

DATA I/O CORP
Form 10-K
March 28, 2019

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

(Mark One)

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**

or

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

For the transition period from _____ to _____

Commission file number:

0-10394

DATA I/O CORPORATION

(Exact name of registrant as specified in its charter)

Washington

(State or other jurisdiction of incorporation)

91-0864123

(I.R.S. Employer Identification No.)

**6645 185th Ave NE, Suite 100, Redmond, Washington, 98052
(425) 881-6444**

(Address, including zip code, of registrant's principle executive offices and telephone number,
including area code)

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

Title of each class
Common Stock (No Par Value)

Name of each exchange on which registered
Nasdaq Capital Market

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

None

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

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

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes No

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

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

Accelerated filer

Large accelerated filer

Smaller reporting company

Non-accelerated filer

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

Aggregate market value of voting and non-voting common equity held
by non-affiliates on the registrant as of June 30, 2018:

\$50,559,519

Shares of Common Stock, no par value, outstanding as of March 21, 2019:

8,345,437

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement relating to its May 20, 2019 Annual Meeting of Shareholders are incorporated into Part III of this Annual Report on Form 10-K.

DATA I/O CORPORATION
FORM 10-K
For the Fiscal Year Ended December 31, 2018

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PART I

Item 1. Business

This Annual Report on Form 10-K and the documents incorporated herein by reference contain forward-looking statements based on current expectations, estimates and projections about Data I/O Corporation's industry, management's beliefs and certain assumptions made by management. See "Management's Discussion and Analysis of Financial Condition and Results of Operations – Forward Looking Statements."

General

Data I/O Corporation ("Data I/O", "We", "Our", "Us") is a global market leader for advanced programming, security provisioning and associated Intellectual Property ("IP") management solutions used in electronics manufacturing with flash memory, microcontrollers, and flash memory-based intelligent devices as well as secure element devices and secure microcontrollers. Data I/O® designs, manufactures and sells programming systems and services for electronic device manufacturers, specifically targeting high-growth areas such as high-volume users of flash memory and flash memory based microcontrollers. Most electronic products today incorporate a number of programmable semiconductor devices that contain data, operating instructions and security credentials essential for the proper operation of the product.

Our mission is to bring the world's electronic devices to life. Programmable devices are used in products such as automobile electronics, smartphones, HDTV, tablets, gaming systems and a broad category called Internet of Things ("IoT"). IoT is a broad term that addresses the interconnectivity of devices and other electronic or smart products. Our solutions, some of which include IP management, secure content management and process control capabilities, enable us to address the demanding requirements of the electronic device market, where applications and IP protection are essential to our customer's success. Our largest customers are heavy users of programmable semiconductor devices and include original equipment manufacturers ("OEMs") in automotive electronics, consumer electronics and IoT markets as well as their programming center partners and electronic manufacturing service ("EMS") contract manufacturers.

Data I/O was incorporated in the State of Washington in 1969 and its business was founded in 1972. Our website address is www.dataio.com.

Industry Background

We enable companies to improve productivity, increase supply-chain security and reduce costs by providing device data programming and security provisioning solutions that allow our customers to take IP (large design and data files) and protect and program it into memory, microcontroller and logic devices quickly and cost-effectively. We also provide services related to hardware support, system installation and repair, and device programming. Companies that design and manufacture products utilizing programmable electronic devices, ranging from automobiles to cell phones, purchase programming solutions from us. Trends of increasing device densities, shrinking device packages, increased demands for security, and customers increasing their software content file sizes, combined with the increasing numbers of intelligent devices such as automotive electronics and IoT applications, are driving demand for our solutions.

Traditionally, our programming market opportunity focused on the number of semiconductor devices to be programmed, but because of the rapid increase in the density of devices, and increasing demands for supply-chain security, the focus has shifted in many cases from the number and type of devices to the number and type of bits per device to be programmed or securely provisioned. With expected growth in IoT applications, the business opportunity for this market differentiates on quality, security and automation.

Some of our automated programming systems integrate data programming, automated handling functions and/or secure provisioning into a single product solution. During 2018, we continued to integrate security provisioning into some of our solutions. Quality and security-conscious customers, particularly those in high-volume manufacturing and programming, drive this portion of our business.

Products

To accommodate the expanding variety and quantities of programmable devices being manufactured today, we offer multiple solutions for the numerous types of device mix and volume usage by our customers in the various market segments and applications. We work closely with leading manufacturers of programmable devices to develop our products to meet the requirements of a particular device. Our newer products are positioned and recognized as some of the most advanced programming and provisioning equipment and associated IP management solutions.

Our programming solutions include a broad range of products, systems, modules and accessories, grouped into two general categories: automated programming systems and manual programming systems. We provide two categories of automated programming systems: off-line and in-line. Our PSV family of automated programming systems delivers a broad range of programming capacity and capability to the marketplace. Our PSV7000 Automated Programming System continues to be adopted in the marketplace, in particular for automotive electronics customers. Our PSV5000 automated programming system combines mid-range capacity and flexibility with competitive pricing. Our PSV3000 Automated Programming System, developed for the Asian automation market, is a lower cost platform for basic programming needs. Our PSV family of handlers has won multiple industry awards for technical excellence and innovation. In 2018 our Lumen®X programmer won five industry awards for Universal Flash Storage (“UFS”) support. Our ConneX® software won the 2017 Circuits Assembly NPI Award, the EM Asia Innovation Award and the SMT China Vision Award. Our SentiX® security provisioning system won the Global Technology Award at Productronica in November 2017 and the Embedded Award for Innovation at the Embedded World show in February 2018. Our Job Composer software for LumenX won the Circuits Assembly NPI Award in January 2019.

Our automated systems have list selling prices ranging from \$50,000 to \$550,000 and our manual systems have list selling prices ranging from \$4,500 to \$30,000. Our security provisioning system, SentiX, is currently offered for security provisioning on a pay per use basis.

Data I/O programming technology may be integrated with the PSV family to create highly-flexible systems that deliver outstanding performance with low total cost of ownership. The LumenX programming engine is the fastest solution available for eMMC and UFS programming of large NAND FLASH. Increasing memory densities and the need for faster data interfaces are resulting in an expected transition to the use of UFS devices. LumenX is available on our PSV7000 and PSV5000 and as a standalone manual programmer. FlashCORE™, and our universal job setup tool, Tasklink™ for Windows®, are available in each family of our automated programming systems and in FlashPAK™, our manual programming system. The SentiX security system adds security provisioning capability to our data programming system. SentiX allows customers of any size and demand-profile to securely add keys, certificates, and other security information to specialized regions of authentication integrated circuits (“ICs”), secure elements and secure microcontrollers. We provide device support and service on all of our products. Device support is a critical aspect of our business and consists of writing software algorithms for devices and developing socket adapters to hold and connect to the device for programming.

Our products have both an upfront solution sale and recurring revenue elements. Adapters are a consumable item and software and maintenance are typically recurring under annual subscription contracts.

Sales Percentage of Total Sales Breakdown by Type

Sales Type	2018	2017	Drivers
Equipment Sales	65%	71%	Capacity, Process improvement, Technology
Adapter Sales	24%	22%	Capacity utilization, New customer products
Software and Maintenance Sales	11%	7%	Installed base, Added capabilities
Total	100%	100%	

The table below presents our main products and the key features that benefit our customers:

Products	Key Features	Customer Benefits
PSV Handlers: Off-line (Automated)	<ul style="list-style-type: none"> • Fast program and verify speeds • Up to 112 programming sites • Up to 2000 devices per hour throughput • UFS Support • Supports LumenX and FlashCORE III programmers • Supports multiple media types • Supports quality options – fiber laser marking, 3D coplanarity • ConneX Factory Integration & other Software 	<ul style="list-style-type: none"> • Managed and secure programming • High throughput for high density Flash programming • High flexibility with respect to I/O options (tray, tape, tube), marking/labeling and vision for coplanarity inspection
SentryX Security Provisioning System	<ul style="list-style-type: none"> • Unique Ability to securely provision keys and certificates one device at a time • Pay per use model reduces capital spending requirements as the market develops. 	<ul style="list-style-type: none"> • Create Secure IoT devices across a global network • Maintain IP control over the lifecycle of their products
RoadRunner & RoadRunner3 Series Handlers: In-line, (Automated)	<ul style="list-style-type: none"> • Just-in-time in-line programming • Direct integration with placement machine supporting SIPLACE, Fuji NXT, Panasonic, Universal/Genesis and Assembleon • Factory Integration Software • Supports FlashCORE III programmers 	<ul style="list-style-type: none"> • Dramatic reduction in inventory carrying and rework costs • “Zero” footprint • Rapid return on investment (“ROI”) typically realized in a matter of months • Integration with factory systems
LumenX Programmer	<ul style="list-style-type: none"> • Extensible architecture for fast program, verify and download speeds • Supports UFS • Large file size support 	<ul style="list-style-type: none"> • Managed and secure programming • Fast setup and job changeover

- | | | |
|--|---|--|
| FlashPAK III programmer:
(Non-Automated) | <ul style="list-style-type: none">• Secure Job creation• 8 sockets with tool-less changeover with single socket adapters• Scalability• Network control via Ethernet• Stand-alone operation or PC compatible• Parallel programming• Breadth of device coverage | <ul style="list-style-type: none">• Highest yield and low total cost of programming• High performance• Validate designs before moving down the firmware supply chain• Unmatched ease of use in manual production systems• Universal programmer |
| Unifamily programmers: Off-line, Low Volume and Engineering
(Non-Automated)
(Legacy Equipment) | | |

Customers/Markets

We sell our solutions to customers worldwide, many of whom are world-class manufacturers of electronic devices used in a broad range of industries, as described in the following table:

	OEMs	EMS	Programming Centers
	Automotive Electronics	IoT, Industrial, Consumer Electronics, including Wireless	Contract Manufacturers
Notable end customers	Delphi, Bosch, Alpine, Visteon, Kostal, Harman Becker, Denso, Continental, Panasonic, Magna, Magnetti Marelli	LG, TCL Siemens, Danfoss, Philips, Schneider, Endress+Hauser, Pilz, Insta, Carrier, Microsoft, Sony, Amazon, UTC	Pegatron, Flextronics, Jabil, Wistron, Sanmina SCI, Foxconn, Leeysys, Calcomp
Business drivers	Safety, navigation and infotainment devices, increased electronic content to support autonomous driving, security	Higher functionality driven by increasing electronic content. Shift from analog to connected intelligent devices, security	Acquisition of OEM factories, production contract wins
Programming equipment drivers	Process improvement and simplification, new product rollouts, growing file sizes, quality control and traceability, security	Process improvement and simplification as well as new product rollouts, memory and new technology, security	New contracts from OEMs, programming solutions specified by OEMs
Buying criteria	Quality, reliability, configuration control, traceability, global support, IP protection	Quality, reliability, configuration control, traceability, security, and security provisioning. Throughput, technical capability to support evolving technology, global	Capacity utilization of their installed base of equipment, small parts handling, security
			Value-added services, logistics, security
			Arrow, Avnet, BTV, CPS, EPS, Elmitech, Noa (Toshiba)
			Flexibility, lowest life-cycle cost-per programmed-part, low changeover time; use of multiple vendors provides negotiating leverage, device support availability

support, IP
protection, robust
algorithms, low
cost

Our solutions address the data programming of devices and security provisioning needs of programmable semiconductor devices. Semiconductor devices are a large, growing market, both in terms of devices and bits programmed. We believe that our sales are driven by many of the same forces that propel the semiconductor industry. We sell to the same firms that buy the semiconductors. When their business grows, they buy more semiconductors which, in turn, require additional programming equipment to maintain production speeds or program new device technologies.

Our device programming solutions currently target two high volume, growing markets: automotive electronics and IoT systems including Industrial and Consumer devices.

Growth drivers for automotive electronics

- Consumers desire advanced car features requiring higher levels of sophistication, including infotainment options (audio, radio, dashboard displays, navigation, ADAS and wireless connectivity) as well as increased safety features and optimized engine functionality
- Increasing numbers and size of microcontrollers per vehicle
- Proliferation of programmable microcontrollers to support the next-generation electronic car systems
- Increasing use of high-density flash to provide memory for advanced applications that require programming

- Increasing complexity to support autonomous vehicles
- Increasing need for security solutions for a secure supply chain and lifecycle firmware integrity

Growth drivers for IoT: including industrial, consumer electronics and wireless

- Securely controlling groups of connected devices through a secure supply chain and lifecycle firmware integrity management
- Adding intelligence and processing into devices
- Connecting previously unconnected devices to networks and the internet (such as intelligent thermostats and lighting)
- Emergence of new devices and applications (such as wearables)

During 2018, we sold products to over 200 customers throughout the world. The following customers represented greater than 10% of sales in the applicable year:

2018 Two customers, Bosch, an Automotive Electronics OEM, and Data Copy Limited, a distributor in China, accounted for approximately 16% and 13% of net sales, respectively.

2017 One customer, Data Copy Limited, a distributor in China, accounted for approximately 15% of net sales.

2016 Four customers, Data Copy Limited, Arrow, Bosch and BTV, accounted for approximately 16%, 13%, 11% and 10% of net sales, respectively. Arrow and BTV are Programming Centers.

The following customers represented greater than 10% of our consolidated accounts receivable balance as of December 31 of the applicable year:

2018 Three customers accounted for greater than 10% of our consolidated accounts receivable balance at December 31, 2018: Systemation, Continental and Semitron represented 12%, 12% and 11% of that balance, respectively.

2017 One customer, Data Copy Limited, accounted for 25% of our consolidated accounts receivable balance at December 31, 2017.

2016 Three customers accounted for greater than 10% of our consolidated accounts receivable balance at December 31, 2016: Bosch and Arrow our direct customers, and Data

Copy Limited, represented 30%, 16% and 14% of that balance, respectively.

Geographic Markets and Distribution

We market and sell our products through a combination of direct sales, internal telesales, indirect sales representatives and distributors, as well as services through programming centers. We continually evaluate our sales channels against our evolving markets and customers and realign them as necessary to ensure that we reach our existing and potential customers in the most effective and efficient manner possible.

U.S. Sales

We market our products throughout the U.S. using a variety of sales channels, including our own field sales management personnel, independent sales representatives and direct telesales. Our U.S. independent sales representatives obtain orders on an agency basis, with shipments made directly to the customer by us. Net sales in the United States for 2018, 2017 and 2016 were (in millions) \$3.4, \$2.9 and \$2.9, respectively. Some of our customers' orders delivered internationally are heavily influenced by U.S. sales based efforts.

International Sales

International sales represented approximately 88%, 92% and 88% of net sales in 2018, 2017, and 2016, respectively. We make foreign sales through our wholly-owned subsidiaries in Germany and China, as well as through independent distributors and sales representatives operating in 44 other countries. Our independent foreign distributors purchase our products for resale and we generally recognize the sale at the time of shipment to the distributor. As with U.S. sales representatives, sales made by international sales representatives are on an agency basis, with sales made directly to the customer by us.

Net international sales for 2018, 2017, and 2016 were (in millions) \$25.8, \$31.2 and \$20.5, respectively. We determine international sales by the international geographic destination into which the products are sold and delivered, and include not only sales by foreign subsidiaries but also export sales from the U.S. to our foreign distributors and to our representatives' customers. International sales do not include transfers between Data I/O and our foreign subsidiaries. Export sales are subject to U.S. Department of Commerce regulations. We have not, however, experienced difficulties to date as a result of these requirements. Certain products (such as Sentrix) may require export licenses due to the

technology contained and the country to which they would be shipped. We have not made sales to Iran or any Iranian governmental entities or any other blacklisted companies or countries.

Fluctuating exchange rates and other factors beyond our control, such as international monetary stability, tariff and trade policies and U.S. and foreign tax and economic policies, may affect the level and profitability of international sales. We cannot predict the effect of such factors on our business, but we try to consider and respond to changes in these factors, particularly as the majority of our costs are U.S. based while the vast majority of our sales are international.

