

SEMTECH CORP  
Form 10-K  
March 22, 2018

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

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FORM 10-K

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(Mark One)

Annual report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

For the fiscal year ended January 28, 2018  
or

Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

For the transition period from \_\_\_\_\_ to \_\_\_\_\_  
Commission File Number 1-6395

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

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Delaware 95-2119684  
(State or other jurisdiction of (I.R.S. Employer  
incorporation or organization) Identification No.)

200 Flynn Road, Camarillo, California, 93012-8790  
(Address of principal executive offices, Zip Code)

Registrant's telephone number, including area code: (805) 498-2111  
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock par value \$.01 per share	The NASDAQ Stock Market LLC

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

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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

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Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. 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

(Do not check if a smaller reporting company) Smaller reporting company

Emerging growth company

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

The aggregate market value of the common stock held by non-affiliates of the registrant (based upon the closing sale price of \$39.75 on the NASDAQ Global Select Market) as of July 30, 2017 was approximately \$2.0 billion. Stock held by directors, officers and shareholders owning 10% or more of the outstanding common stock (as reported by shareholders on Schedules 13D and 13G) were excluded as they may be deemed affiliates. This determination of affiliate status is not a conclusive determination for any other purpose.

Number of shares of Common Stock, \$0.01 par value per share, outstanding at March 16, 2018: 66,521,122

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**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the following documents are incorporated by reference in Part III, Item numbers 11, 12, 13 and 14 and portions of Item 10 of this report to: Definitive Proxy Statement in connection with registrant's annual meeting of shareholders to be held on June 14, 2018, to be filed no later than 120 days after the end of the registrant's fiscal year ended January 28, 2018.

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Unless the context otherwise requires, the use of the terms "Semtech," "the Company," "we," "us" and "our" in this Annual Report on Form 10-K refers to Semtech Corporation and, as applicable, its consolidated subsidiaries.

## Special Note

### Regarding Forward-Looking and Cautionary Statements

This Annual Report on Form 10-K contains "forward-looking statements" within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, as amended, based on our current expectations, estimates and projections about our operations, industry, financial condition, performance, operating results, and liquidity. Forward-looking statements are statements other than historical information or statements of current condition and relate to matters such as future financial performance, future operational performance, the anticipated impact of specific items on future earnings, and our plans, objectives and expectations. Statements containing words such as "may," "believe," "anticipate," "expect," "intend," "plan," "project," "estimate," "should," "will," "designed to," "projections," or "business outlook," or other similar expressions constitute forward-looking statements. Forward-looking statements involve known and unknown risks and uncertainties that could cause actual results and events to differ materially from those projected. Potential factors that could cause actual results to differ materially from those in the forward-looking statements include, but are not limited to: fluctuation in the Company's future results; downturns in the business cycle; decreased average selling prices of the Company's products; reduced demand for the Company's products due to global economic conditions; changes in U.S. and global social, political, regulatory and economic conditions or in laws and policies governing foreign trade, manufacturing, development and investment, including potential increases on tariffs of goods imported into the U.S.; business interruptions; the Company's reliance on a limited number of suppliers and subcontractors for component and materials; potentially insufficient liability insurance if the Company's products are found to be defective; obsolete inventories as a result of changes in demand and change in life cycles for the Company's products; the Company may be unsuccessful in developing and selling new products; the Company's products having to undergo a lengthy and expensive qualification process without any assurance of product sales; the Company's products failing to meet industry standards; the Company's inability to protect intellectual property rights; the Company suffering losses if its products infringe the intellectual property rights of others; the Company's need to commit resources to product production prior to receipt of purchase commitments; increased business risk from foreign customers; the Company's foreign currency exposures; potential increased tax liabilities and effective tax rate if the Company needs to repatriate funds held by foreign subsidiaries; export restrictions and laws affecting the Company's trade and investments; competition against larger, more established entities; increased competition due to industry consolidation; the loss of any one of the Company's significant customers; volatility of customer demand; termination of a contract by a distributor; the Company's inability to effectively control the sales of its products on the gray market; the Company's failure to maintain effective internal control over financial reporting or disclosure controls and procedures; government regulations and other standards that impose operational and reporting requirements; the Company's failure to comply with applicable environmental regulations; compliance with conflict minerals regulations; increase in the Company's cost of doing business as a result of having to comply with the codes of conduct of certain of the Company's customers and suppliers; volatility of the Company's effective tax rate; changes in tax laws and review by taxing authorities; taxation of the Company in other jurisdictions; the Company's limited experience with government contracting; potential government investigations and inquiries; loss of the Company's key personnel; risks associated with companies the Company has acquired in the past and may acquire in the future and the Company's ability to successfully integrate acquired businesses and benefit from expected synergies; the Company may be required to recognize additional impairment charges; losses in the value of investments in entities we do not control; the receipt of inaccurate, incomplete, or untimely financial information from entities in which we have an interest for which we are required to consolidate; the Company may be adversely affected by new accounting pronouncements; the Company's ability to generate cash to service its debt obligations; restrictive covenants in the Company's credit agreement which may restrict its ability to pursue its business strategies; the Company's reliance on certain critical information systems for the operation of its business; costs associated with

