition for hiring these employees is intense, especially with regard to engineers with high levels of experience in designing, developing and integrating robots and engineers with expertise in artificial intelligence, machine learning and cloud applications. Many of the companies with which we compete for hiring experienced employees have greater resources than we have. If we fail to attract new technical personnel or fail to retain and motivate our current employees, our business and future growth prospects could be severely harmed.

If we fail to protect, or incur significant costs in defending, our intellectual property and other proprietary rights, our business and results of operations could be materially harmed.

Our success depends on our ability to protect our intellectual property and other proprietary rights. We rely primarily on patents, trademarks, copyrights, trade secrets and unfair competition laws, as well as license agreements and other contractual provisions, to protect our intellectual property and other proprietary rights. Significant technology used in our products, however, is not the subject of any patent protection, and we may be unable to obtain patent protection on such technology in the future. Moreover, existing U.S. legal standards relating to the validity, enforceability and scope of protection of intellectual property rights offer only limited protection, may not provide us with any competitive advantages, and may be challenged by third parties. In addition, the laws of countries other than the United States in which we market our products may afford little or no effective protection of our intellectual property. Patents which may be granted to us in certain foreign countries may be subject to opposition proceedings brought by third parties or result in suits by us, which may be costly and result in adverse consequences for us. Accordingly, despite our efforts, we may be unable to prevent third parties from infringing upon or misappropriating our intellectual property or otherwise gaining access to our technology. Unauthorized third parties may try to copy or reverse engineer our products or portions of our products or otherwise obtain and use our intellectual property. If we fail to protect our intellectual property and other proprietary rights, our business, results of operations or financial condition could be materially harmed.

In addition, defending our intellectual property rights may entail significant expense. We believe that certain products in the marketplace may infringe our existing intellectual property rights. We have, from time to time, resorted to legal proceedings to protect our intellectual property and may continue to do so in the future. For example, on October 15, 2019, we initiated a patent infringement lawsuit in federal district court in Massachusetts against SharkNinja Operating LLC and its related entities ("SharkNinja") for infringement of 5 patents for technology related to robotic vacuum cleaners. In addition, we sought a preliminary injunction against SharkNinja for infringement of three U.S. patents. SharkNinja has in parallel sought declarations of non-infringement of thirteen U.S. patents owned by iRobot. On November 26, 2019, the federal district court in Massachusetts denied iRobot's motion for a preliminary injunction. Similarly, in 2017, we initiated a multi-party litigation at U.S. International Trade Commission (the "ITC") as well as in federal district court in Massachusetts based on claims of patent infringement. In November 2018, the ITC issued a Notice of Final Determination confirming that U.S. Patent No. 9,038,233 is valid and infringed, and that the infringing products for bObsweep, Inc., bObsweep USA, Hoover, and Shenzhen Silver Star Intelligent Technology Co., Ltd. should be barred from importation into the United States. Prior to the issuance of the Final Determination, iRobot entered into confidential settlements with Shenzhen Zhiyi Technology Co. Ltd. d/b/a iLife, Micro-Star International, Black & Decker, and Matsutek. There is no guarantee that we will prevail on other patent infringement claims against third parties. We may be required to expend significant resources to monitor and protect our intellectual property rights. In addition, any of our intellectual property rights may be challenged by others or invalidated through administrative processes or litigation. If we resort to legal proceedings to enforce our intellectual property rights or to determine the validity and scope of the intellectual property or other proprietary rights of others, the proceedings could result in significant expense to us and divert the attention and efforts of our management and technical employees, even if we were to prevail.

We may be sued by third parties for alleged infringement of their proprietary rights, which could be costly, time-consuming and limit our ability to use certain technologies in the future.

In the past we have faced multiple lawsuits based on claims of patent infringement. If the size of our markets increases, we would be more likely to be subject to claims that our technologies infringe upon the intellectual property or other proprietary rights of third parties. In addition, the vendors from which we license technology used in our products could become subject to similar infringement claims. Our vendors, or we, may not be able to withstand third-party infringement claims. Any claims, with or without merit, could be time-consuming and expensive, and could divert our management's attention away from the execution of our business plan. Moreover, any settlement or adverse judgment resulting from the claim could require us to pay substantial amounts or obtain a license to continue to use the technology that is the subject of the claim, or otherwise restrict or prohibit our use of the technology. There can be no assurance that we would be able to obtain a license from the third party asserting the claim on commercially reasonable terms, if at all, that we would be able to develop alternative technology on a timely basis, if at all, or that we would be able to obtain a license to use a suitable alternative technology to permit us to continue offering, and our customers to continue using, our affected product. In addition, we may be required to indemnify our retail and distribution partners for third-party intellectual property infringement claims, which would increase the cost to us of an adverse ruling in such a claim. An adverse determination could also prevent us from offering our products to others. Infringement claims asserted against us or our vendors may have a material adverse effect on our business, results of operations or financial condition.

In addition, we incorporate open source software into our products, and we may continue to incorporate open source software into our products in the future. Open source software is generally licensed by its authors or other third parties under open source licenses. Some of these licenses contain requirements that we make available source code for modifications or derivative works we create based upon the open source software, and that we license such modifications or derivative works under the terms of a particular open source license or other license granting third parties certain rights of further use. If an author or other third party that distributes open source software that we use or license were to allege that we had not complied with the conditions of the applicable license, we could be required to incur significant legal expenses defending against those allegations and could be subject to significant damages, enjoined from offering or selling our products that contained the open source software and required to comply with the foregoing conditions. Any of the foregoing could disrupt and harm our business and financial condition.

Significant developments from the recent and potential changes in U.S. trade policies have had, and we expect will continue to have, a material adverse effect on our business, financial condition and results of operations.

The U.S. government has indicated its intent to alter its approach to international trade policy and in some cases to renegotiate, or potentially terminate, certain existing bilateral or multi-lateral trade agreements and treaties with foreign countries. Effective September 24, 2018, the U.S. government implemented a 10% tariff on certain goods imported from China, which include the majority of those imported by the Company. These tariffs were increased to 25% on May 10, 2019 and were slated to further increase to 30% in October 2019 until a last-minute interim deal was reached between the United States and China. Although the United States and China signed a new trade agreement in January 2020, most of the previously-implemented tariffs on goods imported from China remain in place (including the tariffs described above), and uncertainty remains as to the short-term and long-term future of economic relations between the United States and China. These tariffs, and other governmental action relating to international trade agreements or policies, have directly or indirectly adversely impacted demand for our products, our costs, customers, suppliers, distributors, resellers and/or the U.S. economy or certain sectors thereof and, as a result, have adversely impacted, and we expect will continue to adversely impact, our business, financial condition and results of operations. The already-implemented, and any additional or increased, tariffs have caused and may in the future cause us to further increase prices to our customers which we believe has reduced, and in the future may reduce, demand for our products. The increased tariffs are a contributing cause for lowering our margin on products sold, and we expect a reduced margin going forward due to continuing tariffs. It remains unclear what the U.S. or foreign governments will or will not do with respect to tariffs, international trade agreements and policies on a short-term or long-term basis. We cannot predict future trade policy or the terms of any renegotiated trade agreements and their impacts on our business. The adoption and expansion of trade restrictions, the occurrence of a trade war, or other governmental action related to tariffs or trade agreements or policies has the potential to further adversely impact demand for our products, our costs, our customers, our suppliers, and the U.S. economy, which in turn could further adversely impact our business, financial condition and results of operations.

In response to international trade policy, as well as other risks associated with concentrated manufacturing in China, the Company has begun relocating a meaningful portion of its supply chain from China to Malaysia. Such relocation activities increase costs and risks associated with establishing new manufacturing facilities.

Global economic conditions and any associated impact on consumer spending could have a material adverse effect on our business, results of operations and financial condition.

Continued economic uncertainty and reductions in consumer spending, particularly in certain international markets such as the European Union, China and Japan, may result in reductions in sales of our consumer robots. Additionally, disruptions in credit markets may materially limit consumer credit availability and restrict credit availability of our retail customers, which would also impact purchases of our consumer robots. Any reduction in sales of our consumer robots, resulting from reductions in consumer spending or continued disruption in the availability of credit to retailers or consumers, could materially and adversely affect our business, results of operations and financial condition.

Because we are an increasingly global business that in the years ended December 28, 2019, December 29, 2018 and December 30, 2017 generated approximately 50.3%, 48.7% and 48.8%, respectively, of our total revenue from sales to customers outside of the United States, we are subject to a number of additional risks including foreign currency fluctuations. These risks are magnified with our expanding global presence as a result of our acquisitions of SODC and Robopolis. These foreign currency fluctuations may make our products more expensive to our distributors and end customers, which in turn may impact sales directly or the ability or willingness of our partners to invest in growing product demand.

Our primary exposure to movements in foreign currency exchange rates relates to non-U.S. dollar denominated sales and operating expenses worldwide. Weakening of foreign currencies relative to the U.S. dollar could adversely affect the U.S. dollar value of our foreign currency-denominated sales and earnings, and lead us to raise international pricing, which may reduce demand for our products. In some circumstances, for competitive or other reasons, we may decide not to raise local prices to fully offset the strengthening of the U.S. dollar, or for any other reason, which would adversely affect the U.S. dollar value of our foreign currency denominated sales and earnings. Conversely, a strengthening of foreign currencies relative to the U.S. dollar, while generally beneficial to our foreign currency-denominated sales and earnings, could cause us to reduce international pricing, incur losses on our foreign currency derivative instruments, and incur increased operating expenses, thereby limiting any benefit. Additionally, strengthening of foreign currencies may also increase our cost of product components denominated in those currencies, thus adversely affecting gross margins.

We use derivative instruments, such as foreign currency forward contracts, to hedge certain exposures to fluctuations in foreign currency exchange rates. The use of such hedging activities may not offset any, or only a portion, of the adverse financial effects of unfavorable movements in foreign exchange rates over the limited time the hedges are in place. In addition, our counterparties may be unable to meet the terms of the agreements. We seek to mitigate this risk by limiting counterparties to major financial institutions and by spreading the risk across several major financial institutions.

We are subject to a variety of U.S. and foreign laws and regulations that are central to our business; our failure to comply with these laws and regulations could harm our business or our operating results.

We are or may become subject to a variety of laws and regulations in the United States and abroad that involve matters central to our business, including laws and regulations regarding consumer protection, advertising, electronic commerce, intellectual property, manufacturing, anti-bribery and anti-corruption, and economic or other trade prohibitions or sanctions.

The increasingly global nature of our business operations subjects us to domestic and foreign laws and regulations such as the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act, and similar anti-bribery and anti-corruption laws in other jurisdictions. Our products are also subject to U.S. export controls, including the United States Department of Commerce's Export Administration Regulations and various economic and trade sanctions regulations established by the Treasury Department's Office of Foreign Assets Controls. Given the increasing number of foreign laws to which we are subject and the high level of complexity of these laws, there is a risk that some provisions may be inadvertently breached by us or by our subsidiaries, for example through fraudulent or negligent behavior of individual employees, our failure to comply with certain formal documentation requirements, or otherwise. If we incur liability for noncompliance under these laws or regulations, we may be forced to implement new measures to reduce our exposure to this liability. This may require us to expend substantial resources or to discontinue certain products or services, which would negatively affect our business, financial condition, and operating results. In addition, any negative publicity directed to us as a result of lawsuits, regulatory proceedings, and legislative proposals could harm our brand or otherwise impact the growth of our business. Any costs incurred as a result of compliance efforts or other liabilities under these laws or regulations could harm our business and operating results.

Environmental laws and regulations and unforeseen costs could negatively impact our future earnings.

The manufacture and sale of our products in certain states and countries may subject us to environmental and other regulations. We also face increasing complexity in our product design as we adjust to legal and regulatory requirements relating to our products. There is no assurance that such existing laws or future laws will not impair future earnings or results of operations.

Business disruptions resulting from international uncertainties could negatively impact our profitability.

We derive, and expect to continue to derive, a significant portion of our revenue from international sales in various European and Far East markets, and Canada, particularly following our acquisitions of SODC and Robopolis. For the fiscal years ended December 28, 2019, December 29, 2018 and December 30, 2017, sales to non-U.S. customers accounted for 50.3%, 48.7% and 48.8% of total revenue, respectively. We expect that international revenues will continue to account for a significant percentage of our revenues for the foreseeable future. Our international revenue and operations are subject to a number of material risks, including, but not limited to:

- difficulties in staffing, managing and supporting operations in multiple countries;
- difficulties in enforcing agreements and collecting receivables through foreign legal systems and other relevant legal issues;
- fewer legal protections for intellectual property;
- foreign and U.S. taxation issues, tariffs, and international trade barriers;
- difficulties in obtaining any necessary governmental authorizations for the export of our products to certain foreign jurisdictions;
- potential fluctuations in foreign economies;
- government currency control and restrictions on repatriation of earnings;
- fluctuations in the value of foreign currencies and interest rates;
- general economic and political conditions in the markets in which we operate;
- domestic and international economic or political changes, hostilities and other disruptions in regions where we currently operate or may operate in the future;
- changes in foreign currency exchange rates;
- different and changing legal and regulatory requirements in the jurisdictions in which we currently operate or may operate in the future; and
- our relationships with international distributors, some of whom may be operating without written contracts.

Negative developments in any of these areas in one or more countries could result in a reduction in demand for our products, the cancellation or delay of orders already placed, threats to our intellectual property, difficulty in collecting receivables, and a higher cost of doing business, any of which could negatively impact our business, financial condition or results of operations. Moreover, our sales to customers outside the United States are primarily denominated in Euro and Japenese Yen and fluctuations in the value of foreign currencies relative to the U.S. dollar may make our products more expensive than other products, which could harm our business.

The United Kingdom's exit from the EU, commonly referred to as "Brexit," has caused significant political and economic uncertainty in the United Kingdom, EU, and elsewhere. The impact of Brexit and the resulting turmoil on the political and economic future of the United Kingdom and the EU is uncertain, and we may be adversely affected in ways we cannot currently anticipate. The ultimate effects of Brexit will depend, in part, on any agreements the United Kingdom makes to retain access to the EU markets, and vice versa, either during a transitional period or more permanently. Brexit also may result in significant changes in the British regulatory environment, which could increase our compliance costs. We may find it more difficult to conduct business in the United Kingdom and the EU, as Brexit may result in increased regulatory complexity and increased restrictions on the movement of capital, goods and personnel. Any of these effects of Brexit, and other similar referenda that we cannot anticipate, could disrupt our operations and adversely affect our operating results.

If we experience a disaster or other business continuity problem, we may not be able to recover successfully, which could cause material financial loss, loss of human capital, regulatory actions, reputational harm, or legal liability.

If we experience a local or regional disaster or other business continuity problem, such as an earthquake, terrorist attack, pandemic or other natural or man-made disaster, our continued success will depend, in part, on the availability of our personnel, our office facilities, and the proper functioning of our computer, telecommunication and other related systems and operations. As we grow our operations in new geographic regions, the potential for particular types of natural or man-made disasters, political, economic or infrastructure instabilities, or other country- or region-specific business continuity risks increases. For example, in December 2019, a strain of coronavirus was reported to have surfaced in Wuhan, China, which may disrupt our supply chain and manufacturers, resulting in a disruption in manufacturing our products as further discussed above; see "*We depend on a limited number of manufacturers, and our reputation and results of operations would be harmed if these manufacturers fail to meet our requirements.*" Further, the emergence of the coronavirus has resulted in travel bans and restrictions, and suspension of travel within China and between China and other countries, which may disrupt our new product development if our employees cannot safely travel to China for prototype builds or production start. At this point, the extent to which the coronavirus may impact our results is uncertain.

The effects of regulations relating to conflict minerals may adversely affect our business.

On August 22, 2012, under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, the SEC adopted new requirements for companies that use certain minerals and metals, known as conflict minerals, in their products, whether or not these products are manufactured by third parties. These requirements require companies to research, disclose and report whether or not such minerals originate from the Democratic Republic of Congo and adjoining countries. The implementation of these requirements could adversely affect the sourcing, availability and pricing of such minerals if they are found to be used in the manufacture of our products. In addition, we continue to incur additional costs to comply with the disclosure requirements, including costs related to determining the source of any of the relevant minerals and metals used in our products. Since our supply chain is complex, we may not be able to sufficiently verify the origins for these minerals and metals used in our products through the due diligence procedures that we implement, which may harm our reputation. In such event, we may also face difficulties in satisfying customers who require that all of the components of our products are certified as conflict mineral free.

The market price of our common stock may fluctuate significantly.

The market price of our common stock has at times experienced substantial price volatility as a result of variations between our actual and anticipated financial results, announcements by us and our competitors, projections or speculation about our business or that of our competitors by the media or investment analysts or uncertainty about current global economic conditions. The stock market, as a whole, also has experienced extreme price and volume fluctuations that have affected the market price of the common stock of many technology companies in ways that may have been unrelated to such companies' operating performance. Furthermore, we believe the market price of our common stock should reflect future growth and profitability expectations. If we fail to meet these expectations, the market price of our common stock may significantly decline.

In addition, there are many other factors that may cause the market price of our common stock to fluctuate, including:

- actual or anticipated variations in our quarterly operating results, including fluctuations resulting from changes in foreign exchange rates or acquisitions by us, or the quarterly financial results of companies perceived to be similar to us;
- deterioration and decline in general economic, industry and/or market conditions;
- announcements of technological innovations or new products or services by us or our competitors;
- changes in estimates of our financial results or recommendations by market analysts;
- announcements by us or our competitors of significant projects, contracts, acquisitions, strategic alliances or joint ventures; and
- changes in our capital structure, such as future issuances of securities or the incurrence of additional debt.

We are subject to a variety of securities laws and regulations; any shareholder litigation concerning our compliance with such laws could be costly and time consuming and, if disposed unfavorably to us, could materially affect our financial condition or results of operations.

A purported class action complaint was filed on October 24, 2019 in the U.S. District Court for the Southern District of New York, alleging that we and certain of our directors and officers violated Sections 10(b) and 20(a) of the Exchange Act and Rule 10b-5 thereunder by making false and misleading statements and omissions concerning our acquisitions of Sales on Demand Corporation and Robopolis SAS and our subsequent financial performance. The complaint seeks, among other things, unspecified compensatory damages, including interest, in connection with our allegedly inflated stock price, attorneys' fees and costs, and unspecified equitable/injunctive relief. In addition, on December 20, 2019, January 9 and 22, 2020, and February 10, 2020, additional lawsuits were filed against us and certain of our directors and officers with similar allegations. An adverse determination in the securities class action lawsuit or other lawsuits could have a material adverse effect on us.

We believe that the allegations contained in these complaints are without merit and intend to defend the cases vigorously. Whether or not the plaintiff's claims in these lawsuits are successful, this type of litigation is often expensive and diverts management's attention and resources, and may cause harm to our public reputation, which could adversely affect the operation of our business. If we are ultimately required to pay significant defense costs, damages or settlement amounts, such payments could adversely affect our operations and financial condition.

We may also be the target of similar litigation in the future. Any future litigation could result in substantial costs and divert our management's attention and resources, which could cause serious harm to our business, operating results and financial condition. We maintain liability insurance, however, if any costs or expenses associated with this or any other litigation exceed our insurance coverage, we may be forced to bear some or all of these costs and expenses directly, which could be substantial.

Our income tax provision and other tax liabilities may be insufficient if taxing authorities are successful in asserting tax positions that are contrary to our position. Additionally, there is no guarantee that we will realize our deferred tax assets.

From time to time, we are audited by various federal, state, local and foreign authorities regarding income tax matters. Significant judgment is required to determine our provision for income taxes and our liabilities for federal, state, local and foreign taxes. Although we believe our approach to determining the appropriate tax treatment is supportable and in accordance with relevant authoritative guidance it is possible that a tax authority will take a final tax position that is materially different than that which is reflected in our income tax provision. Such differences could have a material adverse effect on our income tax provision or benefit, in the reporting period in which such determination is made and, consequently, on our results of operations, financial position and/or cash flows for such period.

The realization of our deferred tax assets ultimately depends on the existence of sufficient income in either the carryback or carryforward periods under the tax law. Due to significant estimates utilized in establishing a valuation allowance and the potential for changes in facts and circumstances, it is possible that we will be required to record a valuation allowance in future reporting periods. Our results of operations would be impacted negatively if we determine that a deferred tax asset valuation allowance is required in a future reporting period.

Provisions in our certificate of incorporation and by-laws or Delaware law might discourage, delay or prevent a change of control of our company or changes in our management and, therefore, depress the trading price of our common stock.

Provisions of our certificate of incorporation and by-laws and Delaware law may discourage, delay or prevent a merger, acquisition or other change in control that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares of our common stock. These provisions may also prevent or frustrate attempts by our stockholders to replace or remove our management. These provisions include:

- limitations on the removal of directors;
- a classified board of directors so that not all members of our board are elected at one time;
- advance notice requirements for stockholder proposals and nominations;
- the inability of stockholders to act by written consent or to call special meetings;
- the ability of our board of directors to make, alter or repeal our by-laws; and
- the ability of our board of directors to designate the terms of and issue new series of preferred stock without stockholder approval.

The affirmative vote of the holders of at least 75% of our shares of capital stock entitled to vote is necessary to amend or repeal the above provisions of our certificate of incorporation. In addition, absent approval of our board of directors, our by-laws may only be amended or repealed by the affirmative vote of the holders of at least 75% of our shares of capital stock entitled to vote.

In addition, Section 203 of the Delaware General Corporation Law prohibits a publicly-held Delaware corporation from engaging in a business combination with an interested stockholder, generally a person which together with its affiliates owns, or within the last three years has owned, 15% of our voting stock, for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner.

The existence of the foregoing provisions and anti-takeover measures could limit the price that investors might be willing to pay in the future for shares of our common stock. They could also deter potential acquirers of our company, thereby reducing the likelihood that you could receive a premium for your common stock in an acquisition.