Competition

The competition in the programming systems market is highly fragmented with a small number of organizations selling directly competitive solutions and a large number of smaller organizations offering less expensive solutions. In particular, low cost automated solutions have gained market share in recent years, where the competition is primarily based on price. Typically, their equipment meets a “good enough” standard, but with reduced quality, traceability, security and other software features such as factory integration software. Many of these competitors compete on a regional basis, with local language and support. Although competition in the security provisioning market is developing, we expect competition in the market to increase as security provision becomes more important.

In addition, we compete with multiple substitute forms of device programming including “home grown” solutions. Programming after device placement may be done with In Circuit Test (“ICT”) and In System Programming (“ISP”). Some automotive products may also be programmed over the air (“OTA”). IoT devices may also be programmed with ICT, ISP or OTA. In addition, new security devices may be required to be programmed using device-specific programmers developed by the semiconductor manufacturer.

While we are not aware of any published industry market information covering the programming systems or security provisioning market, according to our internal analysis of competitors’ revenues, we believe we continue to be the largest competitor in the programming systems equipment market and have been gaining market share in recent years, especially with our new products.

Manufacturing, Raw Materials and Backlog

We strive to manufacture and provide the best solutions for advanced programming. We primarily assemble and test our products at our principal facilities in Redmond, Washington

and Shanghai, China. Both of these locations are ISO 9001:2015 certified. We outsource our circuit board manufacturing and fabrication. We use a combination of standard components and fabricated parts manufactured to our specifications. Most components used are available from a number of different suppliers and subcontractors but certain items, such as some handler and programmer and security provisioning subassemblies, custom integrated circuits, hybrid circuits and connectors, are purchased from single sources. We believe that additional sources can be developed for present single-source components without significant difficulties. We cannot be sure that single-source components will always continue to be readily available. If we cannot develop alternative sources for these components, or if we experience deterioration in relationships with these suppliers, there may be price increases, minimum order quantities, costs associated with integrating alternatively sourced parts, and delays or reductions in product introductions or shipments, which may materially adversely affect our operating results.

In accordance with industry practices, generally all orders are subject to cancellation prior to shipment without penalty, except for contracts calling for custom configuration. To date, such cancellations have not had a material effect on our sales volume. To meet customers' delivery requirements, we manufacture certain products based upon a combination of backlog and anticipated orders. Most orders are scheduled for delivery within 1 to 90 days after receipt of the order. Our backlog of pending orders was approximately (in millions) \$1.9, \$4.0 and \$3.2 as of December 31, 2018, 2017, and 2016, respectively. The size of backlog at any particular date is not necessarily a meaningful indicator of the trend of our business.

Research and Development

We believe that continued investment in research and development is critical to our future success. We continue to develop new technologies and products and enhance existing products. Future growth is, to a large extent, dependent upon the timely development and introduction of new products, as well as the development of technology and algorithms to support the latest programmable devices. Where possible, we may pursue partnerships and other strategic relationships to add new products, capabilities and services, particularly in security provisioning. We are currently focusing our research and development efforts on strategic growth markets, including automotive electronics and the IoT. We are continuing to develop technology to securely program new categories of semiconductors, including Secure Elements, Authentication Chips, and Secure Microcontrollers. We plan to deliver new programming technology, automated handling systems and enhancements for managed and secure programming in the manufacturing environment. We also continue to focus on increasing our capacity and responsiveness for new device support requests from customers and programmable integrated circuit manufacturers by revising and enhancing our internal processes and tools. Our research and development efforts have resulted in the release of significant new products and product enhancements over the past several years.

During 2018, 2017, and 2016, we made expenditures for research and development of (in millions) \$7.4, \$6.9, and \$5.1, respectively, representing 25.2%, 20.3%, and 21.6% of net sales, respectively. Research and development costs are generally expensed as incurred.

Patents, Copyrights, Trademarks and Licenses

We rely on a combination of patents, copyrights, trade secrets and trademarks to protect our IP, as well as product development and marketing skill to establish and protect our market position. We continue to apply for and add new patents to our patent portfolio as we develop strategic new technologies.

We attempt to protect our rights in proprietary software, including Lumen®X software, Flashcore software, TaskLink software, ConneX smart programming software and other software products, by retaining the title to and copyright of the software and documentation, by including appropriate contractual restrictions on use and disclosure in our licenses, and by requiring our employees to execute non-disclosure agreements. Our software products are not typically sold separately from sales of programming systems. However, on those occasions where software is sold separately, revenue is recognized when a sales agreement exists, delivery has occurred, the fee is fixed or determinable, and collectability is reasonably assured.

Because of the rapidly changing technology in the semiconductor, electronic equipment and software industries, portions of our products might infringe upon existing patents or copyrights, and we may be required to obtain licenses or discontinue the use of the infringing technology. We believe that any exposure we may have regarding possible infringement claims is a reasonable business risk similar to that assumed by other companies in the electronic equipment and software industries. However, any claim of infringement, with or without merit, could be costly and a diversion of management's attention, and an adverse determination could adversely affect our reputation, preclude us from offering certain products, and subject us to substantial liability. As of December 31, 2018, there were no pending actions regarding infringement claims.

Employees

As of December 31, 2018, we had a total of 102 employees, of which 48 were located outside the U.S. and 7 of which were part time. We also utilize independent contractors for specialty

work, primarily in research and development, and utilize temporary workers to adjust capacity to fluctuating demand and for special projects. Many of our employees are highly skilled and trained and our continued success will depend in part upon our ability to attract and retain employees who can be in great demand within the industry. None of our employees are represented by a collective bargaining unit and we believe relations with our employees are favorable. In foreign countries we have employment agreements or, in China, the Shanghai Foreign Services Co., Ltd. ("FSCO") labor agreement.

Environmental Compliance

Our facilities are subject to numerous laws and regulations concerning the discharge of materials or otherwise relating to the environment. Compliance with environmental laws has not had, nor is it expected to have, a material effect on our capital expenditures, financial position, results of operations or competitive position.

Executive Officers of the Registrant

Set forth below is certain information concerning the executive officers of Data I/O as of March 23, 2018:

<u>Name</u>	<u>Age</u>	<u>Position</u>
Anthony Ambrose	57	President and Chief Executive Officer
Joel S. Hatlen	60	Vice President, Chief Operating and Financial Officer, Secretary and Treasurer
Rajeev Gulati	55	Chief Technology Officer, Vice President of Engineering

Anthony Ambrose joined Data I/O in October 2012 and is our President and Chief Executive Officer. He was appointed to the Board of Directors of Data I/O in October 2012. Prior to Data I/O, Anthony was Owner and Principal of Cedar Mill Partners, LLC, a strategy consulting firm. Until 2011, he was Vice President and General Manager at RadiSys Corporation, a leading provider of embedded wireless infrastructure solutions, where he led three product divisions and worldwide engineering. Until 2007, he was general manager and held several other progressively responsible positions at Intel Corporation, where he led development and marketing of standards based telecommunications platforms, and grew the industry standard server business to over \$1B in revenues. He is a member of the EvergreenHealth Foundation Board of Trustees. Mr. Ambrose has a Bachelor's of Science in Engineering from Princeton University.

Joel S. Hatlen joined Data I/O in September 1991 and in July 2017 became our Chief Operating Officer in addition to serving as our Vice President, Chief Financial Officer, Secretary and Treasurer since January 1998. He was Chief Accounting Officer since February 1997 and served as Corporate Controller from December 1993 to December 1997. Previously, he was Tax Manager and Senior Tax Accountant. From September 1981 until joining Data I/O, Joel was employed by Ernst & Young LLP as a Certified Public Accountant, where his most recent position was Senior Manager. Joel holds a Masters in Taxation from Golden Gate University and a Bachelor's in Business Administration in Accounting from Pacific Lutheran University.

Rajeev Gulati joined Data I/O in July 2013 and is our Chief Technology Officer and Vice President of Engineering. Prior to Data I/O, Rajeev served as Director of Software Engineering for AMD responsible for tools, compiler strategy and execution from 2006 to 2013. He has an extensive background in software, systems and applying technology to develop new markets. Previously, he served as Director of Strategy and Planning at Freescale from 2004 to 2006; as Director of Embedded Products at Metrowerks (acquired by Motorola) from 2000 to 2004 and Director of Compilers, Libraries & Performance Tools from 1997 to 2000; and engineering and programmer positions at Apple Computer, IBM and Pacific-Sierra Research. Rajeev holds a Master of Science in Electrical & Computer Engineering from the University of Texas, Austin and a BE in Electrical Engineering from Delhi College of Engineering, New Delhi.

Item 1A. Risk Factors

Cautionary Factors That May Affect Future Results

Our disclosure and analysis in this Annual Report contains some forward-looking statements. Forward-looking statements include our current expectations or forecasts of future events. The reader can identify these statements by the fact that they do not relate strictly to historical or current facts. In particular, these include statements relating to future action,

prospective products, expected market growth, new technologies and trends, industry partnerships, foreign operations, economic expectations, future performance or results of current and anticipated products, sales efforts, expenses, outcome of contingencies, impact of regulatory requirements, tariffs and financial results.

Any or all of the forward-looking statements in this Annual Report or in any other public statement made may turn out to be wrong. They can be affected by inaccurate assumptions we might make, or known or unknown risks and uncertainties can affect these forward-looking statements. Many factors -- for example, product competition and product development -- will be important in determining future results. Moreover, neither Data I/O nor anyone else assumes responsibility for the accuracy and completeness of these forward-looking statements. Actual future results may materially vary.

We undertake no obligation to publicly update any forward-looking statements after the date of this Annual Report, whether as a result of new information, future events or otherwise. The reader should not unduly rely on our forward-looking statements. The reader is advised, however, to consult any future disclosures we make on related subjects in our 10-Q, 8-K and 10-K reports to the SEC and press releases. Also, note that we provide the following cautionary discussion of risks, uncertainties and possible inaccurate assumptions relevant to our business. These are factors that we think could cause our actual results to differ materially from expected and historical results. Other factors besides those listed here could also adversely affect us. This discussion is permitted by the Private Securities Litigation Reform Act of 1995.

RISK FACTORS:

TARIFFS AND TRADE ISSUES

Changes in tariffs and trade issues may adversely affect our business, including revenues and/or gross margins.

We produce products in the United States and China. Currently, certain of our products are subject to tariffs imposed by one country on goods manufactured in the other country. We are aware of proposals to increase tariff rates and to subject additional items to tariffs, which could impact our costs, revenues and the competitiveness of our products due to our manufacturing locations. Trade and tariff issues are creating business uncertainty and may spread to and impact other jurisdictions.

NEW PRODUCTS OR SERVICES

We are pursuing new product or service initiatives, and business models that may develop more slowly and/or to a lesser extent than expected

In order to lead in new and potentially lucrative market opportunities, for example in security provisioning of programmable devices, circuit boards and electronic systems, we must invest ahead of others while the market is developing and uncertain. Because of the lengthy time to market from design to production insecurity provisioning, if these markets develop more slowly than planned, then we may not achieve our expected return on investment in new technologies and this may affect the results of our existing business.

In the security provisioning area, we have introduced a new pay per use business model that may not be accepted by our customers who are accustomed to paying for capital equipment upfront, rather than paying per use charges.

Failure to adapt to technology trends in our industry may impact our competitiveness and financial results.

Product and service technology in our industry evolves rapidly, making timely product innovation essential to success in the marketplace. Introducing products and services with improved technologies or features may render our existing products obsolete and unmarketable. Technological advances and trends that may negatively impact our business include:

- new device package types, densities, chip interfaces and technologies requiring hardware and software changes in order to be programmed by our products, particularly certain segments of the high density flash memory markets where after placement programming is recommended by the semiconductor manufacturers
- reduction in semiconductor process geometries for certain 3 Dimensional (3D), Multi Level Cell (MLC) and Triple Level Cell (TLC) NAND and eMMC FLASH memories impact the product data retention through Surface Mount Technology (SMT) reflow or X-ray inspection. Improper SMT process control can negatively impact the end customer's ability to successfully program devices prior to placement in manufacturing. This can cause them to change their programming methods away from pre-programming to post placement programming techniques, including ISP. Data I/O is working with semiconductor manufacturers to develop best practices to minimize the impact of reflow and potential concerns about X-ray induced data loss.
- electronics equipment manufacturing practices, such as widespread use of in-circuit programming or downloading

- adoption of proprietary security and programming protocols and additional security capabilities and requirements
- customer software platform preferences different from those on which our products operate
- customer adoption of newer semiconductor device technologies such as UFS memory or device interface methods such as PCI, particularly if these technologies are adopted by automotive electronics, IoT or wireless customers
- more rigid industry standards, which would decrease the value-added element of our products and support services

If we cannot develop products or services in a timely manner in response to industry changes, or if our products or services do not perform well, our business and financial condition may be adversely affected. Also, our new products or services may contain defects or errors that give rise to product liability claims against us or cause our products to fail to gain market acceptance. Our future success depends on our ability to successfully compete with other technology firms in attracting and retaining key technical personnel.

Failure to adapt to increasing automotive electronics customer requirements

Concentration in Automotive Electronics and our orders related to automotive electronics customers increased to 60% in 2018, from 54% in 2017, and 47% in 2016. As we become more concentrated on automotive electronics customers, any decrease in demand from these customers may materially impact our results, as it will take some time to transition our product line to other markets. Quality standards and business requirements by our automotive electronics customers, driven in turn by their automotive manufacturer customers, may demand processes, and certifications at a higher level than we currently are structured to provide. For example, although we currently meet the ISO 9001:2015 standard, new quality standards may be demanded by our customers with even more rigorous requirements. In addition, contractual provisions may expose us to greater potential liability and costs and we may be required to provide higher service levels than we currently provide. If we cannot adapt to these industry requirements or manage these contractual provisions, our business may be adversely affected.

Delays in development, introduction and shipment of new products or services may result in a decline in sales or increased costs.

We develop new engineering and automated programming systems and services. Significant technological, supplier, manufacturing or other problems may delay the development, introduction or production of these products or services.

For example, we may encounter these problems:

- technical problems in the development of a new programming and/or provisioning systems platform or the robotics for new automated handling systems
- inability to hire qualified personnel or turnover in existing personnel or inability to engage or retain key technology partners
- delays or failures to perform by us or third parties, including some smaller early stage or recently acquired companies, involved in our development projects
- dependence on large semiconductor companies for cooperation and support to securely provision their devices. These companies must enable us with specific technical information, and support Data I/O as a qualified solution to their customers and channel partners.
- development of new products or services that are not accepted by the market

These problems may result in a delay or decline in sales or increased costs.

We may pursue business acquisitions that could impair our financial position and profitability.

We may pursue acquisitions of complementary technologies, product lines or businesses. Future acquisitions may include risks, such as:

- burdening management and our operating teams during the integration of the acquisition
- diverting management's attention from other business concerns
- failing to successfully integrate or monetize the acquired products or technologies
- lack of acceptance of the acquired products by our sales channels or customers
- entering markets where we have no or limited prior experience
- potential loss of key employees of the acquired company
- additional burden of support for an acquired programmer architecture

Future acquisitions may also impact our financial position. For example, we may use significant cash or incur debt, which would weaken our balance sheet, or issue additional

shares, potentially diluting existing shareholders. We may also capitalize goodwill and intangible assets acquired, the amortization or impairment of which would reduce our profitability. We cannot guarantee that future acquisitions will improve our business or operating results.

If we are unable to protect our IP, we may not be able to compete effectively or operate profitably.

We rely on patents, copyrights, trade secrets and trademarks to protect our IP, as well as product development and marketing skill to establish and protect our market position. In particular, patents are a key part of our security provisioning strategy. We attempt to protect our rights in proprietary software products, including our user interface, product firmware, software module options and other software products by retaining the title to and copyright of the software and documentation, by including appropriate contractual restrictions on use and disclosure in our licenses, and by requiring our employees to execute non-disclosure agreements.

Because of the rapidly changing technology in the semiconductor, electronic equipment and software industries, portions of our products might possibly infringe upon existing patents or copyrights, and we may be required to obtain licenses or discontinue the use of the infringing technology. We believe that any exposure we may have regarding possible infringement claims is a reasonable business risk similar to that assumed by other companies in the electronic equipment and software industries. However, any claim of infringement, with or without merit, could be costly and a diversion of management's attention, and an adverse determination could adversely affect our reputation, preclude us from offering certain products, and subject us to substantial liability.

