

# 2018 Annual Results Announcement

22 February 2019



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# ASMPT Recognized as TOP 100 Global Tech Leaders

**ONLY** Back-end Equipment Supplier Being Recognized

2018 THOMSON REUTERS

**TOP100**  
GLOBAL TECH LEADER

***“The Top 100 Global Technology Leaders are the organizations poised to propel the future of technology”,***  
Brian Scanlon, Chief Strategy Officer

Thomson Reuters, 2018



# Corporate Overview

2018 Group Revenue  
(CAGR 2008-2018 14%)

USD 2.49B

41.1%

SMT  
Solutions

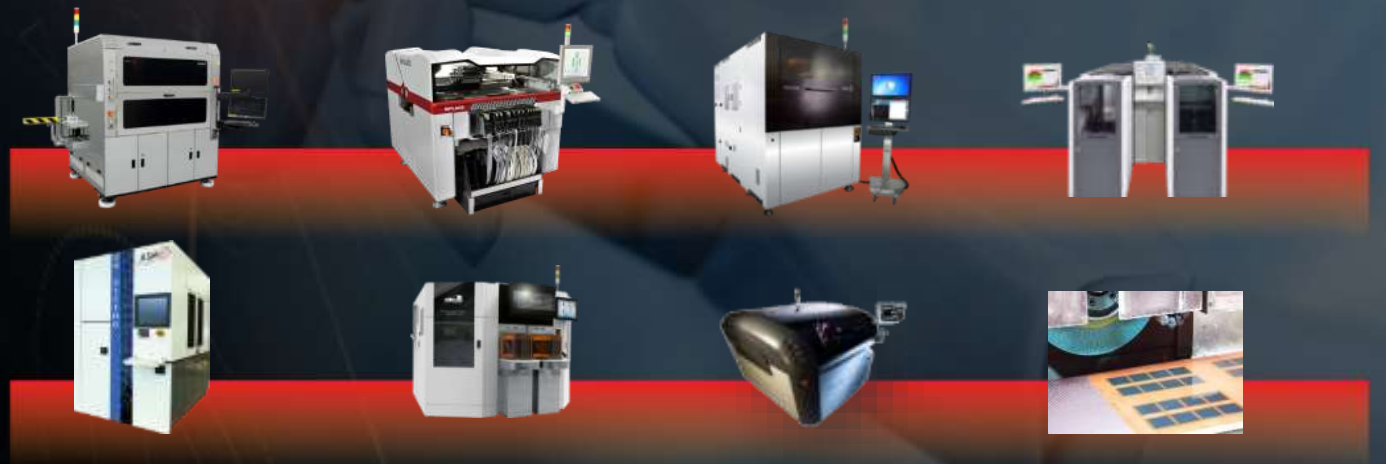
47.4%

Back-end  
Equipment

11.5%  
Materials

# A World's Technology & Market Leader

- A leading Integrated Solutions Provider in the semiconductor assembly and packaging industry as well as in the SMT solutions market
- A leading player for CIS, LED, and Automotive
- Top 3 application markets accounted for 47% of group revenue in 2018





# ASMPT Global Presence



**>2,000**  
Global R&D staff



**>1,400**  
Patents on key leading  
edge technologies



**10**  
R&D centres  
worldwide



**12**  
Manufacturing  
facilities



# ASMPT Major Facilities around the World



Hong Kong



ASMPT Technology Singapore  
2 Yishun Avenue 7



Yishun



Munich



Regensburg



Boston



Porto



Longgang (龙岗)



Fuyong (福永)



Huizhou (惠州)



Chengdu (成都)



Taoyuan



Weymouth



Beuningen



Johor Bahru



Johor Bahru Expansion  
(Ready 2019)



# Three Business Segments With Leading Market Positions

Worldwide Market Position & Share

**Back-end  
Equipment**

**#1**

**Assembly & Packaging  
Equipment Market**

**~25%**  
(2018)

- #1 Die Bonders
- #2 Wire Bonders
- #1/2 Flip Chip Bonders
- #1 Thermal Compression Bonders (TCB)
- #1 LED Packaging Equipment
- #1 CMOS Imaging Sensors (CIS) Equipment
- #2 Encapsulation & Post Encapsulation Solutions
- #4 Turret Test Equipment (Test Handlers)
- #2 Laser Dicing and Grooving

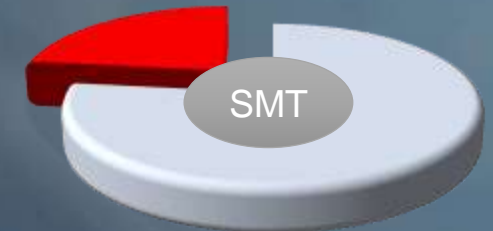


**SMT  
Solutions**

**#1**

**SMT Equipment Market**

**~23%**  
(2018)



**Materials**

**#3**

**Leadframe Market**

**~9%**  
(2018)



Sources:

