CREE INC
Form 10-K
August 20, 2018
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K
(Mark One)
ý ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended June 24, 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 0-21154

CREE, INC.
(Exact name of registrant as specified in its charter)

North Carolina	56-1572719
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
4600 Silicon Drive Durham, North Carolina	27703
(Address of principal executive offices)	(Zip Code)

(919) 407-5300
(Registrant's telephone number, including area code)
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, $0.00125 par value	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 ý No ¨
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes ¨ No ý
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 ý No ¨
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ý No ¨
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ¨
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer," "smaller reporting company,"

and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ý	Accelerated filer ¨
Non-accelerated filer ¨ (Do not check if a smaller reporting company)	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 Act). Yes ¨ No ý

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The aggregate market value of common stock held by non-affiliates of the registrant as of December 22, 2017, the last business day of the registrant's most recently completed second fiscal quarter, was $3,728,836,361 (based on the closing sale price of $37.33 per share).
The number of shares of the registrant's Common Stock, $0.00125 par value per share, outstanding as of August 16, 2018 was 101,758,035.

DOCUMENTS INCORPORATED BY REFERENCE
Portions of the definitive Proxy Statement to be delivered to shareholders in connection with the Annual Meeting of Shareholders to be held October 22, 2018 are incorporated by reference into Part III.

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Forward-Looking Information

Information set forth in this Annual Report on Form 10-K contains various “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended (the Securities Act), and Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act). All information contained in this report relative to future markets for our products and trends in and anticipated levels of revenue, gross margins and expenses, as well as other statements containing words such as “believe,” “project,” “may,” “will,” “anticipate,” “target,” “plan,” “estimate,” “expe “intend” and other similar expressions constitute forward-looking statements. These forward-looking statements are subject to business, economic and other risks and uncertainties, both known and unknown, and actual results may differ materially from those contained in the forward-looking statements. Any forward-looking statements we make are as of the date made, and except as required under the U.S. federal securities laws and the rules and regulations of the Securities and Exchange Commission (the SEC), we have no duty to update them if our views later change. These forward-looking statements should not be relied upon as representing our views as of any date subsequent to the date of this Annual Report. Examples of risks and uncertainties that could cause actual results to differ materially from historical performance and any forward-looking statements include, but are not limited to, those described in “Risk Factors” in Item 1A of this Annual Report.

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PART I

Item 1. Business

Overview

Cree, Inc. (Cree, we, our, or us) is an innovator of wide bandgap semiconductor products for power and radio-frequency (RF) applications, lighting-class light emitting diode (LED) products, and lighting products. Our products are targeted for applications such as transportation, power supplies, inverters, wireless systems, indoor and outdoor lighting, electronic signs and signals and video displays. As discussed more fully below, we operate in three reportable segments: Wolfspeed, LED Products, and Lighting Products.

Our Wolfspeed segment's products consists of silicon carbide (SiC) and gallium nitride (GaN) materials, power devices and RF devices based on silicon (Si) and wide bandgap semiconductor materials. Our materials products and power devices are used in solar, electric vehicles, motor drives, power supplies and transportation applications. Our materials products and RF devices are used in military communications, radar, satellite and telecommunication applications.

Our LED Products segment's products consist of LED chips and LED components. Our LED products enable our customers to develop and market LED-based products for lighting, video screens, automotive and specialty lighting applications.

Our Lighting Products segment's products primarily consist of LED lighting systems and lamps. We design, manufacture and sell lighting fixtures and lamps for the commercial, industrial and consumer markets.

The majority of our products are manufactured at our production facilities located in North Carolina, Wisconsin, California, Arkansas and China. We also use contract manufacturers for certain products and aspects of product fabrication, assembly and packaging. We operate research and development facilities in North Carolina, Arizona, Arkansas, California, Wisconsin, India, Italy and China (including Hong Kong).

Cree, Inc. is a North Carolina corporation established in 1987, and our headquarters are in Durham, North Carolina.

For further information about our consolidated revenue and earnings, please see our consolidated financial statements included in Item 8 of this Annual Report.

Recent Developments

None.

Reportable Segments

Our three reportable segments are:

- Wolfspeed
- LED Products
- Lighting Products

Reportable segments are components of an entity that have separate financial data that the entity’s Chief Operating Decision Maker (CODM) regularly reviews when allocating resources and assessing performance. Our CODM is the Chief Executive Officer.

For further information about our reportable segments, please refer to Note 15, “Reportable Segments,” in our consolidated financial statements included in Item 8 of this Annual Report.

Products by Reportable Segment

Wolfspeed Segment

Wolfspeed revenue was $328.6 million, $221.2 million, and $176.3 million, representing 22%, 15% and 11% of our revenue for the fiscal years ended June 24, 2018, June 25, 2017 and June 26, 2016, respectively. Wolfspeed gross profit was $158.5 million, $103.5 million and $94.6 million and gross margin was 48%, 47% and 54% for the fiscal years 2018, 2017 and 2016, respectively.

Our Wolfspeed segment includes SiC materials, power devices and RF devices.

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SiC Materials

Our SiC materials products consist of crystals, bare and epitaxial wafers. Our SiC materials are targeted for customers who use them to manufacture products for RF, power switching, gemstones and other applications. Corporate, government and university customers also buy SiC materials for research and development directed at RF and power devices.

Power Devices

Our power device products consist of SiC Schottky diodes, metal oxide semiconductor field effect transistors (MOSFETs), power modules and gate driver boards. Our SiC power products provide increased efficiency, faster switching speeds and reduced system size and weight over comparable silicon-based power devices. Power products are sold primarily to customers and distributors for use in applications such as electric vehicles, including charging infrastructure, server power supplies, solar inverters, uninterruptible power supplies, industrial power supplies and other applications.

RF Devices

Our RF devices consist of GaN die, high-electron mobility transistors (HEMTs), monolithic microwave integrated circuits (MMICs), and laterally diffused MOSFET (LDMOS) power transistors that are optimized for next generation telecommunications infrastructure, military and other commercial applications. Our RF devices are made from Si, SiC and GaN and can provide improved efficiency, bandwidths and frequency of operation as compared to silicon or GaAs. We also provide custom die manufacturing for GaN HEMTs and MMICs that allow a customer to design its own custom RF circuits to be fabricated by us, or have us design and fabricate products that meet their specific requirements.

During fiscal 2018, we expanded our RF product offerings through the acquisition of certain assets of Infineon Technologies AG (Infineon) Radio Frequency Power Business (RF Power) as discussed in Note 4, "Acquisition", in our consolidated financial statements included in Part II, Item 8 of this Annual Report.

LED Products Segment

LED Products revenue was $596.3 million, $550.3 million and $551.2 million representing 40%, 37%, and 34% of revenue for the fiscal years ended June 24, 2018, June 25, 2017 and June 26, 2016, respectively. LED Products gross profit was $157.9 million, $151.7 million and $173.8 million and gross margin was 26%, 28% and 32% for the fiscal years 2018, 2017 and 2016, respectively.

Our LED Products segment includes LED chips and LED components.

LED Chips

Our LED chip products include blue and green LED chips based on GaN and related materials. LED chips or die are solid state electronic components used in a number of applications and are currently available in a variety of brightness levels, wavelengths (colors) and sizes. We use our LED chips in the manufacturing of our LED components. Customers use our blue and green LED chips in a variety of applications including video screens, gaming displays, function indicator lights and automotive backlights, headlamps and directional indicators. Customers may also combine our blue LED chips with phosphors to create white LEDs, which are used in various applications for indoor and outdoor illumination and backlighting, full-color display screens, liquid crystal display (LCD) backlighting, white keypads and the camera flash function.

LED Components

Our LED components include a range of packaged LED products, from our XLamp® LED components and LED modules for lighting applications to our high-brightness LED components.

Our XLamp LED components and LED modules are designed to meet a broad range of market needs for lighting applications including general illumination (both indoor and outdoor applications), portable, architectural, signal and transportation lighting. We use our XLamp LED components in our own lighting products. We also sell XLamp LED components externally to customers and distributors for use in a variety of products, primarily for lighting applications.

Our high-brightness LED components consist of surface mount (SMD) and through-hole packaged LED products. Our SMD LED component products are available in a full range of colors designed to meet a broad range of market needs, including video, signage, general illumination, transportation, gaming and specialty lighting. Our through-hole packaged LED component products are available in a full range of colors primarily designed for the signage market and provide users with color and brightness consistency across a wide viewing area.

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In 2018, Cree formed a joint venture, Cree Venture LED Company Limited (Cree Venture LED), with San'an Optoelectronics Co., Ltd. (San'an) to sell mid-power LED components. These mid-power components are focused on indoor general illumination applications where customers are more price sensitive.

Lighting Products Segment

Lighting Products revenue was $568.8 million, $701.5 million, and $889.1 million, representing 38%, 48%, and 55% of our revenue for the fiscal years ended June 24, 2018, June 25, 2017 and June 26, 2016, respectively. Lighting Products gross profit was $108.9 million, $196.2 million and $238.2 million and gross margin was 19%, 28% and 27% for the fiscal years 2018, 2017 and 2016, respectively.

Our Lighting Products segment primarily consists of LED lighting systems and lamps. We design, manufacture and sell lighting systems for indoor and outdoor applications, with our primary focus on LED lighting systems for the commercial, industrial and consumer markets. Lighting products are sold to distributors, retailers and direct to customers. Our portfolio of lighting products is designed for use in settings such as office and retail space, restaurants and hospitality, schools and universities, manufacturing, healthcare, airports, municipal, residential, street lighting and parking structures, among other applications.

Financial Information about Geographic Areas of Customers and Assets

We derive a significant portion of our revenue from product sales to international customers. For information concerning geographic areas of our customers and geographic information concerning our long-lived assets, please see Note 15, “Reportable Segments,” in our consolidated financial statements included in Item 8 of this Annual Report. International operations expose us to risks that are different from operating in the United States, including foreign currency translation and transaction risk, risk of changes in tax laws, tariffs, application of import/export laws and regulations and other risks described further in Item 1A, “Risk Factors,” of this Annual Report.

Research and Development

We invest significant resources in research and development. Our research and development activity includes efforts to:

- develop higher power diodes/switches and higher power/linearity RF devices;
- increase the quality, performance and diameter of our substrate and epitaxial materials.
- continually improve our manufacturing processes;
- develop brighter, more efficient and lower cost LED chip and component products;
- create new, and improve existing, LED components; and
- improve existing LED lighting products and develop new LED lighting systems and related controls.

When our customers participate in funding our research and development programs, we recognize the amount funded as a reduction of research and development expenses to the extent that our customers’ funding does not exceed our respective research and development costs. Research and development expenses were $164.3 million, $158.5 million and $168.8 million for the fiscal years ended June 24, 2018, June 25, 2017 and June 26, 2016, respectively. For further information about our research and development, see “Research and Development” in Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations."

Sales and Marketing

We continue to make investments to expand our sales, marketing, technical applications support, and distribution capabilities to further enable new and existing customers to implement our power, RF, and LED technology into their products and sell our lighting products. We also continue to make investments to promote and build market awareness of the Cree brand. Our sales, marketing and technical applications teams include personnel throughout North America, Asia and Europe.

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Customers
We have historically had one key customer who represented more than 10% of our consolidated revenue. In fiscal 2018, revenue from Arrow Electronics, Inc. (Arrow), a global distributor, accounted for 13% of our total consolidated revenue. In fiscal 2017, revenue from Arrow accounted for 12% of our total consolidated revenue. In fiscal 2016, revenue from Arrow accounted for 10% of our total consolidated revenue. Arrow is a customer of our Wolfspeed and LED Products segments. For further discussion regarding customer concentration, please see Note 16, “Concentrations of Risk,” in our consolidated financial statements included in Item 8 of this Annual Report. The loss of any large customer could have a material adverse effect on our business and results of operations.
Distribution
A substantial portion of our products are sold to distributors. Distributors stock inventory and sell our products to their own customer base, which may include: value added resellers, manufacturers who incorporate our products into their own manufactured goods and ultimate end users of our products. We also utilize third-party sales representatives who generally do not maintain a product inventory; instead, their customers place orders directly with us or through distributors. We also sell a portion of our products through retailers, which stock inventory and sell our products directly to consumers.
Seasonality
Our Wolfspeed segment is not generally subject to seasonality. Our LED Products segment historically has experienced, and in the future may experience, seasonally lower sales during our fiscal third quarter due to the Chinese New Year holiday. Our Lighting Products segment historically has experienced, and in the future may experience, seasonally lower lighting fixture sales due to winter weather, impacting our fiscal second and third quarters. In addition, the retail lighting industry has historically had seasonally lower sales of light bulbs in the summer, which has impacted our fiscal fourth quarter and which may impact our fiscal first quarter.
Our sales also vary based on other factors such as customer demand and government regulation.
If anticipated sales or shipments do not occur when expected, our results of operations for that quarter, and potentially for future quarters, may be adversely affected.
Backlog
Our backlog at June 24, 2018 was approximately $567.2 million, compared with a backlog of approximately $453.7 million at June 25, 2017. Because of the generally short cycle time between order and shipment and occasional customer changes in delivery schedules or cancellation of orders (which at times may be made without significant penalty), we do not believe that our backlog, as of any particular date, is necessarily indicative of actual net revenue for any future period. Additionally, our June 24, 2018 backlog contained $24.1 million of research contracts signed with the U.S. Government, for which approximately $14.3 million had not been appropriated as of the last day of fiscal 2018. Our June 25, 2017 backlog contained $36.3 million of research contracts signed with the U.S. Government, for which approximately $29.5 million was not appropriated as of the last day of fiscal 2017. Our backlog could be adversely affected if the U.S. Government exercises its rights to terminate our government contracts or does not appropriate and allocate all of the funding contemplated by the contracts.
Sources of Raw Materials
We depend on a number of suppliers for certain raw materials, components and equipment used in manufacturing our products, including certain key materials and equipment used in critical stages of our manufacturing processes. We generally purchase these limited source items pursuant to purchase orders and have limited guaranteed supply arrangements with our suppliers. Our suppliers, located around the world, can be subject to many constraints limiting supply that are beyond our control. We believe our current supply of essential materials is sufficient to meet our needs. However, shortages have occurred from time to time and could occur again.
Competition by Reportable Segment
Our success depends on our ability to keep pace with the evolving technology standards of the industries we serve. These industries are characterized by rapid technological change, frequent introduction of new products, short product life cycles, changes in end user and customer requirements, and a competitive pricing environment. The evolving nature of these industries may render our existing or future products obsolete, noncompetitive or unmarketable. Any of these developments could have an adverse effect on our business, results of operations and financial condition.