We may face increased competition and may not be able to compete successfully with current and future competitors.

Technological advances have reduced the barriers of entry into the programming systems market. We expect competition to increase from both established and emerging companies. If we fail to compete successfully against current and future sources of competition, our profitability and financial performance will be adversely impacted.

THIRD PARTY RELATIONSHIPS

If we do not develop, enhance and retain our relationships with security partners, our business may be adversely affected and we may not be able to timely develop new and cost effective managed and secure programming solutions.

As we enter new areas in managed and secure programming, we need to complement our skills and expertise with partners' expertise in security. Some of these partners are early stage companies that are operating with more limited capital and/or management expertise than established firms or recently acquired firms that may have different priorities. Other partners are very large companies where prioritizing work with us may be difficult in light of competing priorities. For some of our then earlier stage partners, we have obtained unique product features and capabilities in exchange for NRE payments, pre-paid royalties, marketing incentives and sales cooperation. If these unique features and capabilities are no longer available, we will face more competition. If our partners are unable to develop and deliver solutions that we need to integrate into our managed and secure programming solutions, our products might be delayed, we might have to locate alternate partners and suppliers or develop the technology ourselves, and we would still be responsible for paying any related pre-paid royalties or NRE payments.

If we do not develop and enhance our relationships with semiconductor manufacturers, our business may be adversely affected.

We work closely with most semiconductor manufacturers to ensure that our data programming and security provisioning systems comply with their requirements. In addition, many semiconductor manufacturers recommend our managed and secure programming systems for use by users of their programmable devices. These working relationships enable us to keep our programming systems product lines up to date and provide end-users with broad and current programmable device support. As technology changes occur that could limit the effectiveness of pre-placement programming, particularly for very small high density NAND, e-MMC and UFS devices, certain semiconductor manufacturers may not recommend or may not continue recommending our programming systems for these devices. Our business may be adversely affected if our relationships with semiconductor manufacturers deteriorate or if semiconductor manufacturers are not willing to closely work with us on security provisioning. Consolidation within the semiconductor industry may also impact us. As we develop more security solutions, we will need to partner more closely with semiconductor manufacturers.

Our reliance on a small number of suppliers may result in a shortage of key components, which may adversely affect our business, and our suppliers may experience financial difficulties which could impact their ability to service our needs.

Certain parts or software used in our products are currently available from either a single supplier or from a limited number of suppliers. Our small relative level of business means we frequently lack influence and significant purchasing power. If we cannot develop alternative sources of these components, if sales of parts or software are discontinued by the supplier, if we experience deterioration in our relationship with these suppliers, or if these suppliers require financing, which is not available, there may be delays or reductions in product introductions or shipments, which may materially adversely affect our operating results.

Because we rely on a small number of suppliers for certain parts, we are subject to possible price increases by these suppliers. Also, we may be unable to accurately forecast our production schedule. If we underestimate our production schedule, suppliers may be unable to meet our demand for components. This delay in the supply of key components may have a materially adverse effect on our business. For suppliers who discontinue parts, we may be required to make lifetime purchases covering future requirements. Over estimation of demand or excessive minimum order quantities will lead to excess inventories that may become obsolete.

Certain of our sockets, parts, subassemblies and boards are currently manufactured to our specifications by third-party foreign contract manufacturers and we are sourcing certain parts or options from foreign manufacturers. We may not be able to obtain a sufficient quantity of these products if and when needed or the quality of these parts or options may not meet our standards, which may result in lost sales.

If we are unable to attract and retain qualified third-party distributors and representatives, our business may be adversely affected.

We have an internal sales force and also utilize third-party distributors and representatives. Therefore, the financial stability of these distributors and representatives is important. Their ability to operate, timely pay us, and to acquire any necessary financing may be affected by the current economic climate. Highly skilled professional engineers use most of our products. To be effective, third-party distributors and representatives must possess significant technical, marketing, customer relationships and sales resources and must devote their resources to sales efforts, customer education, training and support. These required qualities limit the number of potential third-party distributors and representatives. Our business will suffer if we cannot attract and retain a sufficient number of qualified third-party distributors and representatives to market our products.

MARKET CONDITIONS

A decline in economic and market conditions may result in delayed or decreased capital spending and delayed or defaulted payments from our customers.

Our business is highly impacted by capital spending plans and other economic cycles that affect the users and manufacturers of integrated circuits. These industries are highly cyclical and are characterized by rapid technological change, short product life cycles and fluctuations in manufacturing capacity and pricing and gross margin pressures. As we experienced in recent prior years, our operations may in the future reflect substantial fluctuations from period-to-period as a consequence of these industry patterns, general economic conditions affecting the timing of orders from major customers, and other factors affecting capital spending. In a difficult economic climate it may take us longer to receive payments from our customers and some of our customers' business may fail, resulting in non-payment. Our market growth forecasts and related business decisions may be wrong. These factors could have a material adverse effect on our business and financial condition.

Our international operations may expose us to additional risks that may adversely affect our business.

International sales represented approximately 88%, 92% and 88% of net sales in 2018, 2017, and 2016, respectively. We expect that international sales will continue to be a significant portion of our net revenue. International sales may fluctuate due to various factors, including:

- fluctuations in foreign currency exchange rates because 88% of our sales are to international markets, volatile exchange rates may also impact our competitiveness and margins
- economic uncertainty related to the European sovereign debt situation
- migration of manufacturing to low cost geographies
- unexpected changes in regulatory requirements, including Brexit
- tariffs and taxes

- Bi-lateral and Multi-lateral trade agreements
- difficulties in staffing and managing foreign operations
- longer average payment cycles and difficulty in collecting accounts receivable
- compliance with applicable export licensing requirements and the Foreign Corrupt Practices Act
- product safety and other certification requirements
- difficulties in integrating foreign and outsourced operations
- civil unrest, political and economic instability

Because we have customers located throughout the world, we have significant foreign receivables. We may experience difficulties in collecting these amounts as a result of payment practices of certain foreign customers, economic uncertainty and regulations in foreign countries, the availability and reliability of foreign credit information, and potential difficulties in enforcing collection terms.

The European Union and European Free Trade Association (“EU”) has established certain electronic emission and product safety requirements (“CE”). As applicable, our products currently meet these requirements; however, failure to obtain either a CE certification or a waiver for any product may prevent us from marketing that product in Europe. The EU also has directives concerning the Reduction of Hazardous Substances (“RoHS”) and we believe we are classified within the EU RoHS Directive category list as Industrial Monitoring and Control Equipment (category 9). We believe all current products meet the RoHS directives. Failure to meet applicable directives or qualifying exemptions may prevent us from marketing certain products in Europe or other territories with similar requirements.

We have subsidiaries in Germany, China, Brazil and Canada and large balances of cash are in our foreign subsidiaries. Our business and financial condition is sensitive to currency exchange rates and any restrictions imposed on their currencies including restrictions on repatriations of cash. Any repatriation of cash could result in tax costs and corresponding deferred tax assets with related tax valuation allowances. Currency exchange fluctuations in these countries may adversely affect our investment in our subsidiaries.

OPERATIONS

Quarterly fluctuations in our operating results may adversely affect our stock price.

Our operating results tend to vary from quarter to quarter. Our revenue in each quarter substantially depends upon orders received within that quarter. Conversely, our expenditures are based on investment plans and estimates of future revenues. We may, therefore, be unable to quickly reduce our spending if our revenues decline in a given quarter. As a result, operating results for that quarter will suffer. Our results of operations for any one quarter are not necessarily indicative of results for any future periods.

Other factors, which may cause our quarterly operating results to fluctuate, include:

- increased competition
- timing of new product announcements and timing of development expenditures
- product or service releases and pricing changes by us or our competitors
- market acceptance or delays in the introduction of new products or services
- production constraints
- quality issues
- labor or material constraints
- timing of significant orders
- timing of installation or customer acceptance requirements
- sales channel mix of direct vs. indirect distribution

- civil unrest, war or terrorism
- health issues (such as the outbreak of a virus impacting workers or travel)
- customers' budgets
- changes in accounting rules, tax or other legislation
- adverse movements in exchange rates, interest rates or tax rates
- cyclical and seasonal nature of demand for our customers' products
- general economic conditions in the countries where we sell products
- expenses and delays obtaining authorizations in setting up new operations or locations
- facilities relocations

Due to any of the foregoing factors, it is possible that in some future quarters, our operating results will be below expectations of analysts and investors.

We have a history of operating losses and may be unable to generate enough revenue to achieve and maintain profitability.

We have incurred operating losses in three of the last ten years. We operate in a cyclical industry. We will continue to examine our level of operating expense based upon our projected revenues. Any planned increases in operating expenses may result in losses in future periods if projected revenues are not achieved. As a result, we may need to generate greater revenues than we have recently in order to maintain profitability. However, we cannot provide assurance that our revenues will continue to increase and our business strategies may not be successful, resulting in future losses.

The loss of key employees may adversely affect our operations.

We have employees located in the U.S., Germany and China. We also utilize independent contractors for specialty work, primarily in research and development, and utilize temporary workers to adjust capacity to fluctuating demand. Many of our employees are highly skilled and our continued success will depend in part upon our ability to attract and retain employees who can be in great demand within the industry. None of our employees are represented by a collective bargaining unit and we believe relations with our employees are favorable, though no assurance can be made that this will be the case in the future. In China, our workers are "leased" with the arrangements made under the "FSCO" labor agreement and we could be adversely affected if we were unable to continue that arrangement.

We may need to raise additional capital and our future access to capital is uncertain.

Our past revenues have sometimes been, and our future revenues may again be, insufficient to support the expense of our operations and any expansion of our business. We may therefore need additional equity or debt capital to finance our operations. If we are unable to generate sufficient cash flows from operations or to obtain funds through additional debt, lease or equity financing, we may have to reduce some or all of our development and sales and marketing efforts and limit the expansion of our business.

We believe that we have sufficient cash or working capital available under our operating plan to fund our operations and capital requirements through at least the next one-year period. In the event we require additional cash for U.S. operations or other needs, we may choose to repatriate some, or all, of the \$6.4 million held in our foreign subsidiaries. Although we have no current repatriation plans, there may be tax, legal and other impediments to any repatriation actions. Our working capital may be used to fund possible losses, business growth, project initiatives, share repurchases and business development initiatives including acquisitions, which could reduce our liquidity and result in a requirement for additional cash before that time. Any substantial inability to achieve our current business plan could have a material adverse impact on our financial position, liquidity, or results of operations and may require us to reduce expenditures and/or seek additional financing.

Therefore, we may seek additional funding through public or private debt or equity financing or from other sources. We have no commitments for additional financing, and given a potential future unfavorable economic climate and our financial results, we may experience difficulty in obtaining funding on favorable terms, if at all. Any financing we obtain may

contain covenants that restrict our freedom to operate our business or may require us to issue securities that have rights, preferences or privileges senior to our Common Stock and may dilute your ownership interest.

Our stock price may be volatile and, as a result, our shareholders may lose some or all of their investment.

The stock prices of technology companies tend to fluctuate significantly. We believe factors such as announcements of new products or services by us or our competitors and quarterly variations in financial results and outlook may cause the market price of our Common Stock to fluctuate substantially. In addition, overall volatility in the stock market, particularly in the technology company sector, is often unrelated to the operating performance of companies. If these market fluctuations continue in the future, they may adversely affect the price of our Common Stock.

Cyber security breaches or terrorism could result in liabilities or costs as well as damage to or loss of our data or customer access to our website and information systems. The collection, storage, transmission, use and disclosure of user data and personal information, if accessed improperly, could give rise to liabilities or additional costs as a result of laws, governmental regulations and evolving views of personal privacy rights.

Cyber security breaches or terrorism could result in the exposure or theft of private or confidential information as well as interrupt our business, including denying customer access to our website and information systems. We transmit, and in some cases store, end-user data, including personal information. In jurisdictions around the world, personal information is becoming increasingly subject to legislation and regulations intended to protect consumers' privacy and security. The interpretation of privacy and data protection laws and regulations regarding the collection, storage, transmission, use and disclosure of such information in some jurisdictions is unclear and evolving. These laws may be interpreted and applied in conflicting ways from country to country and in a manner that is not consistent with our current data protection practices. Complying with these varying international requirements could cause us to incur additional costs and change our business practices. Because our services are accessible in many foreign jurisdictions, some of these jurisdictions may claim that we are required to comply with their laws, even where we have no local entity, employees or infrastructure. We could be forced to incur significant expenses if we were required to modify our products, our services or our existing security and privacy procedures in order to comply with new or expanded regulations.

REGULATORY REQUIREMENTS

Failure to comply with increasing regulatory requirements may adversely affect our stock price and business.

As a public company, we are subject to numerous governmental and stock exchange requirements, with which we believe we are in compliance. Our failure to meet regulatory requirements and exchange listing standards may result in actions such as: the delisting of our stock, impacting our stock's liquidity; SEC enforcement actions; and securities claims and litigation.

The Sarbanes-Oxley Act of 2002 and the Securities and Exchange Commission (SEC) have requirements that we may fail to meet or we may fall out of compliance with, such as the internal controls auditor attestation required under Section 404 of the Sarbanes-Oxley Act of 2002, with which we are not currently required to comply as we are a smaller reporting company. We assume that we will continue to have the status of a smaller reporting company based on the aggregate market value of the voting and non-voting shares held as of June 30, 2018. If we fail to achieve and maintain the adequacy of our internal controls, as such standards are modified, supplemented or amended from time to time, we may not be able to ensure that we can conclude on an ongoing basis that we have effective internal controls over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act of 2002. Moreover, effective internal controls, particularly those related to revenue recognition, are necessary for us to produce reliable financial reports and are important to help prevent financial fraud. If we cannot provide reliable financial reports or prevent fraud, our business and operating results could be harmed, investors could lose confidence in our reported financial information, and the trading price of our stock could drop significantly.

While we have policies and procedures in place designed to prevent corruption and bribery, because our business is significantly international, violations of the Foreign Corrupt Practices Act (FCPA) could have a significant adverse effect on our business due to the disruption and distraction of an investigation, financial penalties and criminal penalties.

Government regulations regarding the use of "conflict" minerals could adversely affect our prospects and results of operations.

Regulatory requirements regarding disclosure of our use of "conflict" minerals mined from the Democratic Republic of Congo and adjoining countries could affect the sourcing and availability of minerals used in the manufacture of certain products. Although we do not buy raw materials, manufacture, or produce any electronic equipment using conflict minerals directly, some components provided by our suppliers and contained in our products contain conflict minerals. Our goal is for our products to be conflict free. As a result, there may only be a limited pool of suppliers who provide conflict free metals, and we cannot assure you that we will be able to obtain products in sufficient quantities or at competitive prices. Single source suppliers may not respond or respond negatively regarding conflict mineral sourcing and we may be unable to find alternative sources to replace them. Also, because our supply chain is complex, we may face reputational challenges with our customers and other stakeholders if we are unable to sufficiently verify the origins for all metals used in the products that we sell. Further, if we are unable to comply with the new laws or regulations or if our efforts to comply with new laws, regulations and standards differ from the activities intended by regulatory or governing bodies due to ambiguities related to practice, regulatory

authorities may initiate legal proceedings against us. We may need to incur additional costs and invest additional resources, including management's time, in order to comply with the new regulations and anticipated additional reporting and disclosure obligations.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

During the third quarter of 2017, we amended our lease agreement for the Redmond, Washington headquarters facility, extending the lease to July 31, 2022, waiving a potential space give back provision and receiving lease inducement incentives. Previously on June 8, 2015 the lease had been amended to relocate our headquarters to a nearby building and lower the square footage to approximately 20,460. The lease base annual rental payments during 2018 and 2017 were approximately \$341,000 and \$303,000, respectively.

In addition to the Redmond facility, approximately 24,000 square feet is leased at two foreign locations, including our sales, service, operations and engineering office located in Shanghai, China, and our German sales, service and engineering office located near Munich, Germany.

We signed a lease agreement effective November 1, 2015 that extends through October 31, 2021 for a facility located in Shanghai, China. This lease is for approximately 19,400 square feet. The lease base annual rental payments during 2018 and 2017 were approximately \$288,000 and \$276,000, respectively.

