

DSP GROUP INC /DE/  
Form 10-K  
March 11, 2019

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**SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

**FORM 10-K**

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

For the Fiscal Year Ended December 31, 2018

Commission File Number 001-35256

**DSP GROUP, INC.**

(Exact name of registrant as specified in its charter)

**Delaware**

**94-2683643**

(State or other jurisdiction of  
incorporation and organization) (I.R.S. Employer Identification No.)

**2055 Gateway Place, Suite 480, San Jose, California 95110**

(Address of principal executive offices, including zip code)

**408-986-4300**

(Registrant's telephone number)

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

**None**

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

**Common Stock, \$.001 per share**

(Title of class)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes      No

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

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past

90 days.      Yes      No

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

Indicate by check mark 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," and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer  
Non-accelerated filer Smaller reporting company

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Emerging growth Company

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes      No

As of June 30, 2018, the aggregate market value of voting stock held by non-affiliates of the Registrant, based on the closing price of the Common Stock on June 30, 2018 as reported on the NASDAQ Global Select Market, was approximately \$155,988,689. Shares of Common Stock held by each officer and director and by each person who owns 5% or more of the outstanding Common Stock have been excluded from this computation in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of March 6, 2019, the Registrant had outstanding 22,625,754 shares of Common Stock.

Documents incorporated by reference: Portions of the Registrant's proxy statement to be filed pursuant to Regulation 14A within 120 days after Registrant's fiscal year end of December 31, 2018 are incorporated herein by reference into Item 5 of Part II and Items 10, 11, 12, 13 and 14 of Part III of this annual report.

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*This report and certain information incorporated herein by reference contain forward-looking statements, which are provided under the "safe harbor" protection of the Private Securities Litigation Reform Act of 1995. All statements included or incorporated by reference in this report, other than statements that are purely historical in nature, are forward-looking statements. Forward-looking statements are generally written in the future tense and/or are preceded by words such as "will," "may," "should," "could," "expect," "suggest," "believe," "anticipate," "intend," "plan," or other similar words. Forward-looking statements include statements regarding:*

*Our anticipation that our gross margin on an annual basis is expected to continue to increase in the foreseeable future as our product mix shifts in favor of new products, which generally have higher gross margins;*

*Our expectation that revenues from non-cordless products will represent approximately two-thirds of the total revenues in 2019;*

*Our expectation that revenues from cordless telephony will represent approximately one-third of our revenues in 2019;*

*Our belief that many of our past research and development investments in new technologies are paying off;*

*Our belief that price erosion and the decrease in the average selling prices of our cordless telephony products are expected to continue;*

*Our belief that the traditional cordless telephony market using fixed-line telephony will continue to decline, potentially at a steeper rate than prior years, which will continue to reduce our revenues derived from, and unit sales of, cordless telephony products;and*

*Our belief that our available cash and cash equivalents at December 31, 2018 should be sufficient to finance our operations for the foreseeable future.*

*All forward looking statements included in this Annual Report on Form 10-K are made as of the date hereof, based on information available to us as of the date hereof, and we assume no obligation to update any forward-looking statement. Many factors may cause actual results to differ materially from those express or implied by the forward-looking statements contained in this report. These factors include those risks described in Part II Item 1A "Risk Factors" of this Form 10-K.*

*This Annual Report on Form 10-K includes trademarks and registered trademarks of DSP Group. Products or service names of other companies mentioned in this Annual Report on Form 10-K may be trademarks or registered*

*trademarks of their respective owners.*

*DSP Group, Inc. is referred to in this Annual Report as "DSP Group," "we," "us" "our" or "company."*

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## **PART I**

### **Item 1. BUSINESS.**

#### **Introduction**

DSP Group®, Inc. (NASDAQ: DSPG) is a global leader in wireless and audio chipsets for a wide range of smart-enabled devices. Delivering semiconductor system solutions with software and hardware reference designs, DSP Group enables original equipment manufacturers (OEMs), original design manufacturers (ODMs), consumer electronics (CE) manufacturers and service providers to cost-effectively develop new products with fast time to market. At the forefront of semiconductor, communication-related innovation and operational excellence for over three decades, DSP Group provides a broad portfolio of wireless chipsets integrating industry leading standards, including DECT/CAT-iq, ULE, Wi-Fi, PSTN, HDClear™, video and VoIP technologies. DSP Group is a leader in high performance low-power integrated circuits (ICs) for audio and voice signal processing applications. We enable converged voice, audio, video and data connectivity across diverse mobile, consumer and enterprise products – from mobile phones, IoT and wearable devices, connected multimedia screens and home automation and security to cordless phones, VoIP systems and home gateways. Leveraging industry-leading experience, expertise and patent portfolio, DSP Group partners with leading CE manufacturers and service providers to reshape the future of converged communications at home, office and mobile on the go devices.

2018 marks the first year during which revenues from our growth initiatives, mainly VoIP, SmartVoice and SmartHome products (SmartHome products consisting of ULE ICs and home gateway ICs), accounted for more than 50% of our total revenues. We expect that revenues from non-cordless products will represent approximately two-thirds of our 2019 total revenues for the first time.

We were incorporated in California in 1987 and reincorporated in Delaware in 1994. We completed our initial public offering in February 1994.

#### **Industry Environment and Our Business**

Our focus on the design of highly-integrated, mixed-signal devices that combine signal processing, complex RF (radio frequency), analog and digital functions enables us to address the complex challenges of integrating various technologies, platforms and processes posed by emerging trends in the industry. Our IC products are customizable, achieve high functionality and performance at reduced power consumption, especially for Internet of Things (IoT),

home automation devices, mobile and wearable products, and cordless and IP telephony that require very low power consumption, and can be manufactured in high volumes using cost-effective process technologies. Our systems' architecture provides an open design environment for ODMs to design and market their own differentiated end products.

Our expertise and investment in software development, including Board Support Package (BSP) and drivers, telephony, communication stack and application layers in Real-Time Operating System (RTOS) and Full Featured Operating System (FFOS) frameworks, enable our customers' fast time to market with cost- and performance-optimized flexible solutions. With our internally developed innovations and acquired intellectual property, we are able to deliver value to our existing market verticals and address new market verticals, including markets for IoT, office phones, mobile and wearable devices, consumer and computing devices, and voice user interface, thus expanding our market opportunities.

We offer leading wireless voice and data transmission system solutions for various connectivity applications in the home and enterprise. Since 1999, we have developed and acquired a broad set of communication technologies, including Direct Sequence Spread Spectrum (DSSS), Frequency Hopping Spread Spectrum (FHSS), Orthogonal Frequency Digital Modulation (OFDM), Digital Narrow Band, Complementary Metal Oxide Semiconductor (CMOS), Gallium Arsenide (GaAs) technology, and Silicon Germanium (SiGe) RF chips for 900MHz, 2.4GHz and 5.8GHz Industry Scientific and Medical (ISM) bands, European DECT (1.9GHz), DECT 6.0 (1.8GHz), Korean DECT (1.7GHz), Bluetooth (2.4GHz), Wi-Fi (802.11, 2.4GHz/5GHz), BiCMOS (Bipolar CMOS) and deep sub-micron CMOS technologies.

Moreover, we expanded our DECT solutions beyond cordless telephony to address the IoT market via an ultra low energy version of DECT called DECT ULE or ULE. ULE offers numerous technological benefits due to its licensed and interference-free bands, longer range, RF robustness, propagation through multiple walls, voice and visual support, while operating at very low power.

In the past decade, we have expanded from primarily delivering cordless telephony solutions serving consumers to chips and telephony solutions for office and business applications, and have become a market leader in this growing segment. Today, DSP Group offers comprehensive systems-on-a-chip (SoC) and solution for VoIP, home, SoHo and office IP phones. VoIP is a technology that enables users to make HD voice calls via a broadband Internet connection rather than an analog phone line. Through successful penetration with tier one customers, we achieved over 11% growth in 2018 in the Office segment.

Furthermore, with speech-enabled mobile, smart assistants and IoT devices playing an increasingly significant role in peoples' lives, in February 2013, we unveiled our HDClear technology. We have incorporated this HDClear technology into our SmartVoice product family consisting of a comprehensive suite of noise suppression and voice quality enhancement products for mobile, wearables and always-on IoT devices. HDClear capitalizes on the voice user interface trend by incorporating voice command, voice activation, proprietary noise cancellation, acoustic echo cancellation, and beam forming algorithms, thereby dramatically improving user experience and delivering unparalleled voice quality and speech recognition. Our HDClear technology is both high performance and ultra-low power. This technology was conceived through internal development combined with the acquisition of BoneTone Communications Ltd. ("BoneTone") and the addition of their innovative intelligent noise cancellation algorithms to our low power SoC. In 2015, we secured our first design win for HDClear with a tier one mobile customer and started mass production shipments during the fourth quarter of 2015. In 2016, we shipped our HDClear hardware and software solution in mass production to a tier one mobile customer for one of its flagship mobile phones. In 2017, we shipped our HDClear solution to two flag ship mobile phones and eight different OEMs for non-mobile phone applications. In 2018, we shipped our solution to over a dozen smartphone, IoT, wearable and computing OEMs, and achieved over 124% year-over-year growth in the SmartVoice segment.

Committed to advancing technology across the CE and telecommunications markets, DSP Group is actively involved in prominent industry associations, including the DECT Forum, the European Telecommunications Standards Institute, ULE Alliance and the Wi-Fi Alliance. We also participate in the 3GPP and MIPI alliance. DSP Group is further deeply involved in all stages of defining DECT CAT-iq and ULE standards and is building full eco-systems to support these solutions. We are also an active member of the Home Gateway Initiative (HGI). Such industry involvements enable us to participate in the definition of standards and keep abreast of the latest innovations, and market and technology requirements. We also maintain close relationships with many world-leading telecommunication service providers, thereby providing us with insight into future plans across the industry.