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Wolfspeed Segment

SiC Materials

We have continued to maintain our well-established leadership position in the sale of SiC bulk material, SiC wafer and SiC and GaN epitaxy products. As market adoption of the technology grows with rapidly expanding power and RF device designs, we are experiencing increased competition from companies such as Dow Corning, II-VI Advanced Materials, SiCrystal and Showa Denko. We believe our leading technology and leveraged production scale position us to reliably supply production volumes to the device manufacturers in the market.

Power Devices

Our SiC-based power devices compete with SiC power semiconductor solutions offered by Infineon, Microsemi Corporation (Microsemi), Mitsubishi Electric Corporation (Mitsubishi), Rohm Co. Ltd., ON Semiconductor, and STMicroelectronics, Inc. (ST). Our SiC products also compete with other Si semiconductor devices offered by a variety of manufacturers. Our power products compete in the power semiconductor market on the basis of performance, reliability and overall system price.

RF Devices

Our RF devices compete with Ampleon, M/A-COM Technology Solutions Inc. (MACOM), Microsemi, Mitsubishi, NXP Semiconductor (NXP), Sumitomo Electric Device Innovations, Inc. and Qorvo, Inc. which all offer competing RF products and solutions. Our products also compete with a variety of companies offering silicon and GaAs-based products. Our products compete in the RF semiconductor market on the basis of reliability, performance, design predictability and overall system price.

LED Products Segment

Our LED Products segment’s primary competitors are Nichia Corporation (Nichia), OSRAM Opto Semiconductors GmbH (OSRAM), Samsung LED Company (Samsung), Seoul Semiconductor (SSC), Lumileds Holdings B.V. (Lumileds), and Nationstar.

LED Chips

The primary competition for our LED chip products comes from companies that manufacture and/or sell nitride-based LED chips. We consider Nichia to be a competitor because it sells LED chips to a select number of LED packaging companies and it sells packaged LEDs that most often compete directly with packaged LEDs made and sold by our chip customers. We believe, based on industry information, that Nichia currently has the largest market share for nitride-based LEDs. There are many other LED chip producers who sell blue, green and white LED chip products, including OSRAM, Epistar Corporation and San'an. These competitors make products for a variety of applications in a range of performance levels that compete directly with our LED products.

Overall, we believe that performance, price and strength of intellectual property are the most significant factors to compete successfully in the nitride LED market. We believe our products are well positioned to meet the market performance requirements; however, there is significant pricing pressure from a number of competitors, including new companies based in China. We continually strive to improve our competitive position by developing brighter and higher performing LED chips while focusing on lowering costs.

LED Components

The market for lighting class LED components is concentrated primarily in indoor and outdoor commercial lighting; specialty lighting, including torch lamps (flashlights); color changing architectural lighting; signs and signals; and transportation. Nichia, OSRAM, Lumileds, MLS, Everlight, SSC and Samsung are the main competitors in these markets. These companies sell LED components that compete indirectly with our target customers for LED chips and compete directly with our XLamp LED components and LED modules. There are a large number of other companies, primarily based in Asia, that offer products designed to compete both directly and indirectly with our LED components in lighting and other applications. We are positioning our XLamp LED components and LED modules to compete in this market based on performance, price and usability.

Our high-brightness LED components compete with a larger number of companies around the world in a variety of applications including signage, video, transportation, gaming and specialty lighting. We are positioning our high-brightness LED components to compete in this market based on performance, price, availability and usability.

Lighting Products Segment

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Our Lighting Products segment currently faces competition from lighting fixture companies and lamp manufacturers. Lighting companies such as Acuity Brands, Inc., the Cooper Lighting division of Eaton Corporation plc, General Electric Company, Hubbell Incorporated, Signify N.V. (formerly Philips Lighting) and OSRAM are the main competitors in this market, but there are also many small and medium sized lighting competitors.

Our LED lighting products compete against traditional lighting products that use incandescent, fluorescent, halogen, ceramic metal halide, high pressure sodium or other lighting technologies. Our LED lighting products compete against traditional lighting products based upon superior energy savings, extended life, improved lighting quality and lower total cost of ownership. We also compete with LED-based products from other lamp and fixture companies, some of which are customers for our LED chips and LED components. Our products compete on the basis of color quality and consistency, superior light output, reduced energy consumption, brand, customer service and lower total cost of ownership.

Patents and Other Intellectual Property Rights

We believe it is important to protect our investment in technology by obtaining and enforcing intellectual property rights, including rights under patent, trademark, trade secret and copyright laws. We seek to protect inventions we consider significant by applying for patents in the United States and other countries when appropriate. We have also acquired, through license grants, purchases and assignments, rights to patents on inventions originally developed by others. As of June 24, 2018, we owned or were the exclusive licensee of 2,249 issued U.S. patents and approximately 3,261 foreign patents with various expiration dates extending up to 2041. We do not consider our business to be materially dependent upon any one patent, and we believe our business will not be materially adversely affected by the expiration of any one patent. For proprietary technology that is not patented, we generally seek to protect the technology and related know-how and information as trade secrets by keeping confidential the information that we believe provides us with a competitive advantage. We attempt to create strong brands for our products and promote our products through trademarks that distinguish them in the market. We may license our customers to use our trademarks in connection with the sale of our products, and we monitor for the proper and authorized use of our marks.

Licensing activities and lawsuits to enforce intellectual property rights, particularly patent rights, are a common aspect of the semiconductor, LED and lighting industries, and we attempt to ensure respect for our intellectual property rights through appropriate actions. The breadth of our intellectual property rights and the extent to which they can be successfully enforced varies across jurisdictions. We both make and receive inquiries regarding possible patent infringements and possible violations of other intellectual property rights in the normal course of business. Depending on the circumstances, we may seek to negotiate a license or other acceptable resolution. If we are unable to achieve a resolution by agreement, we may seek to enforce our rights or defend our position through litigation. Patent litigation in particular is expensive and the outcome is often uncertain. We believe that the strength of our portfolio of patent rights is important in helping us resolve or avoid such disputes with other companies in our industry.

Environmental Regulation

We are subject to a variety of federal, state and local provisions regulating the discharge of materials into the environment or otherwise relating to the protection of the environment. These include statutory and regulatory provisions under which we are responsible for the management of hazardous materials we use and the disposition of hazardous wastes resulting from our manufacturing processes. Failure to comply with such provisions could result in fines and other liabilities to the government or third parties, injunctions requiring us to suspend or curtail operations or other remedies, and could have a material adverse effect on our business.

Working Capital

For a discussion of our working capital practices, see “Liquidity and Capital Resources” in Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations."

Employees

As of June 24, 2018, we employed 6,796 regular full and part-time employees. We also employ individuals on a temporary full-time basis and use the services of contractors as necessary. Certain of our employees in various countries outside of the United States are subject to laws providing representation rights.

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Available Information
Our website address is www.cree.com. We make available free of charge through our website our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, including Interactive Data Files, and Current Reports on Form 8-K, and amendments to these reports, as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the SEC. These reports may be accessed from our website by following the links under “Investors,” then “SEC Filings.” The information found on our website is not part of this or any other report we file with or furnish to the SEC. We have no duty to update or revise any forward-looking statements in this Annual Report or in other reports filed with the SEC, whether as a result of new information, future events or otherwise, unless we are required to do so by law. A copy of this Annual Report and our other reports is available without charge upon written request to Investor Relations, Cree, Inc., 4600 Silicon Drive, Durham, North Carolina 27703.

Item 1A. Risk Factors
Described below are various risks and uncertainties that may affect our business. If any of the risks described below actually occurs, our business, financial condition or results of operations could be materially and adversely affected.

Our operating results are substantially dependent on the acceptance of new products.
Our future success may depend on our ability to deliver new, higher performing and/or lower cost solutions for existing and new markets and for customers to accept those solutions. We must introduce new products in a timely and cost-effective manner, and we must secure volume purchase orders for those products from our customers. The development of new products is a highly complex process, and we have in some instances experienced delays in completing the development and introduction of new products which has impacted our results in the past. Our research and development efforts are aimed at solving increasingly complex problems, and we do not expect that all our projects will be successful. The successful development, introduction and acceptance of new products depend on a number of factors, including the following:

- achievement of technology breakthroughs required to make commercially viable products;
- the accuracy of our predictions for market requirements;
- our ability to predict, influence and/or react to evolving standards;
- acceptance of our new product and systems designs;
- acceptance of new technology in certain markets;
- the availability of qualified research and development personnel;
- our timely completion of product designs and development;
- our ability to develop repeatable processes to manufacture new products in sufficient quantities, with the desired specifications and at competitive costs;
- our ability to effectively transfer increasingly complex products and technology from development to manufacturing;
- our customers’ ability to develop competitive products incorporating our products; and
- market acceptance of our products and our customers’ products.

If any of these or other similar factors becomes problematic, we may not be able to deliver and introduce new products in a timely or cost-effective manner.

We face significant challenges managing our growth strategy.
Our potential for growth depends significantly on the adoption of our products within the markets we serve and for other applications, and our ability to affect this rate of adoption. In order to manage our growth and business strategy effectively relative to the uncertain pace of adoption, we must continue to:

- maintain, expand, construct and purchase adequate manufacturing facilities and equipment, as well as secure sufficient third-party manufacturing resources, to meet customer demand;

- integrate the personnel, operations, customers, and suppliers from our recent acquisition of the Infineon RF Power business;
- manage an increasingly complex supply chain that has the ability to supply an increasing number of raw materials, subsystems and finished products with the required specifications and quality, and deliver on time to our manufacturing facilities, our third-party manufacturing facilities, or our logistics operations;
- expand the capability of information systems to support a more complex business;
- expand research and development, sales and marketing, technical support, distribution capabilities, manufacturing planning and administrative functions;
- manage organizational complexity and communication;
- expand the skills and capabilities of our current management team;
- add experienced senior level managers and executives;
- attract and retain qualified employees; and
- adequately maintain and adjust the operational and financial controls that support our business.

While we intend to continue to focus on managing our costs and expenses, we expect to invest to support our growth and may have additional unexpected costs. Such investments take time to become fully operational, and we may not be able to expand quickly enough to exploit targeted market opportunities. For example, during calendar 2018 we target converting the majority of our Wolfspeed power production from 100mm to 150mm substrates. If we are unable to make this transition in a timely or cost-effective manner, our results could be negatively impacted. In connection with our efforts to cost-effectively manage our growth, we have increasingly relied on contractors for production capacity, logistics support and certain administrative functions including hosting of certain information technology software applications. If our contract manufacturers, original design manufacturers (ODMs) or other service providers do not perform effectively, we may not be able to achieve the expected cost savings and may incur additional costs to correct errors or fulfill customer demand. Depending on the function involved, such errors may also lead to business disruption, processing inefficiencies, the loss of or damage to intellectual property through security breach, or an impact on employee morale. Our operations may also be negatively impacted if any of these contract manufacturers, ODMs or other service providers do not have the financial capability to meet our growing needs. There are also inherent execution risks in starting up a new factory or expanding production capacity, whether one of our own factories or that of our contract manufacturers or ODMs, or moving production to different contract manufacturers or ODMs, that could increase costs and reduce our operating results, including design and construction cost overruns, poor production process yields and reduced quality control.