Our products are complex and could have unknown defects or errors, which may give rise to claims against us, diminish our brand or divert our resources from other purposes.

Our robots rely on the interplay among behavior-based artificially intelligent systems, real-world dynamic sensors, user-friendly interfaces and tightly-integrated, electromechanical designs to accomplish their missions. Despite testing, our new or existing products have contained defects and errors and may in the future contain defects, errors or performance problems when first introduced, when new versions or enhancements are released, or even after these products have been used by our customers for a period of time. These problems could result in expensive and time-consuming design modifications or warranty charges, delays in the introduction of new products or enhancements, significant increases in our service and maintenance costs, exposure to liability for damages, mandatory or voluntary recall or product upgrades, damaged customer relationships and harm to our reputation, any of which could materially harm our results of operations and ability to achieve market acceptance. Our quality control procedures relating to the raw materials and components that it receives from third-party suppliers as well as our quality control procedures relating to its products after those products are designed, manufactured and packaged may not be sufficient. In addition, increased development and warranty costs, including the costs of any mandatory or voluntary recall, could be substantial and could reduce our operating margins. The existence of any defects, errors, or failures in our products could also lead to product liability claims or lawsuits against us. A successful product liability claim could result in substantial cost, diminish our brand and divert management's attention and resources, which could have a negative impact on our business, financial condition and results of operations.

We spend significant amounts on advertising and other marketing campaigns, which may not be successful or cost effective.

We spend significant amounts on advertising and other marketing campaigns, such as television, print advertising, and social media, as well as increased promotional activities, to acquire new customers, and we expect our marketing expenses to increase in the future as we continue to spend significant amounts to increase awareness of our consumer robot products. For the years ended December 28, 2019, December 29, 2018 and December 30, 2017, sales and marketing expenses were $231.5 million, $210.4 million and $162.1 million, respectively, representing approximately 19.1%, 19.3%, and 18.3% of our revenue, respectively. While we seek to structure our advertising campaigns in the manner that we believe is most likely to encourage people to purchase our products, we may fail to identify advertising opportunities that satisfy our anticipated return on advertising spend as we scale our investments in marketing or to fully understand or estimate the conditions and behaviors that drive customer behavior. If any of our advertising campaigns prove less successful than anticipated in attracting customers, we may not be able to recover our advertising spend, and our revenue may fail to meet market expectations, either of which could have an adverse effect on our business. There can be no assurance that our advertising and other marketing efforts will result in increased sales of our products.

If we fail to enhance our brand, our ability to expand our customer base will be impaired and our operating results may suffer.

We believe that developing and maintaining awareness of the iRobot brand is critical to achieving widespread acceptance of our existing and future products and is an important element in attracting new customers. Furthermore, we expect the importance of global brand recognition to increase as competition develops. If customers do not perceive our products to be of high quality, our brand and reputation could be harmed, which could adversely impact our financial results. In addition, brand promotion efforts may not yield significant revenue or increased revenue sufficient to offset the additional expenses incurred in building our brand. Maintaining, protecting, and enhancing our brand may require us to make substantial investments, and these investments may not be successful. If we fail to successfully maintain, promote, and position our brand and protect our reputation, or if we incur significant expenses in this effort, our business, financial condition and operating results may be adversely affected.

We may not be able to obtain capital when desired on favorable terms, if at all, or without dilution to our stockholders.

We anticipate that our current cash, cash equivalents, cash provided by operating activities and funds available through our credit facility, will be sufficient to meet our current and anticipated needs for general corporate purposes. We operate in an emerging technology market, however, which makes our prospects difficult to evaluate. It is possible that we may not generate sufficient cash flow from operations or otherwise have the capital resources to meet our future capital needs. In such cases we may need additional financing to execute on our current or future business strategies. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our stockholders could be significantly diluted, and these newly-issued securities may have rights, preferences or privileges senior to those of existing stockholders. We cannot assure you that additional financing will be available on terms favorable to us, or at all. If adequate funds are not available or are not available on acceptable terms, if and when needed, our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our products, or otherwise respond to competitive pressures would be significantly limited. In addition, our access to credit through our credit facility may be limited by the restrictive financial covenants contained in the agreement, which require us to maintain profitability.

ITEM 1B. ***UNRESOLVED STAFF COMMENTS***

None.

ITEM 2. ***PROPERTIES***

Our corporate headquarters are located in Bedford, Massachusetts, where we lease approximately 270,000 square feet. This lease expires on April 30, 2030. We also lease smaller facilities around the world. We believe that our leased facilities and additional or alternative space available to us will be adequate to meet our needs for the foreseeable future.

ITEM 3. ***LEGAL PROCEEDINGS***

From time to time and in the ordinary course of business, we are subject to various claims, charges and litigation. The outcome of litigation cannot be predicted with certainty and some lawsuits, claims or proceedings may be disposed of unfavorably to us, which could materially affect our financial condition or results of operations.

On October 24, 2019, purported Company shareholder Miramar Firefighters' Pension Fund filed a putative class action in the U.S. District Court for the Southern District of New York against the Company and certain of its directors and officers, captioned Miramar Firefighters' Pension Fund v. iRobot Corporation, et al., No. 1:19-cv-09837. The complaint alleges violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") and Rule 10b-5 thereunder based on allegedly false and misleading statements and omissions concerning the Company's acquisitions of Sales on Demand Corporation and Robopolis SAS and the Company's subsequent financial performance. The complaint seeks, among other things, unspecified compensatory damages, including interest, in connection with the Company's allegedly inflated stock price, attorneys' fees and costs, and unspecified equitable/injunctive relief. This case has been transferred to the U.S. District Court for the District of Massachusetts. A similar case captioned Campbell v. iRobot Corporation, et al., No. 1:19-cv-12483 was also filed in the U.S. District Court for the Southern District of New York and subsequently transferred to the U.S. District Court for the District of Massachusetts. On January 24, 2020, the Court consolidated the Miramar and Campbell cases and appointed a lead plaintiff and lead plaintiff's Counsel.

On December 20, 2019, purported Company shareholders David Katz and Thomas Wightman, derivatively on behalf of iRobot Corporation, filed a complaint in the U.S. District Court for Southern District of New York against the Company and certain of its directors and officers, captioned David Katz and Thomas Wightman, on behalf of iRobot Corporation v. iRobot Corporation, et al., No. 1:19-cv-11692. The complaint alleges breaches of fiduciary duties, unjust enrichment, violations of Sections 10(b) and 20(a) of the Exchange Act and Rule 10b-5 thereunder based on allegedly false and misleading statements and omissions concerning the Company's acquisitions of Sales on Demand Corporation and Robopolis SAS and the Company's subsequent financial performance. The complaint seeks, among other things, unspecified compensatory damages, including interest, in connection with the Company's allegedly inflated stock price, attorneys' fees and costs, and unspecified equitable/injunctive relief. This case has been transferred to the U.S. District Court for the District of Massachusetts.

On January 9, 2020, purported Company shareholder Robert Truman, derivatively on behalf of iRobot Corporation, filed a complaint in the U.S. District Court for the District of Massachusetts against the Company and certain of its directors and officers, captioned Robert Truman, on behalf of iRobot Corporation v. iRobot Corporation, et al., No. 1:20-cv-10034. The complaint alleges breaches of fiduciary duties, unjust enrichment, abuse of control, gross mismanagement, waste of corporate assets, and violations of Sections 10(b), 14(a) and 20(a) of the Exchange Act and Rule 10b-5 thereunder based on allegedly false and misleading statements and omissions concerning the Company's acquisitions of Sales on Demand Corporation and Robopolis SAS and the Company's subsequent financial performance. The complaint seeks, among other things, unspecified compensatory damages, including interest, in connection with the Company's allegedly inflated stock price, attorneys' fees and costs, and unspecified equitable/injunctive relief.

On January 22, 2020, purported Company shareholder Alexa Ruhfass, derivatively on behalf of iRobot Corporation, filed a complaint in the U.S. District Court for the District of Massachusetts against the Company and certain of its directors and officers, captioned Alexa Ruhfass, on behalf of iRobot Corporation v. iRobot Corporation, et al., No. 1:20-cv-10133. The complaint alleges breaches of fiduciary duties, unjust enrichment, waste of corporate assets, and violations of Sections 14(a) and 20(a) of the Exchange Act and Rule 10b-5 thereunder based on allegedly false and misleading statements and omissions concerning the Company's acquisitions of Sales on Demand Corporation and Robopolis SAS and the Company's subsequent financial performance. The complaint seeks, among other things, unspecified compensatory damages, including interest, in connection with the Company's allegedly inflated stock price, attorneys' fees and costs, and unspecified equitable/injunctive relief.

On February 10, 2020, purported Company shareholder William Tasco, derivatively on behalf of iRobot Corporation, filed a complaint in the U.S. District Court for the District of Massachusetts against the Company and certain of its directors and officers, captioned William Tasco, derivatively on behalf of iRobot Corporation v. iRobot Corporation, et al., No. 1:20-cv-10253. The complaint alleges breaches of fiduciary duties, unjust enrichment, abuse of control, gross mismanagement, waste of corporate assets, and violations of Sections 10(b), 14(a) and 20(a) of the Exchange Act and Rule 10b-5 thereunder based on allegedly false and misleading statements and omissions concerning the Company's acquisitions of Sales on Demand Corporation and Robopolis SAS and the Company's subsequent financial performance. The complaint seeks, among other things, unspecified compensatory damages, including interest, in connection with the Company's allegedly inflated stock price, attorneys' fees and costs, and unspecified equitable/injunctive relief.

ITEM 4. *MINE SAFETY DISCLOSURES*

Not Applicable.

PART II

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

Our common stock is listed on The Nasdaq Global Select Market under the symbol "IRBT." As of January 31, 2020, there were approximately 28,352,390 shares of our common stock outstanding held by approximately 166 stockholders of record.

Dividend Policy

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

Securities Authorized for Issuance Under Equity Compensation Plans

Information about our equity compensation plans is incorporated herein by reference to Item 12 of Part III of this Annual Report on Form 10-K.

ITEM 6. *SELECTED FINANCIAL DATA*

The following selected consolidated financial data are derived from the audited financial statements of the Company, and should be read in conjunction with our consolidated financial statements, the related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this Annual Report on Form 10-K. The historical results are not necessarily indicative of the results of future operations.

	Year Ended				
	December 28, 2019	**December 29, 2018**	**December 30, 2017**	**December 31, 2016**	**January 2, 2016**
	(In thousands, except earnings per share amounts)				
Consolidated Statements of Income:					
Total revenue	$ 1,214,010	$ 1,092,584	$ 883,911	$ 660,604	$ 616,778
Gross profit	543,927	555,428	433,159	319,315	288,926
Operating income	86,618	105,822	72,690	57,557	60,618
Income tax expense	13,533	20,630	25,402	19,422	18,841
Net income	85,300	87,992	50,964	41,939	44,130
Net Income Per Share:					
Basic	$ 3.04	$ 3.18	$ 1.85	$ 1.51	$ 1.49
Diluted	$ 2.97	$ 3.07	$ 1.77	$ 1.48	$ 1.47
Shares Used In Per Share Calculations:					
Basic	28,097	27,692	27,611	27,698	29,550
Diluted	28,735	28,640	28,753	28,292	30,107
Consolidated Balance Sheet Data:					
Cash and cash equivalents	$ 239,392	$ 130,373	$ 128,635	$ 214,523	$ 179,915
Short term investments	17,032	31,605	37,225	39,930	33,124
Total assets	920,753	766,961	691,522	507,912	521,743
Total liabilities	268,684	231,639	221,195	118,956	104,332
Total stockholders' equity	652,069	535,322	470,327	388,956	417,411

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

The information contained in this section has been derived from our consolidated financial statements and should be read together with our consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K. This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities and Exchange Act of 1934, as amended (the "Exchange Act"), and are subject to the "safe harbor" created by those sections. In particular, statements contained in this Annual Report on Form 10-K that are not historical facts, including, but not limited to statements concerning new product sales, product development and offerings, our consumer robots, our competition, our strategy, our market position, market acceptance of our products, seasonal factors, the impact of our acquisitions of SODC and Robopolis, revenue recognition, our profits, growth of our revenues, composition of our revenues, our cost of revenues, units shipped, average selling prices, the impact of promotional activity and tariffs, operating expenses, selling and marketing expenses, general and administrative expenses, research and development expenses, and compensation costs, our projected income tax rate, our credit and letter of credit facilities, our valuations of investments, valuation and composition of our stock-based awards, and liquidity, constitute forward-looking statements and are made under these safe harbor provisions. Some of the forward-looking statements can be identified by the use of forward-looking terms such as "believes," "expects," "may," "will," "should," "could," "seek," "intends," "plans," "estimates," "anticipates," or other comparable terms. Forward-looking statements involve inherent risks and uncertainties, which could cause actual results to differ materially from those in the forward-looking statements. We urge you to consider the risks and uncertainties discussed in greater detail under the heading "Risk Factors" in evaluating our forward-looking statements. We have no plans to update our forward-looking statements to reflect events or circumstances after the date of this report. We caution readers not to place undue reliance upon any such forward-looking statements, which speak only as of the date made.

Overview

iRobot is a leading global consumer robot company that designs and builds robots that empower people to do more both inside and outside the home. Our consumer robots help people find smarter ways to clean and accomplish more in their daily lives. iRobot's portfolio of solutions features proprietary technologies for the connected home and advanced concepts in cleaning, mapping and navigation, human-robot interaction, and physical solutions. Leveraging this portfolio, our engineers are building an ecosystem of robots to empower the smart home. For more than 25 years, we have been a pioneer in the robotics and consumer products industries.

Since our founding in 1990, we have developed expertise in the disciplines necessary to design, build, sell and support durable, high-performance and cost-effective robots through the close integration of software, electronics and hardware. Our core technologies serve as reusable building blocks that we adapt and expand to create next-generation robotic platforms. We believe that this approach accelerates the time to market, while also reducing the costs and risks associated with product development. Our significant expertise in consumer needs, robot design, engineering, and smart home technologies and trends positions us to capitalize on the growth we expect in the market for robot-based consumer products. Since the introduction of the Roomba robotic vacuum cleaner ("RVC") in 2002, we have sold more than 30 million consumer robots worldwide to become a global, market-leading consumer robotics innovator with a strong presence in major geographic regions worldwide.

During 2017, we expanded our global operations with the acquisition of two of our major distributors in Japan and Europe. In April 2017, we acquired the iRobot-related distribution business of Sales On Demand Corporation ("SODC"), based in Tokyo, Japan for approximately $16.6 million in cash. In October 2017, we acquired our largest European distributor, Robopolis SAS ("Robopolis"), a French company, for a final purchase price of $169.4 million in cash, net of acquired cash of $38.0 million. These acquisitions provided us more direct control of 75% of our global revenue through a direct presence in countries such as Austria, Belgium, France, Germany, Japan, the Netherlands, Portugal and Spain. Following the completion of the SODC and Robopolis acquisitions, we integrated these organizations into our company, and continue to take steps to consolidate various systems that we believe will further streamline and automate key processes.

In 2019, iRobot sold more than $1.2 billion in consumer robots while navigating more challenging market conditions marked by intensified price competition in EMEA and the United States, and more moderate RVC growth in the United States due in part to the direct and indirect impacts of higher tariffs on RVCs made in and imported from China. Our commitment to innovation and funding critical research and development projects continued to yield tangible results through new product launches and new and enhanced features and functionality. In addition to launching the Roomba i7 and i7+ in major international markets during 2019, we introduced our deepest cleaning RVCs, the Roomba s9 and s9+, and the Braava jet m6, our advanced robotic mop. We also took steps to commercialize our robotic lawn mower during 2019. Other highlights in 2019 included the commencement of production at a new Roomba manufacturing facility in Malaysia, the implementation of new pricing and promotional tactics aimed at restoring U.S. RVC growth and defending our leadership position in EMEA, and the acquisition of Root Robotics, Inc. ("Root Robotics"), which enhances our commitment to Science, Technology, Engineering and Math ("STEM") through new educational robots.

Our total revenue for 2019 was $1,214.0 million, which represents an 11.1% increase from revenue of $1,092.6 million for 2018. Domestic revenue grew $42.6 million, or 7.6%, and international revenue increased by $78.8 million, or 14.8%, primarily as a result of sales of new products that have been launched since the second half of 2018.

Fiscal Periods

We operate and report using a 52-53 week fiscal year ending on the Saturday closest to December 31. Accordingly, our fiscal quarters will end on the Saturday that falls closest to the last day of the third month of each quarter.

Critical Accounting Policies and Estimates

The preparation of financial statements in conformity with generally accepted accounting principles in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, revenue and expenses and the disclosure of contingent assets and liabilities in the consolidated financial statements. These estimates and judgments, include but are not limited to, revenue recognition including performance obligations, variable consideration and other obligations such as product returns and incentives; warranty costs; valuation of goodwill and acquired intangible assets; valuation of financial instruments; accounting for business combinations; evaluating loss contingencies; accounting for stock-based compensation including performance-based assessments; and accounting for income taxes and related valuation allowances. We base these estimates and judgments on historical experience, market participant fair value considerations, projected future cash flows and various other factors that we believe are reasonable under the circumstances. Actual results may differ from our estimates.

We believe that of our significant accounting policies, which are described in the notes to our consolidated financial statements, the following accounting policies involve a greater degree of judgment and complexity. Accordingly, we believe that the following accounting policies are the most critical to aid in fully understanding and evaluating our consolidated financial condition and results of operations.

Revenue Recognition

We primarily derive our revenue from product sales. We sell products directly to consumers through on-line stores and indirectly through resellers and distributors. Revenue is recognized upon transfer of control of promised products or services to customers, generally as title and risk of loss pass, in an amount that reflects the consideration we expect to receive in exchange for those products or services. Revenue is recognized only to the extent that it is probable that a significant reversal of revenue will not occur. Taxes collected from customers, which are subsequently remitted to governmental authorities, are excluded from revenue. Shipping and handling expenses are considered fulfillment activities and are expensed as incurred.

Our product portfolio includes various consumer robots, many of which are Wi-Fi connected. The consumer robots are generally highly dependent on, and interrelated with, the embedded software and cannot function without the software. As such, the consumer robots are accounted for as a single performance obligation, and the revenue is recognized at a point in time when the control is transferred to distributors, resellers or directly to end customers through online stores. For consumer robots with Wi-Fi capability ("connected robots"), each sale represents an arrangement with multiple promises consisting of the robot, an app, cloud services and potential future unspecified software upgrades. We have determined that the app, cloud services and potential future unspecified software upgrades represent one promised service to the customer to enhance the functionality and interaction with the robot (referred to collectively as "Cloud Services").

Prior to the adoption of ASU No. 2014-09, "Revenue from Contracts with Customers," ("ASC 606") on December 31, 2017, the beginning of fiscal year 2018, the revenue allocated to the Cloud Services was deferred and recognized on a straight-line basis over the expected life of the robot. On December 31, 2017, we adopted ASC 606 using the modified retrospective method applied to those contracts that were not completed as of the adoption date. Upon the adoption of ASC 606, we concluded that, on a quantitative and qualitative basis, the Cloud Services did not constitute a material performance obligation for the then existing products and, as such, these services were not considered a separate performance obligation that required allocation of transaction price. Under the modified retrospective method, we recognized the cumulative effect of the adoption and recorded a net increase of $1.0 million to the beginning retained earnings as of December 31, 2017.

During the third quarter of 2018, we launched Roomba i7 and i7+ which brought a new level of intelligence and automation to robotic vacuum cleaners with the ability to learn, map and adapt to a home's floor plan. We have concluded that beginning with this launch, the Cloud Services related to these new products are a material performance obligation. For contracts that contain multiple performance obligations, the transaction price is allocated to each performance obligation based on a relative standalone selling price ("SSP"). The SSP reflects our best estimate of what the selling prices of elements would be if they were sold regularly on a standalone basis. Revenue allocated to the robots is recognized at a point in time when control is transferred. Revenue allocated to the Cloud Services is deferred and recognized on a straight-line basis over the estimated period the software upgrades and services are expected to be provided.

Our products generally carry a one-year or two-year limited warranty that promises customers that delivered products are as specified. We do not consider these assurance-type warranties as a separate performance obligation and therefore, we account for such warranties under ASC 460, "Guarantees."

We provide limited rights of returns for direct-to-consumer sales generated through our on-line stores as well as certain resellers and distributors. In addition, we may provide other credits or incentives, including price protection, which are accounted for as variable consideration when estimating the amount of revenue to recognize. Where appropriate, these estimates take into consideration relevant factors such as our historical experience, current contractual requirements, specific known market events and trends and forecasted inventory level in the channels. Overall, these reserves reflect our best estimates, and the actual amounts of consideration ultimately received may differ from our estimates. Returns and credits are estimated at contract inception and updated at the end of each reporting period as additional information becomes available. As of December 28, 2019, we had reserves for product returns of $55.2 million and other credits and incentives of $134.0 million. As of December 29, 2018, we had reserves for product returns of $53.9 million and other credits and incentives of $97.7 million.

Business Combinations

We account for transactions that represent business combinations under the acquisition method of accounting. We allocate the total consideration paid for each acquisition to the assets we acquire and liabilities we assume based on their fair values as of the date of acquisition, including identifiable intangible assets. We base the fair value of identifiable intangible assets acquired in a business combination on valuations that use information and assumptions determined by management and which consider management’s best estimates of inputs and assumptions that a market participant would use. While we use best estimates and assumptions as part of the purchase price allocation process to accurately value assets acquired and liabilities assumed at the business combination date, the estimates and assumptions are inherently uncertain and subject to refinement. As a result, during the measurement period, which is generally one year from the acquisition date, any adjustment to the assets acquired and liabilities assumed is recorded against goodwill in the period in which the amount is determined. Any adjustment identified subsequent to the measurement period is included in operating results in the period in which the amount is determined.

