

#### Semtech Analyst Day 2018

June 20 | New York City | www.semtech.com
2018 | SMTC



## Agenda





### Goals For Today – We Will Introduce You To



- Our Strong Leadership Team
- Our Path to \$1B in Net Sales
- Our Growth Engines
- Our Diversification, Our End Market Balance, Our Geographical Balance, Our Portfolio Balance and Our Financial Balance
- Our Future Innovations both Unique and Exciting



#### World Class Executive Team

Experienced, Culturally Diverse & All Share The Same Values



#### Mohan Maheswaran President and CEO



Emeka Chukwu EVP and CFO



**Charles Ammann** EVP and General **Counsel & Secretary** 



Jean-Paul Bardyn CTO and VP, Wireless & Sensing



Gary Beauchamp EVP and GM, Signal Integrity



VP and GM,

Power & **High Reliability** 



Chris Chang SVP, Corporate Marketing & Business Development



Mark Costello VP and GM, Protection



**Sharon Faltemier** SVP, Human Resources



James Kim SVP. Worldwide Sales



Marc Pégulu VP and GM, Wireless & Sensing



SVP,



EVP,

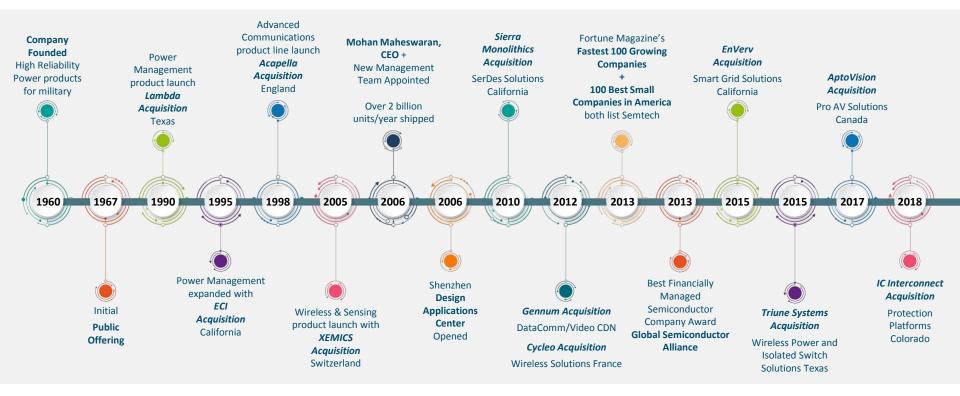
Asaf Silberstein Mike Wilson Worldwide Operations **Quality & Reliability** 





### Our History

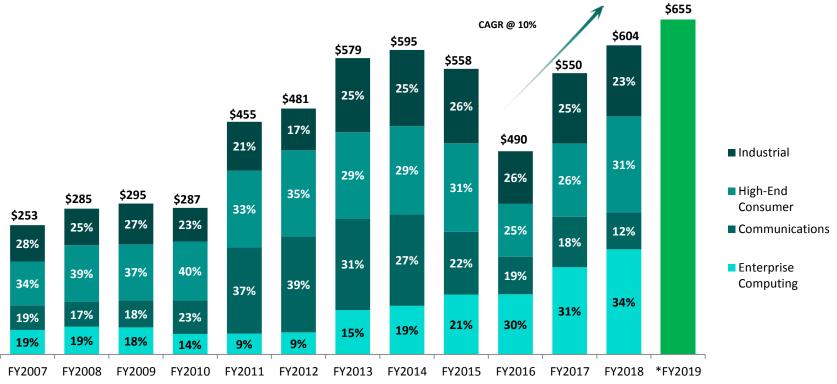
#### Successful Acquisitions Contribute to Diversification & Growth





#### Semtech Transformed

Portfolio Transformation, End Market Transformation & Infrastructure Transformation



\*Consensus Estimate; FactSet 6/12/18.

<sup>1</sup>Based on non-GAAP Net Sales. Please refer to the description and reconciliation of GAAP to non-GAAP measures at the end of the presentation.

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#### FY18 Record Performance

	Fiscal Year 2018 Results <sup>*</sup>
Record Net Sales	\$604 Million
Record Operating Income	\$161 Million
Record EPS	\$1.87
Record SIP Revenues	\$263 Million
Record WSP Revenues	\$165 Million
Record Design Wins	8,694

\*Based on non-GAAP results for fiscal year 2018. Please see reconciliation of GAAP to non-GAAP measures at the end of this presentation.



# Our Vision

To be the global leader in *analog, mixed signal* platforms and algorithms that enable *architectural* and performance *differentiation* 

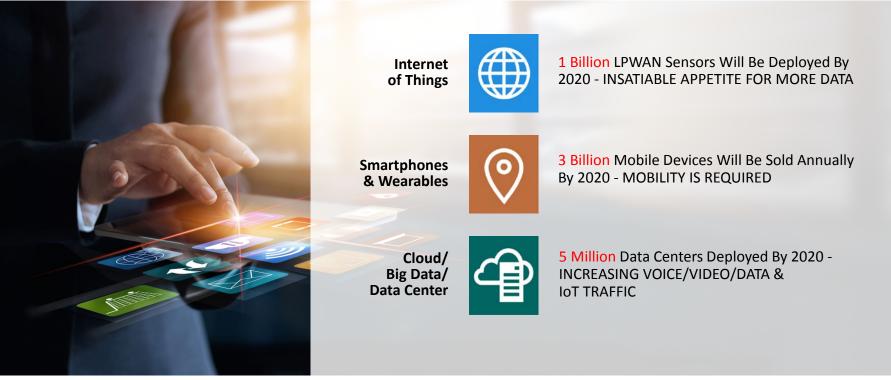
- Achieve leadership positions in our target product segments
- Deliver revenue growth exceeding high performance analog sector
- Attain the high end of Semtech's stated operating model





### Semtech - Uniquely Positioned To Benefit

#### From Three Industry Megatrends

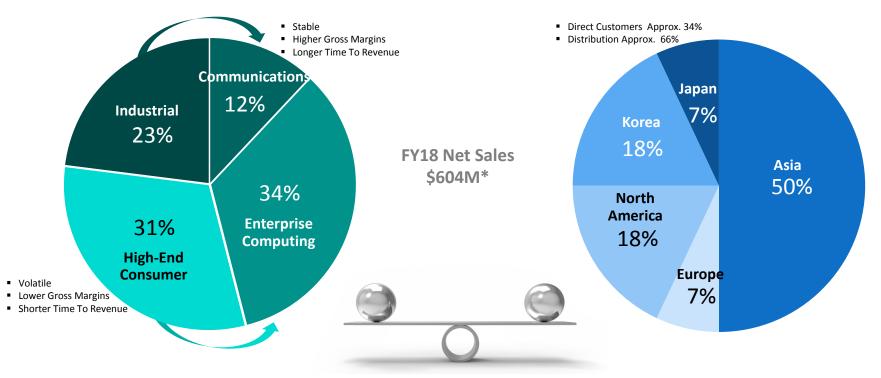


Source: Semtech Internal



### We Strive For End Market & Geographical Balance

Mitigates Against End Market Transitions & Regional Macro Issues



\*Amounts and percentages are based non-GAAP Net Sales for fiscal year 2018. Please see reconciliations of GAAP to non-GAAP measures at the end of this presentation.



## We Strive For Product Diversification

Broad Portfolio & Broad Customer Base Ensures Sustainability



\*Percent of non-GAAP Net Sales for fiscal year 2018. Please see reconciliation of GAAP to non-GAAP measure at the end of this presentation.



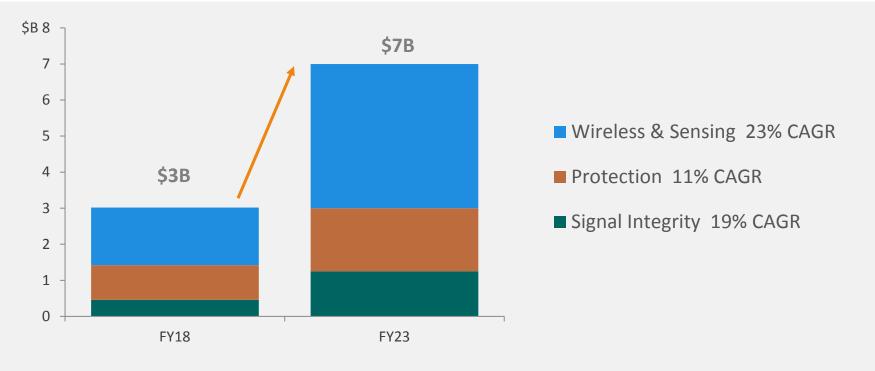
#### We Strive For **Disruption**

Three Industry Disruptors Will Drive Our Growth

#### 100G/400G CDR Platform LoRa<sup>®</sup> Wireless Platform **Z-Platform** • High B/W Connectivity • Small Form Factor Low Power • Low Cost (Goal < \$1.5/Gbit) Low Capacitance Long Range • Path To > 400Gbps • High Energy Low Cost Localization **Powering The Enabling Next** The DNA of IoT Data Center Revolution **Generation Mobility**

### **Our Opportunity** Is Going To More Than Double

SAM Approx. 18% CAGR





# Beyond \$1 Billion

We Are Focused On Creating New Markets To Drive Future Growth





#### Semtech's Strategic Advantage

Our Competencies Come From 60 Years Of Developing Analog Solutions & Global Acquisitions

#### HIGH PERFORMANCE Analog/Mixed Signal Design

- 1. Circuit Innovation
- 2. Package Innovation
- 3. Patents
- 4. Partnerships

#### ARCHITECTURAL DISRUPTION Through Systems Knowhow

- 1. Disrupt Systems
- 2. Push Technology Envelope
- 3. Application-Specific Standard Products

#### ALGORITHM DESIGN Interface to Analog

- 1. Flexible Architectures
- 2. Applications Knowledge
- 3. Customer Partnerships
- 4. Disrupt Markets



## A Game Changer For IoT

- End Node Chip Sales
- Gateway Chip Sales
- End Node Chip Royalties
- Micro-Services;
  - e.g. Geolocation