the Company's indemnification of certain customers, distributors and other parties; the Company's common stock price could be subject to extreme price fluctuations; the impact on the Company's common stock price if securities or industry analysts do not publish reports about the Company's business or adversely change their recommendations regarding the Company's common stock; anti-takeover provisions in the Company's organizational documents could make an acquisition of the Company more difficult; the Company is subject to litigation risks which may be costly to defend. Additionally, forward-looking statements should be considered in conjunction with the cautionary statements contained in this Annual Report on Form 10-K, including, without limitation, information under the captions "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Risk Factors" and additional factors that accompany the related forward-looking statements in this Annual Report on Form 10-K, in the Company's other filings with the Securities and Exchange Commission ("SEC"), and in material incorporated herein and therein by reference. In light of the significant risks and uncertainties inherent in the forward-looking information included herein that may cause actual performance and results to differ materially from those predicted, any such forward-looking information should not be

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regarded as representations or guarantees by the Company of future performance or results, or that its objectives or plans will be achieved, or that any of its operating expectations or financial forecasts will be realized. Reported results should not be considered an indication of future performance. Investors are cautioned not to place undue reliance on any forward-looking information contained herein, which reflect management's analysis only as of the date hereof. Except as required by law, the Company assumes no obligation to publicly release the results of any update or revision to any forward-looking statement that may be made to reflect new information, events or circumstances after the date hereof or to reflect the occurrence of unanticipated or future events, or otherwise.

In addition to regarding forward-looking statements with caution, you should consider that the preparation of the consolidated financial statements requires us to draw conclusions and make interpretations, judgments, assumptions and estimates with respect to certain factual, legal, and accounting matters. Our consolidated financial statements might have been materially impacted if we had reached different conclusions or made different interpretations, judgments, assumptions or estimates.

## PART I

### Item 1. Business

#### General

We are a leading global supplier of high performance analog, mixed-signal semiconductors and advanced algorithms and were incorporated in Delaware in 1960. We design, develop, manufacture and market a wide range of products for commercial applications, the majority of which are sold into the enterprise computing, communications, high-end consumer and industrial end-markets.

Enterprise Computing: datacenters, passive optical networks, desktops, notebooks, servers, monitors, printers and other computer peripherals.

Communications: base stations, optical networks, carrier networks, switches and routers, cable modems, wireless LAN and other communication infrastructure equipment.

High-End Consumer: handheld products, smartphones, wireless charging, set-top boxes, digital televisions, monitors and displays, tablets, wearables, digital video recorders and other consumer equipment.

Industrial: analog and digital video broadcast equipment, video-over-IP solutions, automated meter reading, Internet of Things ("IoT"), smart grid, wireless charging, military and aerospace, medical, security systems, automotive, industrial and home automation and other industrial equipment.

Our end-customers are primarily original equipment manufacturers ("OEMs") and their suppliers.

#### Overview of the Semiconductor Industry

The semiconductor industry is broadly divided into analog and digital semiconductor products. Analog semiconductors condition and regulate "real world" functions such as temperature, speed, sound and electrical current. Digital semiconductors process binary information, such as that used by computers. Mixed-signal devices incorporate both analog and digital functions into a single chip and provide the ability for digital electronics to interface with the outside world.

The market for analog and mixed-signal semiconductors differs from the market for digital semiconductors. The analog and mixed-signal industry is typically characterized by longer product life cycles than the digital industry. In addition, analog semiconductor manufacturers tend to have lower capital investment requirements for manufacturing because their facilities tend to be less dependent than digital producers on state-of-the-art production equipment to manufacture leading edge process technologies. The end-product markets for analog and mixed-signal semiconductors are more varied and more specialized than the relatively standardized digital semiconductor product markets.

Another difference between the analog and digital markets is the amount of available talented labor. The analog industry relies more heavily than the digital industry on design and applications talent to distinguish its products from one another. Digital expertise is extensively taught in universities due to its overall market size, while analog and mixed-signal expertise tends to be learned over time based on experience and hands-on training. Consequently, personnel with analog training are scarcer than digital trained engineers. This has historically made it more difficult for new suppliers in the analog market to quickly develop products and gain significant market share.