We are also increasingly dependent on information technology to enable us to improve the effectiveness of our operations and to maintain financial accuracy and efficiency. Allocation and effective management of the resources necessary to successfully implement, integrate, train personnel and sustain our IT platforms will remain critical to ensure that we are not subject to transaction errors, processing inefficiencies, loss of customers, business disruptions or loss of or damage to intellectual property through a security breach in the near term. Additionally, we face these same risks if we fail to allocate and effectively manage the resources necessary to build, implement, upgrade, integrate and sustain appropriate technology infrastructure over the longer term.
If we fail to evaluate and execute strategic opportunities successfully, our business may suffer.

From time to time, we evaluate strategic opportunities available to us for product, technology or business transactions, such as business acquisitions, investments, joint ventures, divestitures, or spin-offs. For example, during the first quarter of fiscal 2018 we formed Cree Venture LED, a joint venture between San'an and us to produce and supply to customers high-performance mid-power LED components, and in the third quarter of fiscal 2018, we acquired the Infineon RF Power business. If we choose to enter into such transactions, we face certain risks including:

- the failure of an acquired business, investee or joint venture to meet our performance and financial expectations;
- identification of additional liabilities relating to an acquired business;

- loss of existing customers of our current and acquired businesses due to concerns that new product lines may be in competition with the customers' existing product lines or due to regulatory actions taken by governmental agencies;

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- that we are not able to enter into acceptable contractual arrangements with the significant customers of an acquired business;
- difficulty integrating an acquired business's operations, personnel and financial and operating systems into our current business;
- that we are not able to develop and expand customer bases and accurately anticipate demand from end customers, which can result in increased inventory and reduced orders as we experience wide fluctuations in supply and demand;
- diversion of management attention;
- difficulty separating the operations, personnel and financial and operating systems of a spin-off or divestiture from our current business;
- the possibility we are unable to complete the transaction and expend substantial resources without achieving the desired benefit;
- the inability to obtain required regulatory agency approvals;
- reliance on a transaction counterparty for transition services for an extended period of time, which may result in additional expenses and delay the integration of the acquired business and realization of the desired benefit of the transaction;
- uncertainty of the financial markets or circumstances that cause conditions that are less favorable and/or different than expected; and
- expenses incurred to complete a transaction may be significantly higher than anticipated.

We may not be able to adequately address these risks or any other problems that arise from our prior or future acquisitions, investments, joint ventures, divestitures or spin-offs. Any failure to successfully evaluate strategic opportunities and address risks or other problems that arise related to any such business transaction could adversely affect our business, results of operations or financial condition.

Global economic conditions could materially adversely impact demand for our products and services.

Our operations and performance depend significantly on worldwide economic conditions. Uncertainty about global economic conditions could result in customers postponing purchases of our products and services in response to tighter credit, unemployment, negative financial news and/or declines in income or asset values and other macroeconomic factors, which could have a material negative effect on demand for our products and services and, accordingly, on our business, results of operations or financial condition. For example, any economic and political uncertainty caused by the United States tariffs imposed on goods from China, among other potential countries, and any corresponding tariffs from China or such other countries in response, may negatively impact demand and/or increase the cost for our products.

Additionally, our international sales are subject to variability as our selling prices become less competitive in countries with currencies that are declining in value against the U.S. Dollar and more competitive in countries with currencies that are increasing in value against the U.S. Dollar. In addition, our international purchases can become more expensive if the U.S. Dollar weakens against the foreign currencies in which we are billed.

Our operations in foreign countries expose us to certain risks inherent in doing business internationally, which may adversely affect our business, results of operations or financial condition.

We have revenue, operations, manufacturing facilities and contract manufacturing arrangements in foreign countries that expose us to certain risks. For example, fluctuations in exchange rates may affect our revenue, expenses and results of operations as well as the value of our assets and liabilities as reflected in our financial statements. We are also subject to other types of risks, including the following:

- protection of intellectual property and trade secrets;
- tariffs, customs, trade sanctions, trade embargoes and other barriers to importing/exporting materials and products in a cost-effective and timely manner, or changes in applicable tariffs or custom rules;
- the burden of complying with and changes in U.S. or international taxation policies;

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- timing and availability of export licenses;
- rising labor costs;
- disruptions in or inadequate infrastructure of the countries where we operate;
- difficulties in collecting accounts receivable;
- difficulties in staffing and managing international operations; and
- the burden of complying with foreign and international laws and treaties.

For example, the United States tariffs imposed on Chinese goods, among other potential countries and any corresponding tariffs from China or such other countries in response may negatively impact demand and/or increase the costs for our products. In some instances, we have received and may continue to receive incentives from foreign governments to encourage our investment in certain countries, regions or areas outside of the United States. In particular, we have received and may continue to receive such incentives in connection with our operations in Asia, as Asian national and local governments seek to encourage the development of the technology industry. Government incentives may include tax rebates, reduced tax rates, favorable lending policies and other measures, some or all of which may be available to us due to our foreign operations. Any of these incentives could be reduced or eliminated by governmental authorities at any time or as a result of our inability to maintain minimum operations necessary to earn the incentives. Any reduction or elimination of incentives currently provided for our operations could adversely affect our business and results of operations. These same governments also may provide increased incentives to or require production processes that favor local companies, which could further negatively impact our business and results of operations.

Changes in regulatory, geopolitical, social, economic, or monetary policies and other factors, if any, may have a material adverse effect on our business in the future, or may require us to exit a particular market or significantly modify our current business practices. Abrupt political change, terrorist activity and armed conflict pose a risk of general economic disruption in affected countries, which could also result in an adverse effect on our business and results of operations.

We are subject to risks related to international sales and purchases.

We expect that revenue from international sales will continue to represent a significant portion of our total revenue. As such, a significant slowdown or instability in relevant foreign economies or lower investments in new infrastructure, could have a negative impact on our sales. We also purchase a portion of the materials included in our products from overseas sources.

Our international sales and purchases are subject to numerous U.S. and foreign laws and regulations, including, without limitation, tariffs, trade sanctions, trade barriers, trade embargoes, regulations relating to import-export control, technology transfer restrictions, the International Traffic in Arms Regulation promulgated under the Arms Export Control Act, the Foreign Corrupt Practices Act and the anti-boycott provisions of the U.S. Export Administration Act. For example, the U.S. Government's April 2018 export ban on Chinese technology company ZTE (lifted in July 2018) reduced our revenue and profit in at least the near term. If the U.S. Government reinstates the ban, it would reduce company revenue and profit related to that customer at least in the short term and could have a potential longer-term impact. Additionally, like many global manufacturers, we are in the process of addressing the short-term and potential long-term impact of the United States tariffs imposed on Chinese goods and corresponding Chinese tariffs in response. If we fail to comply with these laws and regulations, we could be liable for administrative, civil or criminal liabilities, and, in the extreme case, we could be suspended or debarred from government contracts or have our export privileges suspended, which could have a material adverse effect on our business.

International sales and purchases are also subject to a variety of other risks, including risks arising from currency fluctuations, collection issues and taxes. We have entered and may in the future enter into foreign currency derivative financial instruments in an effort to manage or hedge some of our foreign exchange rate risk. We may not be able to engage in hedging transactions in the future, and, even if we do, foreign currency fluctuations may still have a material adverse effect on our results of operations.

We operate in industries that are subject to significant fluctuation in supply and demand and ultimately pricing that affects our revenue and profitability.

The industries we serve are in different stages of adoption and are characterized by constant and rapid technological change, rapid product obsolescence and price erosion, evolving standards, short product life-cycles in the case of the LED industry and fluctuations in product supply and demand. The power, RF, and LED industries have experienced significant fluctuations, often in connection with, or in anticipation of, product cycles and changes in general economic conditions. The semiconductor industry is characterized by rapid technological change, high capital expenditures, short product life cycles and continuous advancements in process technologies and manufacturing facilities. As the markets for our products mature, additional fluctuations may result from variability and consolidations within the industry's customer base. These fluctuations have been characterized by lower product demand, production overcapacity, higher inventory levels and increased pricing pressure. These fluctuations have also been characterized by higher demand for key components and equipment used in, or in the manufacture of, our products resulting in longer lead times, supply delays and production disruptions. We have experienced these conditions in our business and may experience such conditions in the future, which could have a material negative impact on our business, results of operations or financial condition.

In addition, as we diversify our product offerings and as pricing differences in the average selling prices among our product lines widen, a change in the mix of sales among our product lines may increase volatility in our revenue and gross margin from period to period.

Our results of operations, financial condition and business could be harmed if we are unable to balance customer demand and capacity.

As customer demand for our products changes, we must be able to adjust our production capacity to meet demand. We are continually taking steps to address our manufacturing capacity needs for our products. If we are not able to increase or decrease our production capacity at our targeted rate or if there are unforeseen costs associated with adjusting our capacity levels, we may not be able to achieve our financial targets. For example, our Wolfspeed business is currently experiencing demand in excess of our production capacity, which is resulting in longer manufacturing lead times to customers as we manage our constrained capacity. While we began making significant investments in fiscal 2016 to expand our materials, power and RF device capacity and continue to do so, these investments take time to be delivered, installed and become fully qualified. As a result, we may be unable to build or qualify such new capacity on a timely basis to meet customer demand and customers may fulfill their orders with one of our competitors instead. In addition, as we introduce new products and change product generations, we must balance the production and inventory of prior generation products with the production and inventory of new generation products, whether manufactured by us or our contract manufacturers, to maintain a product mix that will satisfy customer demand and mitigate the risk of incurring cost write-downs on the previous generation products, related raw materials and tooling.

Due to the proportionately high fixed cost nature of our business (such as facility costs), if demand does not materialize at the rate forecasted, we may not be able to scale back our manufacturing expenses or overhead costs to correspond to the demand. This could result in lower margins and adversely impact our business and results of operations. Additionally, if product demand decreases or we fail to forecast demand accurately, our results may be adversely impacted due to higher costs resulting from lower factory utilization, causing higher fixed costs per unit produced. Further, we may be required to recognize impairments on our long-lived assets or recognize excess inventory write-off charges, or excess capacity charges, which would have a negative impact on our results of operations.

In addition, our efforts to improve quoted delivery lead-time performance may result in corresponding reductions in order backlog. A decline in backlog levels could result in more variability and less predictability in our quarter-to-quarter net revenue and operating results.

If our products fail to perform or fail to meet customer requirements or expectations, we could incur significant additional costs, including costs associated with the recall of those items.

The manufacture of our products involves highly complex processes. Our customers specify quality, performance and reliability standards that we must meet. If our products do not meet these standards, we may be required to replace or rework the products. In some cases, our products may contain undetected defects or flaws that only become evident after shipment and installation. For example, during the second quarter of fiscal 2018 we determined that the quality of several of our commercial lighting products was possibly impacted by certain quality issues that could lower those products' reliability. Therefore, we increased our product warranty reserves for potential future warranty claims. Even if our products meet standard specifications, our customers may attempt to use our products in applications for which they were not designed or in products that were not designed or manufactured properly, resulting in product failures and creating customer satisfaction issues.

We have experienced product quality, performance or reliability problems from time to time and defects or failures may occur in the future. If failures or defects occur, they could result in significant losses or product recalls due to:

- costs associated with the removal, collection and destruction of the product;
- payments made to replace product;
- costs associated with repairing the product;
- the write-down or destruction of existing inventory;

- insurance recoveries that fail to cover the full costs associated with product recalls;
- lost sales due to the unavailability of product for a period of time;
- delays, cancellations or rescheduling of orders for our products; or
- increased product returns.

A significant product recall could also result in adverse publicity, damage to our reputation and a loss of customer or consumer confidence in our products. We also may be the target of product liability lawsuits or regulatory proceedings by the Consumer Product Safety Commission (CPSC) and could suffer losses from a significant product liability judgment or adverse CPSC finding against us if the use of our products at issue is determined to have caused injury or contained a substantial product hazard.

We provide warranty periods ranging from 90 days to 10 years on our products. Although we believe our reserves are appropriate, we are making projections about the future reliability of new products and technologies, and we may experience increased variability in warranty claims. Increased warranty claims could result in significant losses due to a rise in warranty expense and costs associated with customer support.

If we are unable to effectively develop, manage and expand our sales channels for our products, our operating results may suffer.

We sell a substantial portion of our products to distributors. We rely on distributors to develop and expand their customer base as well as anticipate demand from their customers. If they are not successful, our growth and profitability may be adversely impacted. Distributors must balance the need to have enough products in stock in order to meet their customers' needs against their internal target inventory levels and the risk of potential inventory obsolescence. The risks of inventory obsolescence are especially relevant to technological products. The distributors' internal target inventory levels vary depending on market cycles and a number of factors within each distributor over which we have very little, if any, control. Distributors also have the ability to shift business to different manufacturers within their product portfolio based on a number of factors, including new product availability and performance. Similarly, we have the ability to add, consolidate, or remove distributors.