- Connect Battery Operated Assets Indoors and Outdoors?
- Low Cost Communication
- Low Cost Infrastructure and Low Cost End Nodes
- Low Power Technology
- Fixed and Mobile Communication
- Scalable and Secure
- Public or Private Network Connectivity on Demand

...And A Game Changer For Semtech As LoRa Becomes The De Facto Standard In A Trillion Dollar Industry

**LORa**®

# LoRa's SAM is Limited Only By Our Imagination!



#### SMART ENVIRONMENT & INDUSTRIAL

- Forest fires
- Air pollution
- Earthquake sensors
- Avalanche and flooding
- Heating and AC
- Equipment status
- Factory control

#### TRACKING

- Motor bikes
- Cars
- Bicycles
- Kids
- Pets
- Insurance valuable assets
- Find My Stuff

#### **SMART METERING**

- Electric
- Water
- Gas
- Infrastructure and production

AGRICULTURE

Irrigation control

Animal tracking

Animal sensing

- ovulation, birth

Environment sensing

#### **SMART CITY**

- Smart parking
- Traffic sensors and control
- Street lighting
- Infrastructure monitoring
- Trash and waste containers
- Public events –location services
- Advertising displays

#### **SECURITY & SMART HOME**

- Smoke detectors
- Security systems
- Smart appliances
- Heating control and monitoring



#### Why Invest in Semtech

Our Future Value Will Be Driven By Today's Innovation



## A Balanced Growth Story With Huge Upside!

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### The Journey Is Just Beginning

We Have Never Been Better Poised To Take Advantage Of Secular Growth Opportunities



World Class Products World Class Infrastructure World Class Team LoRa<sup>®</sup> is a Game Changer

.....Just The Beginning







# Signal Integrity Products Group

Market and Product Development



- \$262M in FY18 sales
- 44% of Semtech FY18 net sales
- Over 300M units shipped
- Innovative engineering talent and world class marketing
- 300 staff in eight locations: US, Canada, Europe, China
- Numerous patents/applications





# Key Takeaways

Signal Integrity Products (SIP)

- World's #1 IC supplier to the Datacom optical transceiver industry
- **Record FY18** with the three largest product lines (CDR, PON, PMD) all delivering record years
- FY19 forecast to be ninth straight record year, driven by 100G data centers
- Data rates increasing significantly, underpinning the need for more signal integrity IC content
- 35% SAM addition via AptoVision acquisition a sizeable new growth opportunity

### Signal Integrity Products



# Introduction

Data Center Wireless Base Station PON (Access) Pro AV Summary



# What Are Signal Integrity Products?

ICs that Help Transport Data from Point A to Point B Reliably

#### **Signal Integrity (SI) Influencers**

Data Rate, Transmission Distance, Media Type

#### **Data Rates Increasing Significantly**

- Demanding additional SI, especially CDRs
  - **Data Center**: 100G → 400G
  - **PON:** 2.5G → 10G
  - Wireless Base Station: 10G → 25G & 100G
  - Video Broadcast: 3G → 12G





## Multiple Markets

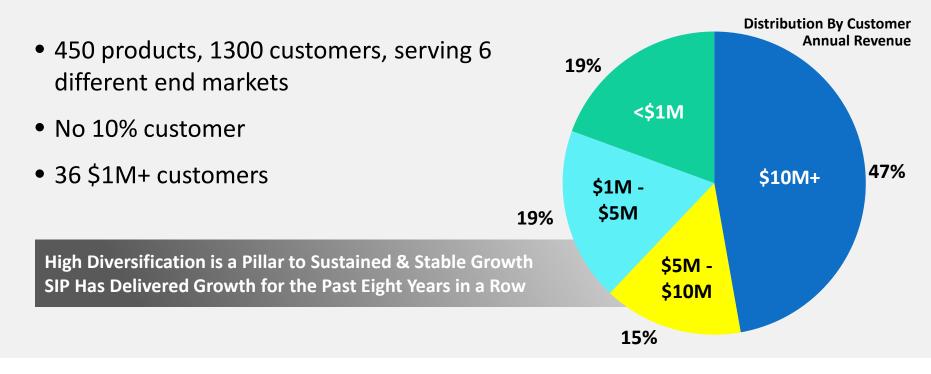


#### **Serving Six Different Markets**

- Datacom
  - Data center
  - Enterprise
  - Wireless base stations
  - Access (PON)
- Video
  - Broadcast
  - Pro AV

## Highly **Diversified**

Diversified Products, Markets and Customer Base



# Market Trends & Growth Drivers

Data Center & Pro AV — Key Near Term Growth Markets

# **Main Growth Driver Markets**

- Data Centers
- Pro AV

### **Macro Trends**

- Data Center: Cloud computing, social networking, video streaming, AI, IoT
- Pro AV: Proliferation of video displays

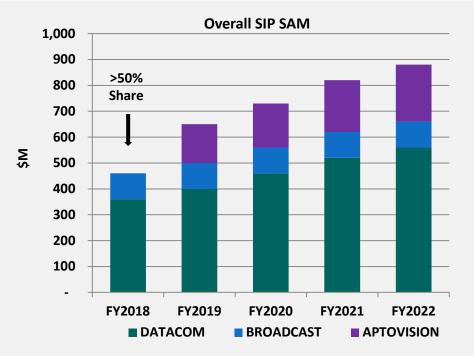




### Market SAM Set to Double

AptoVision Acquisition Increases SAM by 35%

- SAM forecast to grow from \$460M to \$880M
- SIP FY18 share >50%
- Main growth expected from Data Centers and Pro AV (AptoVision)

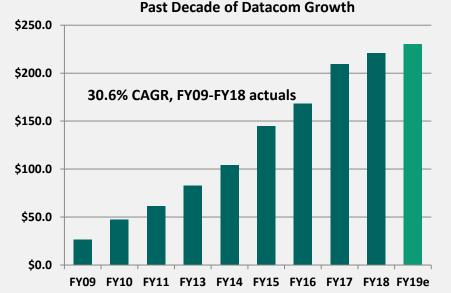


Source: Semtech Internal

#### Datacom: Proven and Sustained Execution

#### **<u>Proven</u>** Execution, Year After Year

- Sustained growth
- A focus on innovation, quality, cost, and customer care
- Broadest line of optical IC products in the industry



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Source: Semtech Internal



### Signal Integrity Products Group



# Introduction **Data Center Wireless Base Station PON** (Access) **Pro AV** Summary



#### **Data Center** & Enterprise Networks

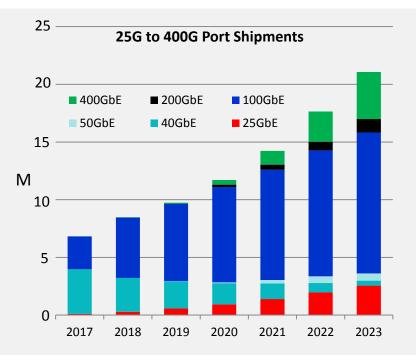
100G Data Center Is A High Growth Optical Market

**#1 Supplier** — high speed optical transceiver ICs

**100G data centers** in full swing — Still growing

**25G data centers** to begin in China in 2018 — Near term growth

# **400G data centers** to begin in 2020/21 — Longer term growth



Products: CDR, PMD, ROSA



Source: Lightcounting, March 2018

## **100G Optical Transceiver** Implementations Today

NRZ CDR-Based Solutions Dominate 100G Data Centers Today

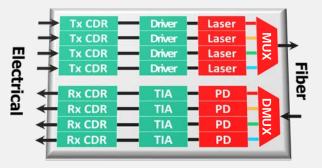
#### 100G Transceivers Via 4x25G CDRs

- 4x25G deployed today in millions/year
- In the past three years, they have become cost effective, power efficient, highly integrated, and very reliable

#### **#1 Share of 100G Data Center CDRs**

- 100G CDRs driving product line to record levels
- 12M 100G CDRs shipped in FY18, up from 5.5M in FY17

#### 4x25G Optical Transceiver



**Current 100G Optical Module Solution** 

Semtech ClearEdge<sup>®</sup> CDR Technology Is the 100G Data Center Leader



### **100G Optical Transceiver** Price Reductions

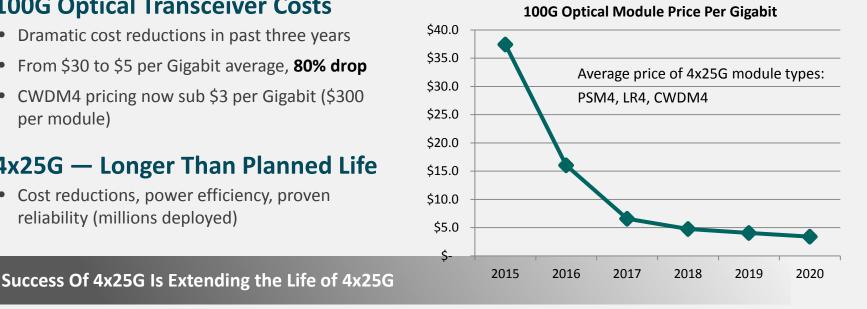
4x25G NRZ CDR-Based Solutions Remarkably Cost Effective

#### **100G Optical Transceiver Costs**

- Dramatic cost reductions in past three years ۲
- From \$30 to \$5 per Gigabit average, **80% drop**
- CWDM4 pricing now sub \$3 per Gigabit (\$300 per module)

#### 4x25G — Longer Than Planned Life

 Cost reductions, power efficiency, proven reliability (millions deployed)



Source: Lightcounting, March 2018



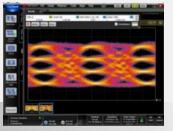
#### PAM4 — Next Step in Data Center Transmission Protocol

Tri-Edge - Semtech's Advanced New Platform of PAM4 CDRs

- Technical advances have made high data rate PAM4 CDRs possible — lowest cost, power and latency
- Developing solutions for the highest volume applications
- **80% to 90% of** volume accessible with this new technology
  - Meters (VSR), 2km (SR), 10km (LR)