Advancements in digital signal processing technology typically drive the need for corresponding advancements in analog and mixed-signal solutions. We believe that the diversity of our applications allows us to take advantage of areas of relative market strength and reduces our vulnerability to competitive pressure in any one area.

#### Business Strategy

Our objective is to be a leading supplier of high performance analog, mixed-signal semiconductors and advanced algorithms to the fastest growing segments of our target markets. We intend to leverage our pool of skilled technical personnel to develop new products, or, where appropriate, use strategic acquisitions or small strategic investments to either accelerate our position in the fastest growing areas or to gain entry into these areas. In order to capitalize on our strengths in analog and mixed-signal processing design, development and marketing, we intend to pursue the following strategies:

#### Leverage our rare analog/mixed signal design expertise

We have developed a strategy to invest heavily in human resources needed to define, design and market high-performance analog and mixed signal platform products. We have built a team of experienced engineers who



combine industry expertise with advanced semiconductor design expertise to meet customer requirements and enable our customers to get their products to market rapidly. We intend to leverage this strategy to achieve new levels of integration, power reduction and performance, enabling our customers to achieve differentiation in their end systems.

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Continue to release proprietary new products, achieve new design wins, and cross-sell products

We are focused on developing unique, new, proprietary products that bring value to our target customers in our target markets. These products are typically differentiated in performance but are priced competitively. We also focus on achieving design wins for our products with current and future customers. Design wins are indications by the customer that they intend to incorporate our products into their product designs. Although we believe that a design win is an indicator of future potential growth, it does not inevitably result in us being awarded business or receiving a purchase commitment. Our technical talent works closely with our customers in securing design wins, defining new products and in implementing and integrating our products into their systems. We also focus on selling our complete portfolio of products to our existing customers, as we believe the technical expertise of our marketing and sales team allows us to identify and capitalize on cross-selling opportunities.

Focus on fast-growing market segments and regions

We have chosen to target the analog/mixed signal sub-segments of some of the most exciting and fastest growing end-markets. We participate in these markets by focusing on specific product areas within the analog and mixed-signal market, including products for enterprise computing equipment, high-end consumer equipment, communications infrastructure and certain broad-based industrial markets. All of these markets are characterized by their need for leading-edge, high-performance analog and mixed-signal semiconductor technologies.

The enterprise computing, communications, high-end consumer and industrial end-markets we supply are characterized by several trends that we believe drive demand for our products. The key trends that we believe are significant for our future growth include:

- Increasing bandwidth over high-speed networks, fueling growth in high speed multimedia transmission
- Increasing electronic system requirements for smaller, lighter, more highly integrated and feature rich mobile devices
- Increasing need for more efficient energy management in the home and in industrial environments and the proliferation of "green" standards
- Increasing demands for Internet connectivity to low power sensors

Our products address these market trends by providing solutions that are ultra-low power thus extending battery life, small form factor enabling smaller more mobile devices, highly integrated enabling more functionality within devices and high performance enabling product differentiation within our customer base. Additionally, as communications functions are increasingly integrated into a range of systems and devices, these products require analog sensing, processing and control capabilities, which increases the number and size of our end-markets.

Leverage outsourced semiconductor fabrication capacity

We outsource most of our manufacturing in order to focus more of our resources on designing, developing and marketing our products. Our primary outside wafer foundries are based in China, Israel, the United States and Taiwan. We believe that outsourcing provides us numerous benefits, including capital efficiency, the flexibility to adopt and leverage emerging process technologies without significant investment risk, and a more variable cost of goods, which provides us with greater operating flexibility.

Products and Technology

We design, develop, manufacture and market high-performance analog, mixed-signal semiconductors and advanced algorithms. We operate and account for results in one reportable segment through four product lines: Signal Integrity, Protection, Wireless and Sensing and Power and High-Reliability.

On July 1, 2017, the Company acquired AptoVision Technologies Inc. ("AptoVision"), a privately-held provider of uncompressed, zero-frame latency, video-over-IP solutions addressing the professional audio visual ("Pro AV") market. The unique combination of AptoVision's advanced algorithms for real-time, full bandwidth video transmission over IP networks, and Semtech's industry leading high-speed signal integrity and chip development expertise is expected to enable the adoption of Software Defined Video over Ethernet ("SDVoE") accelerating this natural progression in the evolution of video transport. This transaction, which was accounted for using the acquisition method of accounting, expanded our Signal Integrity portfolio.

On March 4, 2015, we completed the acquisition of Triune Systems, L.L.C. ("Triune"), a privately-held supplier of wireless charging, isolated switching and power management platforms targeted at high and low power, high efficiency applications. This transaction, which was accounted for using the acquisition method of accounting,

expanded our power management portfolio.