## **Target Markets and DSP Group Products**

In response to market trends, we are concentrating our development efforts on new products and opportunities to leverage our strong technology base and customer relationships to address evolving market opportunities and take advantage of the current market trends in our domain. We focus our efforts on four product areas: (i) SmartVoice products which consist of voice-enabled products targeting mobile, IoT, speakers, computing and wearable device markets that incorporate our HDClear technology, as well as other third party advanced voice processing, always on and sensor hub functionality; (ii) Office products consisting of VoIP SoC products for Enterprise, SMB and SoHo; (iii) SmartHome products consisting of ULE ICs and home gateway ICs targeting the growing markets of IoT and smart home devices; and (iv) cordless phones which consist of largely DECT SoCs for cordless telephony.

Below is a discussion of our business segments and the products within each segment.

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*SmartVoice - Products Targeted at Mobile Telephony, Consumer Electronics, IoT and Wearable Device Markets*

Our SmartVoice product portfolio encompasses HDClear technology for intelligent voice enhancement, always-on voice trigger and control, and noise elimination. This technology is primarily targeted at devices supporting voice as a user interface. The current market trend is for mobile and IoT devices to use voice as a user interface. Our HDClear high performance and lower power solutions continue to garner important design wins with our numerous enabling technologies such as voice command, voice activation, proprietary noise cancellation, acoustic echo cancellation and beam forming algorithms, all of which dramatically improve user experience and deliver world class voice quality and speech recognition.

HDClear-based solutions offer mobile IoT voice quality and intelligibility, while minimizing background noise. Delivering clearer voice calls made from noisy environments, HDClear also maximizes accuracy of Automatic Speech Recognition (ASR) applications in noisy environments by leveraging robust and powerful noise cancellation algorithms. HDClear more effectively isolates voice from ambient noise, thereby drastically lowering Word Error Rate (WER) and dramatically improving the user experience for speech-enabled applications like virtual assistants, voice search, speakerphone conference calls and speech-to-text on mobile and wearable devices, tablets and other consumer devices.

In 2012, we taped-out the DBMD2 chip, which we believe is one of the most efficient voice enhancement processors in the market. DBMD2's low power enables an always-on voice feature for mobile devices. Always-on is a low power decisive natural voice interface for mobile and wearable devices. An average user accesses his/her device tens or hundreds of times per day by physically pressing a screen or a button. A truly always-on technology enables the user to skip this step by using natural voice to access the device even while the device is in standby mode. DBMD2 enables mobile OEMs to offload voice and audio tasks from mobile device CPUs, in addition to running HDClear to enhance automatic speech recognition (ASR) accuracy. OEM and ODM customers can leverage DBMD2's open and flexible architecture to differentiate their products to run their own voice/audio enhancement software for pre- and post-processing.

In 2015, we started commercial shipments of DBMD2 for a wearable device with a leading OEM. That year, we also taped-out DBMD4, a chip targeted for ultra-low-power, always-on voice and audio applications. DBMD4 incorporates a suite of voice enhancement algorithms, including noise suppression, that significantly improves user experience and accuracy of speech-driven applications, particularly in high noise environments. Offered in a small form factor, DBMD4 embeds a TeakLite-III DSP core, incorporates advanced connectivity options, including I2S, UART, SPI, I2C ports and SLIMbus, and is equipped with a comprehensive software framework that enables rapid development and fast time-to-market, thereby overcoming the challenges of portable design, real estate and power consumption.

In 2016, we went into production with our design win for our DBMD4 chip with a tier one mobile customer. This win led to significant year-over-year revenue growth in our SmartVoice segment. In the second half of 2016, we announced two additional design wins for our HDClear in non-smartphone applications that went into production in the second half of 2017.

In January 2017, we unveiled our latest audio and voice enhancement SoC, the DBMD5. This audio SoC is built to drive clearer human machine voice interactions in multi microphone equipped devices.

2018 was a milestone year for SmartVoice in which we shipped our SoCs to customers in six different categories – smartphones, IoT, wearables, hearables, tablets and speakers. In addition, during the year, market-leading Amazon Alexa Voice Services certified our far field 3-Mic development kit based on our DBMD5 processor. We are currently working on our next generation voice enhancement SoC which we expect to introduce in 2019.

*Office Segment - Products Targeted at the Office Market*

As a leading silicon vendor for enterprise voice, we offer a comprehensive portfolio of solutions for VoIP telephony solutions. Our DVF SoCs family is a comprehensive solution for developing affordable, scalable and green VoIP home and office products. DVF facilitates rapid introduction of embedded features into residential devices such as cordless IP and instant messaging (IM) phones. DVF enables development of low-power enterprise IP, analog terminal adapters (ATAs) and home VoIP phones that offer superb acoustic echo cancellation, high-quality HD voice, multi-line capabilities, and an enhanced user interface (UI). Built on an open platform with multi-ARM processors running on Linux OS, DVF includes IPfonePro™, an extensive SDK for IP phones and ATAs.

During 2010, we launched a new VoIP chipset based on the VegaFireBird SoC and our RF products combining ARM9 and VoIP processing baseband functions in a single package with a rich set of telephony features targeting corded IP phones for home and office, analog terminal adaptors and cordless IP phones. These products support multi line and multi HD voice channels, superior audio processing capabilities including acoustic echo cancellation and superior full duplex speakerphone technologies.

In 2012, we taped-out VoIP SoC DVF99xx, which commercially launched in January 2013. Built with two ARM926EJ-S™ cores, this VoIP SoC provides combined processing speed of 1.1 GHz, and is designed to support IP phone processing needs - from basic single-line IP phones to high-end multi-line gigabit Ethernet IP phones with large color display and advanced GUI. The DVF99 also integrates multiple hardware accelerators, including a hardware security engine which enables a new class of secure IP phones, an LCD controller, a 2D graphics engine, a high-speed USB 2.0 port, DDR3/DDR2 memory and minimal power consumption. This product was designed to meet the needs of the enterprise IP telephony market.

DVF101 was taped out during 2016 and provides outstanding cost/performance value for high-end IP phones. Designed specifically to meet Tier 1 requirements, DVF101 fully complements existing solutions, including DVF99 VoIP processors for mid to high-end IP phones. DVF101 is an ideal solution for high-end voice terminals, with high-resolution color display, rich 3D graphical user interface, full HD-voice and super wideband acoustical echo cancellation, as well as fully secured communication.

For the video phone product family, we offer the DVF1100, a high-end media processor, which powers advanced Android video phones and conferencing phones.

Our software and hardware offered for the enterprise telephony product family keeps expanding beyond conventional VoIP phones and ATAs to cover conferencing systems, IP intercoms, public announcement systems, as well as accessories such as key expansion modules, DECT microphones and headsets with advanced capabilities for voice

and audio.

Revenues from our VoIP segment continued on a strong growth trajectory in 2018. A number of customers successfully launched phones based on our DVF99. In addition, we secured additional design wins with our existing tier one customers for higher end products which are expected to go into production in the 2019 and 2020 timeframe, thereby contributing to further progress in this growing Office segment.

*Home Segment – Our SmartHome Products, Including Home Gateways, Home Automation Products and Cordless Telephony Products*

Our DECT and 2.4 GHz technologies are targeted at three broad categories of products: (a) home gateways and fixed mobile convergence, (b) home automation and IoT applications, and (c) digital cordless telephony. Gateway products and IoT applications that are supported by our ULE technology are categorized as SmartHome.

As a market leader in DECT and next-generation CAT-iq cordless technology, we offer a wide range of cost-effective, highly integrated SoC solutions. Delivering high-quality audio with low power consumption, our field-proven chipset solutions are ideal for highly integrated digital cordless telephony, DECT-enabled gateways and home automation and security. Our chipsets provide an integrated digital solution and include all relevant digital baseband, analog interface and RF functionality.



Our Home chipset solutions enable worldwide coverage, supporting all RF bands and cordless protocols, such as:

1.7GHz -1.9GHz DECT – used in Europe, U.S. (DECT6.0), Korea, Japan and Latin America; and

2.4GHz – used in Japan, China, India and the U.S.; the dominant protocols for this RF band is our proprietary EDCT (Enhanced Digital Cordless Technology) and WDCT (Wireless Digital Cordless Technology) protocols.

This chipset portfolio combines wireless communications technology with a range of telephony features, audio and voice-processing algorithms to provide the industry a low cost, high performance and small footprint solution. Enhanced with our hardware and software technologies, these chipsets are highly versatile and enable the development of an array of cordless telephony solutions, DECT home gateways and SmartHome applications and devices that allow for faster time to market than alternative custom silicon and software offerings. This portfolio supports cordless phones, cordless headsets, remote controls, home DECT-enabled gateways, fixed-mobile convergence solutions and home security and automation devices.

In 2016, we also began to sell our DHAN-S module for the IoT market. This product offers application developers a turnkey radio solution for DECT ULE nodes, whether battery or AC-powered. This module is built around our DHX91 chipset. The module can serve as a wireless connectivity channel for an application running on an external MCU or a standalone solution using the DHX91's internal ARM926 processor.

In 2017 and 2018, our DHX91, a ULE SoC, was incorporated into end customer products for home automation and security applications. Our customers' end products integrating DHX91 went through various field trials and officially launched in the market in 2014. In 2015 and 2016, Panasonic Communications Ltd. ("Panasonic"), Sercomm Corporation, Eurotronic Technology GmbH and several other leading CE brands launched ULE based products that utilizes DECT/ULE for sensors, actuators, voice and video cameras. In 2017, Deutsche Telecom launched home automation and control services and products based on our DECT and ULE solutions. In 2018, Zipato, AwoX, Deutsche Telecom, SGW, Technicolor, Elite Computer, Bezeq and Orange all announced plans to roll out products and/or services based on ULE solutions.