High Volume Short Reach PAM4 CDRs for 400G, 200G, 100G





Tri-Edge PAM4 CDR eyes



### Signal Integrity Products Group



# Introduction **Data Center Wireless Base Station PON** (Access) **Pro AV** Summary



### Strong Wireless Traffic Growth Continues

New 5G Wireless to Drive Mobile Capacity Expansion

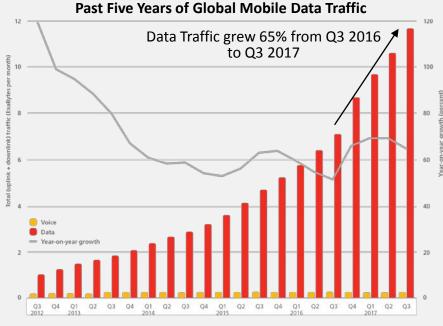
#### **Drivers – Increasing Mobile Traffic**

- Quarterly mobile data traffic expanding rapidly
- Solution to capacity problem 5G Wireless

Increased number of optical transceivers

Higher data rates necessitate CDRs for

 More nodes, higher data rates per node (25G, 100G)



Source: Ericsson traffic measurements (Q3 2017)

<sup>1</sup> Traffic does not include DVB-H, Wi-Fi, or Mobile WiMAX. VoIP is included in data traffic

Source: \*Ericsson Mobility Report, June 2017



Impact

first time



### 5G Wireless Requires More Signal Integrity

5<sup>th</sup> Generation (5G) Wireless Will Need CDRs for the First Time

>70% share of the base station transceiver IC market today

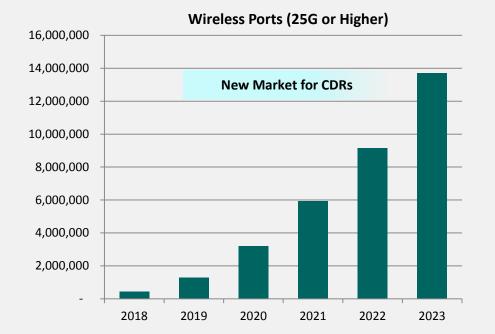
6G & 10G data rates today

**25G & 100G** data rates tomorrow for 5<sup>th</sup> gen wireless

#### **SIP Products**

Today: TIA, LD Tomorrow: TIA, CDR+LD

Source: Lightcounting, Nov 2017



### Signal Integrity Products Group



Introduction **Data Center** Wireless Base Station **PON (Access) Pro AV** Summary



### Fiber To The Home Growth Continues

SmartONUs Being Introduced in China – Driving a Replacement Cycle

### 2.5G PON IC Market

- >70% IC share, record PON sales in FY18
- 2.5G PON ONU replacement cycle starts in 2018
- Advanced "SmartONU", replacing existing ONUs

### **SmartONUs**

• SmartONUs to allow the operator to provide consumers with a range of new services, including remote mobile control





Source: Lightcounting



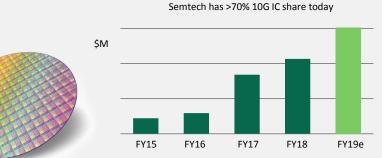
### 10G PON Ramping

CDRs Needed For First Time in PON – A Semtech Core Competence

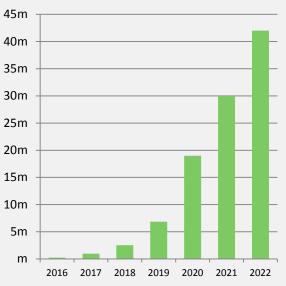
Semtech 10G PON Sales History

#### **10G PON Is the New Growth Segment**

- 10G PON requires CDRs for the first time ever
- Strong Chinese government direction to significantly increase bandwidth to the home



#### **10G PON Port Shipments Forecast**



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Source: Lightcounting, Semtech Interna



### Signal Integrity Products Group



Introduction **Data Center Wireless Base Station PON** (Access) **Pro AV** Summary



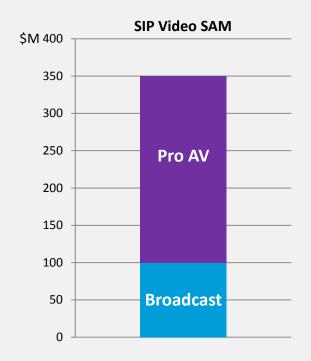
### Professional Audio Video SAM

AptoVision Acquisition Adds \$250M SAM to Signal Integrity Products Group

### AptoVision targets the Pro AV market, a \$250M SAM

- Disruptive, unique, high barriers to entry
- Significant lead over any competitors (two to three years)
- An existing market using "dinosaur technology" primed for a modern revolution — enter AptoVision

### The right technology, in the right market, at the right time





### What Is the AptoVision Pro AV Technology

One of a Kind Disruptive Technology

- Pro AV systems today use custom switching and dedicated signal routing systems
- AptoVision converts all audio and video to run on low cost widely available **10G Ethernet** hardware and cabling
- The technology has won industry accolades and is being implemented or tested by virtually all major Pro AV suppliers

#### A Disruptive Technology Whose Time Has Come



### Pro AV's Ethernet Disruption – Why now?

Bandwidth, Cost, Technology

- **Bandwidth** For the first time, the bandwidth from an IP network (10G Ethernet) is more than needed to transfer the latest high end video (4K)
- **Cost** For the first time, the cost per port for switching in an IP network (10G Ethernet) is lower than the cost of custom AV switching solutions
- Technology For the first time, technology is available to transport uncompressed audio video on 10G Ethernet networks → AptoVision's BlueRiver

#### **The Tipping Point Has Arrived**



**New Technology** 

solves the challenge of transporting uncompressed video on 10G Ethernet networks

\*Source: Semtech Internal

### Pro AV Signal Distribution – "It's Everywhere"

Very Broad Application Environment



### **Pro AV**: A Growing SAM

Increased Adoption of AV for Signage, Communication & Collaboration

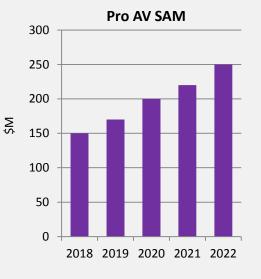
#### **Drivers**

- Printed signage replaced with digital TVs
- Lower price, higher quality, large format displays
- Video for communication, collaboration and signage

### Objective

• Disruption. Displace incumbent "custom" technology by Ethernet networks

#### Expecting Pro AV to be a \$100M product line in the next 5 years



Source: Semtech Internal with FutureSource Consulting Reports AV over IP & HDBaseT reports



### Signal Integrity Products Group



Introduction **Data Center Wireless Base Station PON** (Access) **Pro AV Summary** 



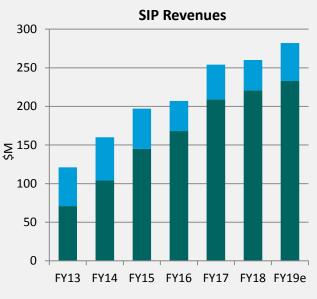
# Signal Integrity Products: Continued Growth Ahead

Market Growth, Strength of Position, Large SAM Addition

#### **Growth Drivers**

- Continued internet expansion (25G, 100G, 400G)
- Increasing data rates increase CDR content
- China backing: 10G PON and 5G wireless
- Pro AV: Proliferation of video displays, disruptive, tipping point





Datacom Video

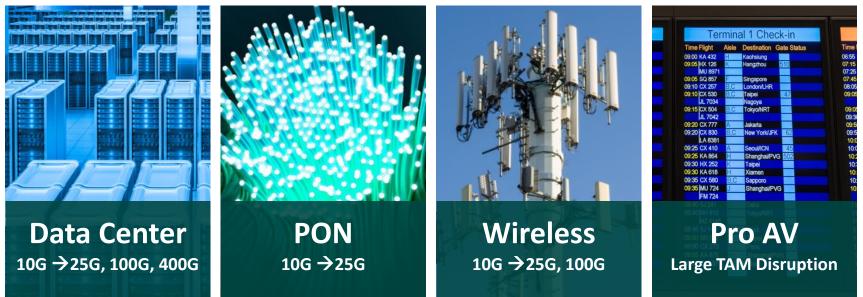
SEMTEC

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### Well Positioned for the Future

Rapidly Growing Datacom Markets and Significant New Video SAM



#### **Powering the Data Center Revolution**

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### **Protection Products**

#### The Golden Era of Protection

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### Protection Products Group

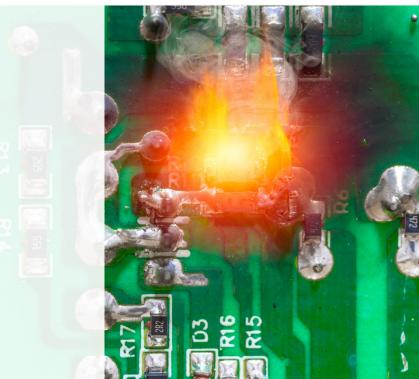
Success Through Technology Leadership

#### **Highest Performance Protection**

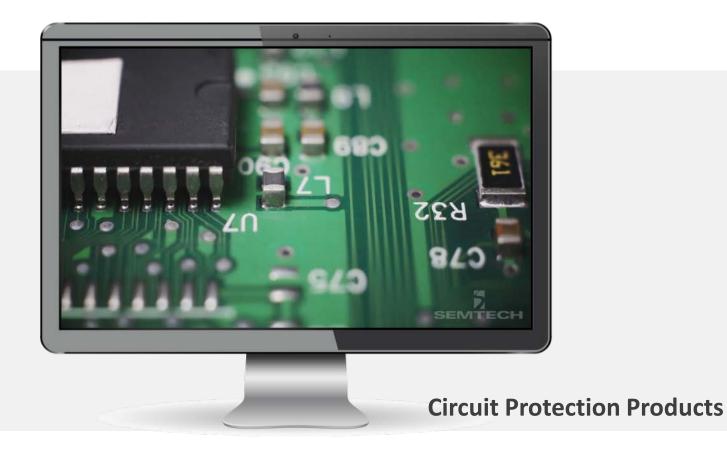
- Low operating voltage
- Low capacitance
- Lowest clamping voltage
- Highest efficiency
- Device integration and packaging