Beginning in fiscal year 2016, we split the product line previously known as Protection, Power and High-Reliability into two new product lines now referred to as the Protection Products Group and the Power and High-Reliability Products Group.

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Our product lines include:

**Signal Integrity Products.** We design, develop and market a portfolio of optical data communications and video transport products used in a wide variety of enterprise computing, industrial, communications and high-end consumer applications. Our comprehensive portfolio of integrated circuits ("ICs") for data centers, enterprise networks, passive optical networks ("PON"), and wireless basestation optical transceivers and high-speed interfaces ranges from 100Mbps to 400Gbps and supports key industry standards such as Fibre Channel, Infiniband, Ethernet, PON and SONET. Our video products offer advanced solutions for next generation video broadcast applications, as well as highly differentiated video over IP technology for Pro AV applications.

**Protection Products.** We design, develop and market high performance protection devices, which are often referred to as transient voltage suppressors ("TVS"). TVS devices provide protection for electronic systems where voltage spikes (called transients), such as electrostatic discharge ("ESD"), electrical over stress ("EOS") or secondary lightning surge energy, can permanently damage sensitive semiconductor ICs. Our portfolio of protection solutions include filter and termination devices that are integrated with the TVS device. Our products provide robust protection while preserving signal integrity in high-speed communications, networking and video interfaces. These products also operate at very low voltage. Our protection products can be found in a broad range of applications including smart phones, LCD and organic light-emitting diode TVs, set-top boxes, monitors and displays, tablets, computers, notebooks, base stations, routers, automobile and industrial instruments.

**Wireless and Sensing Products.** We design, develop and market a portfolio of specialized RF products used in a wide variety of industrial, medical and communications applications, and specialized sensing products used in industrial and consumer applications. Our wireless products, which include our LoRa® devices and wireless radio frequency technology ("LoRa Technology"), feature industry leading and longest range industrial, scientific and medical radio, enabling a lower total cost of ownership and increased reliability in all environments. This makes these products particularly suitable for machine-to-machine (M2M) and IoT applications. Our unique sensing technology enables smart proximity sensing and advanced user interface solutions for mobile and consumer products. Our wireless and sensing products can be found in a broad range of applications in the industrial, medical and consumer markets.

**Power and High-Reliability Products.** We design, develop and market power product devices that control, alter, regulate and condition the power within electronic systems. The highest volume product types within the Power product line are switching voltage regulators, combination switching and linear regulators, smart regulators, isolated switches and wireless charging. Our Power products feature highly integrated functionality for the communications, industrial and computing markets and low-power, small form factor and high-efficiency products for smart phones and other mobile devices, home automation and other consumer devices.

Our High-Reliability discrete semiconductor products are comprised of rectifiers, assemblies (packaged discrete rectifiers) and other products that are typically used to convert alternating currents into direct currents and to protect circuits against very high voltage spikes or high current surges. Our High-Reliability products can be found in a broad range of applications including industrial, military, medical, automotive, aerospace and defense systems, including satellite communications.

**Systems Innovation Group.** Prior to the third quarter of fiscal year 2017, we had a Systems Innovation Group which combined the analog/mixed signal design competencies from our previous Sierra Monolithics, Inc. ("SMI") and Gennum Corporation ("Gennum") acquisitions and was chartered with developing innovative analog/mixed signal intellectual property ("IP") for emerging systems.

On August 5, 2016, we completed the divestiture of our Snowbush IP business (the remaining part of our Systems Innovation Group) to Rambus Inc. ("Rambus") for \$32.0 million in cash along with the opportunity to receive additional payments from Rambus through 2022 based upon a percentage of sales by Rambus of new products expected to be developed by Rambus from the disposed assets. In fiscal year 2017, we recorded a gain of \$25.5 million on the disposition of this business. Other than this gain, the divestiture did not and is not expected to have a material impact on our consolidated financial statements. Following the divestiture, beginning in the third quarter of fiscal year 2017, we no longer have a Systems Innovation Group.