## **Customers**

We are an innovative, flexible, customer-centric company that proactively partners with our broad base of customers and service providers. As a reliable long-term industry supplier, we maintain a proven track record of operational excellence and successful on-time delivery. With offices across Asia, Europe and North America, we deliver outstanding local service and support worldwide. We sell our products through distributors and directly to OEMs and ODMs who incorporate our products into consumer products for the worldwide residential wireless communications

market and enterprise products for the worldwide office communications market.

In 2018, we continued expanding our customer base, and in some cases, increased our share of business with existing customers. Our blue-chip customer base features leading international CE manufacturers, including the world's top consumer brands, which have deployed our chipset and software solutions at prominent tier-one telecom operators across the globe, and include: Aprotech, ADB, AEG, Alcatel, Atcom, AT&T, Arris, Atlink, Arcadyan, Askey, Audiocodes, Avaya, Ayecom, Baycom, Belgacom, Binatone, British Telecom, Brother, CCT Tech, Cetus, CIG, Cisco, Climax, Comcast, Crow, Cybertan, Grandstream, Deutsche Telekom, Doro, DNI, DTS, DX Antenna, Eclogic, Escene, Eurotronic, Fanvil, Flextronics, Fujitsu, France Telecom, Freebox, Gibson (formerly Philips), Gaoxinqi, Gemtek, Goertek, GoPro, Foxconn, Huawei, Iflytek, Infinite, Innomedia, Intelbras, Invoxia, JXE, Kaonmedia, Kocom, Korea Telecom, KPN, Lenovo, LG Electronics, Libre, Logitech, Meitu, Mitac, Mitrastar, Motorola, Moimstone, Netgear, NTT, Ooma, Panasonic, Pegatron, Pioneer, Plantronics, Proximus, Sagemcom, Samsung, Sanyo, SAXA, Sercomm, SGW, Sharp, Siemens (Gigaset), SK Telecom, Sony, Spracht, Sumitomo, Sunrise, Swissvoice, Swisscom, TCL, Tecom, Telecom Italia, Telefonica, Telstra, Technicolor, Telefield (RCA), Tinno, T&W, Uniden, Unihan, Urmet, Uwin, Turkcell, Turkish Telecom, Verisure, Verizon, VTech, Vodafone, Wistron, WNC, WONDALINK, Xingtel, Yamaha, Yealink, Yeastar and ZTE.

## International Sales and Operations

Export sales accounted for 95% of our total revenues for 2018, 96% of our total revenues for 2017 and 97% in 2016. As most of our sales to foreign entities are denominated in U.S. dollars, we are subject to risks of conducting business internationally. See Note 16 of the attached Notes to Consolidated Financial Statements for the year ended December 31, 2018, for a summary of the geographic breakdown of our revenues and location of our long-lived assets.

As a result of our international operations, a significant portion of our expenses in Israel is paid in the Israeli currency (New Israeli Shekel (NIS)). Our primary expenses paid in NIS are employee salaries and lease payments on our Israeli facilities. In addition, a portion of our expenses in Europe is paid in Euro. Our primary expenses paid in Euro are employee salaries and lease and operational payments on our European facility.

## Sales, Marketing and Distribution

We market and distribute our products through our direct sales and marketing offices, as well as through a network of distributors. Our sales and marketing team has global reach through our sales offices in San Jose, California; Hong Kong, China; Nierenberg, Germany; Tokyo, Japan; Herzliya Pituach, Israel, Edinburgh, Scotland; Shanghai and Shenzhen, China and South Korea. In territories where we do not have sales offices, we operate either directly from our corporate headquarters or through a network of distributors and representatives.

The following table represents our sales as a percentage of our total revenues through our main distributors Nexty Electronics, Ltd. (“Nexty Electronics”) and Ascend Technology Inc. (“Ascend Technology”) for the years ended December 31, 2018, 2017 and 2016:

Major Distributors	Year ended December 31,		
	2018	2017	2016
Nexty Electronics (1)	11%	12%	12%
Ascend Technology	26%	23%	16%

(1) Panasonic Communications Co., Ltd. (“Panasonic”) has continually accounted for a majority of the sales of Nexty Electronics for 2018, 2017 and 2016.

We also derive a significant amount of revenues from a limited number of customers. The following table represents our sales as a percentage of our total revenues from our main customers for the years ended December 31, 2018, 2017 and 2016:

<b>Major Customers</b>	<b>Year ended</b>		
	<b>December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
Vtech Holdings Ltd. (“Vtech”)	24%	27%	29%
Panasonic	*	10%	10%
Samsung Electronics Ltd. (“Samsung”)*	*		12%

\*Less than 10%.

Furthermore, as our products are generally incorporated into consumer products sold by our OEM customers, our revenues may be affected by seasonal buying patterns of consumer products sold by our OEM customers.

## **Manufacturing and Design Methodology**

We are ISO9001:2015 certified. This certification is applicable for the design, development, testing and supply of our system-on-chip solutions. We also have well established methodologies and working procedures that are also regularly audited.

We contract product wafer fabrication and IC product services mostly from TSMC. We intend to continue to use independent foundries to manufacture our IC products.

We use independent subcontractors located in Asia, to package, assemble and test certain of our products. We develop detailed testing procedures and specifications for each product and require each subcontractor to use these procedures and specifications before shipping us the finished products. We test and/or assemble our products at Amkor, ASE, Giga Solutions, KYEC and SPIL. Furthermore, some of our products require an external component in the finished product, which is supplied by a third party, to provide flash memory.

## **Competition**

The principal competitive factors in the smart audio and noise reduction market include price, performance, system integration level, range, voice quality, power consumption, customer support and the timing of product introductions. We believe that we are well positioned from a competitive position. Competitors in this market include Knowles Corporation, Cirrus Logic, Synaptics and developers of noise cancellation software running on mobile phones such as NXP and ForteMedia, and in some cases, in-house engineering teams.

Similar principal competitive factors affect the VoIP market. We also believe that we are competitive with respect to most of these factors. Our principal competitors in the VoIP market include Avago Technologies, Dialog Semiconductors, Intel, Texas Instruments and Taiwanese IC vendors.

Similar principal competitive factors affect the Home Automation (DECT ULE) market. An additional competitive factor relating to this market is that the DECT ULE technology is a newcomer in this market, and this market already has a number of dominant, well-established technologies with significant existing market share. We also believe that we are competitive with respect to most of these factors. Our principal competitors are developers of different wireless home automation technologies, including Analog, Z-wave and Zigbee. Among those, the major competitors for digital home connectivity are Microchip Technology, NXP, Texas Instruments and Silicon Labs.

Similar principal competitive factors affect the cordless telephony market. Our principal competitors in the cordless market include Lantiq and Dialog Semiconductors.

### **Research and Development**

Timely development and introduction of new products are essential to maintain our competitive position. We currently conduct most of our product development at our facilities. As of December 31, 2018, we had a staff of 193 research and development personnel, of which 128 were located in Israel. We also employ independent contractors to assist with certain product development and testing activities. Due to various new developments in the home residential market and consistent with our strategy, we have expanded our product lines and developed products and services targeted at wider markets, including office enterprise market, the intensively competitive mobile device market and the expansive voice user interface market. We will need to continue to invest in research and development, and our research and development expenses may increase in the future, including the addition of new research and development personnel, to secure our leading position in discrete markets we operate in and keep pace with new and rapidly changing trends in our industry.

## **Licenses, Patents and Trademarks**

We actively pursue foreign patent protection in countries of interest to us. Our policy is to apply for patents or for other appropriate statutory protection when we develop valuable technology. As of December 31, 2018, we have been granted a total of 151 patents and 33 patents are pending.

We attempt to protect our trade secrets and other proprietary information through agreements with our customers, suppliers, employees and consultants, and through other security measures. Although we intend to protect our rights vigorously, there are no assurances that these measures will be successful.

While our ability to compete may be affected by our ability to protect our intellectual property, we believe that because of the rapid pace of technological change in our industry, our technical expertise and ability to innovate on a timely basis and in a cost-effective manner will be at least as important in maintaining our competitive position than the protection of our intellectual property. In addition, we believe that due to rapid technological changes in residential telephony, computer telephony and personal computer markets, patents and trade secret protection are important but must be supported by other factors, including expanding the knowledge, ability and experience of our personnel, new product introductions and frequent product enhancements. Although we continue to implement protective measures and intend to defend our intellectual property rights vigorously, we cannot assure that these measures will be successful.

## **Backlog**

At December 31, 2018, our backlog was approximately \$22.4 million, compared to approximately \$20.6 million and \$23.4 million at December 31, 2017 and 2016, respectively. We include in our backlog all accepted product purchase orders with respect to which a delivery schedule has been specified for product shipment within one year and for which collectability is not considered a risk. Our business is characterized by short-term order and shipment schedules. Product orders in our current backlog are subject to change, sometimes on short notice, due to changes in delivery schedules or cancellation by a purchaser. Accordingly, although useful for scheduling production, backlog as of any particular date may not be a reliable measure of our sales for any future period.

## **Employees**

At December 31, 2018, we had 320 employees, including 193 in research and development, 66 in sales and marketing, and 61 in corporate, administration and manufacturing coordination. Competition for personnel in the semiconductor

industry in general is intense. We believe that our future prospects will depend, in part, on our ability to continue to attract and retain sought after, highly-skilled technical, marketing and management personnel and are taking active measures to ensure we are perceived as a sought after employer. In particular, there is a limited supply of RF chip designers and highly-qualified engineers with digital signal processing, machine learning and artificial intelligence experience. We believe that we provide an excellent culture and competitive compensation to retain our valuable employees.