Inventory

Inventory is stated at the lower of cost or net realizable value with cost being determined using the first-in, first-out method. We maintain a reserve for inventory items to provide for an estimated amount of excess or obsolete inventory.

Warranty

We typically provide a one-year or two-year warranty against defects in materials and workmanship and will either repair the goods, provide replacement products or refund amounts to the customer for defective product. We record estimated warranty costs based on historical experience, at the time revenue is recognized. Actual results could differ from these estimates, which could cause increases or decreases to the warranty reserves in future periods.

Goodwill and Other Long-Lived Assets

Goodwill represents the excess of the purchase price in a business combination over the fair value of the net tangible and intangible assets acquired. Goodwill is not amortized but rather is assessed for impairment at the reporting unit level annually during our fourth quarter of each fiscal year or more frequently if we believe indicators of impairment exist. Goodwill impairment, if any, is determined by comparing the reporting unit's fair value to its carrying value. An impairment loss is recognized in an amount equal to the excess of the reporting unit's carrying value over its fair value, up to the amount of goodwill allocated to the reporting unit.

Other long-lived assets consist principally of completed technology, tradename, customer relationships, reacquired distribution rights and non-competition agreements. Reacquired distribution rights are amortized on an accelerated basis, while all other intangible assets are amortized over their respective estimated useful lives on a straight-line basis, consistent with the pattern in which the economic benefits are being utilized.

We periodically evaluate the recoverability of other long-lived assets whenever events and changes in circumstances, such as reductions in demand or significant economic slowdowns in the industry, indicate that the carrying amount of an asset may not be fully recoverable. When indicators of impairment are present, the carrying values of the asset group are evaluated in relation to the future undiscounted cash flows of the underlying business. The net book value of the underlying asset is adjusted to fair value if the sum of the expected discounted cash flows is less than book value. Fair values are based on estimates of market prices and assumptions concerning the amount and timing of estimated future cash flows and assumed discount rates, reflecting varying degrees of perceived risk.

The impairment assessment of goodwill and other long-lived assets involves significant estimates and assumptions, which may be unpredictable and inherently uncertain. These estimates and assumptions include identification of reporting units and asset groups, long-term growth rates, profitability, estimated useful lives, comparable market multiples, and discount rates. Any changes in these assumptions could impact the result of the impairment assessment. There was no impairment of goodwill or other long-lived assets during fiscal 2019, 2018 and 2017.

Stock-Based Compensation

We account for stock-based compensation through recognition of the fair value of the stock-based compensation as a charge against earnings. The fair value of employee stock options is estimated at the grant date using the Black-Scholes option-pricing model. The fair value for time-based restricted stock units and performance-based restricted stock units is based on the closing share price of our common stock on the date of grant. For performance-based restricted stock units, the compensation cost is recognized based on the number of units expected to vest upon the achievement of the performance conditions. We recognize stock-based compensation as an expense on a straight-line basis, over the requisite service period. We account for forfeitures as they occur, rather than applying an estimated forfeiture rate.

Accounting for Income Taxes

Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis using enacted tax rates in effect in the years in which those temporary differences are expected to be recovered or settled in each jurisdiction. A valuation allowance is provided if, based upon the weight of available evidence, it is more likely than not that the related benefits will not be realized. We regularly review the deferred tax assets for recoverability considering historical profitability, projected future taxable income, future reversals of existing taxable temporary differences, as well as feasible tax planning strategies in each jurisdiction. As of December 28, 2019, December 29, 2018 and December 30, 2017, we had a valuation allowance of $3.8 million, $1.1 million and $0.8 million, respectively, for certain deferred tax assets for which we believe do not meet the "more likely than not" criteria for recognition.

We report a liability for unrecognized tax benefits resulting from uncertain tax positions taken or expected to be taken in a tax return. We recognize interest and penalties, if any, related to unrecognized tax benefits in the income tax provision.

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the "Act") was signed into law making significant changes to the Internal Revenue Code of 1986, as amended (the "Internal Revenue Code"). Effective for our 2018 tax year, the Act reduces the statutory federal corporate tax rate from 35% to 21% and implements certain additional provisions including the Global Intangible Low-Taxed Income inclusion and the Foreign-Derived Intangible Income deduction. Upon the enactment of the Act in December 2017, we recorded a one-time provisional income tax provision of $11.9 million in the fourth quarter of 2017, which included a provisional amount of $8.9 million related to the remeasurement of certain deferred tax assets and liabilities based on the tax rates at which they are expected to reverse in the future and $3.0 million related to the one-time transition tax on the mandatory deemed repatriation of foreign earnings. On December 22, 2017, the SEC staff issued Staff Accounting Bulletin No. 118 ("SAB 118") to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Act. In accordance with SAB 118, during the fourth quarter of 2018, we finalized our analysis of the income tax effects of the Act and determined no material adjustments to the provisional amounts recorded were required.

Overview of Results of Operations

The following table sets forth our results of operations for the periods shown (in thousands):

	Fiscal Year Ended		
	December 28, 2019	December 29, 2018	December 30, 2017
Revenue	$ 1,214,010	$ 1,092,584	$ 883,911
Cost of revenue:			
Cost of product revenue	658,362	518,612	438,114
Amortization of acquired intangible assets	11,721	18,544	12,638
Total cost of revenue	670,083	537,156	450,752
Gross profit	543,927	555,428	433,159
Operating expenses:			
Research and development	141,607	140,629	113,149
Selling and marketing	231,548	210,411	162,110
General and administrative	83,103	97,501	84,771
Amortization of acquired intangible assets	1,051	1,065	439
Total operating expenses	457,309	449,606	360,469
Operating income	86,618	105,822	72,690
Other income, net	12,215	2,800	3,676
Income before income taxes	98,833	108,622	76,366
Income tax expense	13,533	20,630	25,402
Net income	$ 85,300	$ 87,992	$ 50,964

The following table sets forth our results of operations as a percentage of revenue for the periods shown:

	Fiscal Year Ended		
	December 28, 2019	December 29, 2018	December 30, 2017
Revenue	100.0%	100.0%	100.0%
Cost of revenue:			
Cost of product revenue	54.2	47.5	49.6
Amortization of acquired intangible assets	1.0	1.7	1.4
Total cost of revenue	55.2	49.2	51.0
Gross margin	44.8	50.8	49.0
Operating expenses:			
Research and development	11.7	12.9	12.8
Selling and marketing	19.1	19.3	18.3
General and administrative	6.8	8.9	9.6
Amortization of acquired intangible assets	0.1	0.1	0.1
Total operating expenses	37.7	41.2	40.8
Operating income	7.1	9.6	8.2
Other income, net	1.0	0.3	0.5
Income before income taxes	8.1	9.9	8.7
Income tax expense	1.1	1.9	2.9
Net income	7.0%	8.0%	5.8%

Comparison of Years Ended December 28, 2019, December 29, 2018 and December 30, 2017

Revenue

We primarily derive our revenue from product sales. We sell products directly to consumers through on-line stores and indirectly through resellers and distributors. We recognize revenue upon transfer of control of promised products or services to customers, generally as title and risk of loss pass, in an amount that reflects total consideration, net of estimated returns and allowances.

The following table shows revenue for fiscal years 2019, 2018 and 2017 (dollars in thousands):

	Fiscal Year Ended				
	December 28, 2019	December 29, 2018	December 30, 2017	$ Change 2019 vs. 2018	$ Change 2018 vs. 2017
Revenue	$ 1,214,010	$ 1,092,584	$ 883,911	$ 121,426	$ 208,673

Year ended December 28, 2019 as compared to the year ended December 29, 2018

Revenue increased 11.1% to $1,214.0 million in fiscal 2019 from $1,092.6 million in fiscal 2018. The $121.4 million increase in revenue was driven by an increase in average selling price of 5.4%. The increase in average selling price was primarily driven by the launch of our new products during the second half of fiscal 2018 and throughout 2019. Total robots shipped in fiscal 2019 increased 10.0% to approximately 5.0 million units compared to approximately 4.5 million units in fiscal 2018. In fiscal 2019, domestic revenue increased $42.6 million, or 7.6%, and international revenue increased $78.8 million, or 14.8%, compared to fiscal 2018. The international revenue growth was driven primarily by increases in revenue from Japan and revenue from EMEA of 21% and 15%, respectively, compared to fiscal 2018.

Year ended December 29, 2018 as compared to the year ended December 30, 2017

Revenue increased 23.6% to $1,092.6 million in fiscal 2018 from $883.9 million in fiscal 2017. The $208.7 million increase in revenue was driven by a 21.6% increase in units shipped, primarily related to growth of sales of our Roomba 900 and 600 series robots, and a 6.5% increase in average selling price, partially due to the acquisition of Robopolis. Total robots shipped in fiscal 2018 were approximately 4.5 million units compared to approximately 3.7 million units in fiscal 2017. In fiscal 2018, domestic revenue increased $108.4 million, or 24.0%, and international revenue increased $100.2 million, or 23.2%, compared to fiscal 2017.

Cost of Product Revenue

Cost of product revenue includes the cost of materials, labor and overhead costs that go into the manufacture of our products. Overhead primarily includes costs such as freight, import duties, depreciation, warranty, tools and quality assurance costs. Material costs, which are our most significant cost items, can fluctuate materially on a periodic basis, although many components have been historically stable. There can be no assurance that our costs of materials will not increase. Contract manufacturer labor costs also comprise a significant portion of our cost of materials. We outsource the manufacture of our robots to contract manufacturers in Southern China and added manufacturing capacity in Malaysia during November 2019. While labor costs in these regions traditionally have been favorable compared to labor costs elsewhere in the world, including the United States, they have been increasing for the last few years. In addition, because our purchase contract with our contract manufacturers in China and Malaysia are typically denominated in U.S. dollars, changes in currency exchange rates may impact our suppliers and increase our prices.

The following table shows cost of product revenue for fiscal years 2019, 2018 and 2017 (dollars in thousands):

	Fiscal Year Ended				
	December 28, 2019	December 29, 2018	December 30, 2017	$ Change 2019 vs. 2018	$ Change 2018 vs. 2017
Cost of product revenue	$ 658,362	$ 518,612	$ 438,114	$ 139,750	$ 80,498
As a percentage of revenue	54.2%	47.5%	49.6%		

Year ended December 28, 2019 as compared to the year ended December 29, 2018

Cost of product revenue increased $139.8 million, or 26.9%, to $658.4 million in fiscal 2019, compared to $518.6 million in fiscal 2018. The increase is primarily due to the 11.1% increase in revenue and higher tariffs on our Roomba products imported into the United States from China. Effective September 24, 2018, tariffs on our Roomba products were set at 10%, and effective May 10, 2019, tariffs further increased to 25%.

Year ended December 29, 2018 as compared to the year ended December 30, 2017

Cost of product revenue increased $80.5 million, or 18.4%, to $518.6 million in fiscal 2018, compared to $438.1 million in fiscal 2017. The increase is primarily due to the 23.6% increase in revenue, partially offset by improvements in product cost.

Gross Profit

Our gross profit as a percentage of revenue, referred to as our gross margin, varies according to the mix of products sold, total sales volume, the level of promotional activities, and levels of other product costs such as warranty, scrap, re-work and overhead.

The following table shows gross profit for fiscal years 2019, 2018 and 2017 (dollars in thousands):

	Fiscal Year Ended				
	December 28, 2019	December 29, 2018	December 30, 2017	$ Change 2019 vs. 2018	$ Change 2018 vs. 2017
Gross profit	$ 543,927	$ 555,428	$ 433,159	$ (11,501)	$ 122,269
Gross margin	44.8%	50.8%	49.0%		

Year ended December 28, 2019 as compared to the year ended December 29, 2018

Gross profit decreased $11.5 million, or 2.1%, to $543.9 million (44.8% of revenue) in fiscal 2019 from $555.4 million (50.8% of revenue) in fiscal 2018. The decrease in gross margin was primarily related to increased promotional activity and pricing reductions for certain products as well as the increased tariffs on our Roomba products imported to the United States from China. We expect the impact of pricing and promotional activity and higher tariffs on our products to continue to constrain our gross margin in 2020.

Year ended December 29, 2018 as compared to the year ended December 30, 2017

Gross profit increased $122.3 million, or 28.2%, to $555.4 million (50.8% of revenue) in fiscal 2018 from $433.2 million (49.0% of revenue) in fiscal 2017. The increase in gross margin was primarily driven by favorable product and region mix as well as the increase in average selling price resulting from our acquisition of Robopolis.

Research and Development

Research and development expenses consist primarily of:

- salaries and related costs for our engineers;
- costs for high technology components used in product and prototype development;
- costs of test equipment used during product development; and
- occupancy and other overhead costs.

We have significantly expanded our research and development capabilities and expect to continue to expand these capabilities in the future. We are committed to consistently maintaining the level of innovative design and development of new products as we strive to enhance our ability to serve our existing consumer markets as well as new markets for robots. We anticipate that in 2020 research and development expenses will increase in absolute dollars but remain relatively consistent as a percentage of revenue.

The following table shows research and development costs for fiscal years 2019, 2018 and 2017 (dollars in thousands):

	Fiscal Year Ended				
	December 28, 2019	December 29, 2018	December 30, 2017	$ Change 2019 vs. 2018	$ Change 2018 vs. 2017
Research and development	$ 141,607	$ 140,629	$ 113,149	$ 978	$ 27,480
As a percentage of revenue	11.7%	12.9%	12.8%		

Year ended December 28, 2019 as compared to the year ended December 29, 2018

Research and development expenses increased $1.0 million, or 0.7%, to $141.6 million (11.7% of revenue) in fiscal 2019 from $140.6 million (12.9% of revenue) in fiscal 2018. This increase is primarily due to an increase in people-related costs of $8.3 million resulting from increased headcount, partially offset by lower program-related costs of $7.4 million and other efforts to control costs during fiscal 2019.

Year ended December 29, 2018 as compared to the year ended December 30, 2017

Research and development expenses increased $27.5 million, or 24.3%, to $140.6 million (12.9% of revenue) in fiscal 2018 from $113.1 million (12.8% of revenue) in fiscal 2017. This increase is attributable to increased efforts in product development and continued product enhancements. These investments enabled us to launch new products including Roomba i7, i7+ and e5 during 2018. During 2018, people and program related costs increased $15.0 million and $11.5 million, respectively, compared to fiscal 2017.

Selling and Marketing

Our selling and marketing expenses consist primarily of:

- salaries and related costs for sales and marketing personnel;
- advertising, marketing and other brand-building costs;
- customer service costs; and
- travel and related costs.

We anticipate that in 2020, selling and marketing expenses will increase in absolute dollars but remain relatively consistent as a percentage of revenue as we launch new products and digital features, evolve our go-to-market activities to drive direct-to-consumer sales and continue to build awareness of our products.

The following table shows selling and marketing costs for fiscal years 2019, 2018 and 2017 (dollars in thousands):

	Fiscal Year Ended				
	December 28, 2019	**December 29, 2018**	**December 30, 2017**	**$ Change 2019 vs. 2018**	**$ Change 2018 vs. 2017**
Selling and marketing	$ 231,548	$ 210,411	$ 162,110	$ 21,137	$ 48,301
As a percentage of revenue	19.1%	19.3%	18.3%		

Year ended December 28, 2019 as compared to the year ended December 29, 2018

Selling and marketing expenses increased by $21.1 million, or 10.0%, to $231.5 million (19.1% of revenue) in fiscal 2019 from $210.4 million (19.3% of revenue) in fiscal 2018. This increase is primarily attributable to an increase in marketing investments of $13.7 million to support our new product launches and certain promotional and advertising campaigns in all regions as well as higher people-related costs of $6.0 million. These increases were partially offset by lower incentive compensation and efforts to control overall sales and marketing costs.

Year ended December 29, 2018 as compared to the year ended December 30, 2017

Selling and marketing expenses increased by $48.3 million, or 29.8%, to $210.4 million (19.3% of revenue) in fiscal 2018 from $162.1 million (18.3% of revenue) in fiscal 2017. This increase is primarily attributable to marketing investments of $35.1 million to support our continued global marketing and branding efforts and higher people-related costs of $13.3 million including additional headcount related to our acquisitions of SODC and Robopolis in 2017.

General and Administrative

Our general and administrative expenses consist primarily of:

- salaries and related costs for executives and administrative personnel;
- professional services costs;
- information systems and infrastructure costs;
- travel and related costs; and
- occupancy and other overhead costs.

The following table shows general and administrative costs for fiscal years 2019, 2018 and 2017 (dollars in thousands):

	Fiscal Year Ended				
	December 28, 2019	December 29, 2018	December 30, 2017	$ Change 2019 vs. 2018	$ Change 2018 vs. 2017
General and administrative	$ 83,103	$ 97,501	$ 84,771	$ (14,398)	$ 12,730
As a percentage of revenue	6.8%	8.9%	9.6%		

Year ended December 28, 2019 as compared to the year ended December 29, 2018

General and administrative expenses decreased by $14.4 million, or 14.8%, to $83.1 million (6.8% of revenue) in fiscal 2019 from $97.5 million (8.9% of revenue) in fiscal 2018. This decrease is primarily attributable to lower short-term and long-term incentive compensation costs of $8.2 million and a decrease in legal costs of $4.1 million after favorable determination of a previously-disclosed intellectual property litigation suit in the fourth quarter of 2018.

Year ended December 29, 2018 as compared to the year ended December 30, 2017

General and administrative expenses increased by $12.7 million, or 15.0%, to $97.5 million (8.9% of revenue) in fiscal 2018 from $84.8 million (9.6% of revenue) in fiscal 2017. This increase is primarily attributable to an increase of $8.6 million in people-related costs including additional headcount related to our acquisitions of SODC and Robopolis in 2017 and $2.4 million related to investments in enterprise hardware and software maintenance, support and services.

Amortization of Acquired Intangible Assets

Amortization of acquired technology and reacquired distribution rights are recorded within cost of revenue whereas the amortization of acquired customer relationships, non-compete agreements and tradenames are recorded within operating expenses. Reacquired distribution rights are amortized on an accelerated basis, while all other intangible assets are amortized over their respective estimated useful lives on a straight-line basis, consistent with the pattern in which the economic benefits are being utilized.

The following table shows total amortization expense for fiscal years 2019, 2018 and 2017 (dollars in thousands):

	Fiscal Year Ended				
	December 28, 2019	December 29, 2018	December 30, 2017	$ Change 2019 vs. 2018	$ Change 2018 vs. 2017
Cost of revenue	$ 11,721	$ 18,544	$ 12,638	$ (6,823)	$ 5,906
Operating expense	1,051	1,065	439	(14)	626
Total amortization expense	$ 12,772	$ 19,609	$ 13,077	$ (6,837)	$ 6,532
As a percentage of revenue	1.1%	1.8%	1.5%		

The decrease in amortization of acquired intangible assets during fiscal 2019, as compared to fiscal 2018, was primarily related to the reacquired distribution rights intangible assets which are being amortized on an accelerated basis. The increase in amortization of acquired intangible assets during fiscal 2018, as compared to fiscal 2017, was related to acquired intangible assets from our acquisitions of SODC and Robopolis in 2017.

Other Income, Net

Other income, net includes interest income, interest expense, foreign currency gains (losses) as well as gains (losses) from strategic investments. The following table shows other income, net for fiscal years 2019, 2018 and 2017 (dollars in thousands):

	Fiscal Year Ended				
	December 28, 2019	December 29, 2018	December 30, 2017	$ Change 2019 vs. 2018	$ Change 2018 vs. 2017
Other income, net	$ 12,215	$ 2,800	$ 3,676	$ 9,415	$ (876)
As a percentage of revenue	1.0%	0.3%	0.5%		

Other income, net, amounted to $12.2 million, $2.8 million and $3.7 million for fiscal 2019, 2018 and 2017, respectively. During fiscal 2019, other income, net, included an $8.4 million gain on sale of an equity investment. During fiscal 2017, other income, net, included a $2.2 million gain on business acquisition related to our acquisition of SODC, which represents the excess of the fair value of the net assets acquired over the purchase price.

Income Tax Provision

The following table shows income tax provision for fiscal years 2019, 2018 and 2017 (dollars in thousands):

	Fiscal Year Ended				
	December 28, 2019	December 29, 2018	December 30, 2017	$ Change 2019 vs. 2018	$ Change 2018 vs. 2017
Income tax provision	$ 13,533	$ 20,630	$ 25,402	$ (7,097)	$ (4,772)
As a percentage of pre-tax income	13.7%	19.0%	33.3%		

Year ended December 28, 2019 as compared to the year ended December 29, 2018

We recorded an income tax provision of $13.5 million and $20.6 million for fiscal 2019 and fiscal 2018, respectively. The $13.5 million provision for fiscal 2019 resulted in an effective income tax rate of 13.7%. The $20.6 million provision for fiscal 2018 resulted in an effective income tax rate of 19.0%.

Our effective income tax rate of 13.7% for fiscal 2019 differed from the federal statutory tax rate of 21% primarily due to the recognition of tax benefits related to stock-based compensation. The decrease in the effective income tax rate of 13.7% for fiscal 2019 as compared to 19.0% for fiscal 2018 is primarily due to a discrete tax charge associated with a restructuring of the EMEA business and impacts from the remeasurement of certain deferred tax charges in fiscal 2018.

Year ended December 29, 2018 as compared to the year ended December 30, 2017

We recorded an income tax provision of $20.6 million and $25.4 million for fiscal 2018 and fiscal 2017, respectively. The $20.6 million provision for fiscal 2018 resulted in an effective income tax rate of 19.0%. The $25.4 million provision for fiscal 2017 resulted in an effective income tax rate of 33.3%.