#### **Protection Products Group FY18**

- 29% of Semtech Net Sales for FY18
- ~9 billion units shipped in FY18









# Key Takeaways

The Golden Era of Protection

- **Protection is a growth business** driven by high performance interfaces and diversification
- **Disruptive technologies and IP** expanding our SAM
- Strong financial growth performance: growth in revenues and profitability





# **Vision & Strategy**

Provide Highest Value Solutions to Toughest Protection Challenges

#### Vision

Technology leader in high performance protection

### Strategy

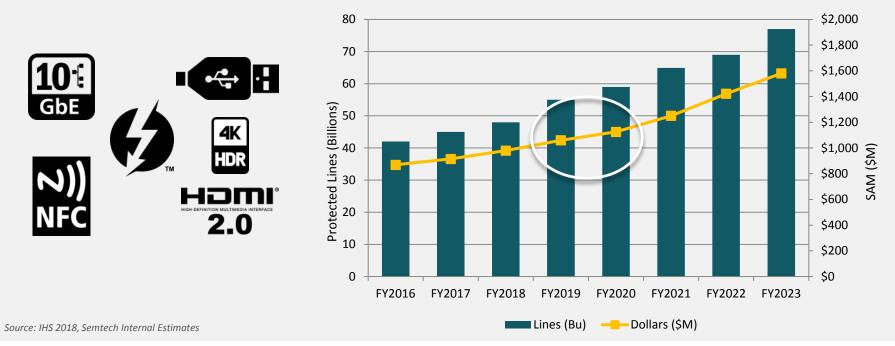
- Growth by solving toughest protection challenges on new interfaces
- Technology and applications leadership enables first-to-market solutions
- Maximize ROI by leveraging technology in all markets





### Protection: A Growth Market

Inflection Point: Rapid Adoption of Multiple High-speed Interfaces



**Protection SAM** 

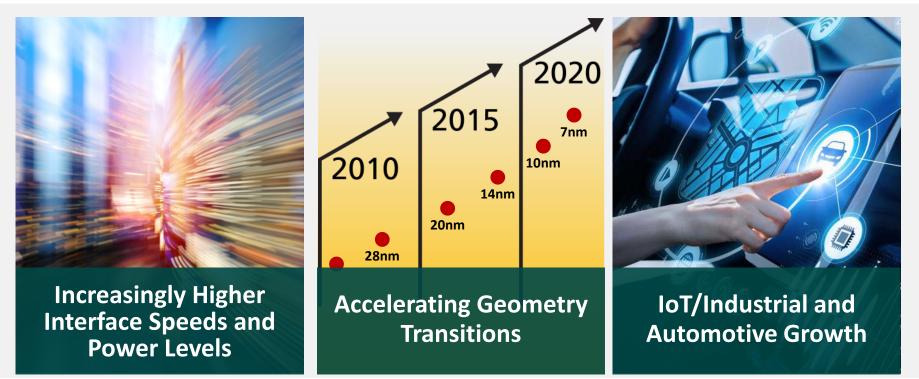
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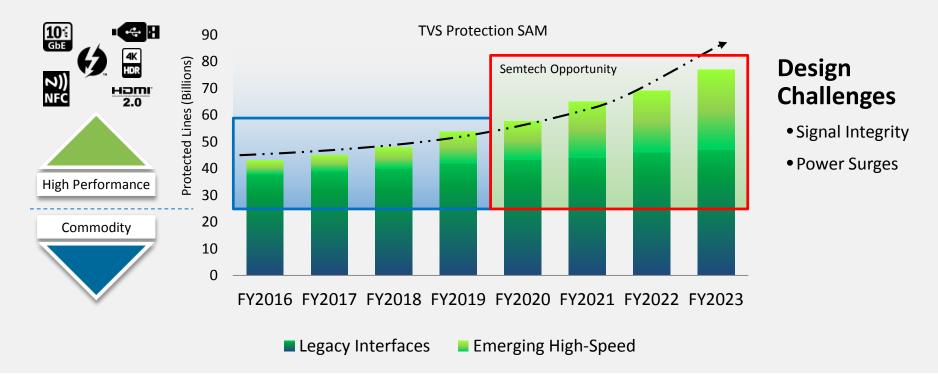
# Key Factors Driving Growth

Significant SAM Expansion Driven by Important Market Trends



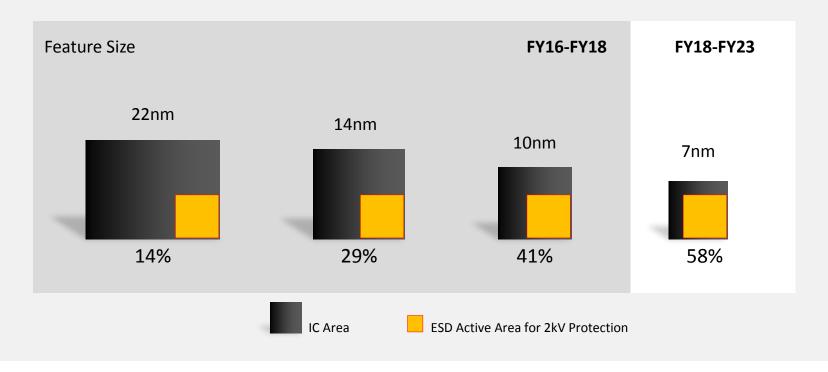
# High-Speed Interfaces Driving the Future

Growth from Higher Performance Applications



### Shrinking Geometries Mandate Advanced Off-chip Protection

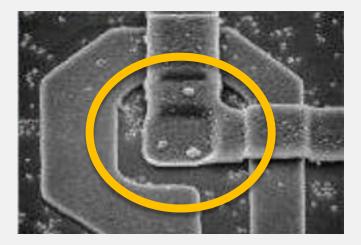
Each Process Geometry Transition Expands Our SAM



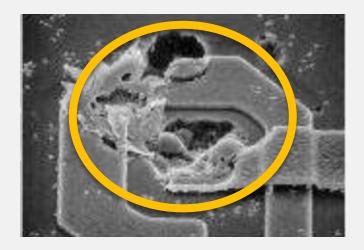


### High Performance Off-chip Protection Prevents Failure

Effects of Inadequate Protection on Leading Edge Process Nodes



#### With Off-Chip Protection



#### Without Protection

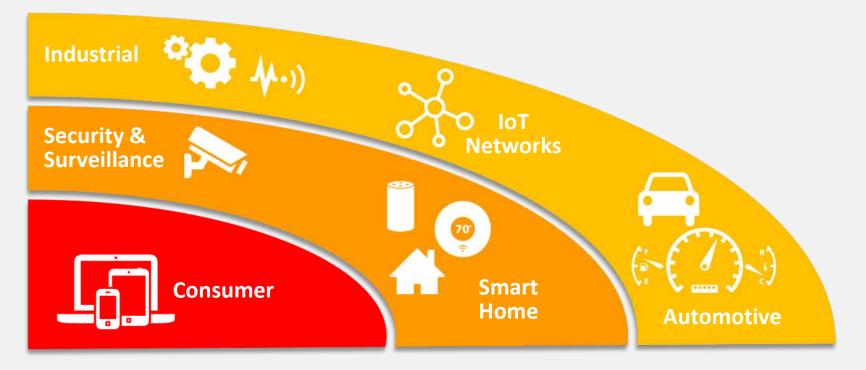


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### Protection Continues to Grow from All End Markets

Growth Driver: Rapid Adoption of Key Interfaces Across All Applications





# Industry Leading Solutions Driving Consumer Growth

Adoption of High Performance Interfaces Driving SAM Expansion





### The Connected Car: Electronics Content Continued Growth

Connected Car Technologies Demand Highest Levels of Protection



**USB 3.0/HDMI** Audio Video Infotainment, Back-end Display





**2-Wire Ethernet** ADAS, 360 Camera View, Audio



Antennas AM/FM, DAB, GPS, Satellite, Wi-Fi, Telematics Applications





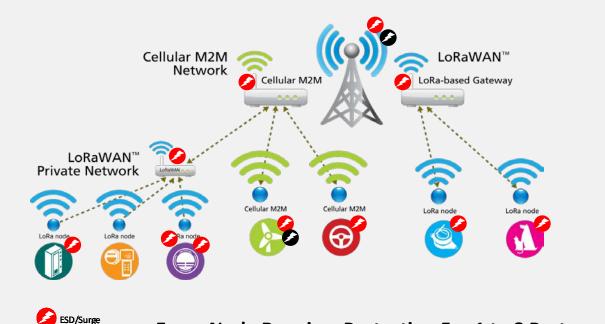
Standard Ethernet On-board Diagnostics, Networking





# IoT Opportunities Driving Industrial Segment Growth

SAM Expansion from Demanding Protection Specs Driven by Long Lifetime Expectation



**Every Node Requires Protection For 1 to 8 Ports** 

#### IoT/LoRa®-enabled end-nodes:

Installed base of **120B nodes by 2030**\*

\*Source: IHS Dec 2017

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Lightning

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### Why We Win

Two Pillars Of Success: Over 50 Years of Advanced Protection & Systems Expertise







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# A Decade of Z-Platform Innovations