### **Web Site Access to Company's Reports**

Our web site address is *www.dspg.com*. Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act are available free of charge through our web site as soon as reasonably practicable after they are electronically filed with, or furnished to, the Securities and Exchange Commission. We will also provide the reports in electronic or paper form free of charge upon request.

Our website and the information contained therein or connected thereto are not intended to be incorporated into this Annual Report on Form 10-K.



**Item 1A. RISK FACTORS.**

*The following risk factors, among others, could in the future affect our actual results of operations and could cause our actual results to differ materially from those expressed in our forward-looking statements. These forward-looking statements are based on current expectations and we assume no obligation to update this information. Before you decide to buy, hold, or sell our common stock, you should carefully consider the risks described below, in addition to the other information contained elsewhere in this report in addition to our other public filings and presentations. The following risk factors are not the only risk factors facing our company. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business. Our business, financial condition, and results of operation could be seriously harmed if any of the events underlying any of these risks or uncertainties actually occurs. In that event, the market price for our common stock could decline, and you may lose all or part of your investment.*

***In order to sustain the future growth of our business, we must penetrate new markets and our new products must achieve widespread market acceptance but such additional revenue opportunities may not be implemented and may not be achieved.***

In order to expand our business and increase our revenues, we must penetrate new markets and introduce new products, especially our VoIP, HDclear and SmartHome product families. To sustain the future growth of our business, we need to introduce new products as sales of our cordless products continue to decline as expected. We have invested significant resources in pursuing potential opportunities for revenue growth in new product initiatives. We also are exploring opportunities to expand sales of our products in new geographies, including China, South Korea and South America. However, there are no assurances that we will be successful in the development, sales and marketing of our products in these competitive markets. Moreover, there are no assurances that we will recoup our investments made pursuing additional revenue opportunities. Our inability to penetrate such markets and increase our market share in those markets or lack of customer acceptance of those products may harm our business and potential growth.

***Because the markets in which we compete are subject to rapid changes, our products may become obsolete or unmarketable.***

The markets for our products and services are characterized by rapidly changing technology, short product life cycles, evolving industry standards, changes in customer needs, geo-political influences, demand for higher levels of integration, growing competition and new product introductions. Our future growth is dependent not only on the continued success of our existing products but also successful introduction of new products. Our ability to adapt to changing technology and anticipate future standards, and the rate of adoption and acceptance of those standards, will be a significant factor in maintaining or improving our competitive position and prospects for growth. If new industry standards emerge, our products or our customers' products could become unmarketable or obsolete, and we could lose

market share. We may also have to incur substantial unanticipated costs to comply with these new standards. If our product development and improvements take longer than planned, the availability of our products would be delayed. Any such delay may render our products obsolete or unmarketable, which would have a negative impact on our ability to sell our products and our results of operations. Moreover, if any of our competitors implement new technologies before us, those competitors may be able to provide products that are more effective or with more user-friendly features than ours, possibly at lower prices, which could adversely impact our sales and impact our market share. Our failure to develop and introduce competitive new products that are compatible with industry standards and that satisfy customer requirements, and the failure of our products to achieve broad market acceptance, could have a negative impact on our ability to sell our products and our results of operations.

*Because our quarterly operating results may fluctuate significantly, the price of our common stock may decline.*

Our quarterly results of operations may vary significantly in the future for a variety of reasons, many of which are outside our control, including the following:

fluctuations in volume and timing of product orders;

timing, rescheduling or cancellation of significant customer orders and our ability, as well as the ability of our customers, to manage inventory;

changes in demand for our products due to seasonal consumer buying patterns and other factors;

timing of new product introductions by us and by our customers or competitors;

changes in the mix of products sold by us or our competitors;

fluctuations in the level of sales by our OEM customers and other vendors of end products incorporating our products;

timing and size of expenses, including expenses to develop new products and product improvements, and expenses resulting from restructuring activities;

the timing and amount of funding from Israeli Innovation Authority (“IIA”);

entry into new geographies, including China, South Korea and South America;

our ability to scale our operations in response to changes in demand for our existing products and services or demand for new products requested by our customers;

Geo-political policies outside of our control;

mergers and acquisitions by us, our competitors and our existing and potential customers; and

general economic conditions, including current economic conditions in the United States and worldwide, and the adverse effects on the semiconductor and consumer electronics industries.

Each of the above factors is difficult to forecast and could harm our business, financial condition and results of operations. Also, we sell our products to OEM customers that operate in consumer markets. As a result, our revenues are affected by seasonal buying patterns of consumer products sold by our OEM customers that incorporate our products and the market acceptance of such products supplied by our OEM customers.

***Our future success is dependent on market acceptance of our SmartVoice and VoIP product families, which are intensively competitive markets with dominant and established players.***

Our ability to increase our revenues and offset declining revenues from our cordless product family are substantially dependent on our ability to gain market share for our SmartVoice and VoIP product families. Moreover, we are targeting a new market with our SmartVoice product family, a market with dominant and established players selling to OEM customers with whom they have established relationships. In order to gain market share, we will need to earn the business of such customers, with whom we do not have established relationships. If we are unable to generate significant revenues from our SmartVoice product family and gain significant and sustainable market share in the mobile device market, our operating results would be adversely affected. Furthermore, our future growth is also dependent on the market acceptance of our VoIP products, a market where we also compete with existing and potential competitors, many of whom have significantly greater financial, technical, manufacturing, marketing, sales and distribution resources and management expertise than we do. In addition, our continued success and growth in the new markets in which we have recently gained market share, which markets are highly competitive, is highly dependent on our ability to be designed into future flagship products of top tier OEMs.

***The market for mobile device components is highly competitive and we expect competition to intensify in the future.***

The market for mobile device components is highly competitive and characterized by the presence of large companies with significantly greater resources than we have. Our SmartVoice product family relates only to the voice and audio subsystem of a mobile device and there are only a limited number of OEMs that address this market. Our main competitors include Knowles Corporation, Synaptics and Cirrus Logic. We also face competition from other companies and could face competition from new market entrants. We also compete against solutions internally developed by OEMs, as well as combined third-party software and hardware systems. Notwithstanding prior design wins with any OEM customer, our SmartVoice products may be designed out as a result of internal solutions or replacement with software systems in future products of such OEM customer. If we are unable to compete effectively, we may not succeed in achieving additional design wins and may have to lower our pricing to attempt to gain design wins, both of which would adversely impact our operating results.

***Our future business growth depends on the growth in demand for mobile devices with improved sound quality and always-on capability.***

Our SmartVoice product family is designed to enhance the sound quality and minimize background noise for mobile device users and to enable always-on capabilities in mobile and other wearable devices. OEMs and ODMs may decide that the costs of improving sound quality outweigh the benefits or that always-on voice technology is not a required feature, both of which could limit demand for our SmartVoice product family. Moreover, users may also be satisfied with existing sound quality or blame poor quality on phone carriers. The market that we are targeting is evolving rapidly and is technologically challenging. New mobile devices with different components or software may be introduced that provide the same functionality as SmartVoice product family. Our future business growth will depend on the growth of this market and our ability to adapt to technological changes, user preferences and OEM demands. Our business could be materially adversely affected if we fail to do so.

***We generate a significant amount of our total revenues from the sale of digital cordless telephony products and our business and operating results may be materially adversely affected if we do not continue to succeed in this competitive market or if sales within the overall cordless digital market continue to decrease.***

Sales of our digital cordless telephony products comprised 45% of our total revenues for 2018, 54% for 2017 and 57% for 2016. Although we historically generated a majority of our revenue from cordless telephony products, the traditional cordless telephony market using fixed-line telephony is declining and will continue to decline, potentially steeper than prior years, which reduces our revenues derived from, and unit sales of, cordless telephony products.

*We rely significantly on revenue derived from a limited number of customers.*

We expect that a limited number of customers, varying in identity from period-to-period, will account for a substantial portion of our revenues in any period. VTech Holdings Ltd (“VTech”), Panasonic Communications Ltd. (“Panasonic”) through Nexty Electronics, Ltd. (“Nexty Electronics”), Cisco Systems, Inc. through Ascend Technology Inc. (“Ascend Technology”) and Avaya through Ascend Technology, accounted for approximately 48%, 48% and 45% of our total revenues for each of 2018, 2017 and 2016, respectively. The following table represents our sales from our 10% and above customers as a percentage of our total revenues for the years ended December 31, 2018, 2017 and 2016:

<b>Major Customers</b>	<b>Year ended</b>		
	<b>December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
VTech	24%	27%	29%
Panasonic (through Nexty Electronics)	*	10%	10%
Samsung Electronics Ltd.	*	*	12%

\*Less than 10%.

Typically, our sales are made on a purchase order basis, and most of our customers have not entered into a long-term agreement requiring it to purchase our products. Moreover, we do not typically require our customers to purchase a minimum quantity of our products, and our customers can generally reschedule the delivery date of their orders on short notice without significant penalties. A significant amount of our revenues will continue to be derived from a limited number of large customers. Furthermore, the primary customers for our products are original equipment manufacturers (OEMs) and original design manufacturers (ODMs). This industry is highly cyclical and has been subject to significant economic downturns at various times. These downturns are characterized by production overcapacity and reduced revenues, which at times may affect the financial stability of our customers. Therefore, the loss of one of our major customers, or reduced demand for products from, or the reduction in purchasing capability of, one of our major customers, could have a material adverse effect on our business, financial condition and results of operations.