Our effective income tax rate of 19.0% for fiscal 2018 differed from the federal statutory tax rate of 21% primarily due to the recognition of tax benefits related to stock-based compensation, partially offset by estimated taxes associated with a restructuring of the EMEA business and the remeasurement of certain deferred tax charges based on the tax rate at which it reversed. The decrease in the effective income tax rate of 19.0% for fiscal 2018 as compared to 33.3% for fiscal 2017 is primarily due to the recognition of benefits related to the reduction of the federal statutory tax rate from 35% in fiscal 2017 to 21% in fiscal 2018.

Liquidity and Capital Resources

At December 28, 2019, our principal sources of liquidity were cash and cash equivalents totaling $239.4 million, short-term investments of $17.0 million and accounts receivable of $146.2 million. Our working capital, which represents our total current assets less total current liabilities, was $391.7 million as of December 28, 2019, compared to $300.7 million as of December 29, 2018.

We manufacture and distribute our products through contract manufacturers and third-party logistics providers. We believe this approach gives us the advantages of relatively low capital investment and significant flexibility in scheduling production and managing inventory levels. By leasing our office facilities, we also minimize the cash needed for expansion. Accordingly, our capital spending is generally limited to machinery and tooling, leasehold improvements, business applications software and computer and equipment. In the fiscal years ended December 28, 2019, December 29, 2018 and December 30, 2017, we spent $35.3 million, $32.4 million and $23.4 million respectively, on capital expenditures.

Our strategy for delivering consumer products to our distributors and retail customers gives us the flexibility to provide container shipments directly from our contract manufacturers in Southern China and Malaysia to our customers and, alternatively, allows our distributors and certain retail customers to take possession of product on a domestic basis. Accordingly, our inventory consists of goods shipped to our third-party logistics providers for the fulfillment of distributor, retail and direct-to-consumer sales. Our contract manufacturers are also responsible for purchasing and stocking components required for the production of our products, and they typically invoice us when the finished goods are shipped.

Cash provided by operating activities

Year ended December 28, 2019 as compared to the year ended December 29, 2018

Net cash provided by our operations for the fiscal year ended December 28, 2019 was $130.1 million, of which the principal components were our net income of $85.3 million and non-cash charges of $48.6 million, partially offset by changes in working capital. The changes in working capital include decreases in accounts receivable of $13.1 million and inventory of $7.3 million, partially offset by a decrease in accounts payable and accrued liabilities of $20.9 million.

Year ended December 29, 2018 as compared to the year ended December 30, 2017

Net cash provided by our operations for the fiscal year ended December 29, 2018 was $71.7 million, of which the principal components were our net income of $88.0 million and non-cash charges of $53.4 million, partially offset by changes in working capital. The changes in working capital include an increase in inventory of $58.5 million and accounts receivable of $23.9 million, partially offset by an $18.9 million increase in accounts payable and accrued liabilities primarily due to growth in our inventory.

Cash used in investing activities

Year ended December 28, 2019 as compared to the year ended December 29, 2018

Net cash used in investing activities for the fiscal year ended December 28, 2019 was $20.9 million. During the year ended December 28, 2019, we invested $35.3 million in the purchase of property and equipment, including machinery and tooling for new products as well as expansion to a new manufacturing facility in Malaysia. In addition, we made strategic investments of $5.4 million and paid $2.8 million for a business acquisition. This was partially offset by proceeds of $12.9 million we received from the sales and maturities of marketable securities and $9.8 million upon the sale of an equity investment.

Year ended December 29, 2018 as compared to the year ended December 30, 2017

Net cash used in investing activities for the fiscal year ended December 29, 2018 was $26.4 million. During the year ended December 29, 2018, we invested $32.4 million in the purchase of property and equipment, including machinery and tooling for new products. We also purchased $6.4 million of marketable securities and made strategic investments of $4.2 million. This was partially offset by proceeds of $14.0 million we received from the sales and maturities of marketable securities and proceeds from equity investments of $0.9 million.

Cash provided by (used in) financing activities

Year ended December 28, 2019 as compared to the year ended December 29, 2018

Net cash used in financing activities for the fiscal year ended December 28, 2019 was $0.1 million. During the year ended December 28, 2019, we received $7.1 million from employee stock plans and paid $7.3 million upon vesting of restricted stock where 59,260 shares were retained by us to cover employee tax withholdings.

Year ended December 29, 2018 as compared to the year ended December 30, 2017

Net cash used in investing activities for the fiscal year ended December 29, 2018 was $43.2 million. During the year ended December 29, 2018, we completed our stock repurchase program and repurchased 798,794 shares of our common stock for an aggregate purchase price of $50.0 million and paid $3.5 million upon vesting of restricted stock where 50,884 shares were retained by us to cover employee tax withholdings . This was offset by proceeds of $10.4 million from employee stock plans.

Working Capital Facility

Credit Facility

In June 2018, we entered into a new agreement with Bank of America, N.A., increasing the amount of our unsecured revolving line of credit from $75.0 million to $150.0 million and extending the term of the credit facility to June 2023. As of December 28, 2019, we had no outstanding borrowings under our revolving credit facility. The revolving line of credit is available to fund working capital and other corporate purposes. The interest on loans under the credit facility accrues, at our election, at either (1) LIBOR plus a margin, currently equal to 1.0%, based on our ratio of indebtedness to Adjusted EBITDA (the "Eurodollar Rate"), or (2) the lender's base rate. The lender's base rate is equal to the highest of (1) the federal funds rate plus 0.5%, (2) the lender's prime rate or (3) the Eurodollar Rate plus 1.0%. In the event that LIBOR is discontinued as expected in 2021, we expect the interest rates for our debt following such event will be based on either alternate base rates or agreed upon replacement rates. While we do not expect a LIBOR discontinuation would affect our ability to borrow or maintain already outstanding borrowings, it could result in higher interest rates.

The credit facility contains customary terms and conditions for credit facilities of this type, including restrictions on our ability to incur or guarantee additional indebtedness, create liens, enter into transactions with affiliates, make loans or investments, sell assets, pay dividends or make distributions on, or repurchase, our stock, and consolidate or merge with other entities. In addition, we are required to meet certain financial covenants customary with this type of agreement, including maintaining a maximum ratio of indebtedness to Adjusted EBITDA and a minimum specified interest coverage ratio.

The credit facility contains customary events of default, including for payment defaults, breaches of representations, breaches of affirmative or negative covenants, cross defaults to other material indebtedness, bankruptcy and failure to discharge certain judgments. If a default occurs and is not cured within any applicable cure period or is not waived, our obligations under the credit facility may be accelerated.

As of December 28, 2019, we were in compliance with all covenants under the revolving credit facility.

Lines of Credit

We have an unsecured letter of credit facility with Bank of America, N.A., available to fund letters of credit up to an aggregate outstanding amount of $5.0 million. As of December 28, 2019, we had letters of credit outstanding of $0.5 million under our letter of credit facility.

We have an unsecured guarantee line of credit with Mizuho, Bank Ltd., available to fund import tax payments up to an aggregate outstanding amount of 220.0 million Japanese Yen. As of December 28, 2019, we had no outstanding balance under the guarantee line of credit.

Working Capital and Capital Expenditure Needs

We currently have no material cash commitments, except for normal recurring trade payables, expense accruals, capital expenditures and operating leases, all of which we anticipate funding through working capital, funds provided by operating activities and our existing revolving credit facility. We believe our outsourced approach to manufacturing provides us with flexibility in both managing inventory levels and financing our inventory. We believe our existing cash and cash equivalents, short-term investments, cash provided by operating activities, and funds available through our revolving line of credit will be sufficient to meet our working capital and capital expenditure needs over at least the next twelve months. In the event that our revenue plan does not meet our expectations, we may eliminate or curtail expenditures to mitigate the impact on our working capital. Our future capital requirements will depend on many factors, including our rate of revenue growth, the expansion of our marketing and sales activities, the timing and extent of spending to support product development efforts, the timing of introductions of new products and enhancements to existing products, the acquisition of new capabilities or technologies, and the continuing market acceptance of our products and services. Moreover, to the extent that existing cash and cash equivalents, short-term investments, cash from operations, and cash from short-term borrowing are insufficient to fund our future activities, we may need to raise additional funds through public or private equity or debt financing. As part of our business strategy, we may consider additional acquisitions of companies, technologies and products, which could also require us to seek additional equity or debt financing. Additional funds may not be available on terms favorable to us or at all.

Contractual Obligations

We generally do not enter into binding purchase commitments. Our principal commitments consist of obligations under our credit facility, leases for office space and minimum contractual obligations. Other obligations consist primarily of subscription services. The following table describes our commitments to settle contractual obligations in cash as of December 28, 2019 (in thousands):

	Payments Due by Period				
	Less Than 1 Year	1 to 3 Years	3 to 5 Years	More Than 5 Years	Total
Operating leases	$ 8,936	$ 15,855	$ 13,453	$ 34,957	$ 73,201
Minimum contractual payments	2,381	1,213	—	—	3,594
Other obligations	3,316	4,296	432	—	8,044
Total	$ 14,633	$ 21,364	$ 13,885	$ 34,957	$ 84,839

At December 28, 2019, we had outstanding purchase orders aggregating approximately $124.4 million. The purchase orders, the majority of which are with our contract manufacturers for the purchase of inventory in the normal course of business, are for manufacturing and non-manufacturing related goods and services, and are generally cancelable without penalty. In circumstances where we determine that we have financial exposure associated with any of these commitments, we record a liability in the period in which that exposure is identified.

Off-Balance Sheet Arrangements

As of December 28, 2019, we had no off-balance sheet arrangements as defined in Item 303(a)(4) of Regulation S-K.

Recently Adopted Accounting Pronouncements

See Note 2 to the accompanying consolidated financial statements for a description of recently adopted accounting standards.

Recently Issued Accounting Pronouncements

See Note 2 to the accompanying consolidated financial statements for a description of certain recently issued accounting standards which may impact our financial statements in future reporting periods.

ITEM 7A. *QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK*

Exchange Rate Sensitivity

Our international revenue and expenses are denominated in multiple currencies, including British Pounds, Canadian Dollars, Chinese Renminbi, Euros and Japanese Yen. As such, we have exposure to adverse changes in exchange rates associated with the revenue and operating expenses of our foreign operations. Any fluctuations in other currencies will have minimal direct impact on our international revenue.

In addition to international business conducted in foreign currencies, we have international revenue denominated in U.S. dollars. As the U.S. dollar strengthens or weakens against other currencies, our international distributors may be impacted, which could affect their profitability and our ability to maintain current pricing levels on our international consumer products.

We regularly monitor the forecast of non-U.S. dollar revenue and expenses and the level of non-U.S. dollar monetary asset and liability balances to determine if any actions, including possibly entering into foreign currency contracts, should be taken to minimize the impact of fluctuating exchange rates on our results of operations. Periodically, we enter into forward exchange contracts to hedge against foreign currency fluctuations. These contracts may or may not be designated as cash flow hedges for accounting purposes. We use cash flow hedges primarily to reduce the effects of foreign exchange rate changes on sales in Euros and Japanese Yen. At December 28, 2019 and December 29, 2018, we had outstanding cash flow hedges with a total notional value of $424.6 million and $366.7 million, respectively.

We also enter into economic hedges that are not designated as hedges from an accounting standpoint to reduce or eliminate the effects of foreign exchange rate changes typically related to short term trade receivables and payables. These contracts have maturities of ten months or less. At December 28, 2019 and December 29, 2018, we had outstanding economic hedges with a total notional value of $58.4 million and $56.0 million, respectively.

At December 28, 2019, assuming all other variables are constant, if the U.S. Dollar weakened or strengthened by 10%, the fair market value of our foreign currency contracts would increase or decrease by approximately $48.4 million.

Interest Rate Sensitivity

At December 28, 2019, we had unrestricted cash and cash equivalents of $239.4 million and short term investments of $17.0 million. The unrestricted cash and cash equivalents are held for working capital purposes. We do not enter into investments for trading or speculative purposes. Some of the securities in which we invest, however, may be subject to market risk. This means a change in prevailing interest rates may cause the fair market value of the investment to fluctuate. To minimize this risk in the future, we intend to maintain our portfolio of cash equivalents in a variety of securities, commercial paper, money market funds, debt securities and certificates of deposit. Due to the short-term nature of these investments, we believe we do not have any material exposure to changes in the fair value of our investment portfolio as a result of changes in interest rates. As of December 28, 2019, all of our cash and cash equivalents were held in demand deposits and money market funds.

ITEM 8. ***FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA***

iROBOT CORPORATION

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of
iRobot Corporation:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of iRobot Corporation and its subsidiaries (the "Company") as of December 28, 2019 and December 29, 2018, and the related consolidated statements of income, comprehensive income, stockholders’ equity and cash flows for each of the three years in the period ended December 28, 2019, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 28, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 28, 2019 and December 29, 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 28, 2019 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 28, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company’s consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

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

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

Critical Audit Matters

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

Allowance for Product Returns

As described in Notes 2 and 3 to the consolidated financial statements, the Company records an allowance for product returns based on specific terms and conditions included in the customer agreements, historical experience and management's expectation of future returns. The Company provides limited rights of returns for direct-to-consumer sales generated through its on-line stores and certain resellers and distributors. Returns and credits are estimated at contract inception and updated at the end of each reporting period as additional information becomes available. As of December 28, 2019, the Company had reserves for product returns of $55.2 million.

The principal considerations for our determination that performing procedures relating to the allowance for product returns is a critical audit matter are there was significant judgment by management in developing the allowance for product returns, including management's expectation of future returns. This in turn led to a high degree of auditor judgment, subjectivity and effort in performing procedures and evaluating audit evidence related to the allowance for product returns, including management's expectation of future returns.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the revenue recognition process, including the estimation of the allowance for product returns. These procedures also included, among others (i) testing management's process for developing the allowance for product returns, (ii) testing the completeness and accuracy of the underlying historical sales and returns data used by management to develop the allowance for product returns, and (iii) evaluating the reasonableness of historical returns experience by customer by product line and management's expectation of future returns.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts
February 13, 2020

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

iROBOT CORPORATION
CONSOLIDATED BALANCE SHEETS
(in thousands, except per share amounts)

	December 28, 2019	December 29, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	$ 239,392	$ 130,373
Short term investments	17,032	31,605
Accounts receivable, net	146,161	162,166
Inventory	157,347	164,633
Other current assets	34,285	25,660
Total current assets	594,217	514,437
Property and equipment, net	75,988	57,026
Operating lease right-of-use assets	47,478	—
Deferred tax assets	41,791	36,979
Goodwill	118,732	118,896
Intangible assets, net	12,352	24,273
Other assets	30,195	15,350
Total assets	$ 920,753	$ 766,961
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 116,185	$ 136,742
Accrued expenses	81,768	71,259
Deferred revenue and customer advances	4,549	5,756
Total current liabilities	202,502	213,757
Operating lease liabilities	54,928	—
Deferred tax liabilities	912	4,005
Other long-term liabilities	10,342	13,877
Total long-term liabilities	66,182	17,882
Total liabilities	268,684	231,639
Commitments and contingencies (Note 15)		
Preferred stock, 5,000 shares authorized and none outstanding	—	—
Common stock, $0.01 par value; 100,000 shares authorized; 28,352 and 27,788 shares issued and outstanding, respectively	284	278
Additional paid-in capital	196,455	172,771
Retained earnings	452,321	367,021
Accumulated other comprehensive income (loss)	3,009	(4,748)
Total stockholders' equity	652,069	535,322
Total liabilities and stockholders' equity	$ 920,753	$ 766,961

See accompanying Notes to Consolidated Financial Statements

iROBOT CORPORATION
CONSOLIDATED STATEMENTS OF INCOME
(in thousands, except per share amounts)

	Fiscal Year Ended		
	December 28, 2019	December 29, 2018	December 30, 2017
Revenue	$ 1,214,010	$ 1,092,584	$ 883,911
Cost of revenue:			
Cost of product revenue	658,362	518,612	438,114
Amortization of acquired intangible assets	11,721	18,544	12,638
Total cost of revenue	670,083	537,156	450,752
Gross profit	543,927	555,428	433,159
Operating expenses:			
Research and development	141,607	140,629	113,149
Selling and marketing	231,548	210,411	162,110
General and administrative	83,103	97,501	84,771
Amortization of acquired intangible assets	1,051	1,065	439
Total operating expenses	457,309	449,606	360,469
Operating income	86,618	105,822	72,690
Other income, net	12,215	2,800	3,676
Income before income taxes	98,833	108,622	76,366
Income tax expense	13,533	20,630	25,402
Net income	$ 85,300	$ 87,992	$ 50,964
Net income per share:			
Basic	$ 3.04	$ 3.18	$ 1.85
Diluted	$ 2.97	$ 3.07	$ 1.77
Number of shares used in per share calculations:			
Basic	28,097	27,692	27,611
Diluted	28,735	28,640	28,753

See accompanying Notes to Consolidated Financial Statements

iROBOT CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in thousands)

	Fiscal Year Ended		
	December 28, 2019	**December 29, 2018**	**December 30, 2017**
Net income	$ 85,300	$ 87,992	$ 50,964
Other comprehensive income (loss):			
Net foreign currency translation adjustments	(3,435)	(5,896)	1,994
Net unrealized gains (losses) on cash flow hedges, net of tax	12,363	(327)	490
Net gains on cash flow hedge reclassified into earnings, net of tax	(1,418)	(499)	(295)
Net unrealized gains (losses) on marketable securities, net of tax	247	(18)	(46)
Total comprehensive income	$ 93,057	$ 81,252	$ 53,107

See accompanying Notes to Consolidated Financial Statements

iROBOT CORPORATION
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)

	Common Stock		Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Stockholders' Equity
	Shares	Value				
Balance at December 31, 2016	27,238	$ 272	$ 161,885	$ 226,950	$ (151)	$ 388,956
Issuance of common stock under employee stock plans	367	4	10,569			10,573
Conversion of deferred compensation	15	—	—			—
Vesting of restricted stock units	376	4	(4)			—
Stock-based compensation			19,751			19,751
Stock withheld to cover tax withholdings requirements upon restricted stock vesting	(51)	(1)	(2,982)			(2,983)
Other comprehensive income					2,143	2,143
Directors' deferred compensation			65			65
Cumulative effect of a change in accounting principle related to stock-based compensation			783	75		858
Net income				50,964		50,964
Balance at December 30, 2017	27,945	$ 279	$ 190,067	$ 277,989	$ 1,992	$ 470,327
Issuance of common stock under employee stock plans	285	3	10,363			10,366
Vesting of restricted stock units	408	4	(4)			—
Stock-based compensation			25,804			25,804
Stock withheld to cover tax withholdings requirements upon restricted stock vesting	(51)	—	(3,532)			(3,532)
Other comprehensive loss					(6,740)	(6,740)
Directors' deferred compensation			65			65
Cumulative effect of a change in accounting principle related to adoption of ASC 606				1,040		1,040
Stock repurchases	(799)	(8)	(49,992)			(50,000)
Net income				87,992		87,992
Balance at December 29, 2018	27,788	$ 278	$ 172,771	$ 367,021	$ (4,748)	$ 535,322
Issuance of common stock under employee stock plans	187	2	7,145			7,147
Vesting of restricted stock units	436	5	(5)			—
Stock-based compensation			23,744			23,744
Stock withheld to cover tax withholdings requirements upon restricted stock vesting	(59)	(1)	(7,276)			(7,277)
Other comprehensive income					7,757	7,757
Directors' deferred compensation			76			76
Net income				85,300		85,300
Balance at December 28, 2019	28,352	$ 284	$ 196,455	$ 452,321	$ 3,009	$ 652,069

See accompanying Notes to Consolidated Financial Statements

iROBOT CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Fiscal Year Ended		
	December 28, 2019	**December 29, 2018**	**December 30, 2017**
Cash flows from operating activities:			
Net income	$ 85,300	$ 87,992	$ 50,964
Adjustments to reconcile net income to net cash provided by operating activities, net of the effects of acquisitions:			
Depreciation and amortization	37,159	36,574	25,499
Gain on sale of equity investment	(8,439)	—	—
Gain on business acquisition	—	—	(2,243)
Stock-based compensation	23,744	25,804	19,751
Deferred income taxes, net	(11,118)	(10,848)	(999)
Other	7,267	1,837	864
Changes in operating assets and liabilities — (use) source			
Accounts receivable	13,064	(23,920)	(53,251)
Inventory	7,307	(58,546)	(1,470)
Other assets	(3,310)	(8,533)	(10,562)
Accounts payable	(20,536)	22,470	17,457
Accrued expenses and other liabilities	(386)	(1,145)	30,305
Net cash provided by operating activities	130,052	71,685	76,315
Cash flows from investing activities:			
Additions of property and equipment	(35,337)	(32,422)	(23,371)
Change in other assets	(5,436)	(2,363)	(1,542)
Proceeds from sale of equity investments	9,787	856	1,267
Cash paid for business acquisitions, net of cash acquired	(2,817)	—	(148,765)
Purchases of investments	—	(6,438)	(10,578)
Sales and maturities of investments	12,880	14,000	13,066
Net cash used in investing activities	(20,923)	(26,367)	(169,923)
Cash flows from financing activities:			
Proceeds from employee stock plans	7,147	10,366	10,573
Income tax withholding payment associated with restricted stock vesting	(7,277)	(3,532)	(2,983)
Stock repurchases	—	(50,000)	—
Net cash (used in) provided by financing activities	(130)	(43,166)	7,590
Effect of exchange rate changes on cash and cash equivalents	20	(414)	130
Net increase (decrease) in cash and cash equivalents	109,019	1,738	(85,888)
Cash and cash equivalents, at beginning of period	130,373	128,635	214,523
Cash and cash equivalents, at end of period	$ 239,392	$ 130,373	$ 128,635
Supplemental disclosure of cash flow information			
Cash paid for income taxes	$ 22,582	$ 39,517	$ 25,879

See accompanying Notes to Consolidated Financial Statements

iROBOT CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Nature of the Business

iRobot Corporation ("iRobot" or the "Company") designs and builds robots that empower people to do more. The Company develops robotic technology and applies it to produce and market consumer robots. The Company's revenue is primarily generated from product sales through distributor and retail sales channels, as well as its on-line stores.