Our sales by product line are as follows:

(in thousands)	Fiscal Years		
	2018	2017	2016
Signal Integrity	\$263,015	\$258,824	\$221,185
Protection	176,482	149,865	138,674
Wireless and Sensing	117,596	81,657	70,712
Power and High-Reliability	46,973	59,117	54,999
Systems Innovation	—	205	4,649
Other: Warrant Shares <sup>(1)</sup>	(16,219 )	(5,396 )	—
Total	\$587,847	\$544,272	\$490,219

<sup>(1)</sup>On October 5, 2016, we issued a warrant (the "Warrant") to Comcast Cable Communications Management LLC ("Comcast") to purchase up to 1,086,957 shares (the "Warrant Shares") of our common stock. The Warrant was issued by us to Comcast in connection with an agreement between the parties regarding the intended trial deployment by Comcast of a low-power wide-area Network ("LPWAN") in the United States, based on our LoRa Technology. The Warrant is accounted for as equity and the cost is recognized as an offset to net sales over the respective performance period which is expected to be completed by April 2019. The Warrant consists of five performance tranches. The cost associated with each tranche is recognized based on the fair value at each reporting date until vesting which is the measurement date.

#### Semtech End-Markets

Our products are sold primarily to customers in the enterprise computing, communications, high-end consumer and industrial end-markets. Our estimate of sales by major end-market is detailed below:

(percentage of sales)	Fiscal Years		
	2018	2017	2016
Enterprise Computing	34 %	31 %	30 %
Industrial	26 %	26 %	26 %
High-End Consumer	31 %	26 %	25 %
Communications	12 %	18 %	19 %
Other: Warrant Shares	(3 )%	(1 )%	— %
Total	100 %	100 %	100 %

We believe that our diversity in end-markets provides stability to our business and opportunity for growth.

The following table depicts our main product lines and their end-market and product applications:

	Typical End-Product Applications			
Product Groups	Enterprise Computing	Communications	High-End Consumer	Industrial
Signal Integrity	Optical Transceiver Module IC's supporting 100Mb/s to 400Gb/s for Ethernet, Fibre Channel, CPRI protocols in Datacenter and Fiber to the Home applications	Optical Transceiver Module IC's for wireless base stations Optical Transceiver Module IC's supporting 100Mb/s to 100Gb/s for Telecom applications, Backplane CDR's and signal conditioners	Signal Conditioners for Thunderbolt Cables	Serial Digital Interconnect interface IC's for Broadcast Video, Video over IP technology for Pro AV applications
Protection	Servers, workstations, desktop PC/ notebooks, Ultrabooks, optical modules, printers, copiers	4G/LTE Base stations, 10/100/1000 Gb/s	Smartphones, tablets, wearables cameras, TVs, set top boxes	Measurement & instrumentation devices, automotive
Wireless and Sensing		4G/LTE wireless base stations	Smartphones, media players, tablets, digital/still video cameras	Automated meter readers, industrial automation, IoT, keyless entry, hearing aids
Power and High-Reliability	Servers, workstations, desktop PC/ notebooks	Routers/Switches Network cards, routers and hubs, telecom network boards	Smartphones, tablets, wearables cameras, smart TVs, set top boxes	Power supplies, wireless charging, automotive, industrial systems, military, aerospace, medical

#### Seasonality

Historically, our results have reflected some seasonality, with demand levels generally being slightly lower in the industrial and high-end consumer products end-markets during the first and fourth quarters of our fiscal year in comparison to the second and third quarters.

#### Intellectual Capital and Product Development

The development of IP and the resulting proprietary products is a critical success factor for us. Recruiting and retaining key technical talent is the foundation for designing, developing and selling this IP, in the form of new proprietary products, in the global marketplace. Our ability to recruit and retain our engineering talent is one of the keys to maintaining our competitive advantage. Historically, we have been successful in retaining our key engineering staff and recruiting new talent. One of our strategies to recruit this talent is the establishment of multiple design center locations. As a result, we have design centers throughout the world.

Circuit design engineers, layout engineers, product and test engineers, application engineers, and field application engineers are our most valuable employees. Together they perform the critical tasks of design and layout of ICs, turning these circuits into silicon devices, and conferring with customers about designing these devices into their applications. The majority of our engineers fit into one of these categories. Most of these engineers have many years of experience in the design, development and layout of circuits targeted for use in protection, advanced communications, power management and high-reliability, multimedia and data communications, and wireless and

sensing applications. We also employ a number of software engineers and systems engineers that specialize in the development of software and systems architecture, who enable us to develop systems oriented products in select markets.

In fiscal year 2018, we incurred \$104.8 million of product development and engineering expense, which represents 18% of net sales. Product development and engineering expense for fiscal years 2017 and 2016 were \$102.5 million and \$113.7 million, or 19% and 23% of net sales, respectively.

We occasionally enter into agreements with customers that allow us to recover certain costs associated with product design and engineering services. Any recovery for these services is typically recognized upon completion of services, which historically lags behind the period in which we recognize expense. This difference in recognition timing can create volatility in our reported product development and engineering expenses.