We typically recognize revenue on products sold to distributors when the item is shipped and title passes to the distributor (sell-in method). Certain distributors have limited rights to return inventory under stock rotation programs and have limited price protection rights for which we make estimates. We evaluate inventory levels in the distribution channel, current economic trends and other related factors in order to account for these factors in our judgments and estimates. As inventory levels and product return trends change or we make changes to our distributor roster, we may have to revise our estimates and incur additional costs, and our gross margins and operating results could be adversely impacted.

Additionally, our sales agents have in the past and may in the future choose to drop our product lines from their portfolio to avoid losing access to our competitors' products, resulting in a disruption in the project pipeline and lower than targeted sales for our products. Our sales agents have the ability to shift business to different suppliers within their product portfolio based on a number of factors, including customer service and new product availability. We sell a portion of our lighting products through retailers who may alter their promotional pricing or inventory strategies, which could impact our targeted sales of these products. If we are unable to effectively penetrate these channels or develop alternate channels to ensure our products are reaching the intended customer base, our financial results may be adversely impacted. In addition, if we successfully penetrate or develop these channels, we cannot guarantee that customers will accept our products or that we will be able to manufacture and deliver them in the timeline established by our customers.

Variations in our production could impact our ability to reduce costs and could cause our margins to decline and our operating results to suffer.

All of our products are manufactured using technologies that are highly complex. The number of usable items, or yield, from our production processes may fluctuate as a result of many factors, including but not limited to the following:

- variability in our process repeatability and control;
- contamination of the manufacturing environment;

- equipment failure, power outages, fires, flooding, information or other system failures or variations in the manufacturing process;
- lack of consistency and adequate quality and quantity of piece parts, other raw materials and other bill of materials items;

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- inventory shrinkage or human errors;
- defects in production processes (including system assembly) either within our facilities or at our suppliers; and
- any transitions or changes in our production process, planned or unplanned.

In the past, we have experienced difficulties in achieving acceptable yields on certain products, which has adversely affected our operating results. We may experience similar problems in the future, and we cannot predict when they may occur or their severity.

In some instances, we may offer products for future delivery at prices based on planned yield improvements or increased cost efficiencies from other production advances. Failure to achieve these planned improvements or advances could have a significant impact on our margins and operating results.

In addition, our ability to convert volume manufacturing to larger diameter substrates can be an important factor in providing a more cost-effective manufacturing process. During calendar 2018, we target converting the majority of our Wolfspeed power production from 100mm to 150mm substrates. If we are unable to make this transition in a timely or cost-effective manner, our results could be negatively impacted.

We rely on a number of key sole source and limited source suppliers and are subject to high price volatility on certain commodity inputs, variations in parts quality, and raw material consistency and availability.

We depend on a number of sole source and limited source suppliers for certain raw materials, components, services and equipment used in manufacturing our products, including key materials and equipment used in critical stages of our manufacturing processes. Although alternative sources generally exist for these items, qualification of many of these alternative sources could take up to six months or longer. Where possible, we attempt to identify and qualify alternative sources for our sole and limited source suppliers.

We generally purchase these sole or limited source items with purchase orders, and we have limited guaranteed supply arrangements with such suppliers. Some of our sources can have variations in attributes and availability which can affect our ability to produce products in sufficient volume or quality. We do not control the time and resources that these suppliers devote to our business, and we cannot be sure that these suppliers will perform their obligations to us. Additionally, general shortages in the marketplace of certain raw materials or key components may adversely impact our business. In the past, we have experienced decreases in our production yields when suppliers have varied from previously agreed upon specifications or made other modifications we do not specify, which impacted our cost of revenue.

Additionally, the inability of our suppliers to access capital efficiently could cause disruptions in their businesses, thereby negatively impacting ours. This risk may increase if an economic downturn negatively affects key suppliers or a significant number of our other suppliers. Any delay in product delivery or other interruption or variation in supply from these suppliers could prevent us from meeting commercial demand for our products. If we were to lose key suppliers, if our key suppliers were unable to support our demand for any reason or if we were unable to identify and qualify alternative suppliers, our manufacturing operations could be interrupted or hampered significantly.

We rely on arrangements with independent shipping companies for the delivery of our products from vendors and to customers both in the United States and abroad. The failure or inability of these shipping companies to deliver products or the unavailability of shipping or port services, even temporarily, could have a material adverse effect on our business. We may also be adversely affected by an increase in freight surcharges due to rising fuel costs and added security.

In our fabrication process, we consume a number of precious metals and other commodities, which are subject to high price volatility. Our operating margins could be significantly affected if we are not able to pass along price increases to our customers. In addition, production could be disrupted by the unavailability of the resources used in production such as water, silicon, electricity and gases. Future environmental regulations could restrict supply or increase the cost of certain of those materials.

The markets in which we operate are highly competitive and have evolving technical requirements.

The markets for our products are highly competitive. In the semiconductor market, we compete with companies that have greater market share, name recognition and/or technical resources than we do. Competitors continue to offer new products with aggressive pricing, additional features and improved performance. In the lighting market, we compete with companies that manufacture and sell traditional and LED lighting products, many of which have larger and more established sales channels. Competitive pricing pressures remain a challenge and continue to accelerate the rate of decline in our sales prices, particularly in our LED Products segment. Aggressive pricing actions by our competitors in our businesses could reduce margins if we are not able to reduce costs at an equal or greater rate than the sales price decline.

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As competition increases, we need to continue to develop new products that meet or exceed the needs of our customers. Therefore, our ability to continually produce more efficient and lower cost power, RF, LEDs and lighting products that meet the evolving needs of our customers will be critical to our success. Competitors may also try to align with some of our strategic customers. This could lead to lower prices for our products, reduced demand for our products and a corresponding reduction in our ability to recover development, engineering and manufacturing costs. Any of these developments could have an adverse effect on our business, results of operations or financial condition.
We will continue to face increased competition in the future across our businesses. If the investment in capacity exceeds the growth in demand, such as exists in the current LED market, the LED market is likely to become more competitive with additional pricing pressures. Additionally, new technologies could emerge or improvements could be made in existing technologies that may also reduce the demand for lighting and LEDs in certain markets. There are also technologies, such as organic LEDs (OLEDs), which could potentially reduce LED demand, thereby impacting the overall LED market.
We depend on a limited number of customers, including distributors and retailers, for a substantial portion of our revenue, and the loss of, or a significant reduction in purchases by, one or more of these customers could adversely affect our operating results.
We receive a significant amount of our revenue from a limited number of customers, including distributors and retailers, one of which represented 13% of our consolidated revenue in fiscal 2018. Most of our customer orders are made on a purchase order basis, which does not generally require any long-term customer commitments. Therefore, these customers may alter their purchasing behavior with little or no notice to us for various reasons, including developing, or, in the case of our distributors, their customers developing, their own product solutions; choosing to purchase or distribute product from our competitors; incorrectly forecasting end market demand for their products; or experiencing a reduction in their market share in the markets for which they purchase our products. In the case of retailers, these customers may alter their promotional pricing; increase promotion of competitors' products over our products; or reduce their inventory levels; all of which could negatively impact our financial condition and results of operations. If our customers alter their purchasing behavior, if our customers’ purchasing behavior does not match our expectations or if we encounter any problems collecting amounts due from them, our financial condition and results of operations could be negatively impacted.
Our results may be negatively impacted if customers do not maintain their favorable perception of our brands and products.
Maintaining and continually enhancing the value of our brands is critical to the success of our business. Brand value is based in large part on customer perceptions. Success in promoting and enhancing brand value depends in large part on our ability to provide high-quality products. Brand value could diminish significantly due to a number of factors, including adverse publicity about our products (whether valid or not), a failure to maintain the quality of our products (whether perceived or real), the failure of our products or Cree to deliver consistently positive consumer experiences, the products becoming unavailable to consumers or consumer perception that we have acted in an irresponsible manner. Damage to our brand, reputation or loss of customer confidence in our brand or products could result in decreased demand for our products and have a negative impact on our business, results of operations or financial condition.
Our revenue is highly dependent on our customers’ ability to produce, market and sell more integrated products.
Our revenue in our Wolfspeed and LED Products segments depends on getting our products designed into a larger number of our customers’ products and in turn, our customers’ ability to produce, market and sell their products. For example, we have current and prospective customers that create, or plan to create, power, RF and lighting products or systems using our substrates, die, components or modules. Even if our customers are able to develop and produce products or systems that incorporate our substrates, die, components or modules, there can be no assurance that our customers will be successful in marketing and selling these products or systems in the marketplace.
As a result of our continued expansion into new markets, we may compete with existing customers who may reduce their orders.
Through acquisitions and organic growth, we continue to expand into new markets and new market segments. Many of our existing customers who purchase our Wolfspeed substrate materials or LED products develop and manufacture

products using those wafers, die and components that are offered into the same lighting, power and RF markets. As a result, some of our current customers perceive us as a competitor in these market segments. In response, our customers may reduce or discontinue their orders for our Wolfspeed substrate materials or LED products. This reduction in or discontinuation of orders could occur faster than our sales growth in these new markets, which could adversely affect our business, results of operations or financial condition.

In order to compete, we must attract, motivate and retain key employees, and our failure to do so could harm our results of operations.

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Hiring and retaining qualified executives, scientists, engineers, technical staff, sales personnel and production personnel is critical to our business, and competition for experienced employees in our industry can be intense. As a global company, this issue is not limited to the United States, but includes our other locations such as Europe and China. For example, there is substantial competition for qualified and capable personnel, particularly experienced engineers and technical personnel, which may make it difficult for us to recruit and retain qualified employees. If we are unable to staff sufficient and adequate personnel at our facilities, we may experience lower revenue or increased manufacturing costs, which would adversely affect our results of operations.

To help attract, motivate and retain key employees, we use benefits such as stock-based compensation awards. If the value of such awards does not appreciate, as measured by the performance of the price of our common stock or if our stock-based compensation otherwise ceases to be viewed as a valuable benefit, our ability to attract, retain and motivate employees could be weakened, which could harm our business and results of operations.

The adoption of or changes in government and/or industry policies, standards or regulations relating to the efficiency, performance, use or other aspects of our products could impact the demand for our products.

The adoption of or changes in government and/or industry policies, standards or regulations relating to the efficiency, performance or other aspects of our products may impact the demand for our products. Demand for our products may also be impacted by changes in government and/or industry policies, standards or regulations that discourage the use of certain traditional lighting technologies. For example, efforts to change, eliminate or reduce Energy Star® or other standards could negatively impact our Wolfspeed power, LED and lighting businesses. These constraints may be eliminated or delayed by legislative action, which could have a negative impact on demand for our products. Our ability and the ability of our competitors to meet these new requirements could impact competitive dynamics in the market.

If governments, their agencies or utilities reduce their demand for our products or discontinue or curtail their funding, our business may suffer.

Changes in governmental budget priorities could adversely affect our business and results of operations. U.S. and foreign government agencies have purchased products directly from us and products from our customers, and U.S. government agencies have historically funded a portion of our research and development activities. When the government changes budget priorities, such as in times of war or financial crisis, or reallocates its research and development spending to areas unrelated to our business, our research and development funding and our product sales to government entities and government-funded customers are at risk. For example, demand and payment for our products and our customers' products may be affected by public sector budgetary cycles, funding authorizations or utility rebates. Funding reductions or delays could negatively impact demand for our products. If government or utility funding is discontinued or significantly reduced, our business and results of operations could be adversely affected.

We are exposed to fluctuations in the market value of our investment portfolio and in interest rates, and therefore, impairment of our investments or lower investment income could harm our earnings.

We are exposed to market value and inherent interest rate risk related to our investment portfolio. We have historically invested portions of our available cash in fixed interest rate securities such as high-grade corporate debt, commercial paper, municipal bonds, certificates of deposit, government securities and other fixed interest rate investments. The primary objective of our cash investment policy is preservation of principal. However, these investments are generally not Federal Deposit Insurance Corporation insured and may lose value and/or become illiquid regardless of their credit rating.

From time to time, we have also made investments in public and private companies that engage in complementary businesses. For example, during fiscal 2015 we made an investment in Lextar Electronics Corporation (Lextar), a publicly traded company based in Taiwan. An investment in another company is subject to the risks inherent in the business of that company and to trends affecting the equity markets as a whole. Investments in publicly held companies are subject to market risks and, like our investment in Lextar, may not be liquidated easily. As a result, we may not be able to reduce the size of our position or liquidate our investments when we deem appropriate to limit our downside risk. Should the value of any such investments we hold decline, the related write-down in value could have a material adverse effect on our financial condition and results of operations. For example, the value of our Lextar investment declined from the date of our investment in December 2014 through the end of the fourth quarter of fiscal

2018 with variability between quarters, and may continue to decline in the future. As required by Rule 3-09 of Regulation S-X, we filed Lextar's financial statements, prepared by Lextar and audited by its independent public accounting firm, as of and for the years ended December 31, 2015 and 2014 as an exhibit to this Annual Report.