***Because our products are components of end products, if OEMs do not incorporate our products into their end products or if the end products of our OEM customers do not achieve market acceptance, we may not be able to generate adequate sales of our products.***

Our products are not sold directly to the end-user; rather, we deliver hardware and software components to OEMs and ODMs who incorporate them into their products. As a result, we rely upon OEMs and ODMs to incorporate our products into their end products at the design stage. Once an OEM designs a competitor's product into its end product, it becomes significantly more difficult for us to sell our products to that customer because changing suppliers involves significant cost, time, effort and risk for the customer. As a result, we may incur significant expenditures on the development of a new product without any assurance that an OEM will select our product for design into its own product and without this "design win" it becomes significantly difficult to sell our products. This is especially the case for our HDClear SmartVoice product family. Moreover, even after an OEM agrees to design our products into its end products, the design cycle is long and may be delayed or discontinued due to factors beyond our control which may result in the end product incorporating our products not to reach the market until long after the initial "design win" with the OEM or not at all. From initial product design-in to volume production, many factors could impact the timing and/or amount of sales actually realized from the design-in. These factors include, but are not limited to, changes in the competitive position of our technology, our customers' financial stability, and our ability to ship products according to our customers' schedule and specifications. Moreover, the continued uncertainty about the sustainability of the global economic recovery and outlook may further prolong an OEM customer's decision-making process and design cycle.

Furthermore, we rely on the end products of our OEM customers that incorporate our products to achieve market acceptance. Many of our OEM customers face intense competition in their markets. If end products that incorporate our products are not accepted in the marketplace, we may not achieve adequate sales volume of our products, which would have a negative effect on our results of operations.

***Our revenues, gross margins and profitability may be materially adversely affected by the continued decline in average selling prices of our products and other factors, including increases in assembly and testing expenses, and***

*raw material and commodity costs.*

We have experienced and will continue to experience a decrease in the average selling prices of our products. Decreasing average selling prices could result in decreased revenues even if the volume of products sold increases. Decreasing average selling prices may also require us to sell our products at much lower gross margin than in the past and reduce profitability. Although we have to date been able to partially offset on an annual basis the declining average selling prices of our products through general operational efficiencies and manufacturing cost reductions by achieving a higher level of product integration and improving our yield percentages, there is no guarantee that our ongoing efforts will be successful or that they will keep pace with the anticipated, continued decline in average selling prices of our products.



In addition to the continued decline in the average selling prices of our products, our gross profit may decrease in the future due to other factors, including the roll-out of new products in any given period and the penetration of new markets which may require us to sell products at a lower margin, our failure to introduce new engineering processes and mix of products sold.

Our gross margins also are affected by the product mix. For example, mature products typically have lower average gross margins than newer products. Therefore, increased sales of certain mature products would lower our gross margins. The pressures in the supply chain make it very difficult for us to increase or even maintain our product pricing, which further adversely affects our gross margins.

Furthermore, increases in the price of silicon wafers, testing costs and commodities such as gold and oil, which may result in increased production costs, mainly assembly and packaging costs, may result in a decrease in our gross margins. Moreover, our suppliers may pass the increase in raw materials and commodity costs onto us which would further reduce the gross margin of our products. In addition, as we are a fabless company, global market trends such as “under-capacity” problems so that there is a shortage of capacity to fulfill our fabrication needs also may increase our raw material costs and thus decrease our gross margin.

***We are dependent on a small number of OEM customers, and our business could be harmed by the loss of any of these customers or reductions in their purchasing volumes.***

We sell our products to a limited number of OEM customers directly or through a network of distributors. Moreover, many North American, European and Japanese OEMs are moving their manufacturing sites to Southeast Asia and China, as a result of the cyclical nature of manufacturing capacity issues and cost of silicon integrated circuits, the continued decline of average selling prices of chipsets and other industry-wide factors. In addition, OEMs located in Southeast Asia and China are growing and gaining competitive strength. As a result, the mix of our OEM customers may change in the future. However, we may not succeed in attracting new customers as these potential customers may have pre-existing relationships with our current or potential competitors. This trend also may promote the consolidation of OEMs located in North America, Europe and Japan with OEMs located in Southeast Asia, which may reduce the number of our potential customers and reduce the volume of chipsets the combined OEM customer may purchase from us. However, as is common in our industry, we typically do not enter into long term contracts with our customers in which they commit to purchase products from us. The loss of any of our OEM customers may have a material adverse effect on our results of operations. To attract new customers, we may be faced with intense price competition, which may affect our revenues and gross margins.

***Because we have significant international operations, we may be subject to political, economic and other conditions relating to our international operations that could increase our operating expenses and disrupt our business.***

Although the majority of end users of the consumer products that incorporate our products are located in the U.S., we are dependent on sales to OEM customers, located outside of the U.S., that manufacture these consumer and office products. Also, we depend on a network of distributors to sell our products that also are primarily located outside of the U.S. Export sales shipped to manufacturers in Europe and Asia, including Japan and Asia Pacific, represented 95%, 96% and 97% of our total revenues for 2018, 2017 and 2016, respectively. Furthermore, we have material operations in Germany, Hong Kong and India and employ a number of individuals within those foreign operations. As a result, the occurrence of any negative international political, economic or geographic events, as well as our failure to mitigate the challenges in managing an organization operating in various countries, could result in significant revenue shortfalls and disrupt our workforce within our foreign operations. These shortfalls and disruptions could cause our business, financial condition and results of operations to be harmed. Some of the risks of doing business internationally include:

unexpected changes in foreign government regulatory requirements;

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fluctuations in the exchange rate for the U.S. dollar;

import and export license requirements;

imposition of tariffs and other barriers and restrictions;

burdens of complying with a variety of foreign laws, treaties and technical standards;

uncertainty of laws and enforcement in certain countries relating to the protection of intellectual property;

difficulty in collecting accounts receivable and longer payment cycles for international customers than existing customers;

difficulty in staffing and managing foreign operations and maintaining the morale and productivity of employees within foreign operations;

multiple and possibly overlapping tax structures and potentially adverse tax consequences;

political and economic instability, including protectionist policies; and

changes in diplomatic and trade relationships.

One or more of these factors may have a material adverse effect on our future operations and consequently, on our business, financial conditions and operating results.

***Because the markets in which we compete are highly competitive, and many of our competitors may have greater resources than we do, we cannot be certain that our products will be accepted in the marketplace or capture market share.***

The markets in which we operate are extremely competitive and characterized by rapid technological change, evolving standards, short product life cycles and price erosion. We expect competition to intensify as current competitors expand their product offerings and new competitors enter the market. Given the highly competitive environment in which we operate, we cannot be sure that any competitive advantages enjoyed by our current products would be sufficient to establish and sustain our new products in the market. Any increase in materials price or competition could

result in the erosion of our market share, to the extent we have obtained market share, and would have a negative impact on our financial condition and results of operations.

In each of our business activities, we face current and potential competition from competitors that may have significantly greater financial, technical, manufacturing, marketing, sales and distribution resources and management expertise than we do. These competitors may also have pre-existing relationships with our customers or potential customers. Further, in the event of a manufacturing capacity shortage, these competitors may be able to manufacture products when we are unable to do so. Our principal competitors in the cordless market include Intel and Dialog Semiconductors. Our principal competitors in the VoIP market include Avago Technologies, Dialog Semiconductors, Infineon, Texas Instruments and Taiwanese IC vendors. Our principal competitors in the smart audio and noise reduction market include Knowles Corporation, Cirrus Logic, Synaptics and developers of noise cancellation software running on mobile phones such as NXP and ForteMedia.

As discussed above, various new technological developments require us to enter into new markets with competitors that have more established presence, and significantly greater financial, technical, manufacturing, marketing, sales and distribution resources and management expertise than we do. The expenditure of greater resources to expand our current product lines may increase our operating expenses and reduce our gross profit. There are no assurances that we will succeed in developing and introducing new products that are responsive to market demands.

***Our research and development expenses may increase if the grants we currently receive from the Israeli government are reduced or withheld.***

We currently receive research grants from programs of the Israeli Innovation Authority (“IIA”). To be eligible for these grants, we must meet certain development conditions and comply with periodic reporting obligations. Although we have met such conditions in the past, should we fail to meet such conditions in the future our research grants may be repayable, reduced or withheld. Such reduction can also take place due to different allocation and methodology that IIA is implementing. The reduction of such research grants may increase our research and development expenses which in turn may reduce our operating income. As an example, in 2018, the amount of grants approved by the IIA was lower than prior years due to different allocation and methodology that IIA has implemented. Our research and development expenses may increase if the grants from the IIA are reduced which may negatively affect our financial results.

***Because we depend on independent foundries and other third party suppliers to manufacture and test all of our integrated circuit products, we are subject to additional risks that may materially disrupt our business.***

All of our integrated circuit products are manufactured and tested by independent foundries and other third party suppliers. While these foundries and other third party suppliers have been able to adequately meet the demands of our increasing business, we are and will continue to be dependent upon these foundries and third party suppliers to achieve acceptable manufacturing yields, quality levels and costs, and to allocate to us a sufficient portion of their foundry, assembly and test capacity to meet our needs in a timely manner.