Market share for Back-end Equipment is based on information on packaging and assembly equipment market by VLSI, leadframe market by SEMI, and SMT market by ASMPT SIPLACE Market Intelligence



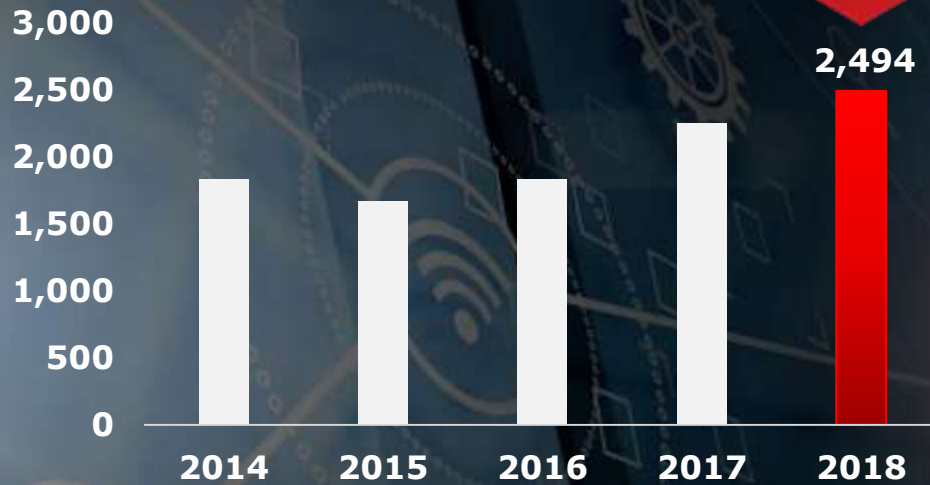


# **2018** **Financial Highlights**

# Yearly Billings

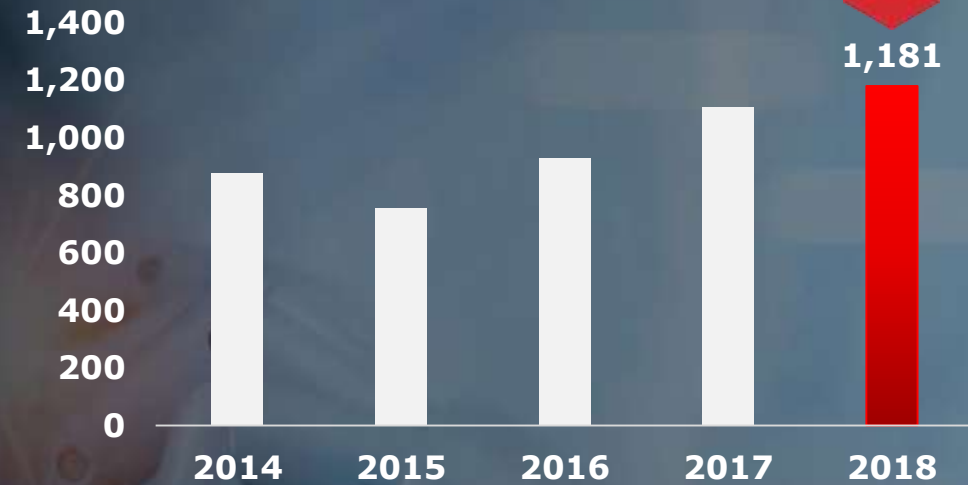
Group Billings  
(US\$ m)

YoY Growth: +11.6%



BE EQT Billings  
(US\$ m)

YoY Growth: +7.3%



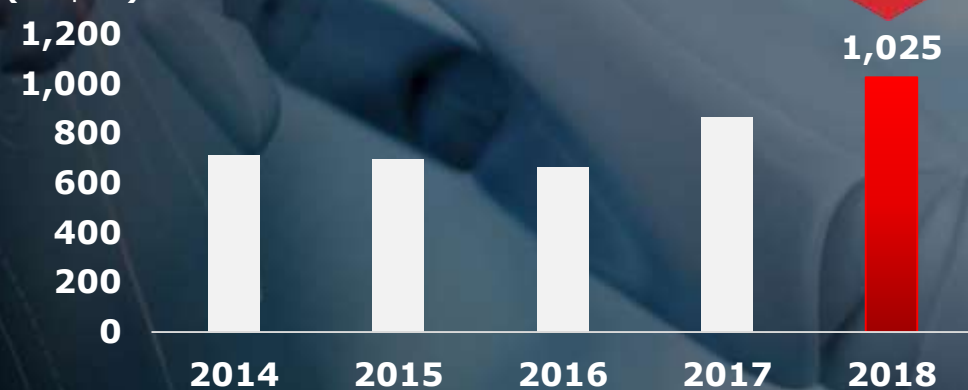
Materials Billings  
(US\$ m)

YoY Growth: +5.2%



SMT Billings  
(US\$ m)