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Litigation could adversely affect our operating results and financial condition.

We are often involved in litigation, primarily patent litigation. Defending against existing and potential litigation will likely require significant attention and resources and, regardless of the outcome, result in significant legal expenses, which could adversely affect our results unless covered by insurance or recovered from third parties. If our defenses are ultimately unsuccessful or if we are unable to achieve a favorable resolution, we could be liable for damage awards that could materially affect our results of operations and financial condition.

Where necessary, we may initiate litigation to enforce our patent or other intellectual property rights, which could adversely impact our relationship with certain customers. Any such litigation may require us to spend a substantial amount of time and money and could distract management from our day-to-day operations. Moreover, there is no assurance that we will be successful in any such litigation.

Our business may be impaired by claims that we, or our customers, infringe the intellectual property rights of others.

Vigorous protection and pursuit of intellectual property rights characterize our industry. These traits have resulted in significant and often protracted and expensive litigation. Litigation to determine the validity of patents or claims by third parties of infringement of patents or other intellectual property rights could result in significant legal expense and divert the efforts of our technical personnel and management, even if the litigation results in a determination favorable to us. In the event of an adverse result in such litigation, we could be required to:

- pay substantial damages;
- indemnify our customers;
- stop the manufacture, use and sale of products found to be infringing;
- incur asset impairment charges;
- discontinue the use of processes found to be infringing;
- expend significant resources to develop non-infringing products or processes; or
- obtain a license to use third party technology.

There can be no assurance that third parties will not attempt to assert infringement claims against us, or our customers, with respect to our products. In addition, our customers may face infringement claims directed to the customer's products that incorporate our products, and an adverse result could impair the customer's demand for our products. We have also promised certain of our customers that we will indemnify them in the event they are sued by our competitors for infringement claims directed to the products we supply. Under these indemnification obligations, we may be responsible for future payments to resolve infringement claims against them.

From time to time, we receive correspondence asserting that our products or processes are or may be infringing patents or other intellectual property rights of others. If we believe the assertions may have merit or in other appropriate circumstances, we may take steps to seek to obtain a license or to avoid the infringement. We cannot predict, however, whether a license will be available; that we would find the terms of any license offered acceptable; or that we would be able to develop an alternative solution. Failure to obtain a necessary license or develop an alternative solution could cause us to incur substantial liabilities and costs and to suspend the manufacture of affected products.

There are limitations on our ability to protect our intellectual property.

Our intellectual property position is based in part on patents owned by us and patents licensed to us. We intend to continue to file patent applications in the future, where appropriate, and to pursue such applications with U.S. and certain foreign patent authorities.

Our existing patents are subject to expiration and re-examination and we cannot be sure that additional patents will be issued on any new applications around the covered technology or that our existing or future patents will not be successfully contested by third parties. Also, since issuance of a valid patent does not prevent other companies from using alternative, non-infringing technology, we cannot be sure that any of our patents, or patents issued to others and licensed to us, will provide significant commercial protection, especially as new competitors enter the market.

We periodically discover products that are counterfeit reproductions of our products or that otherwise infringe on our intellectual property rights. The actions we take to establish and protect trademarks, patents and other intellectual property rights may not be

adequate to prevent imitation of our products by others, and therefore, may adversely affect our sales and our brand and result in the shift of customer preference away from our products. Further, the actions we take to establish and protect trademarks, patents and other intellectual property rights could result in significant legal expense and divert the efforts of our technical personnel and management, even if the litigation or other action results in a determination favorable to us.

We also rely on trade secrets and other non-patented proprietary information relating to our product development and manufacturing activities. We try to protect this information through appropriate efforts to maintain its secrecy, including requiring employees and third parties to sign confidentiality agreements. We cannot be sure that these efforts will be successful or that the confidentiality agreements will not be breached. We also cannot be sure that we would have adequate remedies for any breach of such agreements or other misappropriation of our trade secrets, or that our trade secrets and proprietary know-how will not otherwise become known or be independently discovered by others.

We may be required to recognize a significant charge to earnings if our goodwill or other intangible assets become impaired.

Goodwill and purchased intangible assets with indefinite lives are not amortized, but are reviewed for impairment annually and more frequently when events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. We assess the recoverability of the unamortized balance of our finite-lived intangible assets when indicators of potential impairment are present. Factors that may indicate that the carrying value of our goodwill or other intangible assets may not be recoverable include a decline in our stock price and market capitalization and slower growth rates in our industry. The recognition of a significant charge to earnings in our consolidated financial statements resulting from any impairment of our goodwill or other intangible assets could adversely impact our results of operations.

We closely monitor the performance of our reporting units and perform ongoing assessments of potential impairment indicators related to our finite-lived and indefinite-lived intangible assets. Based on the updating of our long-range business strategy that we announced February 26, 2018, we performed an impairment test in connection with the preparation of our financial statements for the period ended March 25, 2018. From this testing, we concluded that we had an impairment of our Lighting Products reporting unit intangible assets as of March 25, 2018. As a result, we recorded a $247.5 million goodwill impairment charge during the fiscal quarter ending March 25, 2018.

We may be subject to confidential information theft or misuse, which could harm our business and results of operations.

We face attempts by others to gain unauthorized access to our information technology systems on which we maintain proprietary and other confidential information. Our security measures may be breached as the result of industrial or other espionage actions of outside parties, employees, employee error, malfeasance or otherwise, and as a result, an unauthorized party may obtain access to our systems. The risk of a security breach or disruption, particularly through cyber-attacks, or cyber intrusion, including by computer hackers, foreign governments, and cyber terrorists, has generally increased as cyber-attacks have become more prevalent and harder to detect and fight against. Additionally, outside parties may attempt to access our confidential information through other means, for example by fraudulently inducing our employees to disclose confidential information. We actively seek to prevent, detect and investigate any unauthorized access, which sometimes occurs. We might be unaware of any such access or unable to determine its magnitude and effects. The theft and/or unauthorized use or publication of our trade secrets and other confidential business information as a result of such an incident could adversely affect our competitive position and the value of our investment in research and development could be reduced. Our business could be subject to significant disruption and we could suffer monetary or other losses.

Our disclosure controls and procedures address cybersecurity and include elements intended to ensure that there is an analysis of potential disclosure obligations arising from security breaches. In addition, we are subject to data privacy, protection and security laws and regulations, including the European General Data Protection Act (GDPR) that governs personal information of European persons, which became effective on May 25, 2018. We also maintain compliance programs to address the potential applicability of restrictions against trading while in possession of material, nonpublic information generally and in connection with a cyber-security breach. However, a breakdown in existing controls and procedures around our cyber-security environment may prevent us from detecting, reporting or responding to cyber incidents in a timely manner and could have a material adverse effect on our financial position and value of our stock.

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Our business may be adversely affected by uncertainties in the global financial markets and our or our customers' or suppliers' ability to access the capital markets.

Global financial markets continue to reflect uncertainty. Given these uncertainties, there could be future disruptions in the global economy, financial markets and consumer confidence. If economic conditions deteriorate unexpectedly, our business and results of operations could be materially and adversely affected. For example, our customers, including our distributors and their customers, may experience difficulty obtaining the working capital and other financing necessary to support historical or projected purchasing patterns, which could negatively affect our results of operations.

Although we believe we have adequate liquidity and capital resources to fund our operations internally and under our existing line of credit, our inability to access the capital markets on favorable terms in the future, or at all, may adversely affect our financial performance. The inability to obtain adequate financing from debt or capital sources in the future could force us to self-fund strategic initiatives or even forego certain opportunities, which in turn could potentially harm our performance.

Changes in our effective tax rate may affect our results.

Our future effective tax rates may be affected by a number of factors including:

- the jurisdiction in which profits are determined to be earned and taxed;
- changes in tax laws or interpretation of such tax laws and changes in generally accepted accounting principles, for example interpretations and U.S. regulations issued as a result of the significant changes to the U.S. tax law included within the Tax Cuts and Jobs Act of 2017 (the Tax Legislation);
- the resolution of issues arising from tax audits with various authorities;
- changes in the valuation of our deferred tax assets and liabilities;
- adjustments to estimated taxes upon finalization of various tax returns;
- increases in expenses not deductible for tax purposes, including impairment of goodwill in connection with acquisitions;
- changes in available tax credits;
- the recognition and measurement of uncertain tax positions;
- variations in realized tax deductions for certain stock-based compensation awards (such as non-qualified stock options and restricted stock) from those originally anticipated; and
- the repatriation of non-U.S. earnings for which we have not previously provided for taxes or any changes in legislation that may result in these earnings being taxed, regardless of our decision regarding repatriation of funds, for example, the Tax Legislation, enacted in the second quarter of fiscal 2018, included a one-time tax on deemed repatriated earnings of non-U.S. subsidiaries.

Any significant increase or decrease in our future effective tax rates could impact net (loss) income for future periods. In addition, the determination of our income tax provision requires complex estimations, significant judgments and significant knowledge and experience concerning the applicable tax laws. To the extent our income tax liability materially differs from our income tax provisions due to factors, including the above, which were not anticipated at the time we estimated our tax provision, our net (loss) income or cash flows could be affected.

Failure to comply with applicable environmental laws and regulations worldwide could harm our business and results of operations.

The manufacturing, assembling and testing of our products require the use of hazardous materials that are subject to a broad array of environmental, health and safety laws and regulations. Our failure to comply with any of these applicable laws or regulations could result in:

- regulatory penalties, fines, legal liabilities and the forfeiture of certain tax benefits;
- suspension of production;
- alteration of our fabrication, assembly and test processes; and

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• curtailment of our operations or sales.

In addition, our failure to manage the use, transportation, emission, discharge, storage, recycling or disposal of hazardous materials could subject us to increased costs or future liabilities. Existing and future environmental laws and regulations could also require us to acquire pollution abatement or remediation equipment, modify our product designs or incur other expenses, such as permit costs, associated with such laws and regulations. Many new materials that we are evaluating for use in our operations may be subject to regulation under existing or future environmental laws and regulations that may restrict our use of one or more of such materials in our manufacturing, assembly and test processes or products. Any of these restrictions could harm our business and results of operations by increasing our expenses or requiring us to alter our manufacturing processes.

Our results could vary as a result of the methods, estimates and judgments that we use in applying our accounting policies, including changes in the accounting standards to be applied.

The methods, estimates and judgments that we use in applying our accounting policies have a significant impact on our results (see “Critical Accounting Policies and Estimates” in Management’s Discussion and Analysis of Financial Condition and Results of Operations included in Part II, Item 7 of this Annual Report). Such methods, estimates and judgments are, by their nature, subject to substantial risks, uncertainties and assumptions, and factors may arise over time that lead us to change our methods, estimates and judgments. Changes in those methods, estimates and judgments could significantly affect our results of operations or financial condition.

Likewise, our results may be impacted due to changes in the accounting standards to be applied, such as the increased use of fair value measurement standards and changes in revenue recognition requirements.

Catastrophic events may disrupt our business.

A disruption or failure of our systems or operations in the event of a natural disaster, health pandemic, such as an influenza outbreak within our workforce, or man-made catastrophic event could cause delays in completing sales, continuing production or performing other critical functions of our business, particularly if a catastrophic event occurred at our primary manufacturing locations or our subcontractors' locations. Any of these events could severely affect our ability to conduct normal business operations and, as a result, our operating results could be adversely affected. There may also be secondary impacts that are unforeseeable as well, such as impacts to our customers, which could cause delays in new orders, delays in completing sales or even order cancellations.

Our stock price may be volatile.

Historically, our common stock has experienced substantial price volatility, particularly as a result of significant fluctuations in our revenue, earnings and margins over the past few years, and variations between our actual financial results and the published expectations of analysts. For example, the closing price per share of our common stock on the Nasdaq Global Select Market ranged from a low of $22.21 to a high of $49.95 during the 12 months ended June 24, 2018. If our future operating results or margins are below the expectations of stock market analysts or our investors, our stock price will likely decline.

Speculation and opinions in the press or investment community about our strategic position, financial condition, results of operations or significant transactions can also cause changes in our stock price. In particular, speculation on our go-forward strategy, competition in some of the markets we address such as electric vehicles and LED lighting, the ramp up of our Wolfspeed business, the potential or perceived potential impact of tariffs, and the expectations around our Lighting Products business recovery may have a dramatic effect on our stock price.

We have outstanding debt which could materially restrict our business and adversely affect our financial condition, liquidity and results of operations.

Our indebtedness currently consists of borrowings from our revolving line of credit. We may also incur additional indebtedness in the future. Our ability to pay interest and repay the principal for our currently outstanding indebtedness under our line of credit and any additional debt we incur in the future is dependent upon our ability to manage our business operations and generate sufficient cash flows to service such debt. There can be no assurance that we will be able to manage any of these risks successfully.