While we currently believe we have access to adequate capacity to support our current sales levels pursuant to our arrangement with our foundries and other third party suppliers, we may encounter capacity shortage issues in the future. In the event of a worldwide shortage in foundry, assembly and/or test capacity, we may not be able to obtain a sufficient allocation of such capacity to meet our product needs or we may incur additional costs to ensure specified quantities of products and services. Under-capacity at the current foundries and other third party suppliers we use, or future foundries or other third party suppliers we may use, to manufacture and test our integrated circuit products may lead to increased operating costs and lower gross margins. In addition, such a shortage could lengthen our products’ manufacturing and testing cycle and cause a delay in the shipment of our products to our customers. This could ultimately lead to a loss of sales of our products, harm our reputation and competitive position, and our revenues could be materially reduced. Our business could also be harmed if our current foundries or other third party suppliers terminate our relationship and we are unable to obtain satisfactory replacements to fulfill customer orders on a timely basis and in a cost-effective manner. Moreover, we do not have long term capacity guarantee agreements with our foundries and with other third party suppliers.

In addition, as TSMC produces a significant portion of our integrated circuit products and ASE tests and assembles a significant portion of our products, earthquakes, aftershocks or other natural disasters in Asia, or adverse changes in

the political situation in Taiwan, could preclude us from obtaining an adequate supply of wafers to fill customer orders. Such events could harm our reputation, business, financial condition, and results of operations.

*Our operating results are affected by general economic conditions and the highly cyclical nature of the semiconductor industry.*

The general worldwide economic conditions remain uncertain which continues to make it difficult for our customers, the end-product customers, our vendors and us to accurately forecast and plan future business activities. Moreover, we operate within the semiconductor industry which experiences significant fluctuations in sales, availability and profitability. Downturns in the semiconductor industry are characterized by diminished product demand, excess customer inventories, accelerated erosion of prices and excess production capacity. These factors could cause substantial fluctuations in our revenues and in our results of operations. If global economic and market conditions remain uncertain or deteriorate, we could experience a material adverse impact on our business and results of operations.

***Because the manufacture of our products is complex, the foundries on which we depend may not achieve the necessary yields or product reliability that our business requires.***

The manufacture of our products is a highly complex and precise process, requiring production in a highly controlled environment. Changes in manufacturing processes or the inadvertent use of defective or contaminated materials by a foundry could adversely affect the foundry's ability to achieve acceptable manufacturing yields and product reliability. If the foundries we currently use do not achieve the necessary yields or product reliability, our ability to fulfill our customers' needs could suffer. This could ultimately lead to a loss of sales of our products and have a negative effect on our gross margins and results of operations.

Furthermore, there are other significant risks associated with relying on these third-party foundries, including:

risks due to the fact that we have reduced control over production cost, delivery schedules and product quality;

less recourse if problems occur as the warranties on wafers or products supplied to us are limited; and

increased exposure to potential misappropriation of our intellectual property.

***As we depend on independent subcontractors, located in Asia, to assemble and test our semiconductor products, we are subject to additional risks that may materially disrupt our business.***

Independent subcontractors, located in Asia, assemble and test our semiconductor products. Because we rely on independent subcontractors to perform these services, we cannot directly control our product delivery schedules or quality levels. We are dependent on these subcontractors to allocate to us a sufficient portion of their capacity to meet our needs in a timely manner. Our future success also depends on the financial viability of our independent subcontractors. If the capital structures of our independent subcontractors weaken, we may experience product shortages, production delays, quality assurance problems, increased manufacturing costs, and/or supply chain disruption. All of this could ultimately lead to a loss of sales of our products, harm our reputation and competitive position, and our revenues could be materially harmed.

Moreover, the economic, market, social, and political situations in countries where some of our independent subcontractors are located are unpredictable, can be volatile, and can have a significant impact on our business because we may not be able to obtain product in a timely manner. Market and political conditions, including currency fluctuation, terrorism, political strife, war, labor disruption, and other factors, including natural or man-made disasters, adverse changes in tax laws, tariff, import or export quotas, power and water shortages, or interruption in air

transportation, in areas where our independent subcontractors are located also could have a severe negative impact on our operating capabilities.

***We are subject to order and shipment uncertainties and if we are unable to accurately predict customer demand, our business may be harmed.***

We typically sell products pursuant to shorter term purchase orders rather than long-term purchase commitments. Customers can generally change or defer purchase orders on short notice without incurring a significant penalty. Given current market conditions, we have less ability to accurately predict what or how many products our customers will need in the future. In addition, we have little visibility into and no control of the demand by our customer's customers – generally consumer electronics retailers and businesses. Furthermore, based on discussions with our customers, we understand that our customers also have less visibility into their product demands. A decrease in the consumer electronics retailers' or businesses' demand or a build-up of their inventory, both of which are out of the control of our customers and us, may cause a cancellation, change or deferral of purchase orders on short notice by our customers. Anticipating demand is difficult because our customers and their customers face volatile pricing and unpredictable demand for their own products, and are increasingly focused on cash preservation and tighter inventory management. Based on these trends, our customers are reluctant to place orders with normal lead times, and we are seeing a shift to shorter lead-times and rush orders. However, we place orders with our suppliers based on forecasts of our customers' demand and, in some instances, may establish buffer inventories to accommodate anticipated demand. Our forecasts are based on multiple assumptions, each of which may introduce error into our estimates. If we overestimate our customers' demand or our customers overestimate their demand, we may allocate resources to manufacturing products that we may not be able to sell when we expect to, if at all. As a result, we could hold excess or obsolete inventory, which would reduce our profit margins and adversely affect our financial results. Conversely, if we underestimate our customers' demand or our customers underestimate their demand and insufficient manufacturing capacity is available, we could forego revenue opportunities and potentially lose market share and damage our customer relationships.



Furthermore, we maintain inventory, or hubbing, arrangements with certain of our customers. Pursuant to these arrangements, we deliver products to a customer or a designated third party warehouse based upon the customer's projected needs, but do not recognize product revenue unless and until the customer reports that it has removed our product from the warehouse to incorporate into its end products. Since we own inventory that is physically located in a third party's warehouse, our ability to effectively manage inventory levels may be impaired, causing our total inventory turns to decrease, which could increase expenses associated with excess and obsolete product and negatively impact our cash flow.

***The possible emerging trend of our OEM customers outsourcing their production may cause our revenue to decline.***

We believe there may be an emerging trend of our OEM customers outsourcing their production to third parties. We have invested substantial resources to build relationships with our OEM customers. However the outsourcing companies whom our OEM customers may choose to outsource production may not have prior business relationship with us or may instead have prior or ongoing relationships with our competitors. The emergence of this trend may require us to expend substantial additional resources to build relationships with these outsourcing companies, which would increase our operating expenses. Even if we do expend such resources, there are no assurances that these outsourcing companies will choose to incorporate our chipsets rather than chipsets of our competitors. Our inability to retain an OEM customer once such customer chooses to outsource production would have a material adverse effect on our future revenue.

***Third party claims of infringement or other claims against us could adversely affect our ability to market our products, require us to redesign our products or seek licenses from third parties, and seriously harm our operating results and disrupt our business.***

As is typical in the semiconductor industry, we and our customers have been and may from time to time be notified of claims that we may be infringing patents or intellectual property rights owned by third parties. In addition, patent infringement claims are increasingly being asserted by patent holding companies (so-called patent "trolls"), which do not use technology and whose sole business is to enforce patents against companies, such as us, for monetary gain. Because such patent holding companies do not provide services or use technology, the assertion of our own patents by way of counter-claim may be ineffective. We have received claims that our products infringe upon the proprietary rights of such patent holding companies. In addition, third parties have asserted and may in the future assert intellectual property infringement claims against our customers, which we have agreed in certain circumstances to indemnify and defend against such claims. If litigation becomes necessary to determine the validity of any third party claims, it could result in significant expense to us and could divert the efforts of our technical and management personnel, whether or not the claim has merit and notwithstanding that the litigation is determined in our favor.

If it appears necessary or desirable, we may try to obtain licenses for those patents or intellectual property rights that we are allegedly infringing. Although holders of these types of intellectual property rights commonly offer these licenses, we cannot assure you that licenses will be offered or that the terms of any offered licenses will be acceptable to us. Our failure to obtain a license for key intellectual property rights from a third party for technology used by us could cause us to incur substantial liabilities, suspend the manufacturing of products utilizing the technology or damage the relationship with our customers. Alternatively, we could be required to expend significant resources to develop non-infringing technology. We cannot assure you that we would be successful in developing non-infringing technology. The occurrence of any of these events could harm our business, financial condition or results of operations.

***Because we have significant operations in Israel, we may be subject to political, economic and other conditions affecting Israel that could increase our operating expenses and disrupt our business.***

Our principal research and development facilities are located in the State of Israel and, as a result, at December 31, 2018, 195 of our 320 employees were located in Israel, including 128 out of 193 of our research and development personnel. In addition, although we are incorporated in Delaware, a majority of our executive officers are residents of Israel. Although substantially all of our sales currently are being made to customers outside of Israel, we are nonetheless directly influenced by the political, economic and military conditions affecting Israel. Any major hostilities involving Israel, or the interruption or curtailment of trade between Israel and its present trading partners, could significantly harm our business, operating results and financial condition.

Israel's economy has been subject to numerous destabilizing factors, including a period of rampant inflation in the early to mid-1980s, low foreign exchange reserves, fluctuations in world commodity prices, military conflicts and civil unrest. In addition, Israel and companies doing business with Israel have been the subject of an economic boycott by the Arab countries since Israel's establishment. Although they have not done so to date, these restrictive laws and policies may have an adverse impact on our operating results, financial condition or expansion of our business.

Since the establishment of the State of Israel in 1948, a state of hostility has existed, varying in degree and intensity, between Israel and the Arab countries. Although Israel has entered into various agreements with certain Arab countries and the Palestinian Authority, and various declarations have been signed in connection with efforts to resolve some of the economic and political problems in the Middle East, hostilities between Israel and some of its Arab neighbors have recently escalated and intensified. We cannot predict whether or in what manner these conflicts will be resolved. Our results of operations may be negatively affected by the obligation of key personnel to perform military service. In addition, certain of our officers and employees are currently obligated to perform annual reserve duty in the Israel Defense Forces and are subject to being called for active military duty at any time. Although we have operated effectively under these requirements since our inception, we cannot predict the effect of these obligations on the company in the future. Our operations could be disrupted by the absence, for a significant period, of one or more of our officers or key employees due to military service.