2. Summary of Significant Accounting Policies

Basis of Presentation and Foreign Currency Translation

The accompanying consolidated financial statements include those of iRobot and its subsidiaries, after elimination of all intercompany balances and transactions. iRobot has prepared the accompanying consolidated financial statements in conformity with accounting principles generally accepted in the United States of America ("GAAP"). In addition, certain prior year amounts have been reclassified to conform to the current year presentation.

For the Company's subsidiaries that transact in a functional currency other than the U.S. dollar, assets and liabilities are translated into U.S. dollars at period-end foreign exchange rates. Revenues and expenses are translated into U.S. dollars at the average foreign exchange rates for the period. Translation adjustments are excluded from the determination of net income and are recorded in accumulated other comprehensive income (loss), a separate component of stockholders' equity.

The Company operates and reports using a 52-53 week fiscal year ending on the Saturday closest to December 31. Accordingly, the Company's fiscal quarters end on the Saturday that falls closest to the last day of the third month of each quarter.

Use of Estimates

The preparation of these financial statements in conformity with GAAP requires the Company to make estimates and assumptions that affect the reported amounts of assets and liabilities and revenue and expenses. These estimates and judgments, include but are not limited to, revenue recognition, including performance obligations, variable consideration and other obligations such as product returns and incentives; warranty costs; valuation of goodwill and acquired intangible assets; valuation of financial instruments; accounting for business combinations; evaluating loss contingencies; accounting for stock-based compensation including performance-based assessments; and accounting for income taxes and related valuation allowances. The Company bases these estimates and judgments on historical experience, market participant fair value considerations, projected future cash flows and various other factors that the Company believes are reasonable under the circumstances. Actual results may differ from the Company's estimates.

Business Combinations

The Company accounts for transactions that represent business combinations under the acquisition method of accounting. The Company allocates the total consideration paid for each acquisition to the assets it acquires and liabilities it assumes based on their fair values as of the date of acquisition, including identifiable intangible assets. The Company bases the fair value of identifiable intangible assets acquired in a business combination on valuations that use information and assumptions determined by management and which consider management's best estimates of inputs and assumptions that a market participant would use. While the Company uses its best estimates and assumptions as part of the purchase price allocation process to accurately value assets acquired and liabilities assumed at the business combination date, its estimates and assumptions are inherently uncertain and subject to refinement. As a result, during the measurement period, which is generally one year from the acquisition date, any adjustment to the assets acquired and liabilities assumed is recorded against goodwill in the period in which the amount is determined. Any adjustment identified subsequent to the measurement period is included in operating results in the period in which the amount is determined.

Cash and Cash Equivalents

The Company considers all highly liquid investments with maturity of three months or less at the time of purchase to be cash and cash equivalents. The Company invests its excess cash primarily in money market funds or demand deposit accounts of major financial institutions. Accordingly, its cash and cash equivalents are subject to minimal credit and market risk. At December 28, 2019 and December 29, 2018, cash and cash equivalents totaled $239.4 million and $130.4 million, respectively. These cash and cash equivalents are carried at cost, which approximates fair value.

Short Term Investments

The Company's investments are classified as available-for-sale and are recorded at fair value with any unrealized gain or loss recorded as an element of stockholders' equity. The fair value of investments is determined based on quoted market prices at the reporting date for those instruments. Investments consisted of the following (in thousands):

	December 28, 2019		December 29, 2018	
	Cost	Fair Market Value	Cost	Fair Market Value
Corporate and government bonds	$ 17,016	$ 17,032	$ 30,035	$ 29,605
Convertible note	—	—	2,000	2,000
Total short term investments	$ 17,016	$ 17,032	$ 32,035	$ 31,605

As of December 28, 2019, the Company's investments had maturity dates ranging from February 2020 to March 2021. The Company invests primarily in investment grade securities and limits the amount of investment in any single issuer.

Accounts receivable allowances

Allowance for product returns: The Company records an allowance for product returns based on specific terms and conditions included in the customer agreements or based on historical experience and the Company's expectation of future returns.

Allowance for other credits and incentives: The Company records an allowance related to customer incentives such as discounts, promotions, price protection and other support programs. The allowance is based on specific terms and conditions included in customer agreements, specific programs and historical experience.

Allowance for doubtful accounts: The Company records an allowance for doubtful accounts for the estimated amount of accounts receivable that may not be collected based on an assessment of the potential risk of loss associated with delinquent accounts. The allowance including the activity within the allowance was immaterial for fiscal years 2019, 2018 and 2017. The balance at December 28, 2019 was $1.0 million.

Activity related to accounts receivable allowances was as follows (in thousands):

	Fiscal Year Ended		
	December 28, 2019	December 29, 2018	December 30, 2017
Allowance for product returns			
Balance at beginning of period	$ 53,920	$ 42,693	$ 27,673
Acquired balance	—	—	6,088
Provision	71,575	68,476	54,981
Deduction	(68,217)	(56,164)	(43,831)
Other adjustments	(2,087)	(1,085)	(2,218)
Balance at end of period	$ 55,191	$ 53,920	$ 42,693
Allowance for other credits and incentives			
Balance at beginning of period	$ 97,737	$ 61,359	$ 23,658
Acquired balance	—	—	11,932
Adjustment related to adoption of ASC 606	—	1,192	—
Provision	287,891	198,371	110,605
Deduction	(247,775)	(161,672)	(81,269)
Other adjustments	(3,807)	(1,513)	(3,567)
Balance at end of period	$ 134,046	$ 97,737	$ 61,359

Inventory

Inventory is stated at the lower of cost or net realizable value with cost being determined using the first-in, first-out method. The Company maintains a reserve for inventory items to provide for an estimated amount of excess or obsolete inventory.

Warranty

The Company typically provides a one-year or two-year warranty against defects in materials and workmanship and will either repair the goods, provide replacement products or refund amounts to the customer for defective product. The Company records estimated warranty costs based on historical experience, at the time revenue is recognized. Actual results could differ from these estimates, which could cause increases or decreases to the warranty reserves in future periods.

Property and Equipment

Property and equipment are recorded at cost and consist primarily of computer equipment, leasehold improvements, business applications software, tooling and machinery. Depreciation is computed using the straight-line method over the estimated useful lives as follows:

	Estimated Useful Life
Computer and equipment	2-5 years
Furniture and fixtures	5
Machinery and tooling	2-5
Business applications software	3-7
Leasehold improvements	Lesser of economic benefit period or term of lease

Expenditures for additions and betterments of property and equipment are capitalized. Expenditures for repairs and maintenance are charged to expense as incurred. As assets are retired or sold, the related cost and accumulated depreciation are removed from the accounts and any resulting gain or loss is recognized.

Goodwill and Other Long-Lived Assets

Goodwill represents the excess of the purchase price in a business combination over the fair value of the net tangible and intangible assets acquired. Goodwill is not amortized but rather is assessed for impairment at the reporting unit level annually during its fourth quarter of each fiscal year or more frequently if the Company believes indicators of impairment exist. Goodwill impairment, if any, is determined by comparing the reporting unit's fair value to its carrying value. An impairment loss is recognized in an amount equal to the excess of the reporting unit's carrying value over its fair value, up to the amount of goodwill allocated to the reporting unit.

Other long-lived assets consist principally of completed technology, tradename, customer relationships, reacquired distribution rights and non-competition agreements. Reacquired distribution rights are amortized on an accelerated basis while all other intangible assets are amortized over their respective estimated useful lives on a straight-line basis, consistent with the pattern in which the economic benefits are being utilized.

The Company periodically evaluates the recoverability of other long-lived assets whenever events and changes in circumstances, such as reductions in demand or significant economic slowdowns in the industry, indicate that the carrying amount of an asset may not be fully recoverable. When indicators of impairment are present, the carrying values of the asset group are evaluated in relation to the future undiscounted cash flows of the underlying business. The net book value of the underlying asset is adjusted to fair value if the sum of the expected discounted cash flows is less than book value. Fair values are based on estimates of market prices and assumptions concerning the amount and timing of estimated future cash flows and assumed discount rates, reflecting varying degrees of perceived risk.

The impairment assessment of goodwill and other long-lived assets involves significant estimates and assumptions, which may be unpredictable and inherently uncertain. These estimates and assumptions include identification of reporting units and asset groups, long-term growth rates, profitability, estimated useful lives, comparable market multiples, and discount rates. Any changes in these assumptions could impact the result of the impairment assessment. There was no impairment of goodwill or other long-lived assets during fiscal 2019, 2018 and 2017.

Other Assets

The Company holds non-marketable equity securities as part of its strategic investments portfolio. The Company classifies the majority of these securities as equity securities without readily determinable fair values and measures these investments at cost, less any impairment, adjusted for observable price changes. These investments are valued using significant unobservable inputs or data in an inactive market and the valuation requires the Company's judgment due to the absence of market prices and inherent lack of liquidity. The estimated fair value is based on quantitative and qualitative factors including, but not limited to, subsequent financing activities by the investee and projected discounted cash flows. At December 28, 2019 and December 29, 2018, other assets consisted primarily of equity securities without readily determinable fair values and an equity method investment totaling $21.0 million and $15.1 million, respectively. On October 17, 2019, the Company disposed of one of its non-marketable equity securities, resulting in a gain of $8.4 million which was recorded in other income, net. In January 2020, Teladoc Health, Inc. announced that it had entered into a definitive agreement to acquire InTouch Health, one of the Company's strategic investees, with an expected closing date of no later than June 30, 2020. The Company expects to record a gain in other income, net at closing.

Financial Instruments and Hedging Activities

The Company utilizes derivative instruments to hedge specific financial risks including foreign exchange risk. The Company does not engage in speculative hedging activity. In order to account for a derivative instrument as a hedge, specific criteria must be met, including: (i) ensuring at the inception of the hedge that formal documentation exists for both the hedging relationship and the entity's risk management objective and strategy for undertaking the hedge and (ii) at the inception of the hedge and on an ongoing basis, the hedging relationship is expected to be highly effective in achieving offsetting changes in fair value attributed to the hedged risk during the period that the hedge is designated. Further, an assessment of effectiveness is required whenever financial statements or earnings are reported. Absent meeting these criteria, changes in fair value are recognized in other income, net, in the consolidated statements of income. Once the underlying forecasted transaction is realized, the gain or loss from the derivative designated as a hedge of the transaction is reclassified from accumulated other comprehensive income (loss) to the statement of income, in revenue or cost of revenue.

Fair Value Measurements

The Company accounts for certain assets and liabilities at fair value. The fair value is established based on a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value. These tiers include:

- Level 1 - observable inputs such as quoted prices for identical instruments in active markets;
- Level 2 - inputs other than quoted prices in active markets that are either directly or indirectly observable; and
- Level 3 - unobservable inputs in which little or no market data exists, therefore requiring an entity to develop its own assumptions.

Stock-Based Compensation

The Company accounts for stock-based compensation through recognition of the fair value of the stock-based compensation as a charge against earnings. The fair value of employee stock options is estimated at the grant date using the Black-Scholes option-pricing model. The fair value for time-based restricted stock units and performance-based restricted stock units is based on the closing share price of the Company's common stock on the date of grant. For performance-based restricted stock units, the compensation cost is recognized based on the number of units expected to vest upon the achievement of the performance conditions. The Company recognizes stock-based compensation as an expense on a straight-line basis, over the requisite service period. The Company accounts for forfeitures as they occur, rather than applying an estimated forfeiture rate.

Research and Development

Costs incurred in the research and development of the Company's products are expensed as incurred.

Advertising Expense

The Company expenses advertising costs as they are incurred. During the years ended December 28, 2019, December 29, 2018 and December 30, 2017 advertising expense totaled $125.0 million, $114.0 million and $91.8 million, respectively, and are recorded within the selling and marketing expenses in its consolidated statements of income.

Income Taxes

Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis using enacted tax rates in effect in the years in which those temporary differences are expected to be recovered or settled in each jurisdiction. A valuation allowance is provided if, based upon the weight of available evidence, it is more likely than not that the related benefits will not be realized. The Company regularly reviews the deferred tax assets for recoverability considering historical profitability, projected future taxable income, future reversals of existing taxable temporary differences, as well as feasible tax planning strategies in each jurisdiction. As of December 28, 2019, December 29, 2018 and December 30, 2017, the Company had a valuation allowance of $3.8 million, $1.1 million and $0.8 million, respectively, for certain deferred tax assets for which the Company believes do not meet the "more likely than not" criteria for recognition.

The Company reports a liability for unrecognized tax benefits resulting from uncertain tax positions taken or expected to be taken in a tax return. The Company recognizes interest and penalties, if any, related to unrecognized tax benefits in the income tax provision.

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the "Act") was signed into law making significant changes to the Internal Revenue Code of 1986, as amended (the "Internal Revenue Code"). Effective for the Company’s 2018 tax year, the Act reduces the statutory federal corporate tax rate from 35% to 21% and implements certain additional provisions including the Global Intangible Low-Taxed Income inclusion and the Foreign-Derived Intangible Income deduction. Upon the enactment of the Act in December 2017, the Company recorded a one-time provisional income tax provision of $11.9 million in the fourth quarter of 2017 which included a provisional amount of $8.9 million related to the remeasurement of certain deferred tax assets and liabilities based on the tax rates at which they are expected to reverse in the future and $3.0 million related to the one-time transition tax on the mandatory deemed repatriation of foreign earnings. On December 22, 2017, the SEC staff issued Staff Accounting Bulletin No. 118 ("SAB 118") to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Act. In accordance with SAB 118, during the fourth quarter of 2018, the Company finalized its analysis of the income tax effects of the Act and there were no material adjustments to the provisional amounts recorded.

Concentration of Credit Risk and Significant Customers

Financial instruments which potentially expose the Company to concentrations of credit risk consist of accounts receivable and cash and cash equivalents. Management believes its credit policies are prudent and reflect normal industry terms and business risk. At December 28, 2019 and December 29, 2018, two customers accounted for a total of 26.6% and 23.1% of the Company's accounts receivable balance, respectively. For the fiscal years ended December 28, 2019, December 29, 2018, and December 30, 2017, the Company generated 21.3%, 17.3% and 13.5%, respectively, of total revenue from one of its retailers (Amazon).

The Company maintains its cash in bank deposit accounts and money market funds at high quality financial institutions. The individual balances, at times, may exceed federally insured limits.

Net Income Per Share

Basic income per share is calculated using the Company's weighted-average outstanding common shares. Diluted income per share is calculated using the Company's weighted-average outstanding common shares including the dilutive effect of stock awards as determined under the treasury stock method. The following table presents the calculation of both basic and diluted net income per share:

	Fiscal Year Ended		
	December 28, 2019	December 29, 2018	December 30, 2017
Net income	$ 85,300	$ 87,992	$ 50,964
Weighted-average shares outstanding	28,097	27,692	27,611
Dilutive effect of employee stock plans	638	948	1,142
Diluted weighted-average shares outstanding	28,735	28,640	28,753
Basic income per share	$ 3.04	$ 3.18	$ 1.85
Diluted income per share	$ 2.97	$ 3.07	$ 1.77

Restricted stock units and stock options representing approximately 0.2 million, 0.0 million and 0.0 million shares of common stock for the fiscal years ended December 28, 2019, December 29, 2018 and December 30, 2017, respectively, were excluded from the computation of diluted earnings per share as their effect would have been antidilutive.

Recently Adopted Accounting Standards

In June 2018, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2018-07, "Compensation - Stock Compensation: Improvements to Nonemployee Share-Based Payment Accounting (Topic 718)." The amendments in ASU No. 2018-07 expand the scope of Topic 718 to include share-based payments issued to nonemployees for goods or services. The amendments in this ASU are effective for annual periods beginning after December 15, 2018 and interim periods within those annual periods, with early adoption permitted. The Company adopted this standard effective December 30, 2018 which did not have a material impact on the Company's consolidated financial statements and related disclosures.

In February 2016, the FASB issued ASU No. 2016-02 "Leases." This ASU and subsequently issued amendments require lessees to recognize the assets and liabilities on their balance sheet for the rights and obligations created by most leases and continue to recognize expenses on their income statements over the lease term. The standard also requires disclosures designed to give financial statement users information on the amount, timing and uncertainty of cash flows arising from leases. In July 2018, the FASB issued ASU No. 2018-11, "Leases (Topic 842): Targeted Improvements," which provide an alternative transition method that entities can elect when adopting the new standard. Under this alternative transition method, a company is permitted to use its effective date as the date of initial application without restating comparative period financial statements. The Company adopted the standard effective December 30, 2018 using the alternative transition method which resulted in the recognition of operating lease right-of-use assets and operating lease liabilities of approximately $52.8 million and $67.3 million, respectively. The Company's consolidated financial statements as of and for the year ended December 28, 2019 are presented under the new standard, while the comparative fiscal years presented are not adjusted and continue to be reported in accordance with the historical accounting policy. See Note 4, "Leases," for the required disclosures related to the impact of adopting this standard and a discussion of the Company's updated policies related to lease accounting.

Recently Issued Accounting Standards

In December 2019, the FASB issued ASU No. 2019-12, "Income Taxes - Simplifying the Accounting for Income Taxes." The ASU simplifies the accounting for income taxes by removing certain exceptions to the general principles as well as clarifying and amending existing guidance to improve consistent application. The amendments to this ASU are effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020, with early adoption permitted. Depending on the amendment, adoption may be applied on the retrospective, modified retrospective or prospective basis. The Company intends to adopt the ASU effective January 3, 2021, and is currently evaluating the impact to the consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-15, "Intangibles - Goodwill and Other Internal-Use Software." The new standard aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal use software license). The amendments to this ASU are effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019, with early adoption permitted. Implementation should be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. The Company intends to adopt the ASU using the prospective method effective December 29, 2019, and does not expect the new standard will have a material impact on its consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-13, "Fair Value Measurement: Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement." The amendment modifies disclosure requirements related to fair value measurement. The amendments to this ASU are effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. Implementation on a prospective or retrospective basis varies by specific disclosure requirement. Early adoption is permitted. The standard also allows for early adoption of any removed or modified disclosures upon issuance of this ASU while delaying adoption of the additional disclosures until their effective date. The Company does not believe this amendment will have a material impact on its consolidated financial statements.

In June 2016, the FASB issued ASU No. 2016-13, "Measurement of Credit Losses on Financial Instruments," which amends the impairment model by requiring entities to use a forward-looking approach based on expected losses rather than incurred losses to estimate credit losses on certain types of financial instruments. This may result in the earlier recognition of allowances for losses. The guidance is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years, with early adoption permitted. The Company intends to adopt the ASU effective December 29, 2019. The Company does not believe the new standard will have a material impact on its consolidated financial statements.

From time to time, new accounting pronouncements are issued by FASB that are adopted by the Company as of the specified effective date. Unless otherwise discussed, the Company believes that recently issued standards, which are not yet effective, will not have a material impact on the Company’s consolidated financial statements upon adoption.

3. Revenue Recognition

The Company primarily derives its revenue from product sales. The Company sells products directly to consumers through on-line stores and indirectly through resellers and distributors. Revenue is recognized upon transfer of control of promised products or services to customers, generally as title and risk of loss pass, in an amount that reflects the consideration the Company expects to receive in exchange for those products or services. Revenue is recognized only to the extent that it is probable that a significant reversal of revenue will not occur. Taxes collected from customers, which are subsequently remitted to governmental authorities, are excluded from revenue. Shipping and handling expenses are considered fulfillment activities and are expensed as incurred.

The Company’s product portfolio includes various consumer robots, many of which are Wi-Fi connected. The consumer robots are generally highly dependent on, and interrelated with, the embedded software and cannot function without the software. As such, the consumer robots are accounted for as a single performance obligation, and the revenue is recognized at a point in time when the control is transferred to distributors, resellers or directly to end customers through online stores. For consumer robots with Wi-Fi capability ("connected robots"), each sale represents an arrangement with multiple promises consisting of the robot, an app, cloud services and potential future unspecified software upgrades. The Company has determined that the app, cloud services and potential future unspecified software upgrades represent one promised service to the customer to enhance the functionality and interaction with the robot (referred to collectively as "Cloud Services").

Prior to the adoption of ASU No. 2014-09, "Revenue from Contracts with Customers," ("ASC 606") on December 31, 2017, the beginning of fiscal year 2018, the revenue allocated to the Cloud Services was deferred and recognized on a straight-line basis over the expected life of the connected robot. On December 31, 2017, the Company adopted ASC 606 using the modified retrospective method applied to those contracts that were not completed as of the adoption date. Upon ASC 606, the Company concluded that, on a quantitative and qualitative basis, the Cloud Services did not constitute a material performance obligation for the then existing products and, as such, these services were not considered a separate performance obligation that required allocation of transaction price. Under the modified retrospective method, the Company recognized the cumulative effect of the adoption and recorded a net increase of $1.0 million to the beginning retained earnings as of December 31, 2017.

During the third quarter of 2018, the Company launched Roomba i7 and i7+ which brought a new level of intelligence and automation to robotic vacuum cleaners with the ability to learn, map and adapt to a home's floor plan. The Company has concluded that beginning with this launch, the Cloud Services related to these new products are a material performance obligation. For contracts that contain multiple performance obligations, the transaction price is allocated to each performance obligation based on a relative standalone selling price ("SSP"). The SSP reflects the Company's best estimate of what the selling prices of elements would be if they were sold regularly on a standalone basis. Revenue allocated to the robots is recognized at a point in time when control is transferred. Revenue allocated to the Cloud Services is deferred and recognized on a straight-line basis over the estimated period the software upgrades and services are expected to be provided. For contracts with a duration of greater than one year, the transaction price allocated to performance obligations that are unsatisfied as of December 28, 2019 and December 29, 2018 are not material. The Company does not disclose the value of unsatisfied performance obligations for contracts with an original expected duration of one year or less.