During the fourth quarter of 2016, we signed a lease agreement for a new facility located near Munich, Germany which was effective March 1, 2017 and extends through February 28, 2022. This lease is for approximately 4,895 square feet. The lease base annual rental payments during 2018 and 2017 were approximately \$67,000 and \$64,000, respectively.

Item 3. Legal Proceedings

From time to time, we may be involved in litigation relating to claims arising out of our operations in the normal course of business. As of December 31, 2018, we were not a party to any legal proceedings or aware of any indemnification agreement claims, the adverse outcome of which in management's opinion, individually or in the aggregate, would have a material adverse effect on our results of operations or financial position.

Item 4. Mine Safety Disclosures

Not Applicable.

PART II

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

Our Common Stock is listed on the NASDAQ Capital Market (NASDAQ symbol is DAIO). The closing price was \$5.00 on December 31, 2018.

The approximate number of shareholders of record as of March 21, 2019 was 435.

Except for special cash dividend of \$4.15 per share paid on March 8, 1989, we have not paid cash dividends on our Common Stock and do not anticipate paying regular cash dividends in the foreseeable future.

No sales of unregistered securities were made by us during the periods ended December 31, 2018, 2017 or 2016.

See Item 12 for the Equity Compensation Plan Information.

iSSUER pURCHASES OF eQUITY sECURITIES

On October 31, 2018, our Board of Directors approved a share repurchase program with provisions to buy back up to \$2 million of our stock during the period from November 1, 2018 through October 31, 2019. The program was established with a 10b5-1 plan under the Exchange Act to provide flexibility to make purchases throughout the period. For the quarter and year ended December 31, 2018, 101,975 shares of stock were repurchased at an average price of \$5.23 for a total of \$533,463 plus \$2,067 in commissions and charges.

The following is a summary of the stock repurchase program from November 1, 2018 through December 31, 2018:

Repurchases by Month	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Repurchase Program	Approximate Dollar Value of Shares that May Yet Be Purchased under the Program
December 2018	101,975	\$5.23	101,975	\$1,466,537

Item 6. Selected Financial Data

Not applicable.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Forward-Looking Statements

This Annual Report on Form 10-K includes forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. This Act provides a "safe harbor" for forward-looking statements to encourage companies to provide prospective information about themselves as long as they identify these statements as forward-looking and provide meaningful cautionary statements identifying important factors that could cause actual results to differ from the projected results. All statements other than statements of historical fact made in this Annual Report on Form 10-K are forward-looking. In particular, statements herein regarding economic outlook, industry prospects and trends; industry partnerships; future results of operations or financial position; future spending; breakeven revenue point; expected market growth; market acceptance of our newly introduced or upgraded products or services; the sufficiency of our cash to fund future operations and capital requirements; development, introduction and shipment of new products or services; changing foreign operations; and any other guidance on future periods are forward-looking statements. Forward-looking statements reflect management's current expectations and are inherently uncertain. Although we believe that the expectations reflected in these forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance, achievements, or other future events. Moreover, neither Data I/O nor anyone else assumes responsibility for the accuracy and completeness of these forward-looking statements. We are under no duty to update any of these forward-looking statements after the date of this Annual Report. The Reader should not place undue reliance on these forward-looking statements. The following discussions and the section entitled "Risk Factors – Cautionary Factors That May Affect Future Results" describes some, but not all, of the factors that could cause these differences.

OVERVIEW

We continued our focus on automotive electronics and managing the core programming business for growth and profitability, while developing and enhancing products, particularly in security provisioning, to drive future revenue and earnings growth as we invest resources in the security provisioning market. Our challenge continues to be operating in a cyclical and rapidly evolving industry environment. We are continuing our efforts to balance industry changes, industry partnerships, new technologies, business geography shifts, exchange rate volatility, trade issues and tariffs, increasing costs and strategic investments in our business with the level of demand and mix of business we expect. We continue to manage our costs carefully and execute strategies for cost reduction.

We are focusing our research and development efforts in our strategic growth markets, namely automotive electronics and IoT new programming technologies, secure supply chain solutions, automated programming systems and their enhancements for the manufacturing environment and software. We are currently focusing our research and development efforts on strategic growth markets, including automotive electronics and IoT. We are developing technology to securely provision new categories of semiconductors, including Secure Elements, Authentication Chips, and Secure Microcontrollers. We plan to deliver new programming technology and automated handling systems for managed and secure programming in the manufacturing environment. We continue to focus on extending the capabilities and support for our product lines and supporting the latest semiconductor devices, including various configurations of NAND Flash, e-MMC, UFS and microcontrollers on our newer products.

Our customer focus has been on global and strategic high volume manufacturers in key market segments like automotive electronics, IoT, industrial controls and consumer electronics as well as programming centers.

CRITICAL ACCOUNTING POLICY JUDGMENTS AND ESTIMATES

The preparation of financial statements in accordance with accounting principles generally accepted in the United States of America requires that we make estimates and judgments, which affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosures of contingent assets and liabilities. On an on-going basis, we evaluate our estimates, including those related to revenue recognition, sales returns, bad debts, inventories, intangible assets, income taxes, warranty obligations, restructuring charges, contingencies such as litigation and contract terms that have multiple elements and other complexities typical in the capital equipment industry. We base our estimates on historical experience and other assumptions that we believe are reasonable under the circumstances. Actual results may differ from these estimates under different assumptions or conditions.

We believe the following critical accounting policies affect the more significant judgments and estimates used in the preparation of our financial statements:

Revenue Recognition: Effective January 1, 2018, the Company adopted ASU 2014-09, Revenue (“Topic 606”): Revenue from Contracts with Customers, using the modified retrospective method. Topic 606 provides a single, principles-based five-step model to be applied to all contracts with customers. It generally provides for the recognition of revenue in an amount that reflects the consideration to which the Company expects to be entitled, net of allowances for estimated returns, discounts or sales incentives, as well as taxes collected from customers when control over the promised goods or services are transferred to the customer.

Our basic revenue recognition remains essentially the same as it was in 2017. The adoption of Topic 606 did not have a material impact on our 2018 financial statement line items, either individually or in the aggregate, and would not have been material to 2017 financial results. We have elected the practical expedient to expense contract acquisition costs, primarily sales commissions, for contracts with terms of one year or less and will capitalize and amortize incremental costs with terms that exceed one year. During 2018, the impact of capitalization of incremental costs for obtaining contracts was \$8,193. We have made a sales tax policy election to exclude sales, use, value added, some excise taxes and other similar taxes from the measurement of the transaction price.

We recognize revenue upon transfer of control of the promised products or services to customers in an amount that reflects the consideration we expect to receive in exchange for those products or services. We have determined that our programming equipment has reached a point of maturity and stability such that product acceptance can be assured by testing at the factory prior to shipment and that the installation meets the criteria to be a separate performance obligation. These systems are standard products with published product specifications and are configurable with standard options. The evidence that these systems could be deemed as accepted was based upon having standardized factory production of the units, results from batteries of tests of product performance to our published specifications, quality inspections and installation standardization, as well as past product operation validation with the customer and the history provided by our installed base of products upon which the current versions were based.

The revenue related to products requiring installation that is perfunctory is recognized upon transfer of control of the product to customers, which generally is at the time of shipment. Installation that is considered perfunctory includes any installation that is expected to be performed by other parties, such as distributors, other vendors, or the customers themselves. This takes into account the complexity, skill and training needed as well as customer expectations regarding installation.

We enter into arrangements with multiple performance obligations that arise during the sale of a system that includes an installation component, a service and support component and a software maintenance component. The transaction price is allocated to the separate

performance obligations on relative standalone sales price. We allocate the transaction price of each element based on relative selling prices. Relative selling price is based on the selling price of the standalone system. For the installation and service and support performance obligations, we use the value of the discount given to distributors who perform these components. For software maintenance performance obligations, we use what we charge for annual software maintenance renewals after the initial year the system is sold. Revenue is recognized on the system sale based on shipping terms, installation revenue is recognized after the installation is performed, and hardware service and support and software maintenance revenue is recognized ratably over the term of the agreement, typically one year. Deferred revenue includes service, support and maintenance contracts and represents the undelivered performance obligation of agreements that are typically for one year.

When we sell software separately, we recognize revenue upon the transfer of control of the software, which is generally upon shipment, provided that only inconsequential performance obligations remain on our part and substantive acceptance conditions, if any, have been met.

We recognize revenue when there is an approved contract that both parties are committed to perform, both parties rights have been identified, the contract has substance, collection of substantially all the consideration is probable, the transaction price has been determined and allocated over the performance obligations, the performance obligations including substantive acceptance conditions, if any, in the contract have been met, the obligation is not contingent on resale of the product, the buyer's obligation would not be changed in the event of theft, physical destruction or damage to the product, the buyer acquiring the product for resale has economic substance apart from us and we do not have significant obligations for future performance to directly bring about the resale of the product by the buyer. We establish a reserve for sales returns based on historical trends in product returns and estimates for new items. Payment terms are generally 30 days from shipment.

We transfer certain products out of service from their internal use and make them available for sale. The products transferred are typically our standard products in one of the following areas: service loaners, rental or test units; engineering test units; or sales demonstration equipment. Once transferred, the equipment is sold by our regular sales channels as used equipment inventory. These product units often involve refurbishing and an equipment warranty, and are conducted as sales in our normal and ordinary course of business. The transfer amount is the product unit's net book value and the sale transaction is accounted for as revenue and cost of goods sold.

Allowance for Doubtful Accounts: We base the allowance for doubtful accounts receivable on our assessment of the collectability of specific customer accounts and the aging of accounts receivable. If there is deterioration of a major customer's credit worthiness or actual defaults are higher than historical experience, our estimates of the recoverability of amounts due to us could be adversely affected.

Inventory: Inventories are stated at the lower of cost or net realizable value. Adjustments are made to standard cost, which approximates actual cost on a first-in, first-out basis. We estimate reductions to inventory for obsolete, slow-moving, excess and non-salable inventory by reviewing current transactions and forecasted product demand. We evaluate our inventories on an item by item basis and record inventory adjustments accordingly. If there is a significant decrease in demand for our products, uncertainty during product line transitions, or a higher risk of inventory obsolescence because of rapidly changing technology and customer requirements, we may be required to increase our inventory adjustments and our gross margin could be adversely affected.

Warranty Accruals: We accrue for warranty costs based on the expected material and labor costs to fulfill our warranty obligations. If we experience an increase in warranty claims, which are higher than our historical experience, our gross margin could be adversely affected.

Tax Valuation Allowances: Given the uncertainty created by our loss history, as well as the ongoing cyclical uncertain economic outlook for our industry and capital and geographic spending as well as income and net deferred tax assets by entity and country, we expect to continue to limit the recognition of net deferred tax assets and accounting for uncertain tax positions and maintain the tax valuation allowances. At the current time, we expect, therefore, that reversals of the tax valuation allowance will take place as we are able to take advantage of the underlying tax loss or other attributes in carry forward or their use by future income or circumstances allow us to realize these attributes. The transfer pricing and expense or cost sharing arrangements are complex areas where judgments, such as the determination of arms-length arrangements, can be subject to challenges by different tax jurisdictions.

Share-based Compensation: We account for share-based awards made to our employees and directors, including employee stock option awards and restricted stock unit awards, using the estimated grant date fair value method of accounting. For options, we estimate the fair value using the Black-Scholes valuation model and an estimated forfeiture rate, which requires the input of highly subjective assumptions, including the option's expected life and

the price volatility of the underlying stock. The expected stock price volatility assumption was determined using the historical volatility of our common stock. Changes in the subjective assumptions required in the valuation model may significantly affect the estimated value of the awards, the related stock-based compensation expense and, consequently, our results of operations. Restricted stock unit awards are valued based on the average of the high and low price on the date of the grant and an estimated forfeiture rate. For both options and restricted awards, expense is recognized as compensation expense on the straight-line basis. Employee Stock Purchase Plan ("ESPP") shares were issued under provisions that do not require us to record any equity compensation expense.

Results of Operations:**Net Sales**

Net sales by product line (in thousands)	2018	Change	2017
Automated programming systems	\$23,252	(16.5%)	\$27,854
Non-automated programming systems	5,972	(3.6%)	6,197
Total programming systems	\$29,224	(14.2%)	\$34,051
Net sales by location (in thousands)	2018	Change	2017
United States	\$3,436	19.6%	\$2,874
% of total	11.8%		8.4%
International	\$25,788	(17.3%)	\$31,177
% of total	88.2%		91.6%
Net sales by type (in thousands)	2018	Change	2017
Equipment Sales	\$19,002	(21.7%)	\$24,267
Adapter Sales	6,954	(6.3%)	7,418
Software and Maintenance Sales	3,268	38.1%	2,366
Total	\$29,224	(14.2%)	\$34,051

Net sales for the year ended December 31, 2018 declined approximately 14% to \$29.2 million compared to 2017 primarily as a result of strong Automotive Electronics and Programming Center cyclical demand during 2017, with the decline related particularly to programming center customers. On a regional basis, net sales decreased approximately 18% in the Americas, 11% in Europe and 16% in Asia.

Order bookings were \$27.0 million for 2018, down approximately 21% compared to \$34.3 million in 2017. Backlog at December 31, 2018 and 2017 was \$1.9 million and \$4.0 million, respectively. Deferred revenue was \$1.6 million on December 31, 2018 compared to \$1.9 million at December 31, 2017.

Gross Margin

(in thousands)	2018	Change	2017
Gross margin	\$17,356	(13.5%)	\$20,059
Percentage of net sales	59.4%		58.9%

Gross margin as a percentage of sales for the year ended December 31, 2018 was 59.4%, compared to 58.9% in 2017. The improvement was primarily due to ongoing cost reduction efforts offset in part by unfavorable currency translation.

Research and Development

(in thousands)	2018	Change	2017
Research and development	\$7,361	6.7%	\$6,896
Percentage of net sales	25.2%		20.3%

Research and development (“R&D”) expense increased \$465,000 for the year ended December 31, 2018 compared to 2017. The increase was primarily related to higher employee related costs and contract labor, offset in part by lower incentive compensation. R&D as a percentage of sales increased primarily due to the decline in 2018 sales.

We believe it is essential to invest in R&D to significantly enhance our existing products and to create new products as markets develop and technologies change. In addition to product development, a significant part of R&D spending is on creating software and support for new devices introduced by the semiconductor companies. We are currently focusing our research and development efforts on strategic growth markets, including automotive electronics and IoT. We are developing technology to securely program new categories of semiconductors, including Secure Elements, Authentication Chips, and Secure Microcontrollers. We delivered new enhanced programming technology and automated handling systems for managed and secure programming in the manufacturing environment and extending the capabilities and support for our programmer architecture. Our R&D spending fluctuates based on the number, type, and the development stage of our product initiatives and projects.

Selling, General and Administrative

	2018	Change	2017
(in thousands)			
Selling, general & administrative	\$8,257	1.7%	\$8,116
Percentage of net sales	28.3%		23.8%

Selling, General and Administrative (“SG&A”) expenses increased \$141,000 for the year ended December 31, 2018 compared to 2017. The increase was primarily related to higher employee related costs, facilities and depreciation, offset in part by lower incentive compensation and sales commissions.

Interest

	2018	Change	2017
(in thousands)			
Interest income	\$37	27.6%	\$29

Interest income was higher for the year ended December 31, 2018 compared to 2017, primarily due to higher invested cash balances.

INCOME TAXES

	2018	Change	2017
(in thousands)			
Income tax (expense) benefit	(\$291)	*	\$288

* not meaningful

Income tax (expense) increased by \$579,000 for the year ended December 31, 2018 compared to 2017. The increase was primarily a result of the Tax Cuts and Jobs Act of 2017, when we recorded the impact of a \$531,000 net benefit in the fourth quarter of 2017. This was made up of \$67,000 of additional tax relating to the “deemed repatriation” of previously deferred foreign subsidiary “post 1986 Earnings & Profits”, and recognizing a tax benefit of \$598,000 related to refundable “Alternative Minimum Tax Credits” in carryforward. Income tax (expense) in 2018 is primarily the result of foreign subsidiary income tax and minimal US state income tax.