***Recently enacted tax legislation in the United States may impact our business.***

We are subject to taxation in the United States, as well as a number of foreign jurisdictions. On December 22, 2017, the U.S. President signed into law federal tax legislation commonly referred to as the Tax Cuts and Jobs Act (the "Tax Act"). The Tax Act implements many new U.S. domestic and international tax provisions. A year after enactment, some aspects of the Tax Act still remains unclear, and although additional clarifying guidance has been issued (by the Internal Revenue Services and the U.S. Treasury Department), there are still some areas that may not be clarified for some time. Also, a number of U.S. states have not yet updated their laws to take into account the Tax Act. Legislation and clarifying guidance are expected to continue to be issued by the U.S. Treasury Department and various states in

2019, which could have a material adverse impact on the value of our U.S. deferred tax assets, result in significant changes to currently computed income tax liabilities for past and current tax periods, and increase our future U.S. tax expense.

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***The tax benefits available to us under Israeli law require us to meet several conditions, and may be terminated or reduced in the future, which would increase our taxes.***

Our facilities in Israel have been granted Approved Enterprise and Beneficiary Enterprise status under the Law for the Encouragement of Capital Investments, 1959, commonly referred to as the “Investment Law,” as amended. The Investment Law provides that capital investments in a production facility (or other eligible assets) designated as an Approved Enterprise or Beneficiary Enterprise receive certain tax benefits in Israel. Our investment programs that generate taxable income are currently subject to an average tax rate of up to approximately 10% based on a variety of factors, including percentage of foreign ownership and approvals for the erosion of the tax basis of our investment programs. To be eligible for tax benefits, we must meet certain conditions, relating principally to adherence to the investment program filed with the Investment Center of the Israeli Ministry of Economy and periodic reporting obligations. Although we believe we have met such conditions in the past, should we fail to meet such conditions in the future, we would be subject to corporate tax in Israel at the standard corporate tax rate (23% for 2018) and could be required to refund tax benefits (including with interest and adjustments for inflation based on the Israeli consumer price index) already received. Our average tax rate for our investment programs also may change in the future due to circumstances outside of our control, including changes to legislation. For example, in July 2013, the Investment Law was amended whereby the reduction of corporate tax rate for preferred enterprises was eliminated such that such enterprises, which are subject to the new law, would be subject to a 16% tax rate. Therefore, we cannot provide any assurances that our average tax rate for our investment programs will continue in the future at their current levels, if at all. The termination or reduction of certain programs and tax benefits or a requirement to refund tax benefits (including with interest and adjustments for inflation based on the Israeli consumer price index) already received may have a material adverse effect on our business, operating results and financial condition.

***We may engage in future acquisitions that could dilute our stockholders’ equity and harm our business, results of operations and financial condition.***

We have pursued, and will continue to pursue, growth opportunities through internal development and acquisition of complementary businesses, products and technologies. We are unable to predict whether or when any other prospective acquisition will be completed. The process of integrating an acquired business may be prolonged due to unforeseen difficulties and may require a disproportionate amount of our resources and management’s attention. There are no assurances that we will be able to successfully identify suitable acquisition candidates, complete acquisitions, integrate acquired businesses into our operations, or expand into new markets. Further, once integrated, acquisitions may not achieve comparable levels of revenues, profitability or productivity as our existing business or otherwise perform as expected. The occurrence of any of these events could harm our business, financial condition or results of operations. Future acquisitions may require substantial capital resources, which may require us to seek additional debt or equity financing. Future acquisitions by us could result in the following, any of which could seriously harm our results of operations or the price of our stock:

issuance of equity securities that would dilute our current stockholders’ percentages of ownership;

large one-time write-offs;

the incurrence of debt and contingent liabilities;

difficulties in the assimilation and integration of operations, personnel, technologies, products and information systems of the acquired companies;

diversion of management's attention from other business concerns;

contractual disputes;

risks of entering geographic and business markets in which we have no or only limited prior experience; and

potential loss of key employees of acquired organizations.

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***We may not be able to adequately protect or enforce our intellectual property rights, which could harm our competitive position.***

Our success and ability to compete is in part dependent upon our internally-developed technology and other proprietary rights, which we protect through a combination of copyright, trademark and trade secret laws, as well as through confidentiality agreements and licensing arrangements with our customers, suppliers, employees and consultants. In addition, we have filed a number of patents in the United States and in other foreign countries with respect to new or improved technology that we have developed. However, the status of any patent involves complex legal and factual questions, and the breadth of claims allowed is uncertain. Accordingly, we cannot assure you that any patent application filed by us will result in a patent being issued, or that the patents issued to us will not be infringed by others. Also, our competitors and potential competitors may develop products with similar technology or functionality as our products, or they may attempt to copy or reverse engineer aspects of our product line or to obtain and use information that we regard as proprietary. Moreover, the laws of certain countries in which our products are or may be developed, manufactured or sold, including Hong Kong, Japan, Korea, China and Taiwan, may not protect our products and intellectual property rights to the same extent as the laws of the United States. Policing the unauthorized use of our products is difficult and may result in significant expense to us and could divert the efforts of our technical and management personnel. Even if we spend significant resources and efforts to protect our intellectual property, we cannot assure you that we will be able to prevent misappropriation of our technology. Use by others of our proprietary rights could materially harm our business and expensive litigation may be necessary in the future to enforce our intellectual property rights.

***Because our products are complex, the detection of errors in our products may be delayed, and if we deliver products with material defects, our credibility will be harmed, the sales and market acceptance of our products may decrease and product liability claims may be made against us.***

Our products are complex and may contain errors, defects and bugs when introduced. If we deliver products with material errors, defects or bugs, our credibility and the market acceptance and sales of our products could be significantly harmed. Furthermore, the nature of our products may also delay the detection of any such error or defect. If our products contain material errors, defects and bugs, then we may be required to expend significant capital and resources to alleviate these problems. This could result in the diversion of technical and other resources from our other development efforts. Any actual or perceived problems or delays may also adversely affect our ability to attract or retain customers. Furthermore, the existence of any defects, errors or failures in our products could lead to product liability claims or lawsuits against us or against our customers. We generally provide our customers with a standard warranty for our products, generally lasting one year from the date of purchase. Although we attempt to limit our liability for product defects to product replacements, we may not be successful, and customers may sue us or claim liability for the defective products. A successful product liability claim could result in substantial cost and divert management's attention and resources, which would have a negative impact on our financial condition and results of operations.

***We are exposed to the credit risk of our customers and to credit exposures in weakened markets, which could result in material losses.***

Most of our sales are on an open credit basis. Because of current conditions in the global economy, our exposure to credit risks relating to sales on an open credit basis has increased. We expect demand for enhanced open credit terms, for example, longer payment terms, to continue and believe that such arrangements are a competitive factor in obtaining business. Although we monitor and attempt to mitigate credit risks, including through insurance coverage from time to time, there can be no assurance that our efforts will be effective. Moreover, even if we attempt to mitigate credit risks through insurance coverage, such coverage may not be sufficient to cover all of our losses and we would be subject to a deductible under any insurance coverage. As a result, our future credit risk exposure may increase. Although any losses to date relating to credit exposure of our customers have not been material, future losses, if incurred, could harm our business and have a material adverse effect on our operating results and financial condition. Moreover, the loss of a customer due to its financial default also could harm our future business and potential growth.



***Our executive officers and key personnel are critical to our business, and because there is significant competition for personnel in our industry, we may not be able to attract and retain such qualified personnel.***

Our success depends to a significant degree upon the continued contributions of our executive management team, and our technical, marketing, sales customer support and product development personnel. The loss of significant numbers of such personnel could significantly harm our business, financial condition and results of operations. We do not have any life insurance or other insurance covering the loss of any of our key employees. Because our products are specialized and complex, our success depends upon our ability to attract, train and retain qualified personnel, including qualified technical, marketing and sales personnel. However, the competition for personnel is intense and we may have difficulty attracting and retaining such personnel.

***We may have exposure to additional tax liabilities as a result of our foreign operations.***

We are subject to income taxes in the United States and various foreign jurisdictions. In addition to our significant operations in Israel, we have operations in Germany, the United Kingdom, Hong Kong, China, Japan, South Korea and India. Significant judgment is required in determining our worldwide provision for income taxes and other tax liabilities. In the ordinary course of a global business, there are many intercompany transactions and calculations where the ultimate tax determination is uncertain. We are regularly under audit by tax authorities and as an example, we are now under audit for one of our subsidiaries, the outcome of which could have material adverse impact on our financial condition. Our intercompany transfer pricing may be reviewed by the U.S. Internal Revenue Service and by foreign tax jurisdictions. Although we believe that our tax estimates are reasonable, due to the complexity of our corporate structure, the multiple intercompany transactions and the various tax regimes, we cannot assure you that a tax audit or tax dispute to which we may be subject will result in a favorable outcome for us. If taxing authorities do not accept our tax positions and impose higher tax rates on our foreign operations, our overall tax expenses could increase.