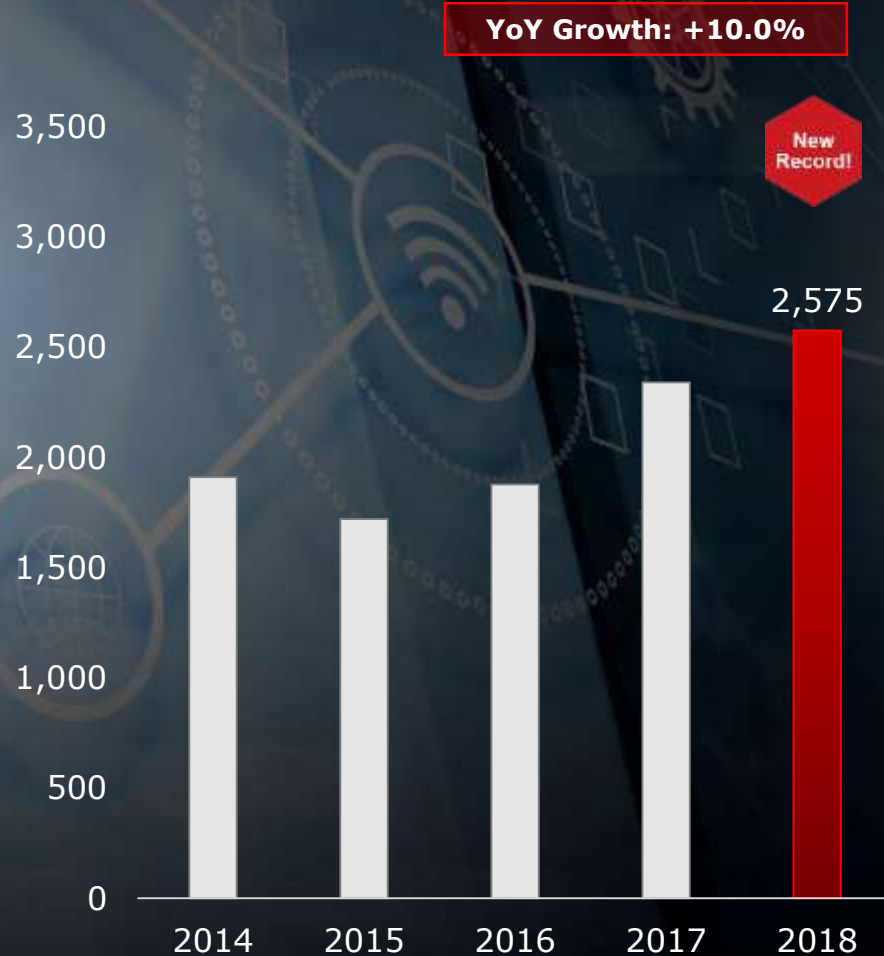
YoY Growth: +19.1%





# Group Bookings

Yearly Group Bookings  
(US\$ m)



- Q4 Group Bookings: ▼ 4.5% YoY
- Q4 Backend: ▲ 4.0% YoY
  - Increased contribution from Advanced Packaging
- Q4 SMT Solutions: ▼ 2.5% YoY
- Q4 Group Backlog: ▲ 21.6% YoY

Quarterly Group Bookings  
(US\$ m)