## Sales and Marketing

Net sales made directly to customers during fiscal years 2018, 2017 and 2016, were approximately 34%, 35% and 42%, of total net sales, respectively. The remaining 66%, 65% and 58% of net sales were made through independent distributors. The decline in direct sales is related to substantially lower sales of our 40 Gbps and 100 Gbps long-haul transport products which were predominantly sold directly to our end-customers. Additionally, we have expanded the diversity of products sold to our Korean customers and a higher percentage of these new product sales are being made through distribution. We have direct sales personnel located throughout the United States, Europe and Asia who manage the sales activities of independent sales representative firms and independent distributors. We expense our advertising costs as they are incurred.

We operate internationally through our foreign subsidiaries. Semtech (International) AG serves the European and Asian markets from its headquarters in Rapperswil, Switzerland and through its wholly-owned subsidiaries based in the United Kingdom and Japan. Semtech (International) AG also maintains branch offices, either directly or through one of its wholly-owned subsidiaries, in multiple countries, including China, Taiwan and South Korea. Semtech Canada Corporation serves the Canadian market for Gennum products, which are now part of the Signal Integrity Products Group, from its headquarters in Burlington, Ontario. Independent representatives and distributors are also used to serve customers throughout the world. Some of our distributors and sales representatives also offer products from our competitors, as is customary in the industry.

### Customers, Sales Data and Backlog

As a result of the breadth of our products and markets, we have a broad and balanced range of customers.

#### Representative Customers by End-Markets:

Enterprise Computing	Industrial	High-End Consumer	Communications
Alphabet Inc.	Honeywell Inc.	Huawei Technologies Co., Ltd.	Cisco Systems, Inc.
Hewlett-Packard	Itron, Inc.	LG Electronics Inc.	Ericsson
LuxNet Corp	Panasonic Corp	Quanta Computer	Huawei Technologies Co., Ltd.
Oclaro, Inc.	Raytheon Company	Samsung Electronics Co., Ltd.	Samsung Electronics Co., Ltd.
Samsung Electronics Co., Ltd.	Rockwell Automation	Sharp Corporation	ZTE Corporation
Sumitomo Electric	Sharp Corporation		
ZTE Corporation	Sonova International		
	Sony Corp		

Our customers include major OEMs and their subcontractors in the enterprise computing, communications, high-end consumer and industrial end-markets. Our products are typically purchased by these customers for our performance, price, and/or technical support, as compared to our competitors.

During fiscal years 2018, 2017 and 2016, sales in the United States ("U.S.") contributed 9%, 9% and 12%, respectively to our sales. Foreign sales constituted 91%, 91% and 88% of our sales during fiscal years 2018, 2017 and 2016, respectively. Sales to customers located in Taiwan, South Korea, Japan, and China (including Hong Kong) comprised 6%, 8%, 5%, and 51% of our sales, respectively, in fiscal year 2018. No other foreign country comprised more than 5% of sales in fiscal year 2018. See Note 15 to our Consolidated Financial Statements included in Item 8 of this Annual Report on Form 10-K for additional financial information by geographic region. Additional information regarding certain risks associated with our international operations is provided under Item 1A. Risk Factors - Risks Relating to Our Business - Risks Relating to International Operations.

## Sales by Region

A summary of net sales by region is as follows:

(in thousands, except percentages)	Fiscal Years					
	2018		2017		2016	
Asia-Pacific	\$439,342	75 %	\$412,167	76 %	\$358,480	74 %
Europe	43,580	7 %	43,378	8 %	85,587	17 %
North America	121,144	21 %	94,123	17 %	46,152	9 %
Other: Warrant Shares	(16,219 )	(3 )%	(5,396 )	(1 )%	—	— %
Total Net Sales	\$587,847	100 %	\$544,272	100 %	\$490,219	100 %

The following table sets forth the concentration of sales among the customers that accounted for more than 10% of our sales in at least one of the fiscal years 2018, 2017 and 2016:

## Concentration of Net Sales - Significant Customers

(percentage of net sales)	Fiscal Years		
	2018	2017	2016
Arrow Electronics (and affiliates)	11 %	10 %	9 %
Trend-tek Technology Ltd (and affiliates)	10 %	10 %	7 %
Samsung Electronics (and affiliates)	8 %	7 %	7 %
Premier Technical Sales Korea, Inc. (and affiliates) <sup>(1)</sup>	6 %	4 %	3 %

<sup>(1)</sup>Premier is a distributor with a concentration of sales to Samsung. The above percentages represent our estimate of the sales activity related to Samsung that is passing through this distributor.

## Concentration of Accounts Receivable - Significant Customers

The Company did not have any customers that accounted for at least 10% of total net receivables as of January 28, 2018 or January 29, 2017.