The effective tax rate for 2018 of 15.3% differed from the statutory tax rates in our tax reporting jurisdictions primarily due to the effect of valuation allowances as well as foreign tax incentives and credits. We have a valuation allowance of \$7.0 million and \$6.8 million as of December 31, 2018 and 2017, respectively. Our deferred tax assets and valuation allowance have been reduced by approximately \$308,000 and \$272,000 associated with the requirements of accounting for uncertain tax positions as of December 31, 2018 and 2017, respectively. Given the uncertainty created by our loss history and the limited current taxable income in the U.S. which is where most of our net deferred tax assets are located, and the ongoing uncertain economic outlook for our industry as well as capital and geographic spending, we currently expect to continue to limit the recognition of net deferred tax assets and maintain the tax valuation allowances.

GAIN ON SALE OF ASSETS

During the years 2018 and 2017, we sold non-core excess internet domain addresses and recorded a non-operating gain of \$19,000 and \$366,000 net of commissions, respectively. Substantially all of our non-core excess internet domain addresses have been sold.

Inflation and changes in Foreign currency exchange rates

Sales and expenses incurred by foreign subsidiaries are denominated in the subsidiary's local currency and translated into U.S. Dollar amounts at average rates of exchange during the year. We recognized foreign currency transaction gains and (losses) of \$103,000 and (\$281,000) in 2018 and 2017, respectively. The transaction gains or losses resulted primarily from translation adjustments to foreign inter-company accounts and U.S. Dollar accounts held by foreign subsidiaries and sales by our German subsidiary to certain customers, which were invoiced in U.S. Dollars. Because approximately 88% of our sales are to international markets, volatile exchange rates may also impact our competitiveness and margins.

Financial Condition:

Liquidity and Capital Resources

(in thousands)	2018	Change	2017
Working capital	\$21,065	\$1,579	\$19,486

At December 31, 2018, our principal sources of liquidity consisted of existing cash and cash equivalents which increased primarily due to the net income for the year and stock based compensation and depreciation (non-cash expenses) offset in part by share repurchases under the share repurchase program. These drove our working capital to increase by \$1.6 million for the year ended December 31, 2018 to \$21.1 million. Our working capital composition shifted as a result of inventory growth and lower accrued liabilities. Our current ratio was 4.1 and 3.5 for December 31, 2018 and 2017, respectively.

For the year ended December 31, 2018, our cash position decreased \$198,000 generally resulting from the same factors above.

Although we have no significant external capital expenditure plans currently, we expect that we will continue to make capital expenditures to support our business. We plan to increase our investment in internally developed equipment used for services, rentals, sales demonstration and test equipment as we develop and release new products. Capital expenditures are expected to be funded by existing and internally generated funds or lease financing.

As a result of our significant product development, customer support, selling and marketing efforts, we have required substantial working capital to fund our operations. In 2018 and recent years, we have managed balancing profitable operations, while addressing rising costs, tariffs and foreign exchange rate challenges. This included geographic shifts in our operations, optimized real estate usage strategies and differentiated product development and cost strategies.

We believe that we have sufficient cash or working capital available under our operating plan to fund our operations and capital requirements through at least the next one year period. Our working capital may be used to fund possible losses, business growth, project initiatives, share repurchases and business development initiatives including acquisitions, which could reduce our liquidity and result in a requirement for additional cash at that time. Any substantial inability to achieve our current business plan could have a material adverse impact on our financial position, liquidity, or results of operations and may require us to reduce expenditures and/or seek additional financing.

OFF-balance sheet arrangements

Except as noted in the accompanying consolidated financial statements in Note 7, "Operating Lease Commitments" and Note 8, "Other Commitments", we had no off-balance sheet arrangements.

Share repurchase programs

On October 31, 2018, our Board of Directors approved a share repurchase program with provisions to buy back up to \$2 million of our stock during the period from November 1, 2018 through October 31, 2019. The program was established with a 10b5-1 plan under the Exchange Act to provide flexibility to make purchases throughout the period. For the year ended December 31, 2017, 101,975 shares of stock were repurchased at an average price of \$5.23 for a total of \$533,463 plus \$2,067 in commissions and charges.

The following is a summary of the stock repurchase program from November 1, 2018 through December 31, 2018:

Repurchases by Month	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Repurchase Program	Approximate Dollar Value of Shares that May Yet Be Purchased under the Program
December 2018	101,975	\$5.23	101,975	\$1,466,537

Non-Generally accepted accounting principles (GAAP) FINANCIAL Measures

Earnings Before Interest, Taxes, Depreciation, and Amortization (“EBITDA”) and Adjusted EBITDA excluding equity compensation (a non-cash item) are set forth below. Non-GAAP financial measures should not be considered a substitute for, or superior to, measures of financial performance prepared in accordance with GAAP. We believe that these non-GAAP financial measures provide meaningful supplemental information regarding our results and facilitate the comparison of results. A reconciliation of net income to EBITDA and adjusted EBITDA follows:

(in thousands)	Year Ended December 31, 2018	2017
Net Income	\$1,606	\$5,449
Interest (income)	(37)	(29)
Taxes	291	(288)
Depreciation & amortization	955	822

EBITDA earnings	\$2,815	\$5,954
Equity compensation	1,230	714
Adjusted EBITDA earnings excluding equity compensation	\$4,045	\$6,668

NEW ACCOUNTING PRONOUNCEMENTS

In 2018, the FASB issued ASU 2018-15, "Intangibles" (ASU 2018-15). ASU 2018-15 applies in accounting for implementation costs incurred in a cloud computing arrangement that is a service contract where the guidance in ASC 350-40 for internal-use software shall apply to determine capitalization or expensing of implementation, training or data conversion costs. The standard becomes effective beginning January 1, 2020. We are in the process of evaluating the impact of adoption on our consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, "Leases" (ASU 2016-02). ASU 2016-02 requires lessees to recognize almost all leases on the balance sheet as a right-of-use asset and a lease liability and requires leases to be classified as either an operating or a financing lease. The standard excludes leases of intangible assets or inventory. ASU 2018-11 provides lessors with a limited practical expedient. This standard became effective and we adopted the leasing standard as of January 1, 2019. We are continuing to evaluate the expected impact of ASC 842 on our consolidated financial statements, but anticipate that, among other things, the required recognition by a lessee of a lease liability and related right-of-use asset for operating leases will increase both the assets and liabilities recognized and reported on our balance sheet as of the adoption date. We are also continuing to evaluate the available practical expedients and our adoption method for this new standard. We anticipate that our internal control framework will not materially change upon adoption of ASC 842, but certain existing internal controls will be modified and augmented, as necessary, effective as of December 31, 2018. When adopted, we expect to recognize a lease asset and liability related to the lessee provisions under ASC 842 of approximately \$2.6 million with approximately \$700,000 and \$1.9 million of short term and long term liabilities respectively as of January 1, 2019. Our leases include facilities in Redmond, Washington, and in the Shanghai and Munich areas, as well as a small amount of office equipment and automobiles.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Not applicable.

Item 8. Financial Statements and Supplementary Data

See pages 28 through 45.

report of Independent REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders

Data I/O Corporation

Opinion on the financial statements

We have audited the accompanying consolidated balance sheets of Data I/O Corporation (a Washington corporation) and subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the two years in the period ended December 31, 2018, and the related notes and financial statement schedules included under Item 15(a) (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

Basis for opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ GRANT THORNTON LLP

We have served as the Company's auditor since 2001.

Seattle, Washington

March 28, 2019

DATA I/O CORPORATION
CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

	December 31, 2018	December 31, 2017
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	\$18,343	\$18,541
Trade accounts receivable, net of allowance for doubtful accounts of \$75 and \$73, respectively	3,771	3,769
Inventories	5,185	4,168
Other current assets	621	708
TOTAL CURRENT ASSETS	27,920	27,186
Property, plant and equipment – net	1,985	2,458
Income tax receivable	598	598
Other assets	220	45
TOTAL ASSETS	\$30,723	\$30,287
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Accounts payable	\$1,755	\$1,301
Accrued compensation	2,872	3,536
Deferred revenue	1,392	1,787
Other accrued liabilities	789	858
Income taxes payable	47	218
TOTAL CURRENT LIABILITIES	6,855	7,700
Long-term other payables	511	527
COMMITMENTS	-	-
STOCKHOLDERS' EQUITY		
Preferred stock -		
Authorized, 5,000,000 shares, including 200,000 shares of Series A Junior Participating Issued and outstanding, none	-	-
Common stock, at stated value -		
Authorized, 30,000,000 shares Issued and outstanding, 8,338,628 shares as of December 31, 2018 and 8,276,813 shares as of December 31, 2017	19,254	18,989
Accumulated earnings	3,695	2,089

Accumulated other comprehensive income	408	982
TOTAL STOCKHOLDERS' EQUITY	23,357	22,060
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	\$30,723	\$30,287

DATA I/O CORPORATION
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share amounts)

	For the Years Ended December 31,	
	2018	2017
Net Sales	\$29,224	\$34,051
Cost of goods sold	11,868	13,992
Gross margin	17,356	20,059
Operating expenses:		
Research and development	7,361	6,896
Selling, general and administrative	8,257	8,116
Total operating expenses	15,618	15,012
Operating income	1,738	5,047
Non-operating income (expense):		
Interest income	37	29
Gain on sale of assets	19	366
Foreign currency transaction gain (loss)	103	(281)
Total non-operating income	159	114
Income before income taxes	1,897	5,161
Income tax (expense) benefit	(291)	288
Net income	\$1,606	\$5,449
Basic earnings per share	\$0.19	\$0.67
Diluted earnings per share	\$0.19	\$0.65
Weighted-average basic shares	8,378	8,149
Weighted-average diluted shares	8,514	8,436

DATA I/O CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(in thousands)

	For the Years Ended December 31,	
	2018	2017
Net Income	\$1,606	\$5,449
Other comprehensive income:		
Foreign currency translation gain (loss)	(574)	794
Comprehensive income	\$1,032	\$6,243

DATA I/O CORPORATION
CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY
(in thousands, except share amounts)

	Common Stock		Retained	Accumulated	Total
	Shares	Amount	Earnings (Deficit)	and Other Comprehensive Income (Loss)	Stockholders' Equity
Balance at December 31, 2016	8,015,746	\$19,204	(\$3,360)	\$188	\$16,032
Stock options exercised	131,065	(549)	-	-	(549)
Repurchased shares	-	-	-	-	-
Stock awards issued, net of tax withholding	128,262	(401)	-	-	(401)
Issuance of stock through:					
Employee Stock Purchase Plan	1,740	12	-	-	12
Share-based compensation	-	723	-	-	723
Net income	-	-	5,449	-	5,449
Other comprehensive income gain (loss)	-	-	-	794	794
Balance at December 31, 2017	8,276,813	\$18,989	\$2,089	\$982	\$22,060
Stock options exercised	10,052	-	-	-	-
Repurchased shares	(101,975)	(536)	-	-	(536)
Stock awards issued, net of tax withholding	150,726	(448)	-	-	(448)
Issuance of stock through:					
Employee Stock Purchase Plan	3,012	19	-	-	19
Share-based compensation	-	1,230	-	-	1,230
Net income	-	-	1,606	-	1,606
Other comprehensive income gain (loss)	-	-	-	(574)	(574)
Balance at December 31, 2018	8,338,628	\$19,254	\$3,695	\$408	\$23,357

DATA I/O CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	For the Years Ended	
	December 31,	
	2018	2017
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income	\$1,606	\$5,449
Adjustments to reconcile net income to net cash provided by (used in) operating activities:		
Depreciation and amortization	955	822
Gain on sale of assets	(19)	(366)
Equipment transferred to cost of goods sold	423	749
Share-based compensation	1,230	714
Net change in:		
Trade accounts receivable	(78)	1,215
Inventories	(1,135)	59
Other current assets	72	(198)
Accounts payable and accrued liabilities	(397)	1,520
Deferred revenue	(288)	(247)
Other long-term liabilities	(82)	(11)
Deposits and other long-term assets	(175)	(580)
Net cash provided by (used in) operating activities	2,112	9,126
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of property, plant and equipment	(907)	(2,154)
Net proceeds from sale of assets	19	366
Cash provided by (used in) investing activities	(888)	(1,788)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Net proceeds from issuance of common stock, less payments for shares withheld to cover tax	(966)	(939)
Cash provided by (used in) financing activities	(966)	(939)
Increase (decrease) in cash and cash equivalents	258	6,399
Effects of exchange rate changes on cash	(456)	571
Cash and cash equivalents at beginning of period	18,541	11,571
Cash and cash equivalents at end of period	\$18,343	\$18,541
Supplemental disclosure of cash flow information:		
Cash paid during the period for:		
Income taxes	\$463	\$127

DATA I/O CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Nature of Operations

Data I/O Corporation (“Data I/O”, “We”, “Our”, “Us”) designs, manufactures and sells programming systems used by designers and manufacturers of electronic products. Our programming system products are used to program integrated circuits (“ICs” or “devices” or “semiconductors”) with the specific unique data necessary for the ICs contained in various products, and are an important tool for the electronics industry experiencing growing use of programmable ICs. Customers for our programming system products are located around the world, primarily in the Far East, Europe and the Americas. Our manufacturing operations are currently located in Redmond, Washington, United States and Shanghai, China.

Principles of Consolidation

The consolidated financial statements include the accounts of Data I/O Corporation and our wholly-owned subsidiaries. Intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (“U.S. GAAP”) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Significant estimates include:

- Revenue Recognition
- Allowance for Doubtful Accounts
- Inventory
- Warranty Accruals
- Tax Valuation Allowances
- Share-based Compensation

Foreign Currency Translation

Assets and liabilities of foreign subsidiaries are translated at the exchange rate on the balance sheet date. Revenues, costs and expenses of foreign subsidiaries are translated at average rates of exchange prevailing during the year. Translation adjustments resulting from this process are charged or credited to stockholders' equity. Realized and unrealized gains and losses resulting from the effects of changes in exchange rates on assets and liabilities denominated in foreign currencies are included in non-operating expense as foreign currency transaction gains and losses.

Cash and Cash Equivalents

All highly liquid investments purchased with an original maturity of 90 days or less are considered cash equivalents. We maintain our cash and cash equivalents with major financial institutions in the United States of America, which are insured by the Federal Deposit Insurance Corporation (FDIC), and in foreign jurisdictions. Deposits in U.S. banks exceed the FDIC insurance limit. We have not experienced any losses on our cash and cash equivalents. Cash and cash equivalents held in foreign bank accounts, primarily China, Germany and Canada, totaled (in millions) \$6.4 at December 31, 2018 and \$6.2 at December 31, 2017.

Fair Value of Financial Instruments

Certain financial instruments are carried at cost on the consolidated balance sheets, which approximates fair value due to their short-term, highly liquid nature. These instruments include cash and cash equivalents, accounts receivable, accounts payable and accrued expenses, and other short-term liabilities.

Accounts Receivable

The majority of our accounts receivable are due from companies in the electronics manufacturing industries. Credit is extended based on an evaluation of a customer's financial condition and, generally, collateral is not required. Accounts receivable are typically due within 30 to 60 days and are stated at amounts due from customers net of an allowance for doubtful accounts. Accounts receivable outstanding longer than the contractual payment terms are considered past due. We determine the allowance by considering a number of factors, including the length of time trade accounts receivable are past due, the industry and geographic payment practices involved, our previous bad debt experience, the customer's current ability to pay their obligation to us, and the condition of the general economy and the industry as a whole. We write off accounts receivable when they become uncollectible, and payments subsequently received on such receivables are credited to the allowance for doubtful accounts. Interest may be charged, at the discretion of management and according to our standard sales terms, beginning on the day after the due date of the receivable. However, interest income is subsequently recognized on these accounts either to the extent cash is received, or when the future collection of interest and the receivable balance is considered probable by management.

Inventories

Inventories are stated at the lower of cost or net realizable value with cost being the currently adjusted standard cost, which approximates cost on a first-in, first-out basis. We estimate changes to inventory for obsolete, slow-moving, excess and non-salable inventory by reviewing current transactions and forecasted product demand. We evaluate our inventories on an item by item basis and record an adjustment (lower of cost or market) accordingly.