The Company’s products generally carry a one-year or two-year limited warranty that promises customers that delivered products are as specified. The Company does not consider these assurance-type warranties as a separate performance obligation and therefore, the Company accounts for such warranties under ASC 460, "Guarantees."

The Company provides limited rights of returns for direct-to-consumer sales generated through its on-line stores and certain resellers and distributors. The Company records an allowance for product returns based on specific terms and conditions included in the customer agreements or based on historical experience and the Company's expectation of future returns. In addition, the Company may provide other credits or incentives which are accounted for as variable consideration when estimating the amount of revenue to recognize. Where appropriate, these estimates take into consideration relevant factors such as the Company's historical experience, current contractual requirements, specific known market events and forecasted inventory level in the channels. Overall, these reserves reflect the Company's best estimates, and the actual amounts of consideration ultimately received may differ from the Company's estimates. Returns and credits are estimated at contract inception and updated at the end of each reporting period as additional information becomes available. As of December 28, 2019, the Company has reserves for product returns of $55.2 million and other credits and incentives of $134.0 million. As of December 29, 2018, the Company had reserves for product returns of $53.9 million and other credits and incentives of $97.7 million. Revenue recognized during the years ended December 28, 2019 and December 29, 2018 related to performance obligations satisfied in a prior period was not material.

Disaggregation of Revenue

The following table provides information about disaggregated revenue by geographical region (in thousands):

	December 28, 2019	December 29, 2018
United States	$ 603,618	$ 560,995
EMEA	357,760	311,659
Other	252,632	219,930
Total revenue	$ 1,214,010	$ 1,092,584

Contract Balances

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

	December 28 2019	December 29, 2018
Accounts receivable, net	$ 146,161	$ 162,166
Contract liabilities	6,991	5,756

The Company invoices customers based upon contractual billing schedules, and accounts receivable are recorded when the right to consideration becomes unconditional. Contract liabilities primarily relate to prepayments received from customers in advance of product shipments. The change in the opening and closing balances of the Company's contract assets and contract liabilities primarily results from the timing difference between the Company's performance and the customer's payment. During the years ended December 28, 2019 and December 29, 2018, the Company recognized $5.8 million and $6.7 million, respectively, of the contract liability balance as revenue upon transfer of the products to customers.

Practical Expedients and Exemptions

The Company generally expenses sales commissions when incurred because the amortization period is generally one year or less. These costs are recorded within sales and marketing expenses.

The Company does not assess whether a prepayment received represents a significant financing component as the period between when the payment is received and the transfer of the products to the customer is generally one year or less.

The Company does not disclose the value of unsatisfied performance obligations for contracts with an original expected duration of one year or less.

4. Leases

The Company's leasing arrangements primarily consist of operating leases for its facilities which include corporate, sales and marketing and research and development offices. For leases with terms greater than 12 months, the Company records the related right-of-use asset and lease obligation at the present value of lease payments over the term. The Company's leases typically include rental escalation clauses, renewal options and/or termination options that are factored into the determination of lease payments when appropriate. The Company does not separate lease and nonlease components of contracts and excludes all variable lease payments from the measurement of right-of-use assets and lease liabilities. The Company's variable lease payments generally include usage based nonlease components. The Company's lease agreements do not contain any residual value guarantees or restrictive covenants. Leases with an initial term of 12 months or less are not recorded on the balance sheet. Lease expense is recognized on a straight-line basis over the lease term.

The Company's existing leases do not provide a readily determinable implicit rate. Therefore, the Company estimates its incremental borrowing rate to discount the lease payments based on information available at December 30, 2018 (date of initial application) or the lease commencement date for new leases post adoption. At December 28, 2019, the Company's weighted average discount rate was 3.61%, while the weighted average remaining lease term was 9.21 years.

The components of lease expense were as follows (in thousands):

	December 28, 2019
Operating lease cost	$ 8,777
Variable lease cost	4,096
Total lease cost	$ 12,873

Rental expense under operating leases for fiscal years 2018 and 2017 amounted to $12.9 million and $8.9 million, respectively.

Supplemental cash flow information related to leases was as follows (in thousands):

	December 28, 2019
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	$ 9,540
Right-of-use assets obtained in exchange for lease obligations:	
Operating leases	$ 53,227

Maturities of operating lease liabilities were as follows as of December 28, 2019 (in thousands):

2020	$ 8,936
2021	8,263
2022	7,592
2023	7,145
2024	6,308
Thereafter	34,957
Total minimum lease payments	$ 73,201
Less: imputed interest	11,430
Present value of future minimum lease payments	$ 61,771
Less: current portion of operating lease liabilities (Note 9)	6,843
Long-term lease liabilities	$ 54,928

Financial Statement Impact of Adopting ASC 842

The Company adopted ASC 842 effective December 30, 2018 using the alternative transition method. Under this alternative transition method, a company is permitted to use its effective date as the date of initial application without restating comparative period financial statements. The Company elected the package of practical expedients permitted under the transition guidance, which allowed the Company to carryforward its historical assessments of (1) whether contracts are or contain leases, (2) lease classification and (3) initial direct costs. In addition, the Company elected the practical expedient to use hindsight in determining lease term. The adoption of the new standard resulted in the recognition of right-of-use assets and lease liabilities of approximately $52.8 million and $67.3 million, respectively. The standard did not materially impact the Company's consolidated income or cash flows.

5. Business Combinations

Acquisition of Robopolis

In October 2017, the Company closed the acquisition of its largest European distributor, Robopolis SAS, a French company ("Robopolis"). The acquisition will better enable the Company to maintain its leadership position and grow its business in several Western European countries through direct control of pre- and post-sales market activities including sales, marketing, branding, channel relationships and customer service. The purchase price was $169.4 million in cash, net of acquired cash of $38.0 million. The acquisition was a stock purchase. The results of operations for this acquisition have been included in the Company’s operating results since the acquisition date.

The following table summarizes the final allocation of the purchase price (in thousands):

Cash	$ 37,981
Accounts receivable, net (1)	21,426
Inventory	36,304
Goodwill	80,419
Intangible assets	36,597
Other assets	2,456
Total assets	215,183
Accounts payable	(29,391)
Accrued expenses	(3,376)
Deferred tax liabilities	(10,864)
Other liabilities	(2,138)
Total liabilities assumed	(45,769)
Net assets acquired	$ 169,414

(1) The accounts receivable balance includes reserves for product returns, discounts and promotions assumed as part of the acquisition.

The following table reflects the fair value of the acquired identifiable intangible assets and related estimates of useful lives (in thousands):

	Useful Life	Fair Value
Reacquired distribution rights	2.25 years	$ 29,296
Customer relationships	14 years	7,029
Non-competition agreements	3 years	272
Total		$ 36,597

Acquisition of Sales On Demand Corporation

In April 2017, the Company closed its acquisition of the iRobot-related distribution business of Sales On Demand Corporation ("SODC") for $16.6 million in cash, equal to the book value of the acquired assets. The acquisition will better enable the Company to maintain its leadership position and accelerate the growth of its business in Japan through direct control of pre- and post-sales market activities including sales, marketing, branding, channel relationships and customer service. It also expands the Company's presence and customer outreach opportunities in Japan. The acquisition was a stock purchase. The results of operations for this acquisition have been included in the Company's operating results since the acquisition date.

During 2017, the Company finalized the purchase price allocation and made measurement period adjustments to the provisional amounts reported as the estimated fair values of assets acquired. These measurement period adjustments resulted in a $2.2 million non-taxable gain on business acquisition which represents the excess of the fair value of the net assets acquired over the purchase price. The gain on business acquisition was recorded within other income, net in the consolidated statements of income. The Company believes that the gain on business acquisition was due to the transaction not being subjected to a competitive bidding process and the purchase price being determined based on the net book value of the net assets acquired.

The following table summarizes the final allocation of the purchase price (in thousands):

Cash	$	125
Accounts receivable, net (1)		(5,496)
Inventory		18,290
Other assets		2,065
Deferred tax assets, net		409
Goodwill		—
Intangible assets		8,640
Total assets acquired		24,033
Accrued expenses and other current liabilities		(4,450)
Other liabilities		(691)
Total liabilities assumed		(5,141)
Net assets acquired	$	18,892
Gain on business acquisition		(2,243)
Total purchase price	$	16,649

(1) The accounts receivable balance reflects reserves for product returns, discounts and promotions assumed as part of the acquisition.

The following table reflects the fair value of the acquired identifiable intangible assets and related estimates of useful lives (in thousands):

	Useful Life		Fair Value
Customer relationships	13 years	$	4,490
Reacquired distribution rights	9 months		4,150
Total		$	8,640

Pro Forma Results (Unaudited)

The following table shows unaudited pro forma results of operations as if the Company had acquired Robopolis on January 1, 2017 (in thousands, except per share amounts):

		Fiscal Year Ended December 30, 2017
Revenue	$	901,612
Net income		51,887
Net income per share:		
Basic income per share	$	1.88
Diluted income per share	$	1.80

The Company has not furnished pro forma financial information relating to its acquisition of SODC in 2017 and an immaterial acquisition during the fiscal year 2019, because such information is not material, individually or in the aggregate, to its financial results. The unaudited pro forma results of operations are not necessarily indicative of the actual results that would have occurred had the transactions taken place at the beginning of the periods indicated.

6. Inventory

Inventory consists of the following (in thousands):

	December 28, 2019	December 29, 2018
Raw materials	$ 2,825	$ 2,992
Finished goods	154,522	161,641
	$ 157,347	$ 164,633

7. Property and Equipment

Property and equipment consists of the following (in thousands):

	December 28, 2019	December 29, 2018
Computer and equipment	$ 13,588	$ 12,339
Furniture and fixtures	6,494	5,231
Machinery and tooling	79,213	60,281
Leasehold improvements	39,538	28,701
Business applications software	17,933	15,638
Subtotal	156,766	122,190
Less: accumulated depreciation	80,778	65,164
Property and equipment, net	$ 75,988	$ 57,026

As of December 28, 2019 and December 29, 2018, the net book value of capitalized internal-use software costs was $6.8 million and $4.7 million, respectively, which are included within business applications software.

Depreciation expense for the years ended December 28, 2019, December 29, 2018 and December 30, 2017 was $24.4 million, $17.0 million, and $12.3 million, respectively, which included amortization expense of $1.5 million, $1.2 million and $1.5 million, respectively, for capitalized internal-use software.

8. Goodwill and other intangible assets

The following table summarizes the activity in the carrying amount of goodwill for fiscal years 2019 and 2018 (in thousands):

Balance as of December 30, 2017	$ 121,440
Purchase accounting adjustments	830
Effect of foreign currency translation	(3,374)
Balance as of December 29, 2018	118,896
Acquisition	2,050
Effect of foreign currency translation	(2,214)
Balance as of December 28, 2019	$ 118,732

Intangible assets consisted of the following (in thousands):

	December 28, 2019			December 29, 2018		
	Cost	Accumulated Amortization	Net	Cost	Accumulated Amortization	Net
Completed technology	$ 28,100	$ 24,605	$ 3,495	$ 26,900	$ 21,607	$ 5,293
Tradename	100	100	—	100	100	—
Customer relationships	11,095	2,302	8,793	11,291	1,365	9,926
Reacquired distribution rights	31,680	31,680	—	32,499	23,598	8,901
Non-competition agreements	256	192	64	263	110	153
Total	$ 71,231	$ 58,879	$ 12,352	$ 71,053	$ 46,780	$ 24,273

Amortization expense related to acquired intangible assets was $12.8 million, $19.6 million and $13.1 million for the fiscal years ended December 28, 2019, December 29, 2018 and December 30, 2017, respectively.

The estimated future amortization expense related to current intangible assets in each of the five succeeding fiscal years is expected to be as follows (in thousands):

	Cost of Revenue	Operating Expenses	Total
2020	$ 1,140	$ 1,000	$ 2,140
2021	1,140	781	1,921
2022	915	781	1,696
2023	240	781	1,021
2024	60	781	841
Thereafter	—	4,733	4,733
Total	$ 3,495	$ 8,857	$ 12,352

9. Accrued Expenses

Accrued expenses consist of the following (in thousands):

	December 28, 2019	December 29, 2018
Accrued warranty	$ 13,856	$ 11,964
Accrued other compensation	13,331	10,518
Accrued bonus	12,541	21,226
Accrued sales and other indirect taxes payable	12,440	11,397
Accrued direct fulfillment costs	10,582	5,372
Current portion of operating lease liabilities	6,843	—
Accrued federal and state income taxes	3,378	1,936
Accrued other	8,797	8,846
	$ 81,768	$ 71,259

10. Working Capital Facility

Credit Facility

In June 2018, the Company entered into an agreement with Bank of America, N.A., increasing the amount of its unsecured revolving line of credit from $75.0 million to $150.0 million and extending the term of the credit facility to June 2023. As of December 28, 2019, the Company had no outstanding borrowings under the revolving credit facility. The revolving line of credit is available to fund working capital and other corporate purposes. The interest on loans under the credit facility accrues, at the Company's election, at either (1) LIBOR plus a margin, currently equal to 1.0%, based on the Company's ratio of indebtedness to Adjusted EBITDA (the "Eurodollar Rate"), or (2) the lender's base rate. The lender's base rate is equal to the highest of (1) the federal funds rate plus 0.5%, (2) the lender's prime rate or (3) the Eurodollar Rate plus 1.0%. In the event that LIBOR is discontinued as expected in 2021, the Company expects the interest rates for the debt following such event will be based on either alternate base rates or agreed upon replacement rates. While the Company does not expect a LIBOR discontinuation to affect its ability to borrow or maintain already outstanding borrowings, it could result in higher interest rates.

The credit facility contains customary terms and conditions for credit facilities of this type, including restrictions on the Company's ability to incur or guarantee additional indebtedness, create liens, enter into transactions with affiliates, make loans or investments, sell assets, pay dividends or make distributions on, or repurchase, the Company's stock, and consolidate or merge with other entities. In addition, the Company is required to meet certain financial covenants customary with this type of agreement, including maintaining a maximum ratio of indebtedness to Adjusted EBITDA and a minimum specified interest coverage ratio.

The credit facility contains customary events of default, including for payment defaults, breaches of representations, breaches of affirmative or negative covenants, cross defaults to other material indebtedness, bankruptcy and failure to discharge certain judgments. If a default occurs and is not cured within any applicable cure period or is not waived, the Company's obligations under the credit facility may be accelerated.

As of December 28, 2019, the Company was in compliance with all covenants under the revolving credit facility.

Lines of Credit

The Company has an unsecured letter of credit facility with Bank of America, N.A., available to fund letters of credit up to an aggregate outstanding amount of $5.0 million. As of December 28, 2019, the Company had letters of credit outstanding of $0.5 million under the letter of credit facility.

The Company has an unsecured guarantee line of credit with Mizuho, Bank Ltd., available to fund import tax payments up to an aggregate outstanding amount of 220.0 million Japanese Yen. As of December 28, 2019, the Company had no outstanding balance under the guarantee line of credit.

11. Derivative Instruments and Hedging Activities

The Company operates internationally and, in the normal course of business, is exposed to fluctuations in foreign currency exchange rates. The foreign currency exposures typically arise from transactions denominated in currencies other than the functional currency of the Company's operations, primarily the British Pound, Canadian Dollar, Euro and Japanese Yen. The Company uses derivative instruments that are designated in cash flow hedge relationships to reduce or eliminate the effects of foreign exchange rate change on sales. These contracts typically have maturities of thirty-seven months or less. At December 28, 2019 and December 29, 2018, the Company had outstanding cash flow hedges with a total notional value of $424.6 million and $366.7 million, respectively.

The Company also enters into economic hedges that are not designated as hedges from an accounting standpoint to reduce or eliminate the effects of foreign exchange rate changes typically related to short term trade receivables and payables. These contracts typically have maturities of ten months or less. At December 28, 2019 and December 29, 2018, the Company had outstanding economic hedges with a total notional value of $58.4 million and $56.0 million, respectively.

The fair values of derivative instruments are as follows (in thousands):

		Fair Value	
	Classification	December 28, 2019	December 29, 2018
Derivatives not designated as hedging instruments:			
Foreign currency forward contracts	Other current assets	$ 1,855	$ 551
Foreign currency forward contracts	Accrued expenses	297	—
Derivatives designated as cash flow hedges:			
Foreign currency forward contracts	Other current assets	$ 4,347	$ 53
Foreign currency forward contracts	Other assets	9,112	172
Foreign currency forward contracts	Accrued expenses	47	335
Foreign currency forward contracts	Long-term liabilities	414	795

Gains (losses) associated with derivative instruments not designated as hedging instruments are as follows (in thousands):

		Fiscal year ended	
	Classification	December 28, 2019	December 29, 2018
Gain (loss) recognized in income	Other income, net	$ 89	$ 1,568

The following tables reflect the effect of derivatives designated as cash flow hedging for the years ended (in thousands):

	Gain (loss) recognized in OCI on Derivative (1)	
	Fiscal year ended	
	December 28, 2019	December 29, 2018
Foreign currency forward contracts	$ 16,483	$ (686)

(1) The amount represents the change in fair value of derivative contracts due to changes in spot rates.

	Gain (loss) recognized in earnings on cash flow hedging instruments			
	December 28, 2019		December 29, 2018	
	Revenue	Cost of revenue	Revenue	Cost of revenue
Consolidated statements of income in which the effects of cash flow hedging instruments are recorded	$ 1,214,010	$ 670,083	$ 1,092,584	$ 537,156
Gain or (loss) on cash flow hedging relationships:				
Foreign currency forward contracts:				
Amount of gain (loss) reclassified from AOCI into earnings	$ 1,889	$ —	$ 948	$ (386)

12. Fair Value Measurements

The Company’s financial assets and liabilities measured at fair value on a recurring basis were as follows (in thousands):

	Fair Value Measurements as of December 28, 2019		
	Level 1	Level 2 (1)	Level 3 (2)
Assets:			
Corporate and government bonds, $17,016 at cost (3)	$ —	$ 17,032	$ —
Derivative instruments (Note 11)	—	15,314	—
Total assets measured at fair value	$ —	$ 32,346	$ —
Liabilities:			
Derivative instruments (Note 11)	$ —	$ 758	$ —
Total liabilities measured at fair value	$ —	$ 758	$ —

The Company’s financial assets and liabilities measured at fair value on a recurring basis were as follows (in thousands):

	Fair Value Measurements as of December 29, 2018		
	Level 1	Level 2 (1)	Level 3 (2)
Assets:			
Money market funds	$ 3,730	$ —	$ —
Corporate and government bonds, $30,035 at cost	—	29,605	—
Convertible note	—	—	2,000
Derivative instruments (Note 11)	—	776	—
Total assets measured at fair value	$ 3,730	$ 30,381	$ 2,000
Liabilities:			
Derivative instruments (Note 11)	$ —	$ 1,130	$ —
Total liabilities measured at fair value	$ —	$ 1,130	$ —

(1) Level 2 fair value estimates are based on observable inputs other than quoted prices in active markets for identical assets and liabilities, quoted prices for identical or similar assets or liabilities in inactive markets, or other inputs that

are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

(2) Level 3 fair value estimates are based on inputs that are generally unobservable and typically reflect management’s estimates of assumptions that market participants would use in pricing the asset or liability. The fair values are therefore determined using model-based techniques, including option pricing and discounted cash flow models. Unobservable inputs used in the models are significant to the fair values of the assets and liabilities.

(3) As of December 28, 2019, the Company’s investments had maturity dates ranging from February 2020 to March 2021.

The following table provides a summary of changes in fair value of our Level 3 investment for the twelve months ended December 28, 2019 (in thousands):

Balance as of December 29, 2018	$	2,000
Conversion of convertible note		(2,000)
Balance as of December 28, 2019	$	—

13. Stockholders' Equity

Preferred Stock

The Company has authorized 5,000,000 shares of undesignated preferred stock with a par value of $0.01 per share. None of the preferred shares were issued and outstanding at December 28, 2019 and December 29, 2018.

Common Stock

Common stockholders are entitled to one vote for each share held and to receive dividends if and when declared by the Company's board of directors and subject to and qualified by the rights of holders of the preferred stock. Upon dissolution or liquidation of the Company, holders of common stock will be entitled to receive all available assets subject to any preferential rights of any then outstanding preferred stock.

Share Repurchase Activity

On February 27, 2018, the Company's board of directors approved a stock repurchase program authorizing up to $50.0 million in share repurchases. This share repurchase program commenced on March 28, 2018 with an expiration date of December 28, 2018. As of June 30, 2018, the Company completed the repurchase program and repurchased 798,794 shares of common stock totaling $50.0 million.

14. Stock-Based Compensation

The Company has awards and options outstanding under three stock incentive plans: the 2005 Stock Option and Incentive Plan (the "2005 Plan"), the 2015 Stock Option and Incentive Plan (the "2015 Plan") and the 2018 Stock Option and Incentive Plan (the "2018 Plan" and together with 2005 Plan and the 2015 Plan, the "Plans"). The 2018 Plan is the only one of the three plans under which new awards may currently be granted. Under the 2018 Plan, which became effective on May 23, 2018, 1,750,000 shares were initially reserved for issuance in the form of incentive stock options, non-qualified stock options, stock appreciation rights, restricted stock awards, restricted stock units, unrestricted stock awards, cash-based awards, and dividend equivalent rights. Stock awards returned to the Plans, with the exception of those issued under the 2005 Plan, as a result of their expiration, cancellation or termination are automatically made available for issuance under the 2018 Plan. Eligibility for incentive stock options is limited to those individuals whose employment status would qualify them for the tax treatment associated with incentive stock options in accordance with the Internal Revenue Code. As of December 28, 2019, there were 1,293,482 shares available for future grant under the 2018 Plan. The Company recognized $23.7 million, $25.8 million and $19.8 million of stock-based compensation expense during the fiscal years ended December 28, 2019, December 29, 2018, and December 30, 2017, respectively.