***We are exposed to fluctuations in currency exchange rates.***

A significant portion of our business is conducted outside the United States. Export sales to manufacturers in Europe and Asia, including Japan and Asia Pacific, represented 95% of our total revenues for 2018 and 96% of our total revenues for 2017 and 97% of our total revenues in 2016. Although most of our revenue and expenses are transacted in U.S. dollars, we may be exposed to currency exchange fluctuations in the future as business practices evolve and we are forced to transact business in local currencies. Moreover, part of our expenses in Israel are paid in Israeli currency, which subjects us to the risks of foreign currency fluctuations between the U.S. dollar and the New Israeli Shekel (NIS) and to economic pressures resulting from Israel's general rate of inflation. Our primary expenses paid in NIS are employee salaries and lease payments on our Israeli facilities. Furthermore, a portion of our expenses for our European operations are paid in the Euro, which subjects us to the risks of foreign currency fluctuations between the U.S. dollar and the Euro. Our primary expenses paid in the Euro are employee salaries, lease and operational

payments on our European facilities. As a result, an increase in the value of the NIS and Euro in comparison to the U.S. dollar could increase the cost of our technology development, research and development expenses and general and administrative expenses, all of which could harm our operating profit. From time to time, we use derivative instruments in order to minimize the effects of currency fluctuations, but our hedging positions may be partial, may not exist at all in the future or may not succeed in minimizing our foreign currency fluctuation risks. Our financial results may be harmed if the trend relating to the devaluation of the U.S. dollars continues for an extended period.

***An unfavorable government review of our federal income tax returns or changes in our effective tax rates could adversely affect our operating results.***

Our future effective tax rates could be adversely affected by earnings being lower than anticipated in countries where we have lower statutory rates and higher than anticipated in countries where we have higher statutory rates, by changes in the valuation of our deferred tax assets and liabilities, or by changes in tax laws, regulations, accounting principles or interpretations thereof. In addition, we are subject to the periodic examination of our income tax returns by the IRS and other tax authorities. We regularly assess the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of our provision for income taxes, as an example, we are now under audit for one of our subsidiaries. The outcome from this examination may have an adverse effect on our operating results and financial condition.

***Our business operations would be disrupted if the information technology systems we rely on fail to function properly.***

We rely on complex information technology systems to manage our business which operates in many geographical locations. For example, to achieve short delivery lead times and superior levels of customer service while maintaining low levels of inventory, we frequently adjust our production schedules with manufacturers and subcontractors. We develop and adjust these schedules based on end customer demand as communicated by our customers and distributors and based on our inventory levels, manufacturing cycle times, component lead times, and projected production yields. We combine and distribute all of this information electronically over a complex global communications network. Our ability to estimate demand and to adjust our production schedules is highly dependent on this network. Any delay in the implementation of, or disruption in the transition to, new or enhanced processes, systems or controls, could adversely affect our ability to manage customer orders and manufacturing schedules, as well as generate accurate financial and management information in a timely manner. These systems are also susceptible to power and telecommunication disruptions and other system failures. Failure of our IT systems or difficulties in managing them could result in business disruption. Our business could be significantly disrupted and we could be subject to third party claims associated with such disruptions.

***A breach of our information technology systems could subject us to liability, reputational damage or interrupt the operation of our business.***

We rely upon our information technology systems and infrastructure for our business. We could experience theft of confidential information or reputational damage from industrial espionage attacks, malware or other cyber attacks, which may compromise our system infrastructure or lead to data leakage, either internally or at our third-party providers. Similarly, data privacy breaches by those who access our systems may pose a risk that sensitive data, including intellectual property, trade secrets or personal information belonging to us, our patients, employees, customers or other business partners, may be exposed to unauthorized persons or to the public. Cyber-attacks are increasing in their frequency, sophistication and intensity, and have become increasingly difficult to detect. There can be no assurance that our efforts to protect our data and information technology systems will prevent breaches in our systems (or that of our third-party providers) that could adversely affect our business and result in financial and reputational harm to us, theft of trade secrets and other proprietary information, legal claims or proceedings, liability under laws that protect the privacy of personal information, and regulatory penalties.

***New tariffs and other trade measures could adversely affect our consolidated results of operations, financial position and cash flows.***

General trade tensions between the U.S. and China have been escalating in 2018. While tariffs and other retaliatory trade measures imposed by other countries on U.S. goods have not yet had a significant impact on our business or results of operations, we cannot predict further developments, and such existing or future tariffs could have a material

adverse effect on our consolidated results of operations, financial position and cash flows. Furthermore, changes in U.S. trade policy could trigger retaliatory actions by affected countries, which could impose restrictions on our ability to do business in or with affected countries or prohibit, reduce or discourage purchases of our products by foreign customers, leading to increased costs of components contained in our products, increased costs of manufacturing our products, and higher prices for our products in foreign markets. For example, there are risks that the Chinese government may, among other things, require the use of local suppliers, compel companies that do business in China to partner with local companies to conduct business and provide incentives to government-backed local customers to buy from local suppliers. Changes in, and responses to, U.S. trade and tariff policy could reduce the competitiveness of our products and cause our sales and revenues to drop, which could materially and adversely impact our business and results of operations.

***We may experience difficulties in transitioning to smaller geometry process technologies or in achieving higher levels of design integration, which may result in reduced manufacturing yields, delays in product deliveries and increased expenses.***

A growing trend in our industry is the integration of greater semiconductor content into a single chip to achieve higher levels of functionality. In order to remain competitive, we must achieve higher levels of design integration and deliver new integrated products on a timely basis. This will require us to expend greater research and development resources, and may require us to modify the manufacturing processes for some of our products, to achieve greater integration. We periodically evaluate the benefits, on a product-by-product basis, of migrating to smaller geometry process technologies to reduce our costs. Although this migration to smaller geometry process technologies has helped us to offset the declining average selling prices of our products, this effort may not continue to be successful. Also, because we are a fabless semiconductor company, we depend on our foundries to transition to smaller geometry processes successfully. We cannot assure you that our foundries will be able to effectively manage the transition. In case our foundries or we experience significant delays in this transition or fail to efficiently implement this transition, our business, financial condition and results of operations could be materially and adversely affected.

***The anti-takeover provisions in our certificate of incorporation and bylaws could prevent or discourage a third party from acquiring us.***

Our certificate of incorporation and bylaws contain provisions that may prevent or discourage a third party from acquiring us, even if the acquisition would be beneficial to our stockholders. Our board of directors also has the authority to fix the rights and preferences of shares of our preferred stock and to issue such shares without a stockholder vote. Our bylaws also place limitations on the authority to call a special meeting of stockholders. Our stockholders may take action only at a meeting of stockholders and not by written consent. We have advance notice procedures for stockholders desiring to nominate candidates for election as directors or to bring matters before an annual meeting of stockholders. In addition, these factors may also adversely affect the market price of our common stock, and the voting and other rights of the holders of our common stock.

***Our stock price may be volatile so stockholders may not be able to resell shares of our common stock at or above the price they paid for them.***

Announcements of developments related to our business, announcements by competitors, quarterly fluctuations in our financial results, changes in the general conditions of the highly dynamic industry in which we compete or the national economies in which we do business, and other factors could cause the price of our common stock to fluctuate, perhaps substantially. In addition, in recent years, the stock market has experienced extreme price fluctuations, which have often been unrelated to the operating performance of affected companies. These factors and fluctuations could have a material adverse effect on the market price of our common stock.

**Item 1B. UNRESOLVED STAFF COMMENTS.**

None.

**Item 2. PROPERTIES.**

We are headquartered in San Jose, California, in a leased facilities of approximately 1,723 square feet pursuant to a lease agreement that terminates in December 2021. Our operations in Israel are located in leased facilities of approximately 45,359 square feet located in Herzliya Pituach, Israel. These facilities are leased through April 2019. We have signed a lease agreement for our new leased facilities, which are also located in Herzliya Pituach, Israel. The new facilities will be leased for 10 years starting in April 2019. Our subsidiary in Tokyo, Japan has a lease that terminates in October 2020. Our subsidiary in Nuremberg, Germany has a lease that terminates in December 2019. Our subsidiary in Scotland has a lease agreement for its facilities with automatic renewals on a month-to-month basis. Our subsidiary in India has a lease that terminates in August 2020. Our subsidiary in China has two lease agreements for its facilities, one in Shenzhen that terminates in September 2020, and the other in Shanghai that terminates in July 2019. Our subsidiary in Hong Kong entered into a lease agreement that is effective until November 2019. Our subsidiary in South Korea has a lease that terminates in July 2020. We believe that our existing facilities are adequate to meet our needs for the immediate future.

**Item 3. LEGAL PROCEEDINGS.**

From time to time, we may become involved in litigation relating to claims arising from our ordinary course of business activities. Also, as is typical in the semiconductor industry, we have been and may from time to time be notified of claims that we may be infringing patents or intellectual property rights owned by third parties. We currently believe that there are no claims or actions pending or threatened against us, the ultimate disposition of which would have a material adverse effect on us.

**Item 4. Mine Safety Disclosures.**

Not applicable.

## **PART II**

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

Our common stock, par value \$0.001, trades on the NASDAQ Global Select Market (NASDAQ symbol “DSPG”). As of March 6, 2019, there were 22,625,754 shares of common stock outstanding. As of March 6, 2019, the company had approximately 17 holders of record and we believe greater than 3.100 beneficial holders. We have never paid cash dividends on our common stock and presently intend to continue a policy of retaining any earnings for reinvestment in our business.

#### **Equity Compensation Plan Information**

Information relating to our equity compensation plans will be presented under the caption “Equity Compensation Plan Information” of our definitive proxy statement pursuant to Regulation 14A in connection with the annual meeting of stockholders to be held on June 6, 2019. The definitive proxy statement will be filed with the Securities and Exchange Commission no later than 120 days after the end of the fiscal year covered by this report. Such information is incorporated herein by reference.



**Issuer Purchases of Equity Securities**