## Backlog

Our backlog of orders as of the end of fiscal years 2018, 2017 and 2016 was approximately \$102.9 million, \$112.4 million and \$84.2 million, respectively. The majority of our backlog is typically requested for delivery within six months. In markets where the end system life cycles are relatively short, customers typically request delivery in four to eight weeks. A backlog analysis at any given time gives little indication of our future business except on a short-term basis, principally within the next 45 days. We do not have any significant backlog with deliveries beyond 18 months.

## Manufacturing Capabilities

Our strategy is to outsource most of our manufacturing functions to third-party foundries and assembly and test contractors. The third-party foundries fabricate silicon wafers, and the assembly and test contractors package and test our products. We believe this outsourcing permits us to take advantage of the best available technology, leverage the capital investment of others, and reduce our operating costs associated with manufacturing assets.

We perform a limited amount of internal probe and final test activities at our facilities in Camarillo, Irvine, and San Diego in California; Neuchâtel in Switzerland; and Reynosa in Mexico. These activities accommodate situations in which tight coupling with product design is desirable or where there are unique requirements. Our packaged discrete rectifier products are packaged and tested in-house in Reynosa, Mexico. Almost all of our other products are packaged and tested by outside subcontractors.

In keeping with our mostly "fabless" business model, we have no wafer fabrication facilities except for our operation in Reynosa, Mexico. For fiscal year 2018, the Reynosa facility provided almost all of the silicon for our packaged discrete rectifier products, which were approximately 2% of our end product net sales. The remaining 98% of our end products were supported with finished silicon wafers purchased from third-party wafer foundries in China, Taiwan, Israel and the U.S. We anticipate that substantially all the silicon wafers we require will come from third-party foundries in fiscal year 2019.

Despite our use of third-party wafer foundries for sourcing a majority of our silicon needs, we do maintain internal process development capabilities. Our process engineers work closely with our third-party foundries on the improvement and development of process capabilities. In fiscal year 2018, we purchased the vast majority of our

wafers from approximately four different third-party wafer foundries and used various manufacturing processes, including Bipolar, CMOS, RF-CMOS and Silicon Germanium ("SiGe") BiCMOS processes.

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While we do have some redundancy of fabrication processes by using multiple third-party foundries, any interruption of supply by one or more of these foundries could materially impact us. As a result, we maintain some amount of business interruption insurance in part to help reduce the financial risk associated with a wafer supply interruption, but we are not fully insured against this risk.

Although our products are made from basic materials (principally silicon, metals and plastics), all of which are available from a number of suppliers, capacity at wafer foundries sometimes becomes constrained. The limited availability of certain materials, such as silicon wafer substrates, may impact our suppliers' ability to meet our demand needs or impact the price we are charged. The prices of certain other basic materials, such as metals, gases and chemicals used in the production of ICs can exhibit price volatility depending on the changes in demand for these basic commodities. In most cases we do not procure these materials ourselves, but we are nevertheless reliant on these materials for producing our products because our third-party foundry and package and test subcontractors must procure them. To help minimize risks associated with constrained capacity, we use multiple foundries and have taken other steps to prevent supply interruptions at certain foundries and subcontractors.

In fiscal years 2018, 2017, and 2016, a Chinese foundry provided 20%, 25% and 28% of our total silicon requirements in terms of cost of wafers purchased, respectively. We have consigned certain equipment to this foundry to support our specialized processes run at the foundry and to ensure a specified level of capacity over the next few years. While the provision of these assets to the wafer foundry may be factored into certain pricing arrangements with the foundry, the impact of any pricing adjustments is insignificant and does not impact our margin trends.

We use third-party subcontractors to perform almost all of our assembly and test operations. A majority of our assembly and test activity is conducted by third-party subcontractors based in China, Malaysia, Taiwan, Thailand, South Korea and the Philippines. We have operations offices located in the Philippines, Malaysia and China that support and coordinate some of the worldwide shipment of products. We have installed our own test equipment at some of our packaging and testing subcontractors in order to ensure a certain level of capacity, assuming the subcontractor has ample employees to operate the equipment.

Our arrangements with both third-party wafer foundries and package and test subcontractors are designed to provide some assurance of capacity but are not expected to assure access to all the manufacturing capacity we may need in the future.

#### Competition

The analog, mixed-signal semiconductor and advanced algorithms industries are highly competitive, and we expect competitive pressures to continue. Our ability to compete effectively and to expand our business will depend on our ability to continue to recruit and retain key engineering talent, our ability to execute on new product developments, and our ability to persuade customers to design these new products into their applications.