Superior Technology Commands a Premium



# Next GEN

Next gen Z-platform

#### Patented Protection for ultra-high speed buses and ultra-high power surge

SEMTECH

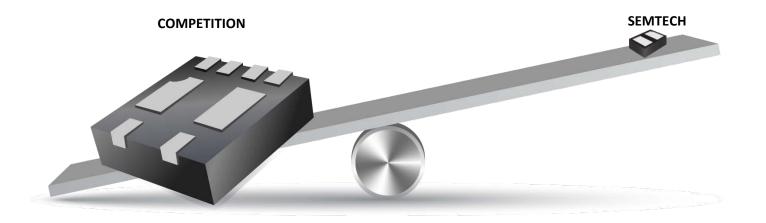
# A Decade of Z-Platform Innovations

Superior Technology Commands a Premium



### **Z-Ultra:** Next-Generation Surge Protection

Highest Energy Density in the Smallest Footprint



### 2.5x Energy Density

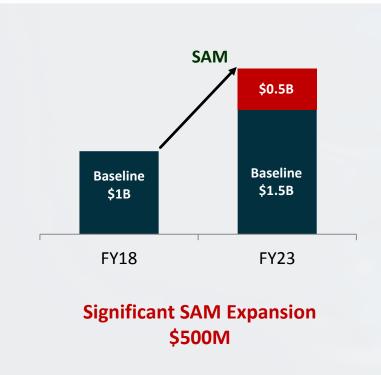
70% Smaller Footprint

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### **Z-Ultra** Opens New Markets

Disrupts Discrete Protection Solutions

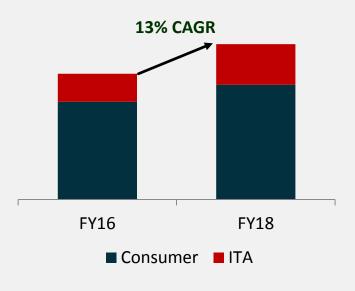






### Financial **Results**

Strong Performance on All Fronts



### **Delivered on Key Objectives**

#### Leveraged growth drivers

• Expanded consumer customer base

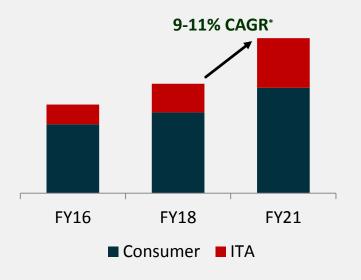
#### 21% CAGR in Industrial, Telecom & Auto (ITA)

• Long and stable revenue life cycles



# **Looking Ahead**

Our Ability to Differentiate Will Drive Financial Performance



### **The Golden Era of Protection**

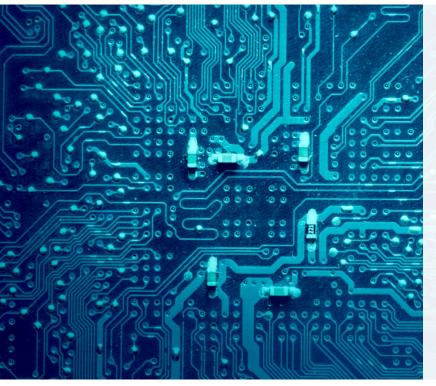
- 1<sup>st</sup> to market solutions for high performance interfaces in the consumer segment, enables a solid revenue base
- **Z-Ultra Platform** enables steep expansion into the ITA segment driving substantial growth

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# Summary

#### The Golden Era of Protection



- Protection is a growth business driven by high performance interfaces and diversification
- Disruptive technologies and IP expanding our SAM
- Strong financial growth performance with growth in net sales and profitability





### **Protection Products**

#### The Golden Era of Protection

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#### **Break**

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# Wireless & Sensing Products LoRa: The DNA of IoT

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# **Our Connectivity Solutions** & Smart Sensors

Shaping the Internet of Things

LoRa<sup>®</sup> Wireless Smart Power Management Proximity Sensing

The Internet of Things is driving the growth





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# LoRa<sup>®</sup> Is the **DNA of IoT**

LoRa Is the Enabler of Low Power Connected Devices





# LoRa Is the Lowest Power Long Range RF Connectivity

The Connectivity of Choice for Sensors, Tags and Actuators



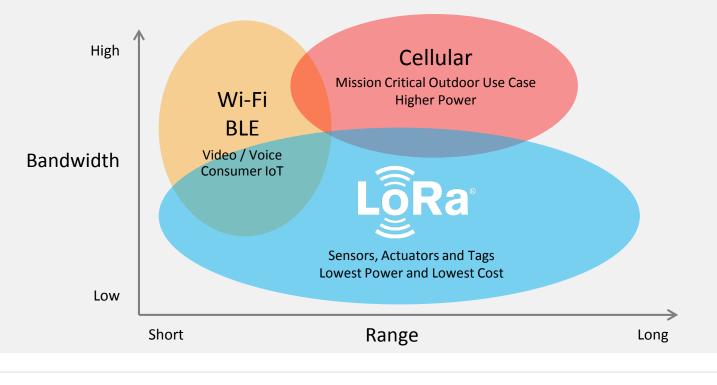


LoRa®

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# LoRa Fills a Technology Gap

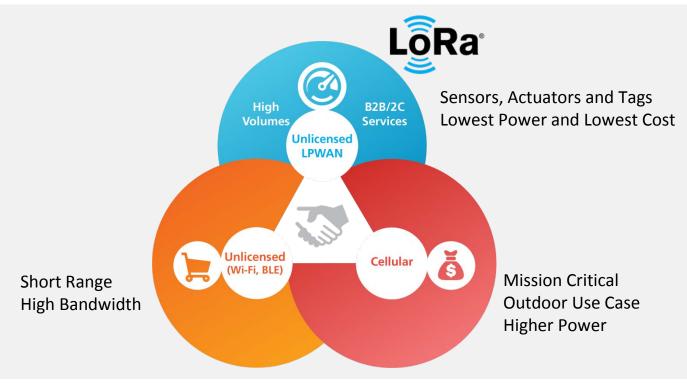
Low Bandwidth, Short and Long Range





# LoRa Complements Cellular and Wi-Fi Businesses

A Superior Solution for Small Assets, Sensors and Moving End Points





# LoRa® Connects Devices to the Cloud

The Most Simple and Effective Network Infrastructure

Connectivity Range Low Power Highly Secure Simple Network





### LoRa Wireless Has Unique Features

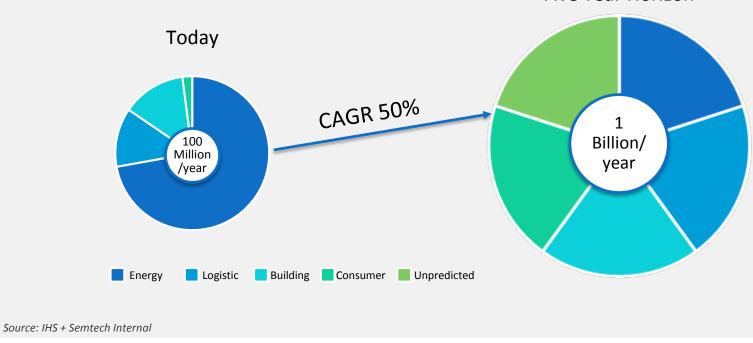
The Majority of Low Power Use Cases Require LoRa





# LPWAN Market Is A Large & Rapidly Growing Opportunity

IoT Market Will Be Dominated by Low Power Wide Area Network (LPWAN)



Five Year Horizon

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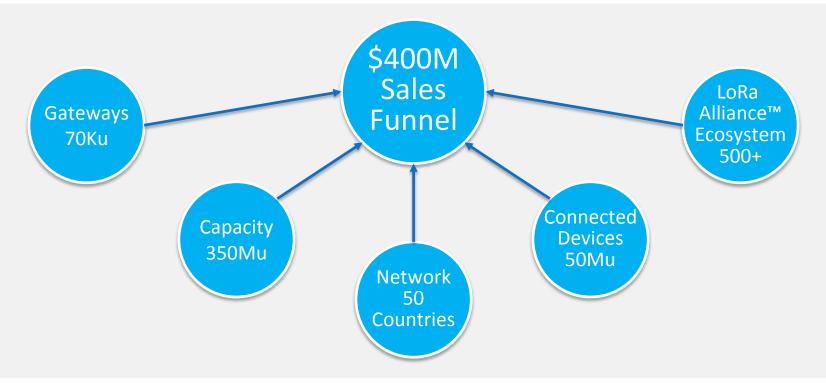
### LoRa Is Becoming the De Facto Standard of LPWAN





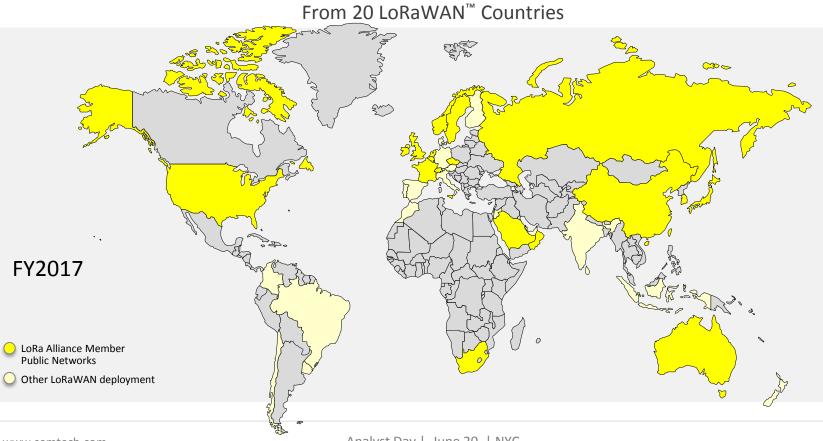
# LoRa<sup>®</sup> Achieved Key Milestones

FY18 Set Foundation to Drive Future Revenue Growth





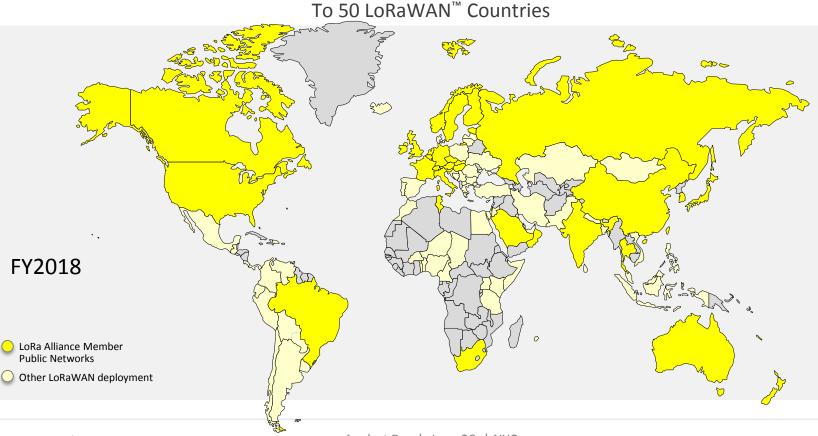
# Expanding Our Geographic Network Coverage