Property, Plant and Equipment

Property, plant and equipment, including leasehold improvements, are stated at cost and depreciation is calculated over the estimated useful lives of the related assets or lease terms on the straight-line basis. We depreciate substantially all manufacturing and office equipment over periods of three to seven years. We depreciate leasehold improvements over the remaining portion of the lease or over the expected life of the asset if less than the remaining term of the lease.

We regularly review all of our property, plant and equipment for impairment whenever events or changes in circumstances indicate that the carrying value may not be recoverable. If the

total of future undiscounted cash flows is less than the carrying amount of these assets, an impairment loss, if any, based on the excess of the carrying amount over the fair value of the assets, is recorded. Based on this evaluation, no impairment was noted for property, plant and equipment for the years ended December 31, 2018 and 2017.

Patent Costs

We expense external costs, such as filing fees and associated attorney fees, incurred to obtain initial patents, but capitalize patents obtained through acquisition as intangible assets. We also expense costs associated with maintaining and defending patents subsequent to their issuance.

Income Taxes

Income taxes are computed at current enacted tax rates, less tax credits using the asset and liability method. Deferred taxes are adjusted both for items that do not have tax consequences and for the cumulative effect of any changes in tax rates from those previously used to determine deferred tax assets or liabilities. Tax provisions include amounts that are currently payable, changes in deferred tax assets and liabilities that arise because of temporary differences between the timing of when items of income and expense are recognized for financial reporting and income tax purposes, and any changes in the valuation allowance caused by a change in judgment about the realization of the related deferred tax assets. A valuation allowance is established when necessary to reduce deferred tax assets to amounts expected to be realized. Tax reform changes including the impact on enactment have been included in our 2017 financial statements and changes effective in 2018, including Global Intangible Low Tax Income (GILTI), have been included in our 2018 financial statements.

Share-Based Compensation

All stock-based compensation awards are measured based on estimated fair values on the date of grant and recognized as compensation expense on the straight-line single-option method. Our share-based compensation is reduced for estimated forfeitures at the time of grant and revised as necessary in subsequent periods if actual forfeitures differ from those estimates.

Revenue Recognition

Effective January 1, 2018, the Company adopted ASU 2014-09, Revenue (“Topic 606”): Revenue from Contracts with Customers, using the modified retrospective method. Topic 606 provides a single, principles-based five-step model to be applied to all contracts with customers. It generally provides for the recognition of revenue in an amount that reflects the consideration to which the Company expects to be entitled, net of allowances for estimated returns, discounts or sales incentives, as well as taxes collected from customers when control over the promised goods or services are transferred to the customer.

Our basic revenue recognition remains essentially the same as it was in 2017. The adoption of Topic 606 did not have a material impact on our 2018 financial statement line items, either individually or in the aggregate, and would not have been material to 2017 financial results. We have elected the practical expedient to expense contract acquisition costs, primarily sales commissions, for contracts with terms of one year or less and will capitalize and amortize incremental costs with terms that exceed one year. During 2018, the impact of capitalization of incremental costs for obtaining contracts was \$8,193. We have made a sales tax policy election to exclude sales, use, value added, some excise taxes and other similar taxes from the measurement of the transaction price.

We recognize revenue upon transfer of control of the promised products or services to customers in an amount that reflects the consideration we expect to receive in exchange for those products or services. We have determined that our programming equipment has reached a point of maturity and stability such that product acceptance can be assured by testing at the factory prior to shipment and that the installation meets the criteria to be a separate performance obligation. These systems are standard products with published product specifications and are configurable with standard options. The evidence that these systems could be deemed as accepted was based upon having standardized factory production of the units, results from batteries of tests of product performance to our published specifications, quality inspections and installation standardization, as well as past product operation validation with the customer and the history provided by our installed base of products upon which the current versions were based.

The revenue related to products requiring installation that is perfunctory is recognized upon transfer of control of the product to customers, which generally is at the time of shipment. Installation that is considered perfunctory includes any installation that is expected to be performed by other parties, such as distributors, other vendors, or the customers themselves. This takes into account the complexity, skill and training needed as well as customer expectations regarding installation.

We enter into arrangements with multiple performance obligations that arise during the sale of a system that includes an installation component, a service and support component and a

software maintenance component. The transaction price is allocated to the separate performance obligations on relative standalone sales price. We allocate the transaction price of each element based on relative selling prices. Relative selling price is based on the selling price of the standalone system. For the installation and service and support performance obligations, we use the value of the discount given to distributors who perform these components. For software maintenance performance obligations, we use what we charge for annual software maintenance renewals after the initial year the system is sold. Revenue is recognized on the system sale based on shipping terms, installation revenue is recognized after the installation is performed, and hardware service and support and software maintenance revenue is recognized ratably over the term of the agreement, typically one year. Deferred revenue includes service, support and maintenance contracts and represents the undelivered performance obligation of agreements that are typically for one year.

When we sell software separately, we recognize revenue upon the transfer of control of the software, which is generally upon shipment, provided that only inconsequential performance obligations remain on our part and substantive acceptance conditions, if any, have been met.

We recognize revenue when there is an approved contract that both parties are committed to perform, both parties rights have been identified, the contract has substance, collection of substantially all the consideration is probable, the transaction price has been determined and allocated over the performance obligations, the performance obligations including substantive acceptance conditions, if any, in the contract have been met, the obligation is not contingent on resale of the product, the buyer's obligation would not be changed in the event of theft, physical destruction or damage to the product, the buyer acquiring the product for resale has economic substance apart from us and we do not have significant obligations for future performance to directly bring about the resale of the product by the buyer. We establish a reserve for sales returns based on historical trends in product returns and estimates for new items. Payment terms are generally 30 days from shipment.

We transfer certain products out of service from their internal use and make them available for sale. The products transferred are typically our standard products in one of the following areas: service loaners, rental or test units; engineering test units; or sales demonstration equipment. Once transferred, the equipment is sold by our regular sales channels as used equipment inventory. These product units often involve refurbishing and an equipment warranty, and are conducted as sales in our normal and ordinary course of business. The transfer amount is the product unit's net book value and the sale transaction is accounted for as revenue and cost of goods sold.

The following table represents our revenues by major categories:

Net sales by type (in thousands)	2018	2017
Equipment Sales	\$19,002	\$24,267
Adapter Sales	6,954	7,418
Software and Maintenance Sales	3,268	2,366
Total	\$29,224	\$34,051

Research and Development

Research and development costs are generally expensed as incurred.

Advertising Expense

Advertising costs are expensed as incurred. Total advertising expenses were approximately \$174,000 and \$154,000 in 2018 and 2017, respectively.

Warranty Expense

We record a liability for an estimate of costs that we expect to incur under our basic limited warranty when product revenue is recognized. Factors affecting our warranty liability include the number of units sold and historical and anticipated rates of claims and costs per claim. We normally provide a warranty for our products against defects for periods ranging from ninety days to one year. We provide for the estimated cost that may be incurred under our product warranties and periodically assess the adequacy of our warranty liability based on changes in the above factors. We record revenues on extended warranties on a straight-line basis over the term of the related warranty contracts. Service costs are expensed as incurred.

Earnings (Loss) Per Share

Basic earnings (loss) per share exclude any dilutive effects of stock options. Basic earnings (loss) per share are computed using the weighted-average number of common shares outstanding during the period. Diluted earnings per share are computed using the weighted-average number of common shares and common stock equivalent shares outstanding during the period. The common stock equivalent shares from equity awards used in calculating diluted earnings per share were 136,000 and 287,000 for the years ended December 31, 2018 and 2017, respectively. Options to purchase 25,000 and 12,603 shares of common stock were outstanding as of December 31, 2018 and 2017, respectively, but were excluded from the computation of diluted EPS for the period then ended because the options were anti-dilutive.

Diversification of Credit Risk

Financial instruments, which potentially subject us to concentrations of credit risk, consist primarily of trade receivables. Our trade receivables are geographically dispersed and include customers in many different industries. As of December 31, 2018, three customers accounted for greater than 10% of our consolidated accounts receivable balance at December 31, 2018: Systemation, Continental and Semitron, accounted for greater than 10% of our consolidated accounts receivable balance at December 31, 2018. Our consolidated accounts receivable balance as of December 31, 2018 and 2017 includes foreign accounts receivable in the functional currency of our foreign subsidiaries amounting to \$1,931,000 and \$1,228,000, respectively. We generally do business with our foreign distributors in U.S. Dollars. We believe that risk of loss is significantly reduced due to the diversity of our end-customers and geographic sales areas. We perform on-going credit evaluations of our customers' financial condition and require collateral, such as letters of credit and bank guarantees, or prepayment whenever deemed necessary.

New Accounting Pronouncements

In 2018, the FASB issued ASU 2018-15, "Intangibles" (ASU 2018-15). ASU 2018-15 applies in accounting for implementation costs incurred in a cloud computing arrangement that is a service contract where the guidance in ASC 350-40 for internal-use software shall apply to determine capitalization or expensing of implementation, training or data conversion costs. The standard becomes effective beginning January 1, 2020. We are in the process of evaluating the impact of adoption on our consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, "Leases" (ASU 2016-02). ASU 2016-02 requires lessees to recognize almost all leases on the balance sheet as a right-of-use asset and a lease liability and requires leases to be classified as either an operating or a financing

lease. The standard excludes leases of intangible assets or inventory. ASU 2018-11 provides lessors with a limited practical expedient. This standard became effective and we adopted the leasing standard as of January 1, 2019. We are continuing to evaluate the expected impact of ASC 842 on our consolidated financial statements, but anticipate that, among other things, the required recognition by a lessee of a lease liability and related right-of-use asset for operating leases will increase both the assets and liabilities recognized and reported on our balance sheet as of the adoption date. We are also continuing to evaluate the available practical expedients and our adoption method for this new standard. We anticipate that our internal control framework will not materially change upon adoption of ASC 842, but certain existing internal controls will be modified and augmented, as necessary, effective as of December 31, 2018. When adopted, we expect to recognize a lease asset and liability related to the lessee provisions under ASC 842 of approximately \$2.6 million with approximately \$700,000 and \$1.9 million of short term and long term liabilities respectively as of January 1, 2019. Our leases include facilities in Redmond, Washington, and in the Shanghai and Munich areas, as well as a small amount of office equipment and automobiles.

NOTE 2 – ACCOUNTS RECEIVABLE, NET

	December 31, 2018	December 31, 2017
(in thousands)		
Trade accounts receivable	\$3,846	\$3,842
Less allowance for doubtful receivables	75	73
Trade accounts receivable, net	\$3,771	\$3,769

Changes in Data I/O's allowance for doubtful accounts are as follow:

	December 31, 2018	December 31, 2017
(in thousands)		
Beginning balance	\$73	\$96
Bad debt expense (reversal)	2	(24)
Accounts written-off	-	-
Recoveries	-	1
Ending balance	\$75	\$73

NOTE 3- INVENTORIES

	December 31, 2018	December 31, 2017
(in thousands)		
Raw material	\$2,925	\$2,392
Work-in-process	1,584	1,091
Finished goods	676	685
Inventories	\$5,185	\$4,168

NOTE 4 – PROPERTY, PLANT AND EQUIPMENT, NET

	December 31, 2018	December 31, 2017
(in thousands)		
Leasehold improvements	\$399	\$416
Equipment	5,378	5,279
Sales demonstration equipment	942	1,315
	6,719	7,010
Less accumulated depreciation	4,734	4,552
Property and equipment, net	\$1,985	\$2,458

Total depreciation expense recorded for 2018 and 2017 was \$955,000 and \$822,000, respectively.

NOTE 5 – INCOME TAX RECEIVABLE

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the “Act”) was signed into law, making significant changes to the Internal Revenue Code. Changes include the repeal of corporate Alternative Minimum Tax (AMT) for tax years after December 31, 2017. As a result, in 2017, we have recorded a long-term income tax receivable of \$598,000 for the refundable AMT credits net of sequestration.

NOTE 6 – OTHER ACCRUED LIABILITIES

Other accrued liabilities consisted of the following components:

(in thousands)	December 31, 2018	December 31, 2017
Product warranty	\$471	\$530
Sales return reserve	87	80
Other taxes	102	109
Other	129	139
Other accrued liabilities	\$789	\$858

The changes in our product warranty liability for the year ending December 31, 2018 are follows:

(in thousands)	December 31, 2018
Liability, beginning balance	\$530
Net expenses	936
Warranty claims	(936)
Accrual revisions	(59)
Liability, ending balance	\$471

NOTE 7 – OPERATING LEASE COMMITMENTS

We have commitments under non-cancelable operating leases and other agreements, primarily for factory and office space, with initial or remaining terms of one year or more as follows:

For the years ending December 31:

(in thousands)	Operating Leases
2019	\$940
2020	938
2021	885
2022	344
	81

2023	10
Thereafter	-
Total	\$3,117

During the third quarter of 2017, we amended our lease agreement for the Redmond, Washington headquarters facility, extending the lease to July 31, 2022, waiving a potential space give back provision and receiving lease inducement incentives. Previously on June 8, 2015 the lease had been amended to relocate our headquarters to a nearby building and lower the square footage to approximately 20,460. The lease base annual rental payments during 2018 and 2017 were approximately \$341,000 and \$303,000, respectively.

In addition to the Redmond facility, approximately 24,000 square feet is leased at two foreign locations, including our sales, service, operations and engineering office located in Shanghai, China, and our German sales, service and engineering office located near Munich, Germany.

We signed a lease agreement effective November 1, 2015 that extends through October 31, 2021 for a facility located in Shanghai, China. This lease is for approximately 19,400 square feet. The lease base annual rental payments during 2018 and 2017 were approximately \$288,000 and \$276,000, respectively.

During the fourth quarter of 2016, we signed a lease agreement for a new facility located near Munich, Germany which was effective March 1, 2017 and extends through February 28, 2022. This lease is for approximately 4,895 square feet. The lease base annual rental payments during 2018 and 2017 were approximately \$67,000 and \$64,000, respectively.

NOTE 8 –OTHER COMMITMENTS

We have purchase obligations for inventory and production costs as well as other obligations such as capital expenditures, service contracts, marketing, and development agreements. Arrangements are considered purchase obligations if a contract specifies all significant terms, including fixed or minimum quantities to be purchased, a pricing structure and approximate timing of the transaction. Most arrangements are cancelable without a significant penalty, and with short notice, typically less than 90 days. At December 31, 2018, the purchase commitments and other obligations totaled \$1,364,000 of which all but \$5,000 are expected to be paid over the next twelve months.

NOTE 9 – CONTINGENCIES

As of December 31, 2018, we were not a party to any legal proceedings or aware of any indemnification agreement claims, the adverse outcome of which in management's opinion, individually or in the aggregate, would have a material adverse effect on our results of operations or financial position.

NOTE 10 – STOCK AND RETIREMENT PLANS

Stock Option Plans

At December 31, 2018, there were 38,755 shares available for future grant under Data I/O Corporation 2000 Stock Compensation Incentive Plan ("2000 Plan"). At December 31, 2018 there were shares of Common Stock reserved for issuance consisting of 583,856 under the 2000 plan. Pursuant to this 2000 Plan, options are granted to our officers and key employees with exercise prices equal to the fair market value of the Common Stock at the date of grant and generally vest over four years. Options granted under the plans have a maximum term of six years from the date of grant. Stock awards are also granted under the 2000 Plan which generally vest over four years.

Employee Stock Purchase Plan

Under the Employee Stock Purchase Plan ("ESPP"), eligible employees may purchase shares of our Common Stock at six-month intervals at 95% of the fair market value on the last day of each six-month period. Employees may purchase shares having a value not exceeding ten percent of their gross compensation during an offering period. During 2018 and 2017, a total of 3,012 and 1,740 shares, respectively, were purchased under the plan at average prices of \$7.81 and \$5.78 per share, respectively. At December 31, 2018, a total of 48,935 shares were reserved for future issuance.

Stock Appreciation Rights Plan

We have a Stock Appreciation Rights ("SAR") Plan under which each director, executive officer or holder of 10% or more of our Common Stock has a SAR with respect to each exercisable stock option. The SAR entitles the SAR holder to receive cash from us for the difference between the market value of the stock and the exercise price of the option in lieu of exercising the related option. SARs are only exercisable following a tender offer or exchange offer for our stock, or following approval by shareholders of Data I/O of any merger, consolidation, reorganization or other transaction providing for the conversion or exchange of more than 50% of the common shares outstanding. As no event has occurred, which would make the SARs exercisable, and no such event is deemed probable, no compensation

expense has been recorded under this plan. At December 31, 2018 there were 25,000 SARs outstanding.