Our industry is characterized by decreasing unit selling prices over the life of a product as the volumes typically increase. However, price decreases can sometimes be quite rapid and faster than the rate of increase of the associated product volumes. We believe we compete effectively based upon our ability to capitalize on efficiencies and economies of scale in production and sales, and our ability to maintain or improve our productivity and product yields to reduce manufacturing costs.

We are in direct and active competition, with respect to one or more of our product lines, with numerous manufacturers of varying size, technical capability and financial strength. A number of these competitors are dependent on semiconductor products as their principal source of income, and some are much larger and better resourced than we are. The number of competitors has grown due to expansion of the market segments in which we participate. Additionally, there has been a trend toward consolidation in our industry as companies attempt to strengthen or hold their market positions in an evolving industry. Such consolidations may make it more difficult for us to compete effectively, including on the basis of price, sales and marketing programs, channel coverage, technology or product functionality.

We consider our primary competitors with respect to our Protection products to include STMicroelectronics, Nxp, ON Semiconductor Corporation and Infineon Technologies AG. Our primary competitors with respect to our Signal Integrity products are Texas Instruments Incorporated, Maxim Integrated Products, Inc., MACOM Technology Solutions Holdings, Inc., Inphi Corporation, Broadcom Limited and our customers' own internal

solutions. With respect to our Power and High-Reliability products, we consider our primary competitors to include Texas Instruments Incorporated, Maxim Integrated Products Inc., Microsemi Corporation and Monolithic Power Systems. Our primary competitors with respect to our Wireless and Sensing products include Silicon Laboratories, Texas Instruments Incorporated, Analog Devices Inc., Cypress Semiconductor Corp and Huawei Technologies Co., Ltd.

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### Intellectual Property and Licenses

We have been granted 212 U.S. patents and 88 foreign patents and have numerous patent applications pending with respect to our products and to technologies associated with our business. The expiration dates of issued patents range from 2018 to 2036. Although we consider patents to be helpful in maintaining a competitive advantage, we do not believe they create definitive competitive barriers to entry. There can be no assurance that our patent applications will lead to issued patents, that others will not develop or patent similar or superior products or technologies, or that our patents will not be challenged, invalidated, or circumvented by others. We have no revenue from patents that expire in calendar year 2018 and no material revenue associated with patents that expire in 2019 or 2020.

We have registered many of our trademarks in the U.S. and in various foreign jurisdictions. Registration generally provides rights in addition to basic trademark protections and is typically renewable upon proof of continued use. We have registered, or are in the process of registering, our SEMTECH trademark in many jurisdictions. In one location use of this trademark is prohibited, but we are permitted to use our Semtech International trade name. This restriction has not had a material impact on our business to date and we do not anticipate it will have a material impact in the future.

We also have registered certain materials in which we have copyright ownership, which provides additional protection for this intellectual property.

### Employees

As of January 28, 2018, we had 1,282 full-time employees. There were 504 employees in research and development, 248 in sales, marketing and field services, and 187 in general, administrative and finance. The remaining employees support operational activities, including product and test engineering, assembly, manufacturing, distribution and quality functions.

We have not had a work stoppage in the last decade and the only unionized employees are approximately 186 Mexican nationals who work at our manufacturing facility in Reynosa, Mexico. Our employee relations during the last fiscal year have been, and remain, satisfactory.

We adjust our workforce from time to time to meet the changing needs of our business. Competition for key design engineering talent globally is significant.

### Government Regulations and Environmental Matters

We are required to comply, and it is our policy to comply, with numerous government regulations that are normal and customary to businesses in our industry and that operate in our markets and operating locations.

Our sales that serve the military and aerospace markets primarily consist of our High-Reliability products that have been qualified to be sold in these markets by the U.S. Department of Defense ("DOD"). In order to maintain these qualifications, we must comply with certain specifications promulgated by the DOD. As part of maintaining these qualifications, we are routinely audited by the DOD. Based on current specifications, we believe we can maintain our qualifications for the foreseeable future. However, these specifications could be modified by the DOD in the future or we could become subject to other government requirements, which could make the manufacturing of these products more difficult and thus could adversely impact our profitability in the Power and High-Reliability product group. In fiscal year 2018, our sales that serve military and aerospace markets made up 2% of net sales. The U.S. State Department has determined that a small number of special assemblies from the Power and High-Reliability product line are subject to the International Traffic in Arms Regulations ("ITAR"). We have a Technical Assistance Agreement in place that permits us to assemble certain of these products in Mexico. International shipments of products subject to ITAR require a State Department license.

For further discussion related to environmental matters, see Note 13 to our Consolidated Financial Statements included in Item 8 of this Annual Report on Form 10-K.

### Available Information

General information about us can be found on our website at [www.semtech.com](http://www.semtech.com). The information on our website is for i