Stock-based compensation breaks down by expense classification as follows (in thousands):

	Fiscal Year Ended		
	December 28, 2019	December 29, 2018	December 30, 2017
Cost of revenue	$ 1,486	$ 1,407	$ 1,082
Research and development	9,186	7,494	5,009
Selling and marketing	3,323	2,842	2,571
General and administrative	9,749	14,061	11,089
Total	$ 23,744	$ 25,804	$ 19,751

Stock Options

Options granted under the Plans are exercisable in full at any time subsequent to vesting, generally vest over four years, and expire five years or ten years from the date of grant or, if earlier, 90 days from employee termination. The exercise price of stock options is typically equal to the Company's closing stock price on the date of grant.

As of December 28, 2019, the unamortized compensation costs associated with stock options was $0.4 million with a weighted-average remaining recognition period of 0.61 years.

The following table summarizes stock option activity for fiscal years 2019, 2018 and 2017:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value(1)
Outstanding at December 31, 2016	1,088,174	$ 32.27		
Granted	10,975	57.33		
Exercised	(367,267)	28.79		
Canceled	(18,928)	36.72		
Outstanding at December 30, 2017	712,954	$ 34.34		
Granted	—	—		
Exercised	(239,830)	33.40		
Canceled	(10,863)	46.20		
Outstanding at December 29, 2018	462,261	$ 34.55		
Granted	—	—		
Exercised	(127,024)	32.95		
Canceled	(12,329)	37.03		
Outstanding at December 28, 2019	322,908	$ 35.08	2.47 years	$5.65 million
Vested and expected to vest at December 28, 2019	322,908	$ 35.08	2.47 years	$5.65 million
Exercisable as of December 28, 2019	293,159	$ 34.30	2.35 years	$5.32 million

(1) The aggregate intrinsic value on the table above represents the difference between the Company's closing stock price on December 28, 2019 of $50.20 and the exercise price of the underlying in-the-money option.

During fiscal years 2019, 2018, and 2017, the total intrinsic value of stock options exercised was $8.9 million, $14.9 million, and $21.8 million, respectively.

Time-based Restricted Stock Units

Time-based restricted stock units entitle the holder to a specific number of shares of common stock upon vesting, typically over a four year period. As of December 28, 2019, the unamortized compensation costs associated with restricted stock units was $49.2 million with a weighted-average remaining recognition period of 2.53 years.

The following table summarizes the time-based restricted stock unit activity for fiscal years 2019, 2018 and 2017:

	Number of Shares Underlying Restricted Stock	Weighted Average Grant Date Fair Value
Outstanding at December 31, 2016	935,179	$ 35.07
Granted	396,164	72.63
Vested	(351,543)	33.73
Forfeited	(41,347)	39.52
Outstanding at December 30, 2017	938,453	$ 51.24
Granted	307,614	81.55
Vested	(351,816)	47.30
Forfeited	(38,362)	60.62
Outstanding at December 29, 2018	855,889	$ 63.32
Granted	407,325	79.91
Vested	(358,119)	54.89
Forfeited	(85,863)	76.85
Outstanding at December 28, 2019	819,232	$ 73.83

The aggregate intrinsic value of outstanding time-based restricted stock units at December 28, 2019 was $42.8 million based on the Company's closing stock price on December 28, 2019 of $50.20, with a weighted average remaining contractual term of 1.52 years.

Performance-Based Restricted Stock Units

The Company grants performance-based restricted stock units ("PSUs") to certain of its employees. The PSUs have performance metrics based on financial performance of the Company measured at the end of a three year performance period. For the 2017 grant year, the performance metric for these awards is based on revenue, operating income and/or operating income percent, with a threshold requirement for a minimum amount of revenue growth. Starting in 2018, the Company has removed revenue as a performance metric in the PSU plan design and changed the payout metric from three-year cumulative operating income as a percentage of annual revenue to three-year cumulative operating income in dollars. The number of shares actually earned at the end of the three-year period will range from 0% to 200% of the target number of PSUs granted based on the Company’s performance against the performance conditions.

The unamortized fair value as of December 28, 2019 associated with performance based restricted stock units was $1.7 million with a weighted-average remaining recognition period of 1.04 years.

The following table summarizes the performance-based restricted stock unit activity for fiscal years 2019, 2018 and 2017:

	Number of Shares Underlying PSU	Weighted Average Grant Date Fair Value
Outstanding at December 31, 2016	163,911	$ 35.03
Granted	105,650	57.33
Vested	(24,792)	43.35
Forfeited	(2,708)	39.71
Outstanding at December 30, 2017	242,061	$ 43.97
Granted	91,538	68.41
Vested	(56,259)	34.30
Forfeited	(3,221)	45.71
Outstanding at December 29, 2018	274,119	$ 54.10
Granted	70,827	122.20
Vested	(78,943)	33.33
Forfeited	(49,772)	78.29
Outstanding at December 28, 2019	216,231	$ 78.42

The aggregate intrinsic value of outstanding PSUs was $11.3 million based on the Company's closing stock price on December 28, 2019 of $50.20 with a weighted average remaining contractual term of 1.04 years.

Employee Stock Purchase Plan

In May 2017, the Company’s stockholders approved the 2017 Employee Stock Purchase Plan ("ESPP"). Eligible employees may purchase the Company’s common stock through payroll deductions at a price equal to 85% of the lower of the fair market values of the stock as of the beginning or the end of six-month offering periods beginning November 15 and May 15 of each year. An employee’s payroll deductions under the ESPP are limited to 15% of the employee’s compensation, up to $4,000 each period, for the purchase of common stock not to exceed 1,000 shares per offering period. As of December 28, 2019, there were 570,962 shares reserved for future issuance under the ESPP. The Company recognized $1.1 million, $1.0 million, and $0.1 million of stock-based compensation expense during the fiscal years ended December 28, 2019, December 29, 2018, and December 30, 2017, respectively.

15. Commitments and Contingencies

Legal Proceedings

From time to time and in the ordinary course of business, the Company is subject to various claims, charges and litigation. The outcome of litigation cannot be predicted with certainty and some lawsuits, claims or proceedings may be disposed of unfavorably to us, which could materially affect our financial condition or results of operations. For the following litigation matters, a liability is not probable or the amount cannot be reasonably estimated and therefore accruals have not been made.

On October 24, 2019, purported Company shareholder Miramar Firefighters’ Pension Fund filed a putative class action in the U.S. District Court for the Southern District of New York against the Company and certain of its directors and officers, captioned Miramar Firefighters’ Pension Fund v. iRobot Corporation, et al., No. 1:19-cv-09837. The complaint alleges violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") and Rule 10b-5 thereunder based on allegedly false and misleading statements and omissions concerning the Company’s acquisitions of Sales on Demand Corporation and Robopolis SAS and the Company’s subsequent financial performance. The complaint seeks, among other things, unspecified compensatory damages, including interest, in connection with the Company’s allegedly inflated stock price, attorneys’ fees and costs, and unspecified equitable/injunctive relief. This case has been transferred to the U.S. District Court for the District of Massachusetts. A similar case captioned Campbell v. iRobot Corporation, et al., No. 1:19-cv-12483 was also filed in the U.S. District Court for the Southern District of New York and subsequently transferred to the

U.S. District Court for the District of Massachusetts. On January 24, 2020, the Court consolidated the Miramar and Campbell cases and appointed a lead plaintiff and lead plaintiff's Counsel.

On December 20, 2019, purported Company shareholders David Katz and Thomas Wightman, derivatively on behalf of iRobot Corporation, filed a complaint in the U.S. District Court for Southern District of New York against the Company and certain of its directors and officers, captioned David Katz and Thomas Wightman, on behalf of iRobot Corporation v. iRobot Corporation, et al., No. 1:19-cv-11692. The complaint alleges breaches of fiduciary duties, unjust enrichment, violations of Sections 10(b) and 20(a) of the Exchange Act and Rule 10b-5 thereunder based on allegedly false and misleading statements and omissions concerning the Company’s acquisitions of Sales on Demand Corporation and Robopolis SAS and the Company’s subsequent financial performance. The complaint seeks, among other things, unspecified compensatory damages, including interest, in connection with the Company’s allegedly inflated stock price, attorneys’ fees and costs, and unspecified equitable/injunctive relief. This case has been transferred to the U.S. District Court for the District of Massachusetts.

On January 9, 2020, purported Company shareholder Robert Truman, derivatively on behalf of iRobot Corporation, filed a complaint in the U.S. District Court for the District of Massachusetts against the Company and certain of its directors and officers, captioned Robert Truman, on behalf of iRobot Corporation v. iRobot Corporation, et al., No. 1:20-cv-10034. The complaint alleges breaches of fiduciary duties, unjust enrichment, abuse of control, gross mismanagement, waste of corporate assets, and violations of Sections 10(b), 14(a) and 20(a) of the Exchange Act and Rule 10b-5 thereunder based on allegedly false and misleading statements and omissions concerning the Company’s acquisitions of Sales on Demand Corporation and Robopolis SAS and the Company’s subsequent financial performance. The complaint seeks, among other things, unspecified compensatory damages, including interest, in connection with the Company’s allegedly inflated stock price, attorneys’ fees and costs, and unspecified equitable/injunctive relief.

On January 22, 2020, purported Company shareholder Alexa Ruhfass, derivatively on behalf of iRobot Corporation, filed a complaint in the U.S. District Court for the District of Massachusetts against the Company and certain of its directors and officers, captioned Alexa Ruhfass, on behalf of iRobot Corporation v. iRobot Corporation, et al., No. 1:20-cv-10133. The complaint alleges breaches of fiduciary duties, unjust enrichment, waste of corporate assets, and violations of Sections 14(a) and 20(a) of the Exchange Act and Rule 10b-5 thereunder based on allegedly false and misleading statements and omissions concerning the Company’s acquisitions of Sales on Demand Corporation and Robopolis SAS and the Company’s subsequent financial performance. The complaint seeks, among other things, unspecified compensatory damages, including interest, in connection with the Company’s allegedly inflated stock price, attorneys’ fees and costs, and unspecified equitable/injunctive relief.

On February 10, 2020, purported Company shareholder William Tasco, derivatively on behalf of iRobot Corporation, filed a complaint in the U.S. District Court for the District of Massachusetts against the Company and certain of its directors and officers, captioned William Tasco, derivatively on behalf of iRobot Corporation v. iRobot Corporation, et al., No. 1:20-cv-10253. The complaint alleges breaches of fiduciary duties, unjust enrichment, abuse of control, gross mismanagement, waste of corporate assets, and violations of Sections 10(b), 14(a) and 20(a) of the Exchange Act and Rule 10b-5 thereunder based on allegedly false and misleading statements and omissions concerning the Company’s acquisitions of Sales on Demand Corporation and Robopolis SAS and the Company’s subsequent financial performance. The complaint seeks, among other things, unspecified compensatory damages, including interest, in connection with the Company’s allegedly inflated stock price, attorneys’ fees and costs, and unspecified equitable/injunctive relief.

Outstanding Purchase Orders

At December 28, 2019, we had outstanding purchase orders aggregating approximately $124.4 million. The purchase orders, the majority of which are with our contract manufacturers for the purchase of inventory in the normal course of business, are for manufacturing and non-manufacturing related goods and services, and are generally cancelable without penalty. In circumstances where we determine that we have financial exposure associated with any of these commitments, we record a liability in the period in which that exposure is identified.

Guarantees and Indemnification Obligations

The Company enters into standard indemnification agreements in the ordinary course of business. Pursuant to these agreements, the Company indemnifies and agrees to reimburse the indemnified party for losses incurred by the indemnified party, generally the Company’s customers, in connection with any patent, copyright, trade secret or other proprietary right infringement claim by any third party. The term of these indemnification agreements is generally perpetual any time after execution of the agreement. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is unlimited. The Company has never incurred costs to defend lawsuits or settle claims related to these indemnification agreements. As a result, the Company believes the estimated fair value of these agreements is minimal. Accordingly, the Company has no liabilities recorded for these agreements as of December 28, 2019 and December 29, 2018, respectively.

Warranty

The Company provides warranties on most products and has established a reserve for warranty obligations based on estimated warranty costs. The reserve is included as part of accrued expenses (Note 9) in the accompanying consolidated balance sheets.

Activity related to the warranty accrual was as follows (in thousands):

	Fiscal Year Ended		
	December 28, 2019	December 29, 2018	December 30, 2017
Balance at beginning of period	$ 11,964	$ 11,264	$ 8,464
Liability assumed (1)	—	—	2,186
Provision	14,091	10,798	8,591
Warranty usage	(12,199)	(10,098)	(7,977)
Balance at end of period	$ 13,856	$ 11,964	$ 11,264

(1) Warranty assumed as part of the acquisition of the iRobot-related distribution business of SODC.

16. Employee Benefits

The Company sponsors a retirement plan under Section 401(k) of the Internal Revenue Code (the "Retirement Plan"). All Company employees, with the exception of temporary, contract and international employees are eligible to participate in the Retirement Plan after satisfying age requirements prescribed by the Retirement Plan. Under the Retirement Plan, employees may make tax-deferred contributions, and the Company, at its sole discretion, and subject to the limits prescribed by the IRS, may make either a nonelective contribution on behalf of all eligible employees or a matching contribution on behalf of all plan participants.

The Company elected to make a matching contribution of approximately $2.9 million, $2.8 million and $2.4 million for the plan years ended December 28, 2019, December 29, 2018 and December 30, 2017, respectively. The employer contribution represents a matching contribution at a rate of 50% of each employee’s first six percent contribution. Accordingly, each employee participating is entitled up to a maximum of three percent of his or her eligible annual payroll.

17. Income Taxes

Income (loss) before provision for income taxes was as follows (in thousands):

	Fiscal Year Ended		
	December 28, 2019	December 29, 2018	December 30, 2017
Domestic	$ 84,225	$ 113,078	$ 71,382
Foreign	14,608	(4,456)	4,984
Income before income taxes	$ 98,833	$ 108,622	$ 76,366

The components of income tax expense were as follows (in thousands):

	Fiscal Year Ended		
	December 28, 2019	December 29, 2018	December 30, 2017
Current			
Federal	$ 13,366	$ 17,627	$ 17,555
State	5,004	3,676	1,691
Foreign	6,941	10,732	7,355
Total current income tax provision	$ 25,311	$ 32,035	$ 26,601
Deferred			
Federal	$ (9,345)	$ (2,475)	$ 6,664
State	(1,783)	(1,149)	(2,470)
Foreign	(650)	(7,781)	(5,393)
Total deferred income tax provision	(11,778)	(11,405)	(1,199)
Total income tax provision	$ 13,533	$ 20,630	$ 25,402

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the "Act") was signed into law making significant changes to the Internal Revenue Code. Effective for the Company's 2018 tax year, the Act reduces the statutory federal corporate tax rate from 35% to 21% and implements certain additional provisions including the Global Intangible Low-Taxed Income inclusion and the Foreign Derived Intangible Income deduction. Upon the enactment of the Act in December 2017, the Company recorded a one-time provisional income tax provision of $11.9 million in the fourth quarter of 2017 which included a provisional amount of $8.9 million related to the remeasurement of certain deferred tax assets and liabilities based on the tax rates at which they are expected to reverse in the future and $3.0 million related to the one-time transition tax on the mandatory deemed repatriation of foreign earnings. On December 22, 2017, the SEC staff issued Staff Accounting Bulletin No. 118 ("SAB 118") to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Act. In accordance with SAB 118, during the fourth quarter of 2018, the Company finalized its analysis of the income tax effects of the Act and determined no material adjustments to the provisional amounts recorded were required.

The reconciliation of statutory federal income tax to actual tax expense is as follows (in thousands):

	Fiscal Year Ended		
	December 28, 2019	December 29, 2018	December 30, 2017
Statutory federal income tax	$ 20,755	$ 22,812	$ 26,728
State taxes (net of federal benefit)	3,999	4,312	2,089
Federal and state credits	(8,152)	(5,638)	(4,486)
Domestic production activities deduction	—	—	(1,528)
Excess tax benefits relating to stock-based compensation	(6,468)	(6,529)	(11,709)
Tax Cuts and Jobs Act of 2017	—	2,127	11,861
Foreign-derived intangible income deduction	(4,180)	(2,678)	—
EMEA business restructuring	—	2,292	—
Executive compensation	2,081	745	1,354
Tax impact of foreign earnings	1,986	1,336	(636)
Change in valuation allowance	2,678	348	800
Other	834	1,503	929
	$ 13,533	$ 20,630	$ 25,402

The components of net deferred tax assets were as follows (in thousands):

	December 28, 2019	December 29, 2018
Deferred tax assets		
Revenue reserves	$ 21,355	$ 17,420
Accruals and other liabilities	8,225	7,844
Operating lease liabilities	14,117	—
Tax credits and net operating loss carryforwards	8,814	7,781
Stock-based compensation	4,981	4,975
Other	5,068	4,087
Gross deferred tax assets	62,560	42,107
Valuation allowance	(3,826)	(1,148)
Total deferred tax assets	58,734	40,959
Deferred tax liabilities		
Intangible assets	3,838	7,317
Operating lease right-of-use assets	13,249	—
Other	768	668
Total deferred tax liabilities	17,855	7,985
Net deferred tax assets	$ 40,879	$ 32,974

The Company intends to continue to invest all of its unremitted foreign earnings, as well as the capital in its foreign subsidiaries, indefinitely outside of the U.S. At December 28, 2019, the Company has unremitted foreign earnings and any unrecognized deferred tax liability on these unremitted earnings would be immaterial.

The Company has federal net operating loss carryforwards of $1.8 million as of December 28, 2019. The Company had foreign net operating loss carryforwards of $3.4 million as of December 29, 2018 that were fully utilized during tax year ended December 28, 2019. The Company has state research and development credit carryforwards of $13.1 million and $10.7 million as of December 28, 2019 and December 29, 2018, respectively, which expire from 2028 to 2034. Under the Internal Revenue Code and state law, certain substantial changes in the Company’s ownership could result in an annual limitation on the amount of these tax carryforwards which can be utilized in future years. As of December 28, 2019, December 29, 2018 and December 30, 2017, the Company had a valuation allowance of $3.8 million, $1.1 million and $0.8 million, respectively, for state research and development credit carryforwards and certain foreign deferred tax assets for which the Company believes do not meet the "more likely than not" criteria for recognition.

A summary of the Company’s adjustments to its gross unrecognized tax benefits in the current year is as follows (in thousands):

	Fiscal Year Ended		
	December 28, 2019	December 29, 2018	December 30, 2017
Balance at beginning of period	$ 7,119	$ 4,590	$ 5,146
Increase for tax positions related to the current year	770	2,891	580
Increase for tax positions related to acquisition	—	1,493	—
Increase (decrease) for tax positions related to prior years	(768)	407	(523)
Decrease for settlements with applicable taxing authorities	—	(2,262)	—
Decrease for lapses of statute of limitations	—	—	(613)
Balance at end of period	$ 7,121	$ 7,119	$ 4,590

During the fourth quarter of 2018, the Company finalized the purchase accounting related to its acquisition of Robopolis and recorded a $1.5 million adjustment for uncertain pre-acquisition income tax positions in various taxing jurisdictions against goodwill. In addition, the Company recorded a charge of $2.3 million for estimated taxes associated with a restructuring of the EMEA business during fiscal 2018. The Company accrues interest and, if applicable, penalties for any uncertain tax positions as a component of income tax expense. As of December 28, 2019, December 29, 2018 and December 30, 2017 there were no material accrued interest or penalties.

The Company is subject to taxation in the United States (federal and state) and foreign jurisdictions. The statute of limitations for examinations by the Internal Revenue Service (the "IRS") and state tax authorities is closed for fiscal years prior to 2014. Federal and state carryforward attributes that were generated prior to fiscal 2014 may still be adjusted upon examination by the federal or state tax authorities if they either have been or will be used in a period for which the statute of limitations is still open. The Company is currently under examination by the IRS for the years 2014 and 2015. There are other ongoing audits in various other jurisdictions that are not material to the Company's financial statements. The Company regularly assesses the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of its provision for income taxes. The Company continues to monitor the progress of ongoing discussions with tax authorities and the effect, if any, of the expected expiration of the statute of limitations in various taxing jurisdictions. The Company believes that an adequate provision has been made for any adjustments that may result from tax examinations. However, the outcome of tax audits cannot be predicted with certainty. If any issues addressed in the Company's tax audits are resolved in a manner not consistent with management's expectations, the Company could be required to adjust its provision for income taxes in the period such resolution occurs. Although the timing of resolution, settlement, and closure of audits is not certain, it is reasonably possible that certain U.S. federal and non-U.S. tax audits may be concluded within the next 12 months, which could increase or decrease the balance of the Company's gross unrecognized tax benefits. The Company does not expect a significant change in the amount of unrecognized tax benefits within the next 12 months. If all of the Company's unrecognized tax benefits as of December 28, 2019 were to become recognizable in the future, it would record a $7.4 million benefit, inclusive of interest, to the income tax provision.

18. Industry Segment, Geographic Information and Significant Customers

The Company operates as one operating segment. The Company's consumer robots products are offered to consumers through distributor and retail sales channels, as well as its on-line stores.

Geographic Information

For the fiscal years ended December 28, 2019, December 29, 2018 and December 30, 2017, sales to non-U.S. customers accounted for 50.3%, 48.7% and 48.8% of total revenue, respectively.