Director Fee Plan

We have a Director Fee Plan available to compensate directors who are not employees of Data I/O Corporation with equity. No shares were issued from the plan for 2018 or 2017 board service and 151,322 shares remain available in the plan as of December 31, 2018.

Retirement Savings Plan

We have a savings plan that qualifies as a cash or deferred salary arrangement under Section 401(k) of the Internal Revenue Code. Under the plan, participating U.S. employees may defer their pre-tax salary or post-tax salary if Roth is elected, subject to IRS limitations. In fiscal years 2018 and 2017, we contributed one dollar for each dollar contributed by a participant, with a maximum contribution of four percent of a participant's eligible earnings. Our matching contribution expense for the savings plan, net of forfeitures, was approximately \$237,000 and \$232,000 in 2018 and 2017, respectively. Employer matching contributions owed to the plan were \$271,000 and \$251,000 at December 31, 2018 and 2017, respectively.

NOTE 11- SHARE-BASED COMPENSATION

For share-based awards granted, we have recognized compensation expense based on the estimated grant date fair value method. For these awards we have recognized compensation expense using a straight-line amortization method and reduced for estimated forfeitures. The impact on our results of operations of recording share-based compensation for the year ended December 31, 2018 and 2017 was as follows:

	Year Ended December 31,	
	2018	2017
(in thousands)		
Cost of goods sold	\$25	\$18
Research and development	266	164
Selling, general and administrative	939	532
Total share-based compensation	\$1,230	\$714

An immaterial amount of share-based compensation was capitalized into inventory as overhead for the years ended December 31, 2018 and 2017, respectively.

The fair values of share-based awards for employee stock option awards were estimated at the date of grant using the Black-Scholes valuation model. The volatility and expected life of the options used in calculating the fair value of share-based awards may exclude certain periods of historical data that we considered atypical and not likely to occur in future periods. The following weighted average assumptions were used to calculate the fair value of options granted during the years ended December 31:

	Employee Stock Options	
	2018	2017
Risk-free interest rates	N/A	1.72%
Volatility factors	N/A	62.00%
Expected life of the option in years	N/A	4.0
Expected dividend yield	N/A	None

The risk-free interest rate used in the Black-Scholes valuation method is based on the implied yield currently available in U.S. Treasury securities at maturity with an equivalent term. We have not recently declared or paid any dividends and do not currently have plans to do so in the future. The expected term of options represents the period that our stock-based awards are expected to be outstanding and has been determined based on historical weighted average holding periods and projected holding periods for the remaining unexercised shares. Consideration was given to the contractual terms of our stock-based awards, vesting schedules and expectations of future employee behavior. Expected volatility is based on the annualized daily historical volatility of our stock over a representative period.

The following table summarizes stock option activity under our stock option plans for the twelve months ended December 31:

	2018			2017		
	Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life in Years	Options	Weighted-Average Exercise Price	
Outstanding at beginning of year	40,000	\$6.10		376,000	\$2.95	
Granted	-	-		25,000	8.03	
Exercised	(15,000)	2.83		(346,000)	2.83	
Cancelled, Expired or Forfeited	-	-		(15,000)	6.01	
Outstanding at end of year	25,000	\$8.03	4.50	40,000	\$6.10	
Vested or expected to vest at the end of the period	22,924	\$8.03	4.50	34,460	\$5.79	
Exercisable at end of year	7,813	\$8.03	4.50	16,563	\$3.37	

The aggregate intrinsic value of outstanding options is \$0. The aggregate intrinsic value of awards exercised during the twelve month period ended December 31, 2018 was \$87,900.

Restricted stock award including performance-based stock award activity under our share-based compensation plan was as follows:

	2018		2017	
	Awards	Weighted - Average Grant Date Fair Value	Awards	Weighted - Average Grant Date Fair Value
Outstanding at beginning of year	565,850	\$5.09	464,850	\$2.78
Granted	206,856	7.11	287,600	7.29
Vested	(213,100)	4.51	(181,725)	2.72
Cancelled	(750)	4.24	(4,875)	3.06
Outstanding at end of year	558,856	\$6.06	565,850	\$5.09

During the year ended December 31, 2018, 67,322 shares were withheld from issuance related to restricted stock units vesting and stock option exercises to cover employee taxes and stock options exercise price.

The remaining unamortized expected future compensation expense and remaining amortization period associated with unvested option grants and restricted stock awards are:

	December 31, 2018	December 31, 2017
Unamortized future compensation expense	\$2,835,978	\$2,560,844
Remaining weighted average amortization period in years	2.63	2.98

NOTE 12 – SHARE REPURCHASE PROGRAMS

On October 31, 2018, our Board of Directors approved a share repurchase program with provisions to buy back up to \$2 million of our stock during the period from November 1, 2018 through October 31, 2019. The program was established with a 10b5-1 plan under the Exchange Act to provide flexibility to make purchases throughout the period. For the year ended December 31, 2017, 101,975 shares of stock were repurchased at an average price of \$5.23 for a total of \$533,463 plus \$2,067 in commissions and charges.

The following is a summary of the stock repurchase program from November 1, 2018 through December 31, 2018:

Repurchases by Month	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Repurchase Program	Approximate Dollar Value of Shares that May Yet Be Purchased under the Program
December 2018	101,975	\$5.23	101,975	\$1,466,537

NOTE 13– INCOME TAXES

Components of income (loss) before taxes:

(in thousands)	Year Ended December 2018	31, 2017
U.S. operations	(\$137)	\$3,817
Foreign operations	2,034	1,344
Total income (loss) before taxes	\$1,897	\$5,161

Income tax expense (benefit) consists of:

(in thousands)	Year Ended December 2018	31, 2017
Current tax expense (benefit)		

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U.S. federal	\$5	(\$494)
State	20	8
Foreign	266	198
	291	(288)
Deferred tax expense (benefit) – U.S. federal	-	-
Total income tax expense (benefit)	\$291	(\$288)

A reconciliation of our effective income tax and the U.S. federal tax rate is as follows:

	Year Ended December 31, 2018	2017
(in thousands)		
Statutory tax	\$398	\$1,755
State and foreign income tax, net of federal income tax benefit	(159)	83
Valuation allowance for deferred tax assets	245	(4,800)
Federal rate change	-	2,979
Foreign sourced deemed dividend income	-	1,145
Stock based compensation	(282)	(970)
AMT credit refund	-	(494)
Other	89	14
Total income tax expense (benefit)	\$291	(\$288)

The tax effects of temporary differences that gave rise to significant portions of the deferred tax assets are presented below:

	Year Ended December 31, 2018	2017
(in thousands)		
Deferred income tax assets:		
Allowance for doubtful accounts	\$8	\$11
Inventory and product return reserves	467	406
Compensation accruals	1,515	1,233
Accrued liabilities	321	236
Book-over-tax depreciation and amortization	21	33
Foreign net operating loss carryforwards	132	133
U.S. net operating loss carryforwards	2,345	2,761
U.S. credit carryforwards	2,161	2,017
	6,970	6,830
Valuation Allowance	(6,970)	(6,830)
Total Deferred Income Tax Assets	\$ -	\$ -

The valuation allowance for deferred tax assets increased \$140,000 and decreased \$4,418,000 during the years ended December 31, 2018 and 2017, respectively. The net deferred tax assets have a full valuation allowance provided due to uncertainty regarding our ability to utilize such assets in future years. This full valuation allowance evaluation is based upon our volatile history of losses and the cyclical nature of our industry and capital spending. Credit carryforwards consist primarily of research and experimental and foreign tax credits. We intend to continue to reinvest foreign earnings of our operating subsidiaries.

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the "Act") was signed into law making significant changes to the Internal Revenue Code. For the year ending December 31, 2017, we had completed our accounting for the effects of the Act. The changes that impacted our 2017 financial statements include: a federal corporate tax rate decrease from 34% to 21% for tax years beginning after December 31, 2017, the repeal of corporate Alternative Minimum Tax (AMT) for tax years after December 31, 2017, and a one-time tax on the mandatory deemed repatriation of cumulative foreign earnings of "post 1986 Earnings & Profits". We computed our 2017 provision for income taxes and as a result we recorded a net tax benefit of \$531,000 on our income statement in the fourth quarter of 2017, the period in which the legislation was enacted, made up of \$67,000 of additional tax relating to the "deemed repatriation" and recognizing a tax benefit of \$598,000 related to refundable "Alternative Minimum Tax Credits" in carryforward. The deemed repatriation tax resulted in the utilization of \$3.4 million of net operating loss carryforwards and generated \$1.0 million of foreign tax credits, as well as corresponding valuation allowance adjustments.

As a result of the corporate income tax rate reduction from 34% to 21%, we revalued our net deferred tax assets at December 31, 2017, which resulted in a decrease of the net deferred tax assets and corresponding valuation allowance balance of \$3.0 million.

U.S. net operating loss carryforwards are \$10,568,000 at December 31, 2018 with expiration years from 2022 to 2034. Utilization of net operating loss and credit carryforwards is subject to certain limitations under Section 382 of the Internal Revenue Code of 1986, as amended.

The gross changes in uncertain tax positions resulting in unrecognized tax benefits are presented below:

(in thousands)	Year Ended December 31, 2018	2017
Unrecognized tax benefits, opening balance	\$272	\$226
Prior period tax position increases	-	10
Additions based on tax positions related to current year	36	36
Unrecognized tax benefits, ending balance	\$308	\$272

Historically, we have incurred minimal interest expense and no penalties associated with tax matters. We have adopted a policy whereby amounts related to penalties associated with tax matters are classified as general and administrative expense when incurred and amounts related to interest associated with tax matters are classified as interest income or interest expense.

Tax years that remain open for examination include 2015, 2016, 2017 and 2018 in the United States of America. In addition, various tax years from 2001 to 2014 may be subject to examination in the event that we utilize the net operating losses and credit carryforwards from those years in our current or future year tax returns.

NOTE 14 – SEGMENT AND GEOGRAPHIC INFORMATION

We consider our operations to be a single operating segment, focused on the design, manufacturing and sale of programming systems used by designers and manufacturers of electronic products.

Major operations outside the U.S. include sales, engineering and service support subsidiaries in Germany as well as in China, which also manufactures some of our products.

The following tables provide summary operating information by geographic area:

(in thousands)	Year Ended December 31,	
	2018	2017
Net sales:		
U.S.	\$3,436	\$2,874
Europe	13,251	14,899
Rest of World	12,537	16,278
	\$29,224	\$34,051
Included in Europe and Rest of World net sales are the following significant balances:		
Germany	\$4,428	\$7,982
China	\$4,489	\$5,865
Operating income:		
U.S.	\$802	\$499
Europe	258	2,171
Rest of World	678	2,377
	\$1,738	\$5,047
Identifiable assets:		
U.S.	\$18,976	\$18,340
Europe	5,279	5,001
Rest of World	6,468	6,946
	\$30,723	\$30,287

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

(a) Evaluation of disclosure controls and procedures.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Exchange Act) as of the end of the period covered by this report (the "Evaluation Date"). Based upon that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that, as of the Evaluation Date, our disclosure controls and procedures were effective at the reasonable assurance level. Disclosure controls are controls and procedures designed to ensure that information required to be disclosed in our reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls are also designed to ensure that such information is accumulated and communicated to our management, including the CEO and CFO, as appropriate to allow timely decisions regarding required disclosure.

(b) Management's Report on Internal Control Over Financial Reporting.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control systems are designed to provide reasonable assurance to the Company's management and board of directors regarding reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Internal control over financial reporting is defined in Rule 13a-15(f) promulgated under the Exchange Act and includes those policies and procedures that:

(i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company;

(ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and

(iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the financial statements.

All internal controls, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statements preparation and presentation.

Our management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2018. In making this assessment, we used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in Internal Control – Integrated Framework (2013). Based on this assessment our Chief Executive Officer and Chief Financial Officer have concluded that, as of December 31, 2018, our internal control over financial reporting was effective.

This annual report does not include an attestation report of the company's registered public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by the company's registered public accounting firm pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act, which permanently exempts smaller reporting companies from complying with Section 404(b) of the Sarbanes-Oxley Act of 2002.

(c) Changes in internal controls.

There were no changes made in our internal controls during the period covered by this report that has materially affected or is reasonably likely to materially affect our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Information regarding the Registrant's directors is set forth under "Election of Directors" in our Proxy Statement relating to our annual meeting of shareholders to be held on May 20, 2019 and is incorporated herein by reference. Such Proxy Statement will be filed within 120 days of our year-end. Information regarding the Registrant's executive officers is set forth in Item 1 of Part I herein under the caption "Executive Officers of the Registrant."

Code of Ethics

We have adopted a Code of Ethics that applies to all directors, officers and employees of Data I/O, including the Chief Executive Officer and Chief Financial Officer. The key principles of the Code of Ethics are to act legally and with integrity in all work for Data I/O. The Code of Ethics is posted on the corporate governance page of our website <http://www.dataio.com/Company/InvestorRelations/CorporateGovernance.aspx>. We will post any amendments to our Code of Ethics on our website. In the unlikely event that the Board of Directors approves any sort of waiver to the Code of Ethics for our executive officers or directors, information concerning such waiver will also be posted on our website. In addition to posting information regarding amendments and waivers on our website, the same information will be included in a Current Report on Form 8-K within four business days following the date of the amendment or waiver, unless website posting of such amendments or waivers is permitted by Nasdaq's rules.

Item 11. Executive Compensation

Information called for by Part III, Item 11, is included in our Proxy Statement relating to our annual meeting of shareholders to be held on May 20, 2019 and is incorporated herein by reference. The information appears in the Proxy Statement under the caption "Executive Compensation." Such Proxy Statement will be filed within 120 days of our year-end.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Information called for by Part III, Item 12, is included in our Proxy Statement relating to our annual meeting of shareholders to be held on May 20, 2019 and is incorporated herein by reference. The information appears in the Proxy Statement under the caption "Voting Securities and Principal Holders." Such Proxy Statement will be filed within 120 days of our year end.

Equity Compensation Plan Information

The following table gives information about our Common Stock that may be issued upon the exercise of options and rights under all of our existing equity compensation plans as of December 31, 2018. See Notes 10 and 11 of "Notes to Consolidated Financial Statements."

	(a) Number of securities to be issued upon the exercise of outstanding options, warrants and rights	(b) Weighted-average exercise price of outstanding options, warrants and rights	(c) Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by the security holders (1)			
(2)	27,763	\$7.79	934,927
Equity compensation plans not approved by the security holders	-	\$0.00	-
Total	27,763	\$7.79	934,927

(1) Represents shares of our Common Stock issuable pursuant to the Data I/O Corporation 2000 Stock Incentive Compensation Plan, 1982 Employee Stock Purchase Plan and 1996 Director Fee Plan. Table excludes unvested restricted stock awards of 558,856 from the 2000 Plan.

(2) Stock Appreciation Rights Plan (“SAR”) provides that directors, executive officers or holders of 10% or more of our Common Stock have an accompanying SAR with respect to each exercisable option. While the plan has been approved by the security holders, no amounts are included in columns (a), (b), or (c) relating to the SAR.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item is contained in, and incorporated by reference from, the Proxy Statement for our 2019 Annual Meeting of Shareholders under the caption “Certain Relationships and Related Transactions.”

Item 14. Principal Accounting Fees and Services

The information required by this Item with respect to principal accountant fees and services is incorporated by reference to the section captioned “Principal Accountant’s Fees and Services” in the Proxy Statement relating to our annual meeting of shareholders to be held on May 20, 2019. Such Proxy Statement will be filed within 120 days of our year-end.