# Major Drivers for 2018 Bookings/Billings

## Back-end

### IC / Discrete

Discrete Semiconductors



RF Filters



Advanced Packaging



Automotive



Consumer



Power Management



Industrial



IoT



## SMT Solutions

Automotive



IoT

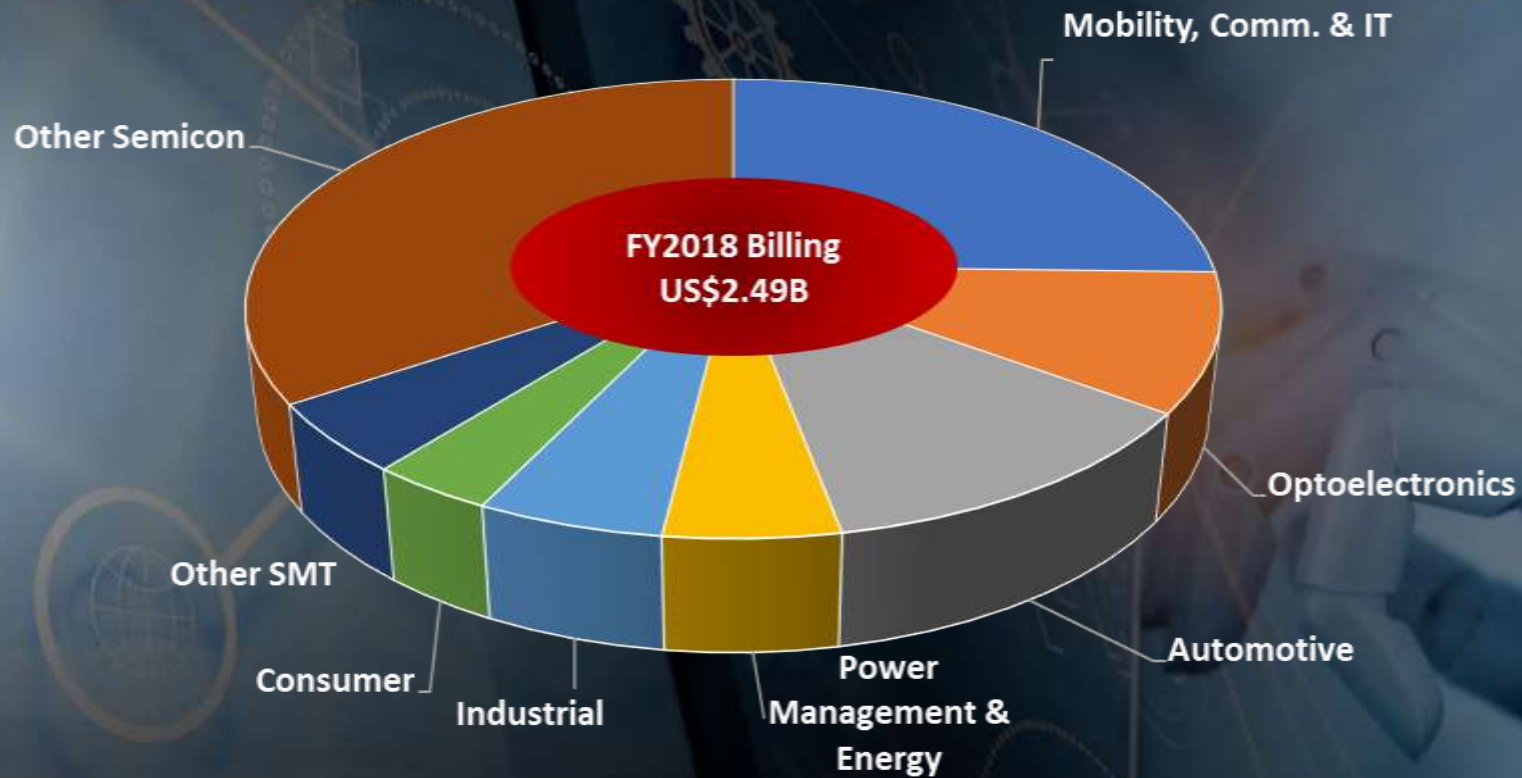


Smartphones  
(China + India)