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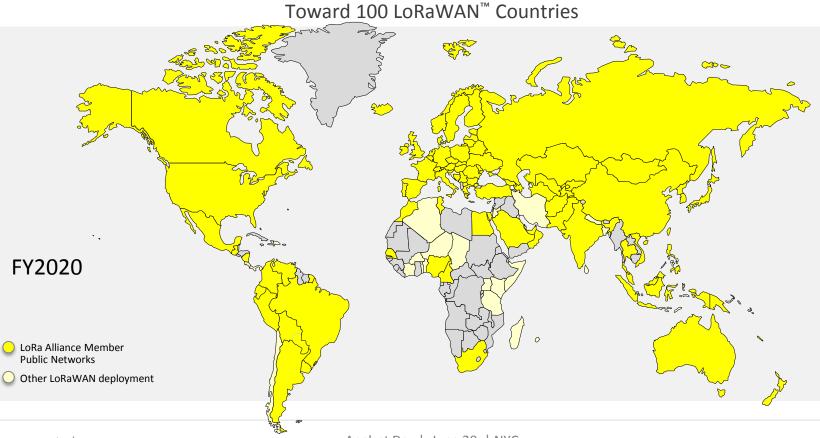
# Expanding Our Geographic Network Coverage



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# Expanding Our Geographic Network Coverage



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# Fast Deployment of LoRa Gateways

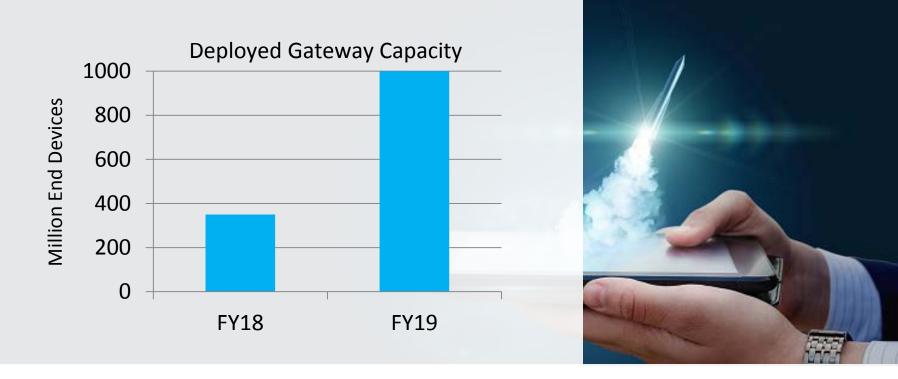
Expected to More Than Double in FY19





# Network Capacity Projected to Triple This Year

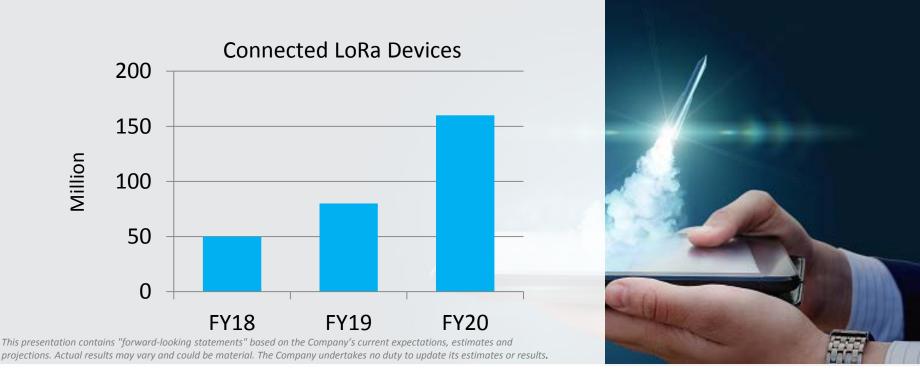
Network Deployment Plans Support Growth to 1 Billion LoRa<sup>®</sup> Devices





# LoRa Nodes Volumes Doubling Every Year

Funnel Opportunity to Support Over 100 Million LoRa Devices





# LoRa Alliance<sup>™</sup> as **World IoT Organization**

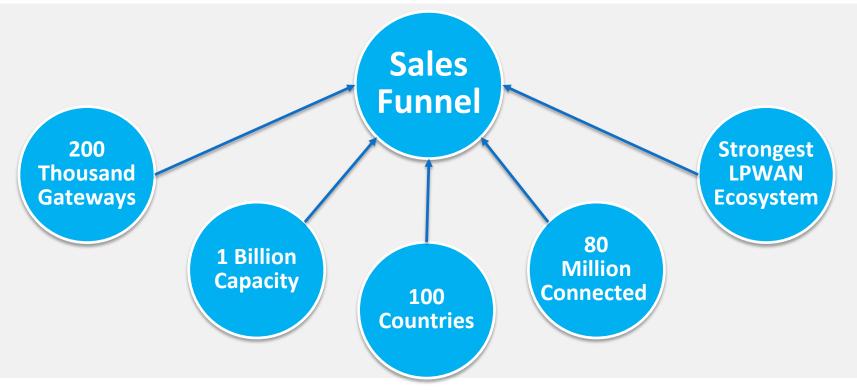
#### The Fastest Growing Alliance





# LoRa® FY19 Milestones

LoRa Is Becoming the LPWAN De Facto Standard





# LoRa<sup>®</sup> Use Cases Are **Growing Fast**





# LoRa Case Study: 30 Million Units Smart Meters

LoRa Has Delivered Higher Performance and Lower Infrastructure Cost

#### LoRa Enables Low Cost Smart Meters

- Deep indoor and underground connectivity
- Light network infrastructure with no repeater
- Lower operational cost with 10x longer battery lifetime

#### LoRa Network Becomes a Large Utility Asset

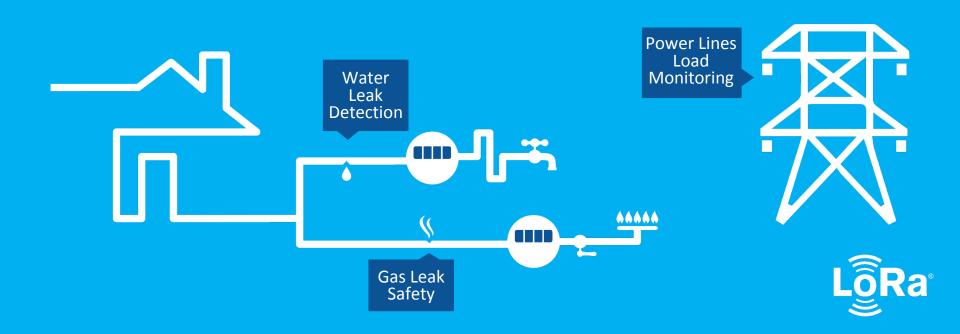
Ge Smart Meter
12:34:56
01234 <sub>kWh</sub>
56789
0123456789





### LoRa-Enabled Smart Meter Network **Opens Adjacent Segments**

Includes Power Line Surveillance, Water Saving and Gas Leak Prevention





# Strong Adoption of LoRa In The Smart Home Market

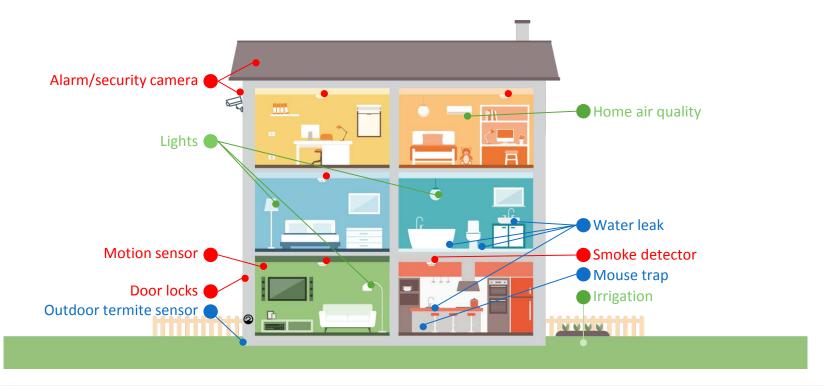
Simpler and More Effective Technology is Driving Demand





### Smart Home Use Cases Are Indoor and Outdoor

Potential for Over 20 LoRa® Devices Per Home





# LoRa<sup>®</sup> Roadmap to **Disrupt More Industries**

LoRa Tag<sup>™</sup> to Enable the Disposable Segments





# Looking Towards the Future

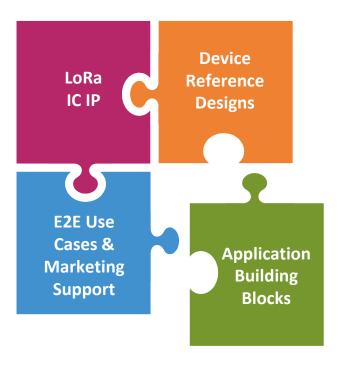


- Our experience in LPWAN IoT offers growth opportunities
- New business model focused on installed devices



# Accelerating The Pace of Innovation

Simplifying Development of LoRa-based Solutions



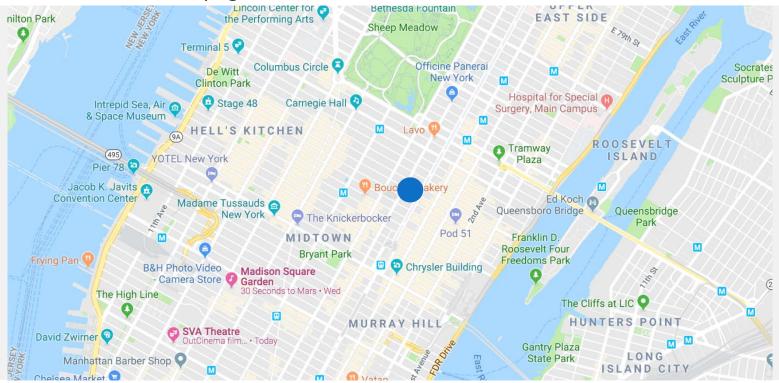
- Identify areas which drive solution development timeline and cost
- Provide basic application building blocks that simplify bringing solutions to market
- Enable the ecosystem to innovate and add value