PART IV

Item 15. Exhibits, Financial Statement Schedules

Executive Compensation Plans and Arrangements

The following list is a subset of the list of exhibits described below and contains all compensatory plans, contracts or arrangements in which any director or executive officer of Data I/O is a participant, unless the method of allocation of benefits thereunder is the same for management and non-management participants:

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- (1) Amended and Restated 1982 Employee Stock Purchase Plan. See Exhibit 10.5.
- (2) Data I/O Corporation Tax Deferral Retirement Plan and Trust with Great West Financial (formerly Orchard Trust Company). See Exhibits 10.15, 10.16, 10.17, 10.30 and 10.31.
- (3) Summary of Amended and Restated Management Incentive Compensation Plan. See Exhibit 10.2.
- (4) Amended and Restated 1983 Stock Appreciation Rights Plan. See Exhibit 10.1.
- (5) Amended and Restated Executive Agreements. See Exhibit 10.8, 10.20, and 10.23.
- (6) 1996 Director Fee Plan. See Exhibit 10.4.
- (7) Data I/O Corporation 2000 Stock Compensation Incentive Plan. See Exhibit 10.6, 10.11, 10.22 and 10.26.
- (8) Form of Option Agreement. See Exhibit 10.7
- (9) Form of Indemnification Agreement. See Exhibit 10.18.
- (10) Letter Agreement with Anthony Ambrose. See Exhibit 10.21.
- (11) Letter Agreement with Rajeev Gulati. See Exhibit 10.24.
- (12) Form of Restricted Stock Agreement. See Exhibit 10.12.
- (13) Letter Agreement with Joel S. Hatlen. See Exhibit 10.28.
- (14) Form of Executive Agreement. See Exhibit 10.27.
- (15) Form of Restricted Stock Unit Award Agreement. See Exhibit 10.25.

(a)	<u>List of Documents Filed as Part of This Report:</u>	<u>Page</u>
(1)	<u>Index to Financial Statements:</u>	
	Report of Independent Registered Public Accounting Firm	28
	Consolidated Balance Sheets as of December 31, 2017 and 2016	29
	Consolidated Statements of Operations for each of the two years ended December 31, 2017 and December 31, 2016	30
	Consolidated Statements of Comprehensive Income (Loss) for each of the two years ended December 31, 2017 and December 31, 2016	31
	Consolidated Statements of Stockholders' Equity for each of the two years ended December 31, 2017 and December 31, 2016	32
	Consolidated Statements of Cash Flows for each of the two years ended December 31, 2017 and December 31, 2016	33
	Notes to Consolidated Financial Statements	34
(2)	<u>Index to Financial Statement Schedules:</u>	
	Schedule II – Consolidated Valuation and Qualifying Accounts	55
	All other schedules not listed above have been omitted because the required information is included in the consolidated financial statements or the notes thereto, or is not applicable or required.	
(3)	<u>Index to Exhibits:</u>	
	Articles of Incorporation:	
	3.1 Data I/O's restated Articles of Incorporation filed November 2, 1987 (Incorporated by reference to Exhibit 3.1 of Data I/O's 1987 Annual Report on Form 10-K (File No. 0-10394)).	
	3.2 <u>Data I/O's Bylaws as amended and restated as of July 20, 2011</u> (Incorporated by reference to Data I/O's Current Report on Form 8-K filed July 26, 2011).	
	3.3 <u>Certification of Designation, Preferences and Rights of Series A Junior Participating Preferred Stock</u> (Incorporated by reference to Exhibit 1 of Data I/O's Registration Statement on Form 8-A filed March 13, 1998 (File No. 0-10394))	
	Instruments Defining the Rights of Security Holders, Including Indentures:	
	4.1 <u>Rights Agreement dated as of April 4, 1998, between Data I/O Corporation and ChaseMellon Shareholder Services, L.L.C. as Rights Agent, which includes: as Exhibit A thereto, the Form of Right Certificate; and, as Exhibit B thereto, the Summary of Rights t</u>	

- 4.2 Rights Agreement, dated as of March 31, 1988, between Data I/O Corporation and First Jersey National Bank, as Rights Agent, as amended by Amendment No. 1 thereto, dated as of May 28, 1992 and Amendment No. 2 thereto, dated as of July 16, 1997 (Incorporated by reference to Exhibit 4.2 of Data I/O's Form 8-A/A dated July 10, 1999, to Rights Agreement, dated as of April 4, 1998, between Data I/O Corporation and ChaseMellon Shareholder Services, L.L.C. as Rights Agent (Incorporated by reference to Exhibit 4.1 of Data I/O's Form 8-A/A dated as of April 3, 2008, between Data I/O Corporation and Computershare (formerly BNY Mellon Investor Services LLC, and ChaseMellon Shareholder Services, L.L.C.). (Incorporated by reference to Exhibit 4.3 of Data I/O's Form 8-A/A dated July 13, 2016, between Data I/O Corporation and Computershare. (Incorporated by reference to Exhibit 4.4 of Data I/O's Form 8-A/A dated July 14, 2016).
- 4.3
- 4.4
- 4.5

10 **Material Contracts:**

- 10.1 Amended and Restated 1983 Stock Appreciation Rights Plan dated February 3, 1993 (Incorporated by reference to Exhibit 10.23 of Data I/O's 1992 Annual Report on Form 10-K (File No. 0-10394)).
- 10.2 Amended and Restated Management Incentive Compensation Plan dated January 1, 1997 (Incorporated by reference to Exhibit 10.25 of Data I/O's 1997 Annual Report on Form 10-K (File No. 0-10394)).
-
- 10.3 Amended and Restated Performance Bonus Plan dated January 1, 1997 (Incorporated by reference to Exhibit 10.26 of Data I/O's 1997 Annual Report on Form 10-K (File No. 0-10394)).
- 10.4 Amended and Restated Data I/O Corporation 1996 Director Fee Plan (Incorporated by reference to Exhibit 10.32 of Data I/O's 1997 Annual Report on Form 10-K (File No. 0-10394)).
- 10.5 Amended and Restated 1982 Employee Stock Purchase Plan dated May 16, 2003 (Incorporated by reference to Data I/O's 2003 Proxy Statement dated March 31, 2003)
- 10.6 Amended and Restated Data I/O Corporation 2000 Stock Compensation Incentive Plan dated May 24, 2006 (Incorporated by reference to Data I/O's 2006 Proxy Statement dated April 6, 2006). Form of Option Agreement (Incorporated by reference to Data I/O's 2004 Annual Report on Form 10-K (File No. 0-10394)).
- 10.7 Amended and Restated Executive Agreement with Joel S. Hatlen dated December 31, 2011 (Incorporated by reference to Data I/O's 2011 Annual Report on Form 10K (File No. 0-10394)).
- 10.8 Lease, Redmond East Business Campus between Data I/O Corporation and Carr Redmond PLCC dated February 28, 2006 (Incorporated by reference to Data I/O's 2005 Annual Report on Form 10K (File No. 0-10394)).
- 10.9 Lease, Redmond East Business Campus between Data I/O Corporation and Carr Redmond PLCC dated February 28, 2006 (Incorporated by reference to Data I/O's 2005 Annual Report on Form 10K (File No. 0-10394)).

- 10.10 Second Amendment to Lease, (Redmond East) between Data I/O Corporation and Arden Realty Limited Partnership, made as of January 31, 2011. (Incorporated by reference to Data I/O's 2010 Annual Report on Form 10-K (File No. 0-10394)).
- 10.11 Amended and Restated Data I/O Corporation 2000 Stock Compensation Incentive Plan approved May 17, 2011 (Incorporated by reference to Data I/O's 2011 Proxy Statement filed April 5, 2011).

- 10.12 Form of Restricted Stock Award Agreement (Incorporated by reference to Exhibit 10.29 of Data I/O's June 30, 2006 Quarterly Report on Form 10-Q (File No. 0-10394)).
- 10.13 Patent Purchase Agreement (Incorporated by reference to Data I/O's Current Report on Form 8-K filed on March 25, 2008)).
- 10.14 First Amendment to the Patent Purchase Agreement (Incorporated by reference to Data I/O's Current Report on Form 8-K filed on March 25, 2008).
- 10.15 Great West Financial (formerly Orchard Trust Company) Defined Contribution Prototype Plan and Trust (Incorporated by reference to Data I/O's 2007 Annual Report on Form 10-K (File No. 0-10394)).
- 10.16 Great West Financial (formerly Orchard Trust Company) Non-standardized 401(k) Plan (Incorporated by reference to Data I/O's 2007 Annual Report on Form 10-K (File No. 0-10394)).
- 10.17 Great West Financial (formerly Orchard Trust Company) Defined Contribution Prototype Plan and Trust Amendment for Pension Protection Act and Heart Act. (Incorporated by reference to Data I/O's 2009 Annual Report on Form 10-K (File No. 0-10394)).
- 10.18 Form of Indemnification Agreement. (Incorporated by reference to Data I/O's 2010 Annual Report on Form 10-K (File No. 0-10394)).
- 10.19 Asset Purchase Agreement dated April 29, 2011, with the Miller Trust, for acquisition of Software Technology (Incorporated by reference to Data I/O's Current Report on Form 8-K filed May 3, 2011 with portions omitted pursuant to a confidential treatment request, and by reference to Data I/O's Form 10-Q filed April 3, 2012, which included the redacted portions that had been made in the original Form 8-k filing).
- 10.20 Executive Agreement with Anthony Ambrose dated October 25, 2012. (Incorporated by reference to Data I/O's 2012 Annual Report on Form 10-K (File No. 0-10394)).
- 10.21 Letter Agreement with Anthony Ambrose (Incorporated by reference to Data I/O's Current Report on Form 8-K filed on October 29, 2012).
- 10.22 Amended and Restated Data I/O Corporation 2000 Stock Compensation Incentive Plan approved May 10, 2012 (Incorporated by reference to Data I/O's 2012 Proxy Statement filed April 3, 2012).
- 10.23 Executive Agreement with Rajeev Gulati dated July 25, 2013. (Incorporated by reference to Data I/O's 2013 Annual Report on Form 10-K (File No. 0-10394)).
- 10.24 Letter Agreement with Rajeev Gulati (Incorporated by reference to Data I/O's Current Report on Form 8-K filed on July 31, 2013).

- 10.25 Form of Restricted Stock Unit Award Agreement (Incorporated by reference to Exhibit 10.29 of Data I/O's March 31, 2014 Quarterly Report on Form 10-Q (File No. 0-10394)).
Amended and Restated Data I/O Corporation 2000 Stock Compensation Incentive Plan approved April 30, 2014
- 10.26 (Incorporated by reference to Exhibit 10.30 of Data I/O's March 31, 2014 Quarterly Report on Form 10-Q (File No. 0-10394)).

10.27	<u>Form of Executive Agreement (Incorporated by reference to Exhibit 10.31 of Data I/O's June 30, 2014 Quarterly Report on Form 10-Q (File No. 0-10394)).</u>	
10.28	<u>Letter Agreement with Joel S. Hatlen (Incorporated by reference to Exhibit 10.32 of Data I/O's June 30, 2014 Quarterly Report on Form 10-Q (File No. 0-10394)).</u>	
10.29	<u>Third Amendment to Lease, (Redmond East) between Data I/O Corporation and Arden Realty Limited Partnership, made as of June 1, 2015 (Incorporated by reference to Exhibit 10.29 of Data I/O's June 30, 2015 Quarterly Report on Form 10-Q (File No. 0-10394)).</u>	
10.30	<u>Great West Financial Adoption Agreement #005 Non-standardized 401(k) Plan (Incorporated by reference to Data I/O's 2015 Annual Report on Form 10-K (File No. 0-10394)).</u>	
10.31	<u>Great West Financial Adoption Agreement #005 Non-standardized 401(k) Plan (Incorporated by reference to Data I/O's 2016 Annual Report on Form 10-K (File No. 0-10394)).</u>	
10.32	<u>Negotiation Protocol for the Purchase of Data I/O's PSV7000, a supply agreement executed July 20, 2016, between Data I/O Corporation and Bosch Car Multimedia Group (Incorporated by reference to Exhibit 10.31 of Data I/O's September 30, 2016 Quarterly Report on Form 10-Q (File No.0-10394)).</u>	
10.33	<u>Standstill and Voting Agreement, dated as of July 13, 2016, by and among Data I/O Corporation, David Kanen and Kanen Wealth Management LLC (Incorporated by reference to Data I/O's Current Report on Form 8-K filed on July 14, 2016).</u>	
10.34	<u>34 Fifth Amendment to Lease, between Data I/O Corporation and BRE WA OFFICE OWNER LLC, made as of September 12, 2017 (Incorporated by reference to Data I/O's September 30, 2017 Quarterly Report on Form 10-Q (File No. 0-10394)).</u>	
10.35	<u>1st Amendment to Negotiation Protocol executed on September 24, 2018 between Data I/O Corporation and Robert Bosch GmbH (Incorporated by reference to Exhibit 10.35 of Data I/O's September 30, 2018 Quarterly Report on Form 10-Q (File No. 0-10394)).</u> <u>(Portions of this exhibit have been omitted based on a request for confidential treatment made to the SEC. The omitted portions of these exhibits have been filed separately with the SEC. The registrant undertakes to furnish on a supplemental basis a copy of any omitted schedules to the Securities Exchange Commission upon request.).</u>	
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31.2	<u>Chief Financial Officer Certification</u>	59
32	Certification – Section 906:	
32.1	<u>Chief Executive Officer Certification</u>	60
32.2	<u>Chief Financial Officer Certification</u>	61

101 **Interactive Data Files Pursuant to Rule 405 of Regulation S-T**

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

DATA I/O CORPORATION

(REGISTRANT)

DATED: March 28, 2019
/s/Anthony Ambrose

By:

Anthony Ambrose

President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

NAME & DATE

TITLE

By: /s/Anthony Ambrose March 28, 2019 President and
Chief Executive Officer
Anthony Ambrose (Principal
Executive Officer), Director

By: /s/Joel S. Hatlen March 28, 2019 Chief Operating
and Financial Officer
Joel S. Hatlen Vice
President

Secretary, Treasurer
(Principal Financial and Accounting Officer)

By: /s/Douglas W. Brown March 28, 2019 Director
Douglas W. Brown

By: /s/Brian T. Crowley March 28, 2019 Director
Brian T. Crowley

By: /s/Alan B. Howe March 28, 2019 Director
Alan B. Howe

By: /s/Mark J. Gallenberger March 28, 2019 Director
Mark J. Gallenberger

DATA I/O CORPORATION**SCHEDULE II – CONSOLIDATED VALUATION AND QUALIFYING ACCOUNTS**

	Balance at Beginning of Period	Charged/ (Credited) to Costs and Expenses	Deductions-Describe	Balance at End of Period
(in thousands)				
Year Ended December 31, 2017:				
Allowance for bad debts	\$96	(\$24)	\$1 ⁽¹⁾	\$73
Year Ended December 31, 2018:				
Allowance for bad debts	\$73	\$2	\$-(1)	\$75
⁽¹⁾ Uncollectable accounts written off, net of recoveries				

EXHIBIT 21.1

DATA I/O CORPORATION
SUBSIDIARIES OF THE REGISTRANT

The following table indicates the name, jurisdiction of incorporation and basis of ownership of each of Data I/O's subsidiaries:

Name of Subsidiary	State or Jurisdiction of Organization	Percentage of Voting Securities Owned
Data I/O International, Inc.	Washington	100%
RTD, Inc.	Washington	100%
Data I/O FSC International, Inc.	Territory of Guam	100%
Data I/O Canada Corporation	Canada	100%
Data I/O GmbH	Germany	100%
Data I/O Electronics (Shanghai) Co., Ltd.	China	100%
Data I/O Programação de Sistemas Ltda.	Brazil	100%

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our report dated March 28, 2019, with respect to the consolidated financial statements and schedule included in the Annual Report of Data I/O Corporation on Form 10-K for the year ended December 31, 2018. We consent to the incorporation by reference of said report in the Registration Statements of Data I/O Corporation on Form S-8 (File Nos. 002-76164, 002-86785, 002-98115, 002-78394, 33-95608, 33-66824, 33-42010, 33-26472, 33-54422, 333-20657, 333-55911, 33-02254, 33-03958, 333-107543, 333-81986, 333-48595, 333-121861, 333-151006, 333-166730, 333-175840 and 333-224971) and on Form S-3 (File No. 333-121566).

/s/Grant Thornton LLP

Seattle, Washington
March 28, 2019