The level of our outstanding debt may adversely affect our operating results and financial condition by, among other things:

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increasing our vulnerability to downturns in our business, to competitive pressures and to adverse general economic and industry conditions;

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- requiring the dedication of an increased portion of our expected cash flows from operations to service our indebtedness, thereby reducing the amount of expected cash flow available for other purposes, including capital expenditures, research and development and stock repurchases;
- limiting our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate;
- placing us at a competitive disadvantage compared to our peers that may have less indebtedness than we have by limiting our ability to borrow additional funds needed to operate and grow our business; and
- increasing our interest expense if interest rates increase.

Our line of credit requires us to maintain compliance with certain financial ratios. In addition, our line of credit contains certain restrictions that could limit our ability to, among other things: incur additional indebtedness, dispose of assets, create liens on assets, make acquisitions or engage in mergers or consolidations, and engage in certain transactions with our subsidiaries and affiliates. These restrictions could limit our ability to plan for or react to changing business conditions, or could otherwise restrict our business activities and plans.

Our ability to comply with our loan covenants may also be affected by events beyond our control and if any of these restrictions or terms is breached, it could lead to an event of default under our line of credit. A default, if not cured or waived, may permit acceleration of our indebtedness. In addition, our lenders could terminate their commitments to make further extensions of credit under our line of credit. If our indebtedness is accelerated, we cannot be certain that we will have sufficient funds to pay the accelerated indebtedness or that we will have the ability to refinance accelerated indebtedness on terms favorable to us or at all.

Regulations related to conflict-free minerals may force us to incur additional expenses.

The Dodd-Frank Wall Street Reform and Consumer Protection Act contains provisions to improve transparency and accountability concerning the supply of minerals originating from the conflict zones of the Democratic Republic of Congo (DRC) and adjoining countries. As a result, in August 2012 the SEC established new annual disclosure and reporting requirements for those companies who may use “conflict” minerals mined from the DRC and adjoining countries in their products. Our most recent disclosure regarding our due diligence was filed in May 2018 for calendar year 2017. These requirements could affect the sourcing and availability of certain minerals used in the manufacture of our products. As a result, we may not be able to obtain the relevant minerals at competitive prices and there will likely be additional costs associated with complying with the due diligence procedures as required by the SEC. In addition, because our supply chain is complex, we may face reputational challenges with our customers and other stakeholders if we are unable to sufficiently verify the origins of all minerals used in our products through the due diligence procedures, and we may incur additional costs as a result of changes to product, processes or sources of supply as a consequence of these requirements.

Item 1B. Unresolved Staff Comments

Not applicable.

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Item 2. Properties

The table below sets forth information with respect to our significant owned and leased facilities as of June 24, 2018. The sizes of the locations represent the approximate gross square footage of each site's buildings.

Location	Segment Utilization[1]	Size (approximate gross square footage)				
		Total	Production	Facility Services and Warehousing	Administrative Function	Housing / Other
Owned Facilities						
Durham, NC	All	999,170	520,354	14,037	464,779	—
Research Triangle Park, NC	1	203,995	91,063	62,855	50,077	—
Racine, WI	3	802,845	160,000	418,000	224,845	—
Huizhou, China	2	823,951	332,271	116,568	41,764	333,348
Total owned		2,829,961	1,103,688	611,460	781,465	333,348
Leased Facilities						
Durham, NC	3	80,600	—	80,600	—	—
Morgan Hill, CA	1	83,828	54,488	—	29,340	—
Pleasant Prairie, WI	3	147,877	—	145,477	2,400	—
Fayetteville, AR	1	31,341	18,771	—	12,570	
Sesto Fiorentino, Italy	2,3	63,670	20,672	24,998	18,000	—
Hong Kong	All	35,811	—	10,020	24,602	1,189
Misc. manufacturing, sales and support offices	All	111,397	3,002	15,352	93,043	—
Total leased		554,524	96,933	276,447	179,955	1,189
Total gross square footage		3,384,485	1,200,621	887,907	961,420	334,537

[1] Segments listed in the "Segment Utilization" column above are identified as follows: 1) Wolfspeed; 2) LED Products and 3) Lighting Products.

In the United States, our corporate headquarters as well as our primary research and development and manufacturing operations are located at the Durham, North Carolina facilities that we own. These Durham facilities sit on 149 acres of land that we own. Our power and RF products are primarily produced at our owned manufacturing facility located in Research Triangle Park, North Carolina, which sits on 55 acres of land that we own, and a leased facility in Morgan Hill, California. Domestically, our lighting products are primarily produced at our owned facility in Racine, Wisconsin, which sits on 33 acres of land that we own.

LED products are produced at our owned manufacturing facilities located in Huizhou, Guangdong Province, China. We also own dormitories for housing our Chinese employees near and adjacent to the owned manufacturing facilities. The owned manufacturing facilities, dormitories, and support buildings are located on land that is leased from the Chinese government through two leases. The first land lease is for 12 acres that expires in June 2057 and supports the manufacturing facilities. The second land lease is for 5 acres that expires in December 2082 and is used for dormitory buildings.

We also maintain manufacturing, sales and support offices, through our subsidiaries, in leased office premises in North America, Asia, and Europe.

Item 3. Legal Proceedings

The information required by this item is set forth under Note 14, "Commitments and Contingencies," in our consolidated financial statements included in Item 8 of this Annual Report, and is incorporated herein by reference.

Item 4. Mine Safety Disclosures

Not applicable.

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PART II

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Common Stock Market Information

Our common stock is traded on the Nasdaq Global Select Market and is quoted under the symbol CREE. There were 304 holders of record of our common stock as of August 16, 2018. The following table sets forth, for the quarters indicated, the high and low closing sales prices as reported by Nasdaq.

	Fiscal 2018		Fiscal 2017	
	High	Low	High	Low
First Quarter	$26.51	$22.21	$28.98	$23.19
Second Quarter	39.63	26.20	27.58	21.12
Third Quarter	43.21	32.00	28.83	25.56
Fourth Quarter	49.95	37.32	27.24	21.70

We have never paid cash dividends on our common stock and do not anticipate that we will do so in the foreseeable future. Our credit agreement with Wells Fargo Bank, National Association and other lenders party thereto, contains certain dividend distribution restrictions. Applicable state laws may also limit the payment of dividends. Our present policy is to retain earnings, if any, to provide funds to invest in our business.

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Stock Performance Graph

The following information in this Item 5 of this Annual Report on Form 10-K is not deemed to be "soliciting material" or to be "filed" with the SEC or subject to Regulation 14A or 14C under the Exchange Act or to the liabilities of Section 18 of the Exchange Act, and will not be deemed to be incorporated by reference into any filing under the Securities Act or the Exchange Act, except to the extent we specifically incorporate it by reference into such filing.

The following graph compares the cumulative total return on our common stock with the cumulative total returns of the Nasdaq Composite Index and the Nasdaq Electronic Components Index for the five-year period commencing June 30, 2013. The stock price performance shown on the graph below is not necessarily indicative of future price performance.

Comparison of Five-Year Cumulative Total Return*

Among Cree, Inc., the Nasdaq Composite Index and the Nasdaq Electronic Components Index

* Assumes (1) $100 invested on June 30, 2013 in Cree, Inc. Common Stock, the Nasdaq Composite Index and the Nasdaq Electronic Components Index and (2) the immediate reinvestment of all dividends.

	6/30/2013	6/29/2014	6/28/2015	6/26/2016	6/25/2017	6/24/2018
Cree, Inc.	$100.00	$75.95	$42.30	$36.33	$38.54	$72.45
Nasdaq Composite Index	100.00	130.85	152.90	139.99	188.49	233.90
Nasdaq Electronic Components Index	100.00	127.60	141.00	138.47	197.04	279.16

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Sale of Unregistered Securities
There were no unregistered securities sold during fiscal 2018.
Stock Repurchase Program
On June 14, 2017, our Board of Directors approved our fiscal 2018 stock repurchase program authorizing us to repurchase shares of common stock having an aggregate purchase price not exceeding $200 million for all purchases from June 26, 2017 through the expiration of the program on June 24, 2018. There were no shares repurchased under the stock repurchase program in fiscal 2018.
Since the inception of our stock repurchase program in January 2001 through June 24, 2018, we have repurchased 38.7 million shares of our common stock at an average price of $28.66 per share with an aggregate value of $1.1 billion. Any repurchase program that may be authorized could be implemented through open market or privately negotiated transactions at the discretion of our management.
Item 6. Selected Financial Data
The consolidated statement of (loss) income data set forth below with respect to the fiscal years ended June 24, 2018, June 25, 2017, and June 26, 2016 and the consolidated balance sheet data at June 24, 2018 and June 25, 2017 are derived from, and are qualified by reference to, the audited consolidated financial statements included in Item 8 of this Annual Report and should be read in conjunction with those financial statements and notes thereto. The consolidated statement of (loss) income data for the fiscal years ended June 28, 2015 and June 29, 2014 and the consolidated balance sheet data at June 26, 2016, June 28, 2015, and June 29, 2014 are derived from audited consolidated financial statements not included herein.
Selected Consolidated Financial Data
(In thousands, except per share data)

	Fiscal Years Ended				
	June 24, 2018	June 25, 2017	June 26, 2016	June 28, 2015	June 29, 2014
Consolidated Statement of (Loss) Income					
Revenue, net	$1,493,680	$1,473,000	$1,616,627	$1,632,505	$1,647,641
Operating (loss) income	(329,087)	(18,672)	(10,471)	(73,550)	133,236
Net (loss) income	(279,968)	(98,118)	(21,536)	(64,692)	123,490
(Loss) earnings per share					
Basic	($2.81)	($1.00)	($0.21)	($0.57)	$1.02
Diluted	($2.81)	($1.00)	($0.21)	($0.57)	$1.00
Weighted average shares used in per share calculation:					
Basic	99,530	98,487	101,783	113,022	120,623
Diluted	99,530	98,487	101,783	113,022	122,914

	June 24, 2018	June 25, 2017	June 26, 2016	June 28, 2015	June 29, 2014
Consolidated Balance Sheet Data					
Total cash, cash equivalents and short-term investments	$387,085	$610,938	$605,305	$713,191	$1,162,466
Working capital	641,797	888,607	933,708	1,053,464	1,467,236
Total assets	2,637,545	2,649,867	2,766,060	2,948,033	3,338,981
Total long-term liabilities	317,171	215,039	175,237	231,295	45,943
Total shareholders’ equity	2,067,136	2,222,805	2,367,824	2,461,952	2,986,383

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations
Executive Summary
The following discussion is designed to provide a better understanding of our audited consolidated financial statements and notes thereto, including a brief discussion of our business and products, key factors that impacted our performance and a summary of our operating results. The following discussion should be read in conjunction with our consolidated financial statements included in Item 8 of this Annual Report. Historical results and percentage relationships among any amounts in the financial statements are not necessarily indicative of trends in operating results for any future periods.
Overview
Cree, Inc. (Cree, we, our, or us) is an innovator of wide bandgap semiconductor products for power and radio-frequency (RF) applications, lighting-class light emitting diode (LED) products, and lighting products. Our products are targeted for applications such as transportation, power supplies, inverters, wireless systems, indoor and outdoor lighting, electronic signs and signals, and video displays.
Our Wolfspeed segment's products consists of silicon carbide (SiC) and gallium nitride (GaN) materials, power devices and RF devices based on silicon (Si) and wide bandgap semiconductor materials. Our materials products and power devices are used in solar, electric vehicles, motor drives, power supplies and transportation applications. Our materials products and RF devices are used in military communications, radar, satellite and telecommunication applications.
Our LED Products segment’s products consist of LED chips and LED components. Our LED products enable our customers to develop and market LED-based products for lighting, video screens, automotive and specialty lighting applications.
Our Lighting Products segment’s products primarily consist of LED lighting systems and lamps. We design, manufacture and sell lighting fixtures and lamps for the commercial, industrial and consumer markets.
As discussed more fully in Note 1, “Business,” in our consolidated financial statements included in Item 8 of this Annual Report, on July 13, 2016, we executed a definitive agreement to sell the Wolfspeed business to Infineon. On March 6, 2017, the definitive agreement with Infineon was terminated.
During fiscal 2018, we expanded our RF product offerings through the acquisition of certain assets of Infineon's Radio Frequency Power Business (RF Power) as discussed in Note 4, "Acquisition", in our consolidated financial statements included in Part II, Item 8 of this Annual Report.
The majority of our products are manufactured at our production facilities located in North Carolina, Wisconsin, California, Arkansas and China. We also use contract manufacturers for certain products and aspects of product fabrication, assembly and packaging. We operate research and development facilities in North Carolina, Arizona, Arkansas, California, Wisconsin, India, Italy and China (including Hong Kong).
Cree, Inc. is a North Carolina corporation established in 1987, and our headquarters are in Durham, North Carolina.
For further information about our consolidated revenue and earnings, please see our consolidated financial statements included in Item 1 of this Quarterly Report.
Reportable Segments
Our three reportable segments are:
- Wolfspeed
- LED Products
- Lighting Products

Reportable segments are components of an entity that have separate financial data that the entity’s Chief Operating Decision Maker (CODM) regularly reviews when allocating resources and assessing performance. Our CODM is the Chief Executive Officer.
Our CODM does not review inter-segment transactions when evaluating segment performance and allocating resources to each segment, and inter-segment transactions are not included in our segment revenue disclosure. As such, total segment revenue is equal to our consolidated revenue.
Our CODM reviews gross profit as the lowest and only level of segment profit. As such, all items below gross profit in the Consolidated Statements of Loss must be included to reconcile the consolidated gross profit to our consolidated

loss before income taxes.