# ASMPT Revenue Breakdown by Application Markets



Mobility, Comm & IT, Optoelectronics and Automotive % of Group Revenue

52%

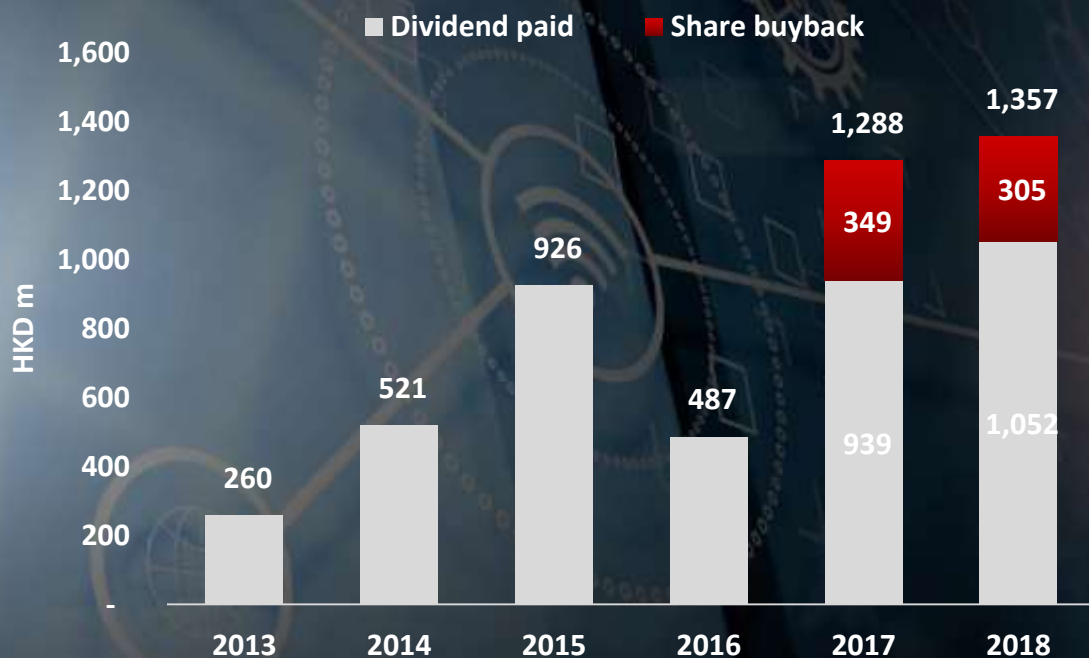
47%

2017

2018

Automotive and Industrial advanced to #2 and #4 respectively

# Sustainable and Gradually Increasing Dividends

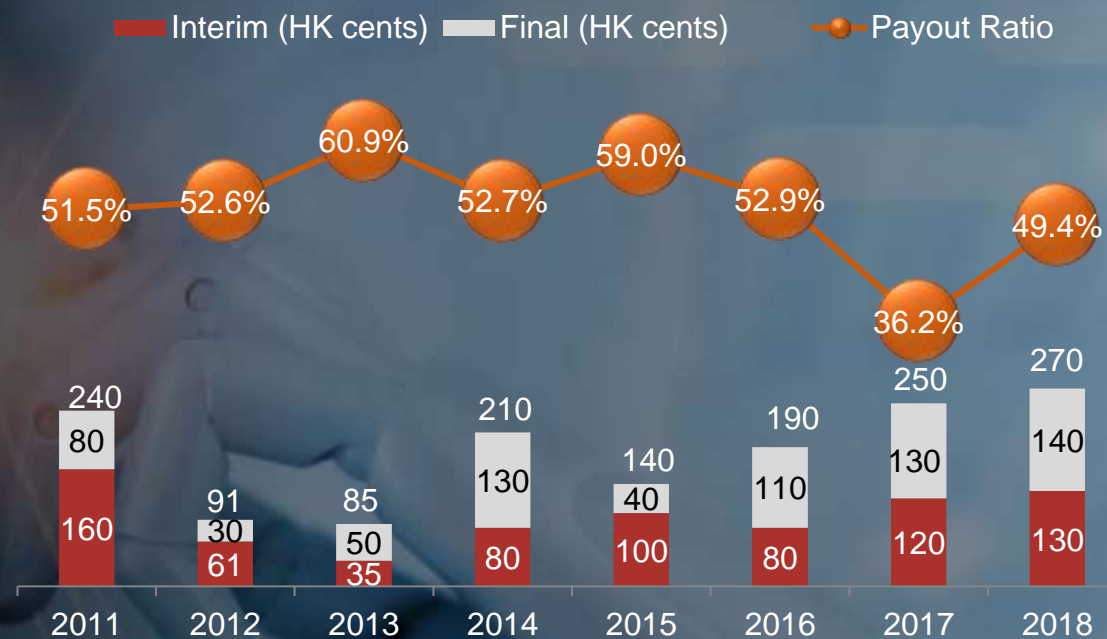


Cumulative cash returned: HKD4.8bn

## Share Buyback Program

- Amount exercised HKD654.1m, 1.49% of shares outstanding at 31 December 2018

## Dividend Per Share (HK cents)



	1H 2018	2H 2018	Full Year 2018
DPS	1.30	1.40	2.70
EPS	3.46	2.01	5.47
Payout ratio	37.5%	69.9%	49.4%