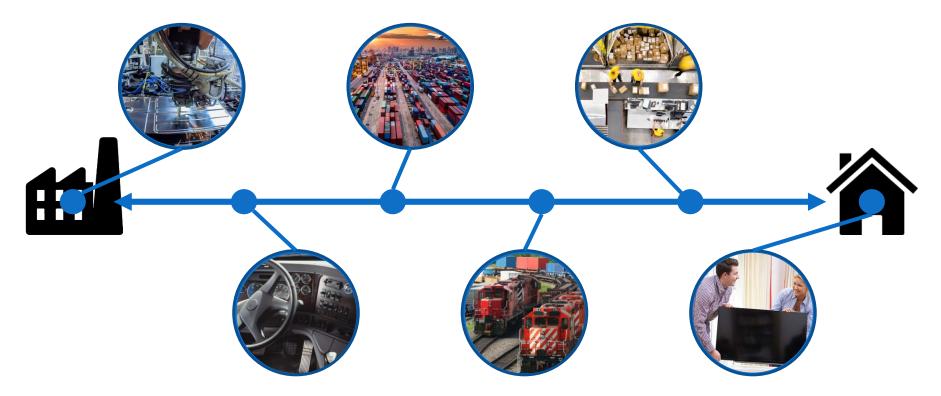
## The Little Blue Dot ... and Low Power IoT

Satisfying Needs of Low Power IoT Device Geolocation



### The Little Blue Dot...and Low Power IoT

Satisfying Needs of Low Power IoT Device Geolocation





# The Little Blue Dot ... and Low Power IoT

Satisfying Needs of Low Power IoT Device Geolocation



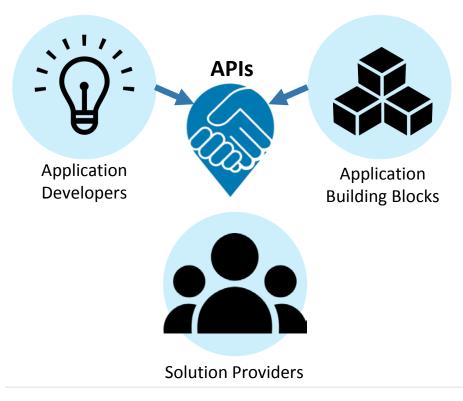
- Enable application developers to select the "best tool" for the job
- Leverage LoRa to reduce operational cost and complexity
- Extend IC capabilities to reduce BOM cost





# Combining Simplicity and Scale

To Enable Rapid Innovation



- Providing application building blocks to simplify development
- Cloud service accessible over simple API consumption model
- Marketplace function to support innovation and monetization



# Summary

LoRa: The DNA of IoT

- LPWAN market is the biggest opportunity of IoT
- LoRa expected to connect 1 Billion devices within next four years
- Geolocation and micro-services offer recurring monetization over installed LoRa Devices







# Wireless & Sensing Products LoRa: The DNA of IoT

Semtech Analyst Day 2018 | SMTC





#### Semtech Analyst Day 2018

June 20 | New York City | www.semtech.com

2018 | SMTC



# Forward-Looking Statements

This presentation contains "forward-looking statements" within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, as amended, based on the Company's current expectations, estimates and projections about its operations, industry, financial condition, performance, results of operations, and liquidity. Forward-looking statements are statements other than historical information or statements of current condition and relate to matters such as future financial and operational performance, the anticipated impact of specific items on future earnings, and the Company's plans, objectives and expectations. Forward-looking statements involve known and unknown risks and uncertainties that could cause actual results and events to differ materially from those projected. Potential factors that could cause actual results to differ materially from those in the forward-looking statements include, but are not limited to, the factors identified in Semtech Corporation's Form 10-K for the fiscal year ended January 28, 2018 under the heading "Risk Factors" and in the Company's Quarterly Reports on Form 10-Q, in other filings with the Securities and Exchange Commission, and in material incorporated therein by reference. Investors are cautioned not to place undue reliance on any forward-looking information contained herein, which reflect management's analysis only as of the date hereof. Except as required by law, the Company assumes no obligation to publicly release the results of any update or revision to any forward-looking statement that may be made to reflect new information, events or circumstances after the date hereof or to reflect the occurrence of unanticipated or future events, or otherwise.

#### Use of Non-GAAP Financial Information

In this presentation references are made to certain financial information calculated on a basis other than in accordance with accounting principles generally accepted in the United States (GAAP). These non-GAAP measures are provided as additional insight into on-going financial performance and are provided in addition to, and not as a substitute for, or superior to, measures of financial performance prepared in accordance with GAAP. A reconciliation of these non-GAAP information to the most comparable GAAP measures is shown in the Appendix provided at the end of this presentation.

This presentation also contains market statistics and industry data that are subject to uncertainty and are not necessarily reflective of market conditions. Although Semtech believes that these statistics and data are reasonable, they have been derived from third party sources and have not been independently verified by Semtech.

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# Solid Foundation for Long Term Profitable Growth



- Emerging growth drivers to sustain multi-year growth
- Value-added platforms driving operating margin expansion
- Strong cash flow provides flexibility for growth

# **Executing** Well

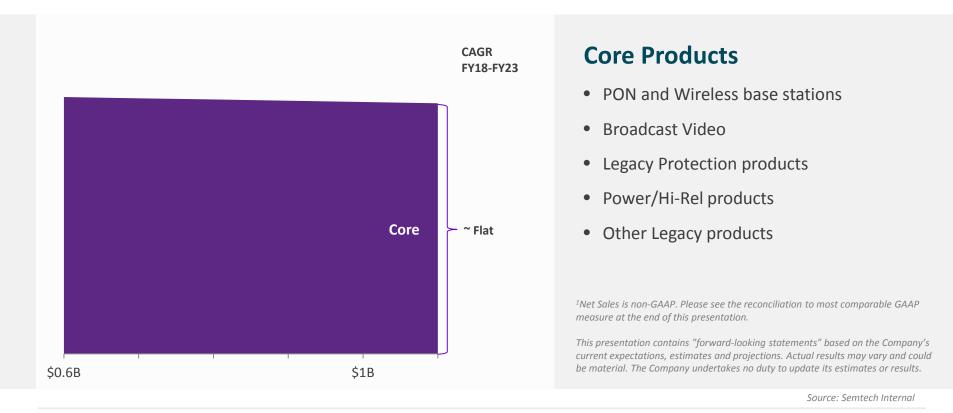
Earnings Have Grown Much Faster Than Net Sales



<sup>1</sup>Net sales, gross margin, OpEx, and earnings per share are non-GAAP. Please see the reconciliation to most comparable GAAP measure at the end of this presentation. \*Represents the consensus of current Analyst's estimates as of 6/12/18; Source: FactSet.



### A Solid Foundation of Core Revenue



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#### Broad and Diverse Net Sales Base



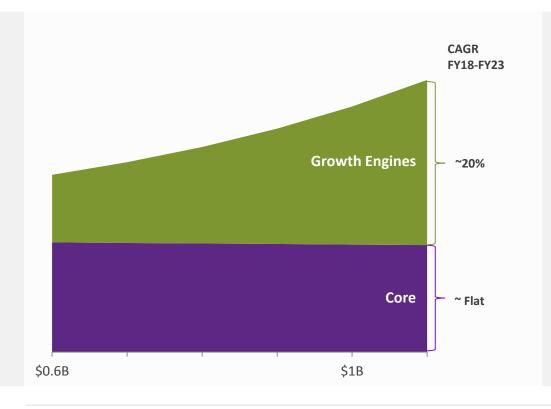
No 10% Customers

No 10% product

More than 65% of Net Sales through distribution



# Growth Drivers Leading the Path to \$1B



#### **Growth Engines**

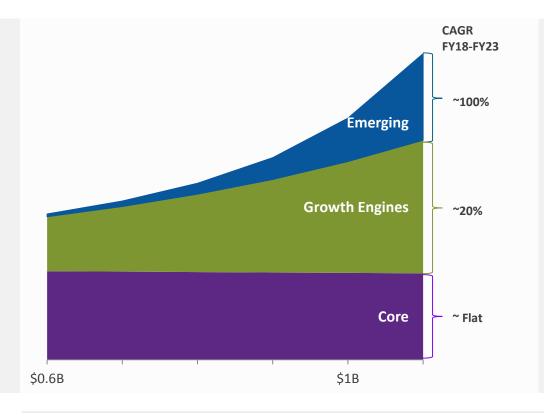
- IoT— LoRa<sup>®</sup> Enabled Net Sales
- Data Center CDRs (25G-100G NRZ)
- Mobile Devices Z Protection Platforms and Proximity Sensors

<sup>1</sup>Net Sales is non-GAAP. Please see the reconciliation to most comparable GAAP measure at the end of this presentation.

This presentation contains "forward-looking statements" based on the Company's current expectations, estimates and projections. Actual results may vary and could be material. The Company undertakes no duty to update its estimates or results.



# **Emerging Growth Drivers** to Lead Path Beyond \$1B



#### **Emerging Growth Engines**

- LoRa Tag<sup>™</sup>
- LoRa Micro Services (Geolocation)
- LoRa IP Licensing
- PAM4 CDRs (200G/400G) for Data Centers
- Professional Audio Video (Pro AV)
- Z-Ultra Protection Platform
- Smart Power and Energy Harvesting

<sup>1</sup>Net Sales is non-GAAP. Please see the reconciliation to most comparable GAAP measure at the end of this presentation.