The following table provides information about revenue by geographical region (in thousands):

	December 28, 2019	December 29, 2018	December 30, 2017
Domestic	$ 603,618	$ 560,995	$ 452,563
International	610,392	531,589	431,348
Total	$ 1,214,010	$ 1,092,584	$ 883,911

Significant Customers

For the fiscal years ended December 28, 2019, December 29, 2018, and December 30, 2017, the Company generated 21.3%, 17.3% and 13.5%, respectively, of total revenue from one of its retailers (Amazon), respectively.

19. Quarterly Information (Unaudited)

The following information has been derived from unaudited consolidated financial statements that, in the opinion of management, include all recurring adjustments necessary for a fair statement of such information (in thousands, except per share amounts):

	Fiscal Quarter Ended							
	December 28, 2019	September 28, 2019	June 29, 2019	March 30, 2019	December 29, 2018	September 29, 2018	June 30, 2018	March 31, 2018
Revenue	$ 426,778	$ 289,399	$ 260,172	$ 237,661	$ 384,665	$ 264,534	$ 226,317	$ 217,068
Gross profit	169,370	136,841	118,170	119,546	186,511	135,206	117,926	115,785
Net income	20,041	35,532	7,207	22,520	25,191	31,929	10,471	20,401
Diluted earnings per share	$ 0.70	$ 1.24	$ 0.25	$ 0.78	$ 0.88	$ 1.12	$ 0.37	$ 0.71

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

None.

ITEM 9A. *CONTROLS AND PROCEDURES*

Evaluation of disclosure controls and procedures.

As required by Rule 13a-15(b) under the Exchange Act, we have carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer ("CEO") and our Chief Financial Officer ("CFO"), of the effectiveness, as of the end of the period covered by this report, of the design and operation of our "disclosure controls and procedures" as defined in Rule 13a-15(e) promulgated by the SEC under the Exchange Act. Based upon that evaluation, our CEO and our CFO concluded that our disclosure controls and procedures, as of the end of such period, were adequate and effective to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms, and that such information was accumulated and communicated to management, as appropriate, to allow timely decisions regarding required disclosure.

Management’s Report on Internal Control Over Financial Reporting

The management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Exchange Act as a process designed by, or under the supervision of, the Company’s principal executive and principal financial officers and effected by the Company’s board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company’s assets that could have a material effect on the financial statements.

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

Under the supervision and with the participation of management, including our principal executive and financial officers, we assessed the Company’s internal control over financial reporting as of December 28, 2019, based on criteria for effective internal control over financial reporting established in *Internal Control — Integrated Framework (2013)*, issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management concluded that the Company maintained effective internal control over financial reporting as of December 28, 2019 based on the specified criteria.

The effectiveness of the Company’s internal control over financial reporting as of December 28, 2019 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which is included herein.

Changes in Internal Control Over Financial Reporting

During the quarter ended December 28, 2019, there were no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. *OTHER INFORMATION*

10b5-1 Trading Plans

Our policy governing transactions in our securities by our directors, officers, and employees permits our officers, directors, funds affiliated with our directors, and certain other persons to enter into trading plans complying with Rule 10b5-l under the Exchange Act. We have been advised that certain of our officers and directors (including Colin Angle, Chief Executive Officer, Russell Campanello, EVP, Human Resources and Corporate Communications, Timothy Saeger, EVP and Chief R&D Officer, Glen Weinstein, EVP and Chief Legal Officer, as well as Mohamad Ali, Deborah Ellinger, Andrew Miller and Michelle Stacy, each a director of the Company) have entered into trading plans (each a "Plan" and collectively, the "Plans") covering periods after the date of this Annual Report on Form 10-K in accordance with Rule 10b5-l and our policy governing transactions in our securities. Generally, under these trading plans, the individual relinquishes control over the transactions once the trading plan is put into place. Accordingly, sales under these plans may occur at any time, including possibly before, simultaneously with, or immediately after significant events involving the Company.

We anticipate that, as permitted by Rule 10b5-l and our policy governing transactions in our securities, some or all of our officers, directors and employees may establish trading plans in the future. We intend to disclose the names of our executive officers and directors who establish a trading plan in compliance with Rule 10b5-l and the requirements of our policy governing transactions in our securities in our future quarterly and annual reports on Form 10-Q and 10-K filed with the Securities and Exchange Commission. We undertake no obligation to update or revise the information provided herein.

PART III

ITEM 10. *DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE*

The information required under this item is incorporated herein by reference to the Company’s definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission not later than 120 days after the close of the Company’s fiscal year ended December 28, 2019.

ITEM 11. *EXECUTIVE COMPENSATION*

The information required under this item is incorporated herein by reference to the Company’s definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission not later than 120 days after the close of the Company’s fiscal year ended December 28, 2019.

ITEM 12. *SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS*

The information required under this item is incorporated herein by reference to the Company’s definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission not later than 120 days after the close of the Company’s fiscal year ended December 28, 2019.

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

The information required under this item is incorporated herein by reference to the Company’s definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission not later than 120 days after the close of the Company’s fiscal year ended December 28, 2019.

ITEM 14. *PRINCIPAL ACCOUNTING FEES AND SERVICES*

The information required under this item is incorporated herein by reference to the Company’s definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission not later than 120 days after the close of the Company’s fiscal year ended December 28, 2019.

PART IV

ITEM 15. *EXHIBITS, FINANCIAL STATEMENT SCHEDULES*

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

1. Financial Statements

The following consolidated financial statements are included in Item 8:

Report of Independent Registered Public Accounting Firm

Consolidated Balance Sheets at December 28, 2019 and December 29, 2018

Consolidated Statements of Income for the Years ended December 28, 2019, December 29, 2018 and December 30, 2017

Consolidated Statements of Comprehensive Income for the Years ended December 28, 2019, December 29, 2018 and December 30, 2017

Consolidated Statements of Stockholders' Equity for the Years ended December 28, 2019, December 29, 2018 and December 30, 2017

Consolidated Statements of Cash Flows for the Years ended December 28, 2019, December 29, 2018 and December 30, 2017

Notes to Consolidated Financial Statements

2. Financial Statement Schedules

All other schedules have been omitted since the required information is not present, or not present in amounts sufficient to require submission of the schedule, or because the information required is included in the consolidated financial statements or the Notes thereto.

3. Exhibits — See item 15(b) of this report below

(b) Exhibits

The following exhibits are filed as part of and incorporated by reference into this Annual Report:

Exhibit Number	Description
2.1	Share Purchase Agreement, dated as of July 25, 2017, by and among the Registrant, iRobot UK Ltd., Robopolis SAS, the shareholders of Robopolis SAS named therein, and the Shareholders' Representative named therein (filed as Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on July 26, 2017 and incorporated by reference herein)
3.1(1)	Form of Second Amended and Restated Certificate of Incorporation of the Registrant dated November 15, 2005
3.2	Amended and Restated By-laws of the Registrant (filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on March 9, 2016 and incorporated by reference herein)
4.1(1)	Specimen Stock Certificate for shares of the Registrant's Common Stock
4.2*	Description of the Registrant's securities registered under Section 12 of the Securities Exchange Act of 1934
10.1†(1)	Form of Indemnification Agreement between the Registrant and its Directors and Executive Officers
10.2†	Form of Executive Agreement between the Registrant and certain executive officers of the Registrant, as amended (filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended October 2, 2010 and incorporated by reference herein)
10.3†(1)	Employment Agreement between the Registrant and Colin Angle, dated as of January 1, 1997
10.4†	2005 Stock Option and Incentive Plan, as amended, and forms of agreements thereunder (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on June 2, 2009 and incorporated by reference herein)
10.5†	Non-Employee Directors' Deferred Compensation Program, as amended (filed as Exhibit 10.19 to the Registrant's Annual Report on Form 10-K for the year ended December 29, 2007 and incorporated by reference herein)
10.6	Lease Agreement between the Registrant and Boston Properties Limited Partnership for premises located at 4-18 Crosby Drive, Bedford, Massachusetts, dated as of February 22, 2007 (as amended to date) (filed as Exhibit 10.6 to the Registrant's Annual Report on Form 10-K for the year ended December 30, 2017 and incorporated by reference herein)

10.7†	Form of Deferred Stock Award Agreement under the 2005 Stock Option and Incentive Plan (filed as Exhibit 10.3 to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended June 28, 2008 and incorporated by reference herein)
10.8†	Form of Restricted Stock Award Agreement under the 2005 Stock Option and Incentive Plan (filed as Exhibit 10.4 to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended June 28, 2008 and incorporated by reference herein)
10.9#	Manufacturing Services Agreement between the Registrant and Jabil Circuit, Inc., dated as of March 18, 2010 (as amended to date) (filed as Exhibit 10.10 to the Registrant’s Annual Report on Form 10-K for the year ended December 30, 2017 and incorporated by reference herein)
10.10	Amended and Restated Credit Agreement between the Registrant and Bank of America N.A., dated December 20, 2013 (filed as Exhibit 10.15 to the Registrant's Annual Report on Form 10-K for the year ended December 28, 2013 and incorporated by reference herein)
10.11	First Amendment to Amended and Restated Credit Agreement between the Registrant and Bank of America N.A., dated June 29, 2018 (filed as Exhibit 10.1 to the Registrant’s Current Report on Form 8-K filed on July 5, 2018 and incorporated by reference herein)
10.12	Amended and Restated Reimbursement Agreement between the Registrant and Bank of America N.A., dated December 20, 2013 (filed as Exhibit 10.16 to the Registrant’s Annual Report on Form 10-K for the year ended December 28, 2013 and incorporated by reference herein)
10.13	First Amendment to Amended and Restated Reimbursement Agreement between the Registrant and Bank of America N.A., dated June 29, 2018 (filed as Exhibit 10.2 to the Registrant’s Current Report on Form 8-K filed on July 5, 2018 and incorporated by reference herein)
10.14#	Manufacturing Services Agreement between the Registrant and Kin Yat Industrial Company Limited, dated as of January 22, 2014 (filed as Exhibit 10.15 to the Registrant’s Annual Report on Form 10-K for the year ended December 29, 2018 and incorporated by reference herein)
10.15†	2015 Stock Option and Incentive Plan and forms of agreements thereunder (filed as Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 27, 2015 and incorporated by reference herein)
10.16†	Form of Performance-Based Restricted Stock Unit Award Agreement under the 2015 Stock Option Incentive Plan (filed as Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended April 2, 2016 and incorporated by reference herein)
10.17†	iRobot Corporation 2017 Employee Stock Purchase Plan (filed as Exhibit 10.18 to the Registrant’s Annual Report on Form 10-K for the year ended December 30, 2017 and incorporated by reference herein)
10.18†	iRobot Corporation 2018 Stock Option and Incentive Plan (filed as Exhibit 99.1 to the Registrant’s Registration Statement on Form S-8 filed on June 7, 2018 (File No. 333-225482) and incorporated by reference herein)
10.19†	iRobot Corporation Senior Executive Incentive Compensation Plan as Amended and Restated (filed as Exhibit 10.1 to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended March 30, 2019 and incorporated by reference herein)
21.1*	Subsidiaries of the Registrant
23.1*	Consent of PricewaterhouseCoopers LLP
24.1	Power of Attorney (incorporated by reference to the signature page of this report on Form 10-K)
31.1*	Certification Pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934
31.2*	Certification Pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934
32.1**	Certification Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.SCH*	Inline XBRL Taxonomy Extension Schema Document
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document
104*	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibits 101.*)

† Indicates a management contract or any compensatory plan, contract or arrangement.

Confidential treatment requested for portions of this document.

(1) Incorporated by reference herein to the exhibits to the Company's Registration Statement on Form S-1 (File No. 333-126907)

* Filed herewith

** Furnished herewith

ITEM 16. ***FORM 10-K SUMMARY***

Not applicable.

SIGNATURES

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

iROBOT CORPORATION

By: /s/ Colin M. Angle

Colin M. Angle
Chairman of the Board,
Chief Executive Officer and Director

Date: February 13, 2020

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Colin M. Angle and Alison Dean, jointly and severally, his or her attorney-in-fact, with the power of substitution, for him or her in any and all capacities, to sign any amendments to this Annual Report on Form 10-K and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact, or his or her substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Annual Report on Form 10-K has been signed by the following persons in the capacities indicated on February 13, 2020.

Signature	Title(s)
/s/ COLIN M. ANGLE Colin M. Angle	Chairman of the Board, Chief Executive Officer and Director (Principal Executive Officer)
/s/ ALISON DEAN Alison Dean	Executive Vice President, Chief Financial Officer and Treasurer (Principal Financial and Accounting Officer)
/s/ MOHAMAD ALI Mohamad Ali	Director
/s/ MICHAEL BELL Michael Bell	Director
/s/ DEBORAH G. ELLINGER Deborah G. Ellinger	Director
/s/ ELISHA FINNEY Elisha Finney	Director
/s/ RUEY-BIN KAO Ruey-Bin Kao	Director

/s/ EVA MANOLIS	Director
Eva Manolis	
/s/ ANDREW MILLER	Director
Andrew Miller	
/s/ MICHELLE V. STACY	Director
Michelle V. Stacy	

Exhibit 4.2

DESCRIPTION OF REGISTRANT'S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

iRobot Corporation has one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended: common stock, par value $0.01 per share (the "Common Stock"). The following description sets forth certain material terms and provisions of the Common Stock. This description also summarizes relevant provisions of the Delaware General Corporation Law ("DGCL"). The following summary does not purport to be complete and is subject to, and is qualified in its entirety by reference to, the applicable provisions of the DGCL and our amended and restated certificate of incorporation, as amended from time to time (the "Charter"), and our amended and restated bylaws, as amended from time to time (the "Bylaws"), copies of which are incorporated by reference as an exhibit to our Annual Report on Form 10-K of which this Exhibit 4.2 is a part. We encourage you to read the Charter, the Bylaws and the applicable provisions of the DGCL for additional information. Throughout this exhibit, references to the "Company," "we," "our," and "us" refer to iRobot Corporation.

Authorized Shares

The Charter authorizes us to issue up to 100,000,000 shares of Common Stock and 5,000,000 shares of preferred stock, par value $0.01 per share, in one or more series. No preferred stock has been issued as of December 28, 2019. Under the Charter, the rights, preferences and privileges of the preferred stock may be designated from time to time by the Company's Board of Directors (the "Board").

We may amend from time to time the Charter to increase or decrease the number of authorized shares of Common Stock and/or preferred stock. Any such amendment would require the affirmative vote of the holders of a majority of the outstanding shares of Common Stock entitled to vote, without a vote of the holders of the preferred stock (except as otherwise provided in any certificate of designations of any series of preferred stock).

Dividend Rights

The holders of our Common Stock are entitled to receive dividends when, as, and if declared by our Board or any authorized committee thereof out of legally available assets or funds, subject to the rights of any then outstanding preferred stock.

Liquidation Rights

If the Company is liquidated or dissolves, the holders of our Common Stock will be entitled to share ratably in the assets of the Company remaining after the payment of all of our liabilities, subject to any preferential liquidation rights of any preferred stock that at the time may be outstanding.

Voting Rights

The holders of shares of Common Stock are entitled to one vote per share on all matters to be voted upon by shareholders. At a meeting of shareholders at which a quorum is present, a majority of the voting power of the shares represented decides all questions, unless the matter is one upon which, by express provision of the Charter, the Bylaws or statute, a different vote is required. There is no cumulative voting with respect to the election of directors, which means that the holders of a majority of the shares can elect all the directors if they choose to do so, and in such event, the holders of the remaining shares would not be able to elect any directors.

Other Matters

All issued and outstanding shares of our Common Stock are fully paid and nonassessable. The holders of our Common Stock have no preemptive, conversion or exchange rights. There are no redemption or sinking fund provisions applicable to our Common Stock. The rights, preferences, and privileges of our common shareholders are subject to the rights of the shareholders of any series of preferred stock that we may designate in the future. Our Charter and Bylaws do not restrict the ability of a holder of our Common Stock to transfer his, her or its shares of Common Stock.

Certain Anti-Takeover Provisions of Delaware Law, Our Charter and Our Bylaws

Our Charter and Bylaws contain provisions that may delay, defer, discourage or prevent a change in control of the Company, the removal of our existing management or directors, or an offer by a potential acquirer to our stockholders. These provisions include:

- *Classified Board of Directors*: In accordance with the terms of our Charter, our Board is divided into three classes, Class I, Class II and Class III, with members of each class serving staggered three-year terms. The classification of the Board may have the effect of making it more difficult for stockholders to change the composition of the Board.

- *No cumulative voting.* The DGCL provides that stockholders are not entitled to the right to cumulate votes in the election of directors unless the Charter specifically authorizes cumulative voting. Our Charter does not authorize cumulative voting.

- *Requirements for removal of directors.* Our Charter provides that directors may be removed only for cause and only with the affirmative vote of the holders of 75% or more of the shares then entitled to vote at an election of directors. Any vacancy on the Board must be filled only by the remaining directors then in office.

- *Special meeting of stockholders*. Our Charter provides that special meetings of the stockholders may be called only by the Board acting pursuant to a resolution approved by the affirmative vote of a majority of the directors then in office.

- *No stockholder action by written consent.* Our Charter provides that stockholder action can be taken only at an annual or special meeting of stockholders and cannot be taken by written consent in lieu of a meeting.

- *Stockholder advance notice procedures.* Our Bylaws establish advance notice procedures with respect to stockholders proposals and the nominations of candidates for election as directors. These provisions may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed.

- *Supermajority approval requirements.* Certain provisions of the Charter contain supermajority voting provisions. Specifically, the approval of the holders of 75% or more of the outstanding shares of the Company is required to: remove a director from office prior to the expiration of his or her term with cause; amend or repeal the Bylaws; or amend or repeal certain articles of the Charter, which address, among other things, actions by written consent of stockholders, special meetings of stockholders requirements and procedures for electing and removing board members and filling vacancies, limitation of liability of directors, by-law amendments, and amendments of the Charter.

- *Authorized but Unissued Shares.* Our authorized but unissued shares of Common Stock and Preferred Stock are available for future issuance without stockholder approval. These additional shares may be utilized for a variety of corporate purposes, including future public offerings to raise additional capital, corporate acquisitions and employee benefit plans. The existence of authorized but unissued shares of Common Stock and Preferred Stock could render more difficult or discourage an attempt to obtain control of a majority of our Common Stock by means of a proxy contest, tender offer, merger or otherwise.

Delaware Business Combination Statute

We are subject to the provisions of Section 203 of the DGCL. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested shareholder” within three years of the time the shareholder became an interested shareholder, unless:

- Prior to the time the shareholder became an interested shareholder, the board of directors of the corporation approved either the business combination or the transaction that resulted in the shareholder becoming an interested shareholder;

- Upon consummation of the transaction that resulted in the shareholder becoming an interested shareholder, the interested shareholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, exclusive of shares owned by directors who are also officers and by certain employee stock plans; or

- At or subsequent to such time, the business combination is approved by the board of directors and authorized at an annual or special meeting of the shareholders by the affirmative vote of at least two-thirds of the outstanding voting stock that is not owned by the interested shareholder.

Generally, for purposes of the Delaware Business Combination Statute, a “business combination” is defined to include mergers, asset sales, and other transactions resulting in financial benefit to a stockholder. In general, an “interested stockholder” is a person who, together with affiliates and associates, owns (or within three years, did own) 15% or more of a corporation’s voting stock. The statute could prohibit or delay mergers or other takeover or change in control attempts with respect to the Company and, accordingly, may discourage attempts to acquire us even though such a transaction may offer the Company’s stockholders the opportunity to sell their stock at a price above the prevailing market price.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.

Nasdaq Global Select Market

Our Common Stock is listed on The Nasdaq Global Select Market under the symbol “IRBT.”

Exhibit 21.1

iROBOT CORPORATION
SUBSIDIARIES OF THE REGISTRANT

Subsidiary Legal Name	Jurisdiction of Incorporation/Formation
iRobot Securities Corporation	Massachusetts
iRobot US Holdings Inc.	Delaware
iRobot Holdings LLC.	Delaware
iRobot (India) Private Limited	India
Guangzhou iRobot Technology Consulting Company Limited	China
Shanghai iRobot Robot Trading Co., Ltd.	China
iRobot (HK) Limited	Hong Kong
iRobot Japan G.K.	Japan
iRobot UK Ltd.	United Kingdom
iRobot France SAS	France
iRobot Belgium SPRL	Belgium
iRobot Portugal, Unipessoal Lda	Portugal
iRobot Austria GmbH	Austria
iRobot Germany GmbH	Germany
iRobot Netherlands B.V.	Netherlands
iRobot Iberia SL	Spain

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statement on Form S-8 (Nos. 333-225482, 333-219686, 333-204669, 333-193998, 333-186700, 333-184320, 333-179593, 333-172333, 333-164993, 333-157306, 333-149373, 333-140707, 333-129576) of iRobot Corporation of our report dated February 13, 2020 relating to the consolidated financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
February 13, 2020

Exhibit 31.1

Certifications

I, Colin M. Angle, certify that:

1. I have reviewed this Annual Report on Form 10-K of iRobot Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 13, 2020

/s/ COLIN M. ANGLE

Colin M. Angle

Chief Executive Officer

Exhibit 31.2

Certifications

I, Alison Dean, certify that:

1. I have reviewed this Annual Report on Form 10-K of iRobot Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 13, 2020

/s/ ALISON DEAN

Alison Dean
Chief Financial Officer

Exhibit 32.1

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

In connection with the Annual Report on Form 10-K of iRobot Corporation (the "Company") for the year ended December 28, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we, Colin M. Angle, the Chief Executive Officer of the Company and Alison Dean, the Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to our knowledge, that:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

This certification is being provided pursuant to 18 U.S.C. 1350 and is not to be deemed a part of the Report, nor is it to be deemed to be “filed” for any purpose whatsoever.

Dated	February 13, 2020	/s/ COLIN M. ANGLE
		Colin M. Angle Chief Executive Officer
Dated	February 13, 2020	/s/ ALISON DEAN
		Alison Dean Chief Financial Officer