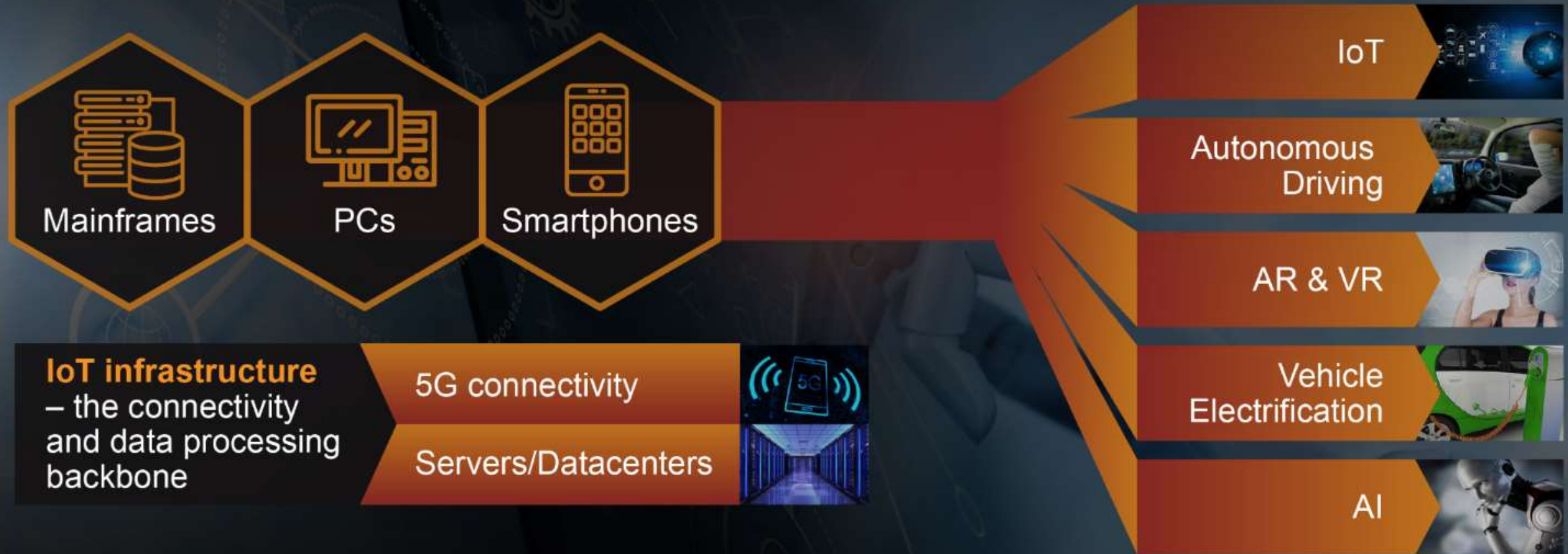




**We Are  
Ready to Ride the  
Next Wave of  
Growth**

# Future Is About Data and **Only Just Beginning**

No single leading driver, but a fragmented growing market!



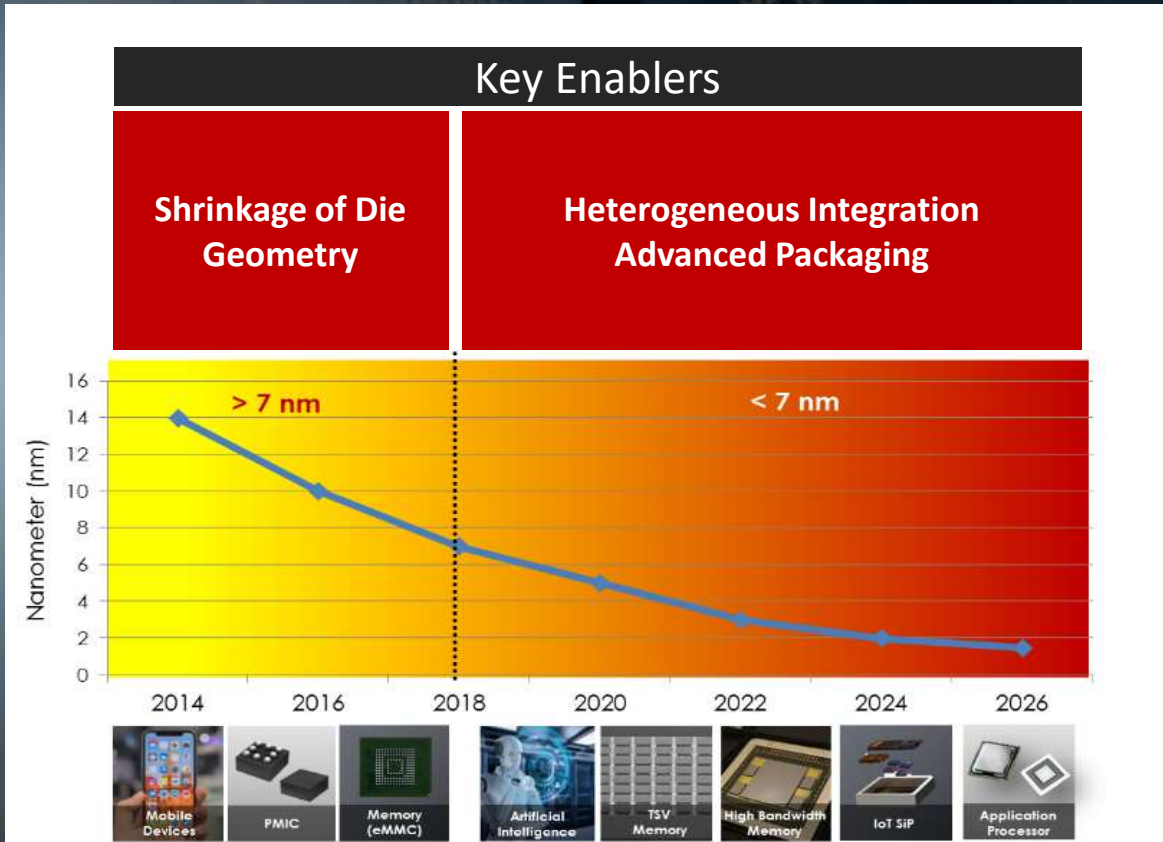
Source: Yole Development, May 2017



# Market Expansion Led by Data Explosion



# More than Moore: Heterogeneous Integration & Advanced Packaging Shifting the Value Chain



## Advantages of Heterogeneous Integration

- Integrating multi-mode technologies to enable “More than Moore”
- Faster time to market
- Less IP issues
- Flexibility
- Cost savings