For financial results by reportable segment, please refer to Note 15, "Reportable Segments," in our consolidated financial statements included in Item 8 of this Annual Report.

Industry Dynamics and Trends

There are a number of industry factors that affect our business which include, among others:

- Overall Demand for Products and Applications using SiC power devices, GaN and Si RF devices, and LEDs. Our potential for growth depends significantly on the adoption of SiC and GaN materials and device products in the power and RF markets, the continued use of Si devices in the RF telecommunications market, the continued adoption of LEDs and LED lighting, and our ability to win new designs for these applications. Demand also fluctuates based on various market cycles, continuously evolving industry supply chains, and evolving competitive dynamics in each of the respective markets. These uncertainties make demand difficult to forecast for us and our customers.
- Intense and Constantly Evolving Competitive Environment. Competition in the industries we serve is intense. Many companies have made significant investments in product development and production equipment. Product pricing pressures exist as market participants often undertake pricing strategies to gain or protect market share, increase the utilization of their production capacity and open new applications in the power, RF, LED and lighting markets we serve. To remain competitive, market participants must continuously increase product performance, reduce costs and develop improved ways to serve their customers. To address these competitive pressures, we have invested in research and development activities to support new product development, lower product costs and deliver higher levels of performance to differentiate our products in the market. In addition, we invest in systems, people and new processes to improve our ability to deliver a better overall experience for our customers.
- Technological Innovation and Advancement. Innovations and advancements in materials, power, RF, LEDs and lighting technologies continue to expand the potential commercial application for our products. However, new technologies or standards could emerge or improvements could be made in existing technologies that could reduce or limit the demand for our products in certain markets.
- Intellectual Property Issues. Market participants rely on patented and non-patented proprietary information relating to product development, manufacturing capabilities and other core competencies of their business. Protection of intellectual property is critical. Therefore, steps such as additional patent applications, confidentiality and non-disclosure agreements, as well as other security measures are generally taken. To enforce or protect intellectual property rights, litigation or threatened litigation is common.
- Governmental Trade and Regulatory Conditions. Our potential for growth, as with most multi-national companies, depends on a balanced and stable trade, political, economic and regulatory environment among the countries where we do business. Changes in trade policy such as the imposition of tariffs or export bans to specific customers or countries could reduce or limit demand for our products in certain markets.
- Lighting Sales Channel Development. Commercial lighting is usually sold through lighting agents and distributors in the North American lighting market. The lighting agents typically have exclusive sales rights for a defined territory and are typically aligned with one large lighting company for a large percentage of their product sales. The size, quality and capability of the lighting agent has a significant effect on winning new projects and sales in any given geographic market. While these agents sell other lighting products, the large traditional lighting companies have taken steps to prevent their channel partners from selling competing product lines. We are constantly working to improve the capabilities of our existing channel partners and increase our share of their sales as well as develop new partners to improve our sales effectiveness in each geographic market.

Fiscal 2018 Overview

The following is a summary of our financial results for the year ended June 24, 2018:

- Our year-over-year revenue increased by $21 million to $1.5 billion.
- Gross margin decreased to 27.3% from 29.5%. Gross profit decreased by $27 million to $408 million.
- Operating loss was $329 million in fiscal 2018, which includes impairment charges of $247 million attributable to our Lighting Products segment, compared to operating loss of $19 million in fiscal 2017. Net loss per diluted share was $2.81 in fiscal 2018 compared to net loss per diluted share of $1.00 in fiscal 2017.

- Combined cash, cash equivalents and short-term investments decreased to $387 million at June 24, 2018 from $611 million at June 25, 2017. Cash provided by operating activities was $167 million in fiscal 2018, compared to $216 million in fiscal 2017.
- Purchases of property and equipment were $186 million in fiscal 2018 compared to $87 million in fiscal 2017.

Business Outlook

We are uniquely positioned as an innovator in all three business segments. The strength of our balance sheet and operating cash flow provides us the ability to invest in our businesses, as we did with the recent asset acquisition of the Infineon RF Power business to aid in the growth of our Wolfspeed segment as discussed in Note 4, "Acquisition" to our audited financial statements in Part II, Item 8 of this Annual Report.

We are focused on the following priorities to support our goals of delivering higher revenue and shareholder returns over time:

- Wolfspeed - invest in the business to expand the scale, further develop the technologies, and accelerate the growth opportunities of SiC materials, SiC power devices and modules, and GaN and Si RF devices.
- LED Products - focus our efforts where our best-in-class technology and application-optimized solutions are differentiated and valued while using Cree Venture LED to access the broader mid-power LED markets.
- Lighting Products - modestly grow revenue and increase margins by improving product quality, investing in our channel relationships, improving execution, and delivering innovative lighting solutions focused on higher specification and intelligent features.
- Improve the customer experience and service levels in all of our businesses.

Results of Operations

The following table sets forth certain consolidated statement of loss data for the periods indicated (in thousands, except per share amounts and percentages):

	Fiscal Years Ended					
	June 24, 2018		June 25, 2017		June 26, 2016	
	Dollars	% of Revenue	Dollars	% of Revenue	Dollars	% of Revenue
Revenue, net	$1,493,680	100 %	$1,473,000	100 %	$1,616,627	100 %
Cost of revenue, net	1,086,038	73 %	1,038,428	70 %	1,129,553	70 %
Gross profit	407,642	27 %	434,572	30 %	487,074	30 %
Research and development	164,321	11 %	158,549	11 %	168,848	10 %
Sales, general and administrative	283,489	19 %	277,175	19 %	283,052	18 %
Amortization or impairment of acquisition-related intangibles	30,772	2 %	27,499	2 %	28,732	2 %
Loss on disposal or impairment of long-lived assets	10,692	1 %	2,521	0 %	16,913	1 %
Goodwill impairment charges	247,455	17 %	—	0 %	—	0 %
Wolfspeed transaction termination fee	—	— %	(12,500)	(1)%	—	— %
Operating loss	(329,087)	(22)%	(18,672)	(1)%	(10,471)	(1)%
Non-operating income (expense), net	11,642	1 %	14,008	1 %	(13,035)	(1)%
Loss before income taxes	(317,445)	(21)%	(4,664)	— %	(23,506)	(1)%
Income tax (benefit) expense	(37,522)	(3)%	93,454	6 %	(1,970)	— %
Net loss	(279,923)	(19)%	(98,118)	(7)%	(21,536)	(1)%
Net income attributable to noncontrolling interest	45	— %	—	— %	$—	— %
Net loss attributable to controlling interest	($279,968)	(19)%	($98,118)	(7)%	($21,536)	(1)%
Basic loss per share	($2.81)		($1.00)		($0.21)	
Diluted loss per share	($2.81)		($1.00)		($0.21)	

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Lighting Business Restructuring

In April 2018, we approved a plan to restructure the Lighting Products business. The purpose is to restructure and realign our cost base with our long-range business strategy that was announced February 26, 2018. The restructuring activity is expected to be completed in the first quarter of fiscal 2019.

The following table summarizes the actual charges incurred (in thousands):

Capacity and overhead cost reductions	Total estimated charges	Cumulative amounts incurred through fiscal year 2018	Affected Line Item in the Consolidated Statements of Loss
Loss on disposal or impairment of long-lived assets	$227	$227	Loss on disposal or impairment of long-lived assets
Severance expense	5,470	4,682	Sales, general and administrative expenses
Lease termination and facility consolidation costs	2,182	156	Sales, general and administrative expenses
Increase in inventory reserves	897	897	Sales, general and administrative expenses
Total restructuring charges	$8,776	$5,962	

LED Business Restructuring

In June 2015, our Board of Directors approved a plan to restructure the LED Products business. The restructuring reduced excess capacity and overhead in order to improve the cost structure moving forward. The primary components of the restructuring include the planned sale or abandonment of certain manufacturing equipment, facility consolidation and the elimination of certain positions. The restructuring activity ended in the second quarter of fiscal 2016. During fiscal 2016, we realized $18.8 million in LED restructuring charges, which were partially offset by a $1.1 million gain on the sale of long-lived assets related to the restructuring which were sold for a value in excess of their estimated net realizable value during fiscal 2016.

The following table summarizes the actual charges incurred (in thousands):

Capacity and overhead cost reductions	Amounts incurred during fiscal year 2015	Amounts incurred during fiscal year 2016	Cumulative amounts incurred through fiscal year 2016	Affected Line Item in the Consolidated Statements of Loss
Loss on disposal or impairment of long-lived assets	$42,716	$15,506	$58,222	Loss on disposal or impairment of long-lived assets
Severance expense	2,019	264	2,283	Sales, general and administrative expenses
Lease termination and facility consolidation costs	1,246	3,079	4,325	Sales, general and administrative expenses
Increase in channel inventory reserves	26,479	—	26,479	Revenue, net
Increase in inventory reserves	11,091	—	11,091	Cost of revenue, net
Total restructuring charges	$83,551	$18,849	$102,400	

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Revenue

Revenue was comprised of the following (in thousands, except percentages):

	Fiscal Years Ended			Year-Over-Year Change			
	June 24, 2018	June 25, 2017	June 26, 2016	2017 to 2018		2016 to 2017	
Wolfspeed	$328,638	$221,231	$176,338	$107,407	49 %	$44,893	25 %
Percent of revenue	22 %	15 %	11 %				
LED Products	596,284	550,302	551,156	45,982	8 %	(854)	— %
Percent of revenue	40 %	37 %	34 %				
Lighting Products	568,758	701,467	889,133	(132,709)	(19)%	(187,666)	(21)%
Percent of revenue	38 %	48 %	55 %				
Total revenue	$1,493,680	$1,473,000	$1,616,627	$20,680	1 %	($143,627)	(9)%

Our consolidated revenue increased 1% in fiscal 2018 compared to fiscal 2017. Wolfspeed revenue and LED Products revenue increased by 49% and 8%, respectively, while Lighting Products revenue decreased by 19%. For the fiscal year ended 2017, our consolidated revenue decreased 9% to $1.5 billion compared to $1.6 billion fiscal 2016. Wolfspeed revenue increased by 25%, while LED Products revenue remained flat and Lighting Products revenue decreased by 21%.

Wolfspeed Segment Revenue

Wolfspeed revenue represented approximately 22%, 15%, and 11% of our total revenue for fiscal 2018, 2017 and 2016, respectively. Wolfspeed revenue was $328.6 million, $221.2 million, and $176.3 million for fiscal 2018, 2017 and 2016, respectively.

Wolfspeed revenue increased 49% to $328.6 million in fiscal 2018 from $221.2 million in fiscal 2017. This increase was primarily the result of a 30% increase in units sold, and a 21% increase in average selling price (ASP), which were partially offset by a decrease in contract revenue. The increase in units sold in fiscal 2018 compared to fiscal 2017 was the result of an increase in power products, substrate materials, and the new RF Power business sales. The increase in ASP in fiscal 2018 compared to fiscal 2017 was primarily due to a greater mix of higher priced products in all product lines.

Wolfspeed revenue increased 25% to $221.2 million in fiscal 2017 from $176.3 million in fiscal 2016. This increase was primarily the result of a 29% increase in sales volume and a 2% increase in ASP, which were partially offset by a decrease in contract revenue. The increase in units sold in fiscal 2017 compared to fiscal 2016 was the result of higher sales volume across all products. The increase in ASP in fiscal 2017 compared to fiscal 2016 was primarily due to a greater mix of higher priced material substrate and RF products.

LED Products Segment Revenue

LED Products revenue represented 40%, 37%, and 34% of our total revenue for fiscal 2018, 2017 and 2016, respectively. LED Products revenue was $596.3 million, $550.3 million, and $551.2 million for fiscal 2018, 2017 and 2016, respectively.

LED Products revenue increased 8% to $596.3 million in fiscal 2018 from $550.3 million in fiscal 2017. The number of units sold increased 11% which was partially offset by 2% decrease in ASPs. The increase in the units sold was primarily the result of higher demand in component product sales for the following applications: high power general lighting, video screen, specialty lighting applications and mid-power LED sales through Cree Venture LED. The decrease in ASP in fiscal 2018 compared to fiscal 2017 was due to competitive pricing pressures, which were partially offset by favorable product mix.