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### Record Gross Margin Is Sustainable & Expanding



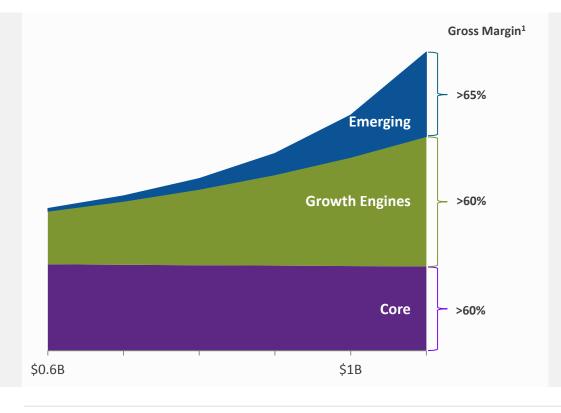
**Key indicator of customer** value creation **Balanced end markets New products Operational excellence** <sup>1</sup>Gross margin is non-GAAP. Please see the reconciliation to most comparable GAAP

<sup>1</sup>Gross margin is non-GAAP. Please see the reconciliation to most comparable GAAF measure at the end of this presentation.

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# Emerging Growth Engines Should Expand Gross Margin



Majority of growth and emerging growth engines are at or above the upper range of target corporate model for gross margin<sup>1</sup>

<sup>1</sup>Gross margin is non-GAAP. Please see the reconciliation to most comparable GAAP measure at the end of this presentation.

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## **OpEx Benefiting** from Strategic Investments



# SG&A leverage from infrastructure investments

# Focus on improving returns on R&D spending

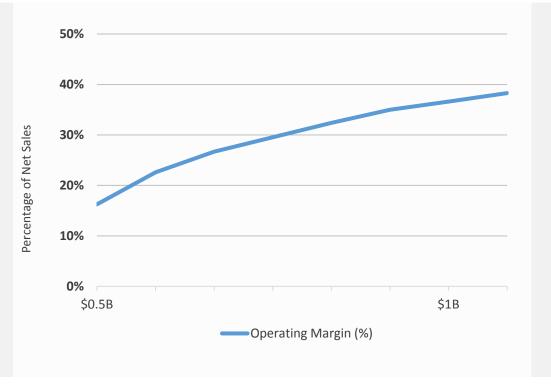
# **Ecosystem investing in the success of LoRa®**

 $^{\rm 1}$  OpEx is non-GAAP. Please see the reconciliation to most comparable GAAP measure at the end of this presentation.

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### Rapid Expansion of Operating Margin



Focus on key market trends driving Net Sales growth

Disruptive technology bringing more value to our customers

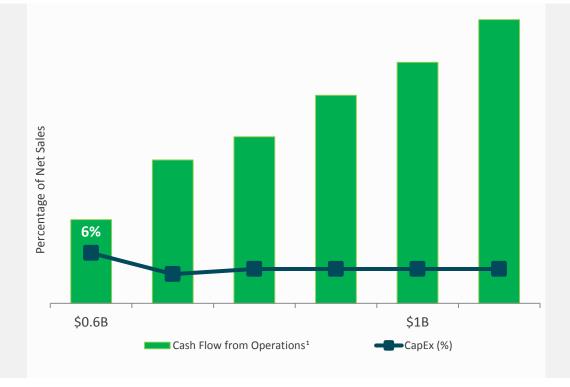
#### Value-based OpEx

<sup>1</sup>Operating margin is non-GAAP. Please refer to the description and the reconciliation at the end of this presentation.

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## Operational Excellence Expected to Drive Strong Cash Flow



#### Net Sales growth

#### **Best-in-class cash conversion cycle**

CapEx target of ~4% of Net Sales

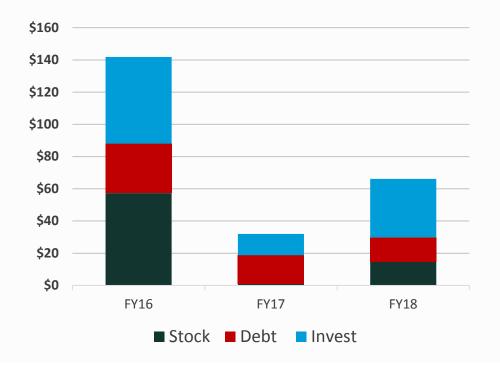
<sup>1</sup>Free cash flow is equal to cash flow from operations minus capital expenditures.

This presentation contains "forward-looking statements" based on the Company's current expectations, estimates and projections. Actual results may vary and could be material. The Company undertakes no duty to update its estimates or results.

Source: Semtech Internal and 10-K Cash Flow from Operations



#### Capital Allocation Focused on Growth & Shareholder Returns



#### **Repurchase Stock Opportunistically**

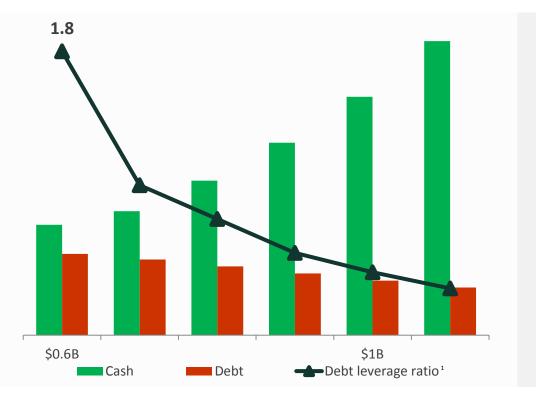
 Authorization Increased by \$250M (May 2018)

#### **Invest For Growth**

- Strategic Acquisitions
- Minority Investments



# Increasingly Stronger Capacity For Investment



Solid Cash Flow and profit growth contributing to strong balance sheet

<sup>1</sup>Debt leverage ratio is equal to debt divided by last twelve months EBITDA.

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## **Raising Our** Operating Margin Target

SEMTECH TARGET	OPERATING MODEL	FY18 ACTUALS
Net Sales Growth <sup>1</sup>	Three Points Above Industry Growth	10%
Gross Margin <sup>1</sup>	58%-63%	61.2%
Operating Expense <sup>1</sup>	Half the Rate of Revenue Growth	0.0%
Operating Margin <sup>1</sup>	32%-36% (prior 28%-32%)	26.6%
CapEx	~4% of Net Sales (prior 5%)	6%
Free Cash Flow Margin <sup>2</sup>	25%-30% (prior 20%-25%)	13%

<sup>1</sup>Net sales, gross margin OpEx, and operating margin used in the targeted operating model are based on non-GAAP measures. Please refer to the reconciliation of these items to GAAP for fiscal year 2018 results at the end of this presentation. <sup>2</sup>Free cash flow is equal to cash flow from operations minus capital expenditures.



# The Journey Continues

Our Future Value Is Being Driven by Today's Innovation

- Emerging growth drivers positioned to sustain multi-year growth
- Semtech's value-added platforms driving operating margin expansion
- Strong cash flow provides flexibility for growth



#### ...Beyond Remarkable



#### **Semtech Q&A Session**

June 20 | New York City | www.semtech.com 2018 | SMTC



### **Reconciliation** of GAAP to Non-GAAP Results

Twelve Months Ended for FY16 - FY18

#### Net Sales & Gross Profit

#### **Operating Expense**

#### **Operating Income & Free Cash Flow**

#### **Operating Income**

(in thousands)

	Jan 28, 2018	Jan 29, 2017	Jan 31, 2016	_	Jan 28, 2018	Jan 29, 2017	Jan 31, 2016	
GAAP Net Sales Adjustments to GAAP Net Sales	\$ 587,847	\$ 544,272	\$ 490,219	GAAP Operating Expenses Adjustments to GAAP operating income	\$ 283,235	\$ 240,781	\$ 263,111	Non-GAAP gross profit Non-GAAP operating exper Non-GAAP operating incom
Revenue: share-based compensation - Comcast warrant	16,219	5,396	-	Share-based compensation	(30,240)	(23,841)	(18,912)	
Non-GAAP Net Sales	\$ 604,066	\$ 549,668	\$ 490,219	Intangible amortization	(27,867)	(25,301)	(26,270)	GAAP operating income %
				Gain (loss) on disposition of business operations	(375)	25,513		Non-GAAP operating incom
GAAP gross profit	351,971	324,862	293,110	Transaction and integration related	(2,671)	(3,574)	104	
Adjustments to GAAP gross profit				Restructuring charges	(6,301)	(2,282)		Free Cash Flow
Revenue: share-based compensation - Comcast warrant	16,219	5,396	-	Acquisition related earn-outs	(5,031)	(2,012)		(in thousands)
Stock-based compensation expense	1,478	1,478	1,555	Environmental and other reserves	(85)	(2,693)	(2,855)	
Fair value adjustment related to acquired inventory	-	-	265	Litigation cost net of recoveries	(2,183)	1,054		Cash Flow from Operations
Non-GAAP gross profit	\$ 369,668	\$ 331,736	\$ 294,930	Non-GAAP operating expenses	\$ 208,482	\$ 207,645	\$ 215,178	Net Capital Expenditures
								Free Cash Flow
Net Sales	587,847	544,272	490,219	GAAP operating expense %	48.2%	44.2%	53.7%	
GAAP gross profit %	59.9%	59.9%	59.8%	Non-GAAP operating expense %	34.5%	37.8%	43.9%	
Non-GAAP gross profit %	61.2%	61.2%	60.2%					

**Operating Expense** 

(in thousands)

on-GAAP operating expenses	208,482	 207,645	_	215,178	
on-GAAP operating income	\$ 161,186	\$ 124,091	\$	79,752	
AAP operating income %	11.7%	15.4%		6.1%	
on-GAAP operating income %	26.7%	22.6%		16.3%	
ee Cash Flow					
thousands)					

Jan 28, 2018 Jan 29, 2017 Jan 31, 2016 \$ 369,668 \$ 331,736 \$ 294,930

	Jan 28, 2018	Jan 29, 2017	Jan 31, 2016
h Flow from Operations	111,485	117,612	102,076
Capital Expenditures	(35,461)	(32,920)	(13,026)
e Cash Flow	76,024	84,692	89,050

Source: Semtech Earnings Press Release



Net Sales & Gross Profit

(in thousands)