## ON-PACKAGE HETEROGENEOUS INTEGRATION IS CRITICAL



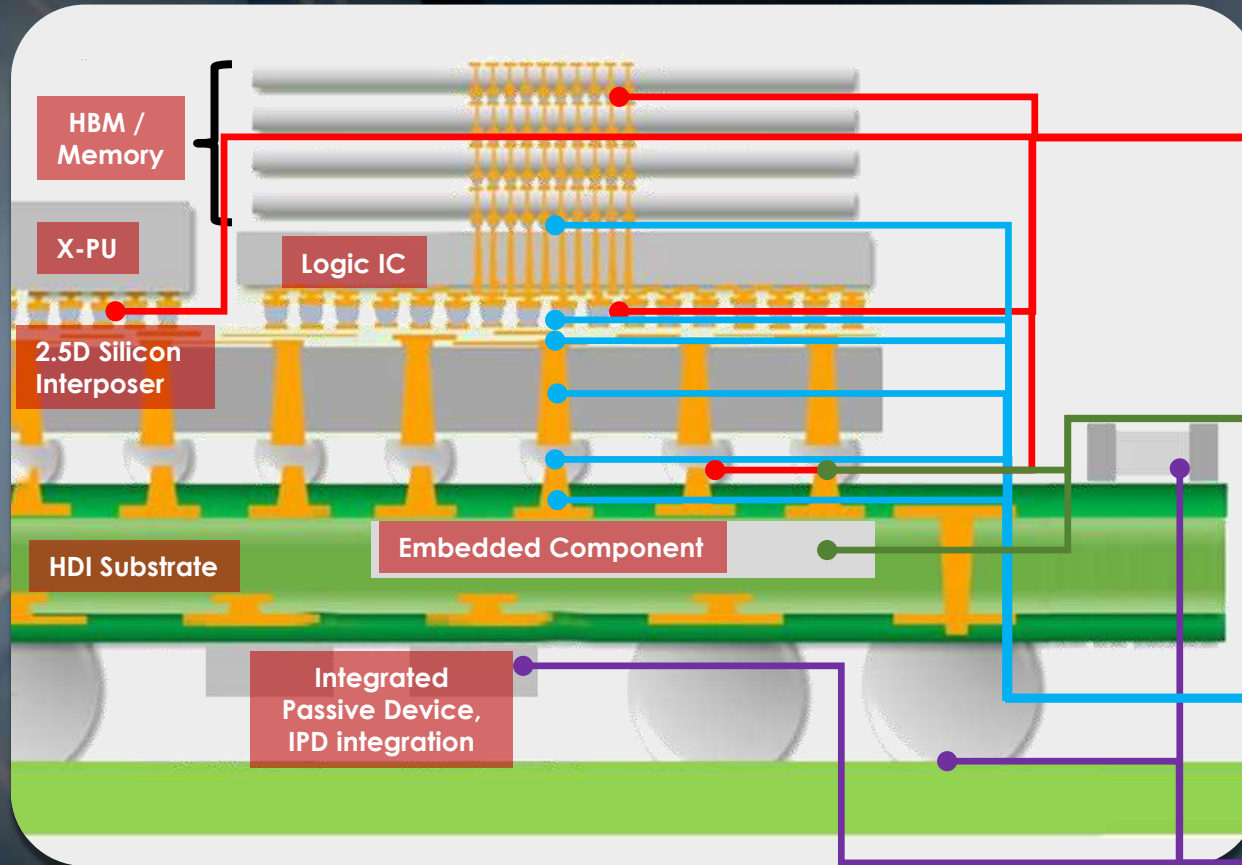
“High Bandwidth & Low Power Data Pipes **ONLY** Available On Heterogeneous Integration on Advanced Packages”

Source: Intel

**Artificial Intelligence requires High Performance Computing**



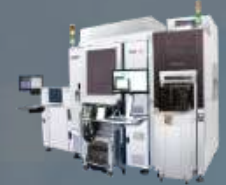
# Advanced Packaging Contributed >10% Back-end Revenue in 2018



*AP will be a significant growth driver*

## **FIREBIRD Series** (TCB)

3D Memory / IC Stacking  
HI TCB Bonding  
Extra Large Die TCB Bonding



## **NUCLEUS Series** (Pick & Place)

Extra Large Die Flip Chip Bonding  
Premium AP in Fan Out Technology  
Panel Level Active & Passive Embedding



## **NEXX** (PVD | ECD)

Bumping  
TSV in Si Interposer  
RDL



## **SIPLACE-CA** (SMT Pick & Place)

IPD Assembly  
Board Level Assembly  
Module Level Decoupling Capacitor / Passive Component



# Applications Fueling OPTO Business Growth

## MiniLED



Market Size CAGR <sub>2019 – 2023</sub>  
**~ 90 %**



**Video Walls / Large Displays**

## MicroLED



MicroLED is expected to offer  
**10X**  
higher resolution



Current  
resolution  
**2160 x 1200**

**Display for AR / VR**

## Photonics



Market Size CAGR <sub>2019 – 2025</sub>  
**~ 23.4 %**

Data Center Silicon TAM



Source: Intel

**Data Centre /  
Cloud Computing**

Source: Gamingscan, Electronics Weekly, LEDinside, ReportsnReports, Yole Development (Oct 2018)



# Data Explosion to spur CIS business

Today...