LED Products revenue decreased slightly to $550.3 million in fiscal 2017 from $551.2 million in fiscal 2016. This decrease was primarily the result of a decrease in licensing revenue mostly offset by increased product sales. The number of units sold increased 7% which was partially offset by a 5% decrease in ASPs. The decrease in ASP in fiscal 2017 compared to fiscal 2016 was due to competitive pricing pressures.

Lighting Products Segment Revenue

Lighting Products revenue represented approximately 38%, 48%, and 55% of our total revenue for fiscal 2018, 2017 and 2016 respectively. Lighting Products revenue was $568.8 million, $701.5 million, and $889.1 million for fiscal

2018, 2017 and 2016 respectively.

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Lighting Products revenue decreased 19% to $568.8 million in fiscal 2018 from $701.5 million in fiscal 2017. This decrease was primarily the result of a 31% decrease in units sold, and the absence of the significant patent license issuance fee we received as part of the confidential Feit Electric Company Inc. license agreement in the fiscal quarter ended December 25, 2016, which was partially offset by a 21% increase in ASP. The decrease in units sold in fiscal 2018 compared to fiscal 2017 was primarily due to weakness in the North American commercial lighting market, lingering effects related to quality issues and holds which have lowered project win rates, and reduced consumer sales due to lower demand. The ASP increase in fiscal 2018 compared to fiscal 2017 was the result of a greater mix of commercial sales.

Lighting Products revenue decreased 21% to $701.5 million in fiscal 2017 from $889.1 million in fiscal 2016. This decrease was the result of a 15% decrease in units sold and an 11% decrease in ASP, partially offset by the incremental revenue associated with a patent license issuance fee in connection with a new patent license agreement. The decrease in units sold in fiscal 2017 compared to fiscal 2016 was due to lower sales in both our commercial and consumer channels. The decrease in ASP in fiscal 2017 compared to fiscal 2016 was primarily due to lower consumer bulb prices year over year.

Gross Profit and Gross Margin

Gross profit and gross margin were as follows (in thousands, except percentages):

	Fiscal Years Ended			Year-Over-Year Change			
	June 24, 2018	June 25, 2017	June 26, 2016	2017 to 2018		2016 to 2017	
Wolfspeed gross profit	$158,455	$103,465	$94,622	$54,990	53 %	$8,843	9 %
Wolfspeed gross margin	48 %	47 %	54 %				
LED Products	157,914	151,675	173,814	6,239	4 %	(22,139)	(13)%
LED Products gross margin	26 %	28 %	32 %				
Lighting Products gross profit	108,919	196,218	238,242	(87,299)	(44)%	(42,024)	(18)%
Lighting Products gross margin	19 %	28 %	27 %				
Unallocated costs	(12,221)	(16,786)	(19,604)	4,565	27 %	2,818	14 %
COGS acquisition related costs	(5,425)	—	—	(5,425)	100 %	—	— %
Consolidated gross profit	$407,642	$434,572	$487,074	($26,930)	(6)%	($52,502)	(11)%
Consolidated gross margin	27 %	30 %	30 %				

Our consolidated gross profit decreased 6% to $407.6 million in fiscal 2018 from $434.6 million in fiscal 2017. Our consolidated gross margin decreased to 27% in fiscal 2018 from 30% in fiscal 2017. Our consolidated gross profit decreased 11% to $434.6 million in fiscal 2017 from $487.1 million in fiscal 2016. Our consolidated gross margin remained flat at 30% in fiscal 2017 and 2016.

Wolfspeed Segment Gross Profit and Gross Margin

Wolfspeed gross profit was $158.5 million, $103.5 million, and $94.6 million in fiscal 2018, 2017 and 2016, respectively. Wolfspeed gross margin was 48%, 47%, and 54% in fiscal 2018, 2017 and 2016, respectively.

Wolfspeed gross profit increased 53% to $158.5 million in fiscal 2018 from $103.5 million in fiscal 2017. Wolfspeed gross margin increased to 48% in fiscal 2018 from 47% in fiscal 2017. Wolfspeed gross profit increased primarily due to higher revenues, a more favorable product mix, higher factory utilization, and improved production yields. Wolfspeed gross margin increased primarily due to changes in product mix and improved production yields.

Wolfspeed gross profit increased 9% to $103.5 million in fiscal 2017 from $94.6 million in fiscal 2016. Wolfspeed gross margin decreased to 47% in fiscal 2017 from 54% in fiscal 2016. Wolfspeed gross profit increased primarily due to higher revenue. Wolfspeed gross margin decreased primarily due to costs associated with new product ramp ups and changes in product mix.

LED Products Segment Gross Profit and Gross Margin

Our LED Products gross profit was $157.9 million, $151.7 million, and $173.8 million in fiscal 2018, 2017 and 2016, respectively. LED Products gross margin was 26%, 28%, and 32% in fiscal 2018, 2017 and 2016, respectively.

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LED Products gross profit increased 4% to $157.9 million in fiscal 2018 from $151.7 million in fiscal 2017. LED Products gross margin decreased to 26% in fiscal 2018 from 28% in fiscal 2017. LED Products gross profit increased due to higher component sales while gross margin decreased due to lower pricing resulting from competitive pricing pressures and a less favorable mix of LED products sold.

LED Products gross profit decreased 13% to $151.7 million in fiscal 2017 from $173.8 million in fiscal 2016, and LED Products gross margin decreased to 28% in fiscal 2017 from 32% in fiscal 2016. LED Products gross profit and gross margin decreased due to lower licensing revenue, lower pricing resulting from the increased global competition for LED products and a less favorable mix of LED products sold.

Lighting Products Segment Gross Profit and Gross Margin

Lighting Products gross profit was $108.9 million, $196.2 million, and $238.2 million in fiscal 2018, 2017 and 2016, respectively. Lighting Products gross margin was 19%, 28%, and 27% in fiscal 2018, 2017 and 2016, respectively.

Lighting Products gross profit decreased 44% to $108.9 million in fiscal 2018 from $196.2 million in fiscal 2017. Lighting Products gross margin decreased to 19% in fiscal 2018 from 28% in fiscal 2017. Lighting Products gross profit and gross margin decrease was primarily due to lower lighting product sales which created lower factory utilization, higher commercial lighting product warranty reserves and the absence of the significant patent license issuance fee discussed above.

Lighting Products gross profit decreased 18% to $196.2 million in fiscal 2017 from $238.2 million in fiscal 2016. Lighting Products gross margin increased to 28% in fiscal 2017 from 27% in fiscal 2016. Lighting Products gross profit decreased primarily due to lower lighting product sales, higher commercial lighting product warranty reserves, and lower factory utilization, which were partially offset by a patent license issuance fee. Lighting Products gross margin increased due to the patent license issuance fee revenue, partially offset by the higher commercial lighting product warranty reserves and lower factory utilization from lower lighting product sales.

Unallocated Costs

Unallocated costs were $12.2 million, $16.8 million, and $19.6 million for fiscal 2018, 2017 and 2016, respectively. These costs consisted primarily of manufacturing employees' stock-based compensation, expenses for profit sharing and quarterly or annual incentive plans and matching contributions under our 401(k) plan. These costs were not allocated to the reportable segments' gross profit because our CODM does not review them regularly when evaluating segment performance and allocating resources.

Unallocated costs decreased by $4.6 million in fiscal 2018 compared to fiscal 2017, primarily due to lower stock-based compensation.

Unallocated costs decreased by $2.8 million in fiscal 2017 compared to fiscal 2016, primarily due to lower stock-based compensation incurred as a result of our lower average share price.

For further information on the allocation of costs to segment gross profit, refer to Note 15, "Reportable Segments," in our consolidated financial statements included in Item 8 of this Annual Report.

COGS Acquisition Related Cost Adjustment

The cost of goods sold (COGS) acquisition related cost adjustment was $5.4 million and $0 million for fiscal 2018, and 2017, respectively. The COGS acquisition related cost adjustment includes inventory fair value amortization of the fair value increase to inventory recognized at the date of acquisition, and other RF Power acquisition costs, impacting cost of revenue for fiscal 2018. These costs were not allocated to the reportable segments' gross profit for fiscal 2018 because they represent an adjustment which does not provide comparability to the corresponding prior period and therefore were not reviewed by our CODM when evaluating segment performance and allocating resources.

Research and Development

Research and development expenses include costs associated with the development of new products, enhancements of existing products and general technology research. These costs consisted primarily of employee salaries and related compensation costs, occupancy costs, consulting costs and the cost of development equipment and supplies.

The following sets forth our research and development expenses in dollars and as a percentage of revenue (in thousands, except percentages):

	Fiscal Years Ended			Year-Over-Year Change			
	June 24, 2018	June 25, 2017	June 26, 2016	2017 to 2018		2016 to 2017	
Research and development	$164,321	$158,549	$168,848	$5,772	4%	($10,299)	(6)%
Percent of revenue	11 %	11 %	10 %				

Research and development expenses increased in fiscal 2018 to $164.3 million compared to $158.5 million in fiscal 2017, which decreased from $168.8 million in fiscal 2016. The increase in fiscal 2018 compared to fiscal 2017 was primarily due to an increase in Wolfspeed research and development to accelerate 150mm substrate development, next generation power and RF device research and development and the inclusion of the acquired RF Power business research and development spend for the last four months of fiscal 2018. The decrease in fiscal 2017 compared to fiscal 2016 was primarily due to cost management and the nature of the ongoing research and development projects.

Our research and development expenses vary significantly from year to year based on a number of factors, including the timing of new product introductions and the number and nature of our ongoing research and development activities.

Sales, General and Administrative

Sales, general and administrative expenses were comprised primarily of costs associated with our sales and marketing personnel and our executive and administrative personnel (for example, finance, human resources, information technology and legal) and consisted of salaries and related compensation costs; consulting and other professional services (such as litigation and other outside legal counsel fees, audit and other compliance costs); marketing and advertising expenses; facilities and insurance costs; and travel and other costs. The following table sets forth our sales, general and administrative expenses in dollars and as a percentage of revenue (in thousands, except percentages):

	Fiscal Years Ended			Year-Over-Year Change			
	June 24, 2018	June 25, 2017	June 26, 2016	2017 to 2018		2016 to 2017	
Sales, general and administrative	$283,489	$277,175	$283,052	$6,314	2%	($5,877)	(2)%
Percent of revenue	19 %	19 %	18 %				

Sales, general and administrative expenses in fiscal 2018 increased 2% to $283.5 million from $277.2 million in fiscal 2017, which was a 2% decrease from $283.1 million in fiscal 2016. The increase in fiscal 2018 compared to fiscal 2017 was primarily due to the additional costs assumed in running the business and operations acquired in the RF Power acquisition, which closed in March 2018, the additional non-recurring costs associated with completing and integrating the RF Power acquisition, and severance costs pursuant to our Lighting Products restructuring plan, partially offset by the decrease in Wolfspeed transaction expenses associated with the terminated sale to Infineon in fiscal 2017. The decrease in fiscal 2017 compared to fiscal 2016 was primarily due to lower spending on corporate sales and marketing expenses related to lower sales and a decrease in litigation spending partially offset by higher Wolfspeed transaction expenses referred to above.

Amortization or Impairment of Acquisition-Related Intangibles

As a result of our acquisitions, we have recognized various amortizable intangible assets, including customer relationships, developed technology, non-compete agreements and trade names.

Amortization of intangible assets related to our acquisitions was as follows (in thousands, except percentages):

	Fiscal Years Ended			Year-Over-Year Change			
	June 24, 2018	June 25, 2017	June 26, 2016	2017 to 2018		2016 to 2017	
Customer relationships	$8,097	$6,235	$6,374	$1,862	30 %	($139)	(2)%
Developed technology	21,686	20,860	20,321	826	4 %	539	3 %
Non-compete agreements	989	404	2,037	585	145 %	(1,633)	(80)%
Total	$30,772	$27,499	$28,732	$3,273	12 %	($1,233)	(4)%

Amortization of acquisition-related intangibles increased in fiscal 2018 compared to fiscal 2017 due to the acquisition of the RF Power business that was purchased during the third quarter of fiscal 2018. Amortization of acquisition-related intangibles decreased in fiscal 2017 compared to fiscal 2016 primarily due to less amortization expense for customer relationships and non-compete agreements in fiscal 2017. This decrease was partially offset by an increase in the amortization of developed technology related to the acquisition of Arkansas Power Electronics International, Inc. (APEI) that was placed in service in the fourth quarter of fiscal 2016.

Impairment of Goodwill

Based on the updated long-range business strategy that was announced February 26, 2018, we determined there was a triggering event and performed an impairment test in connection with the preparation of our financial statements for the period ended March 25, 2018. As a result of this evaluation, we determined the remaining carrying value for the Lighting Products segment exceeded the fair value and therefore, we recorded a $247.5 million non-cash goodwill impairment charge attributable to our Lighting Products segment in our fiscal third quarter ended March 25, 2018. The impairment charge resulted from the inability to meet forecasted results and our new business strategy.