*Most Data are generated by Cameras*



Youtube Data-Rich Video



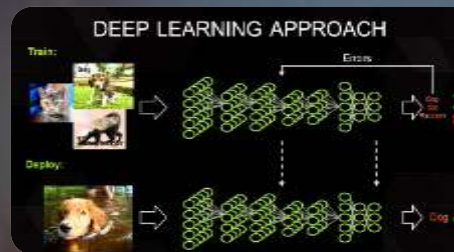
Samsung Galaxy Fold: 6 Cameras



Content Creation by  
Social Media "Influencers" – New Marketing Strategy



Autonomous Vehicles: LiDAR, 3D



Artificial Intelligence Deep Learning  
– Layered Images



Cameras in VR/AR



Industrial Inspection

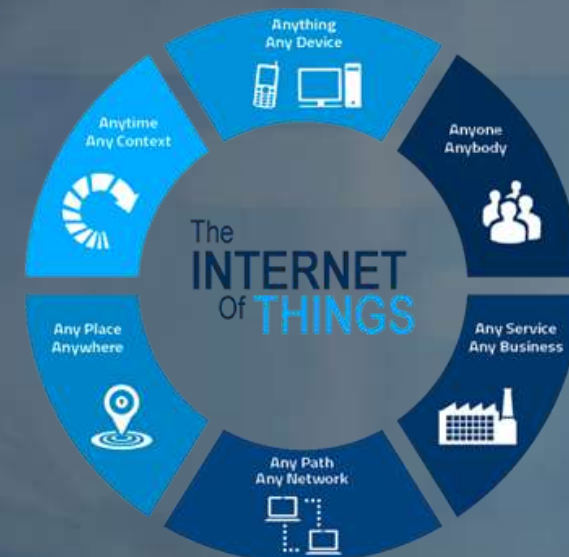


Security: Features Recognition

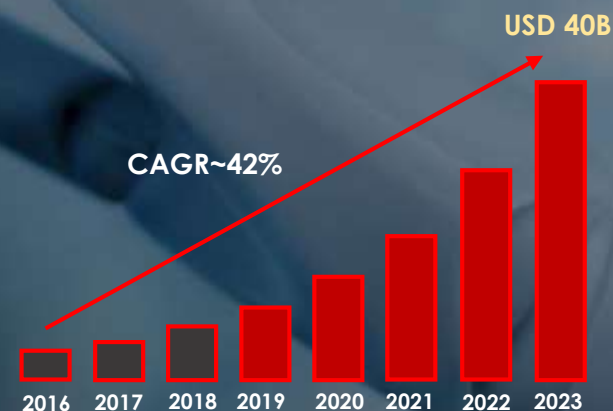
Tomorrow...

*Even more Data generated from multi applications*

# Automotive will surpass Smartphones in Semiconductor contents



IoT Sensor Market Global Industry Forecast To 2023



Source: Reuters (Jan 2019)

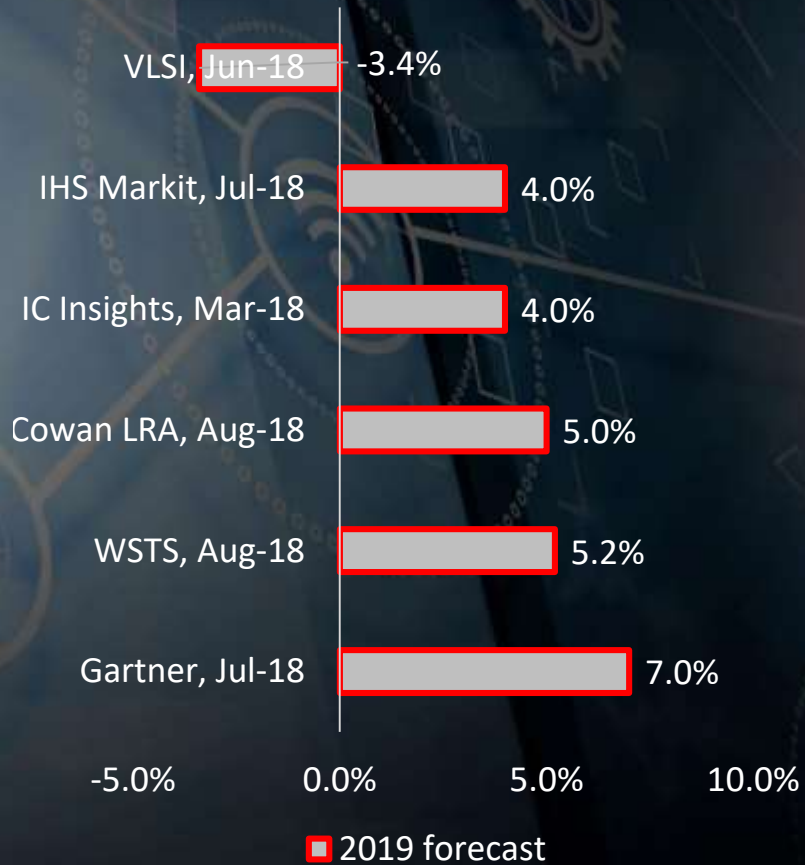




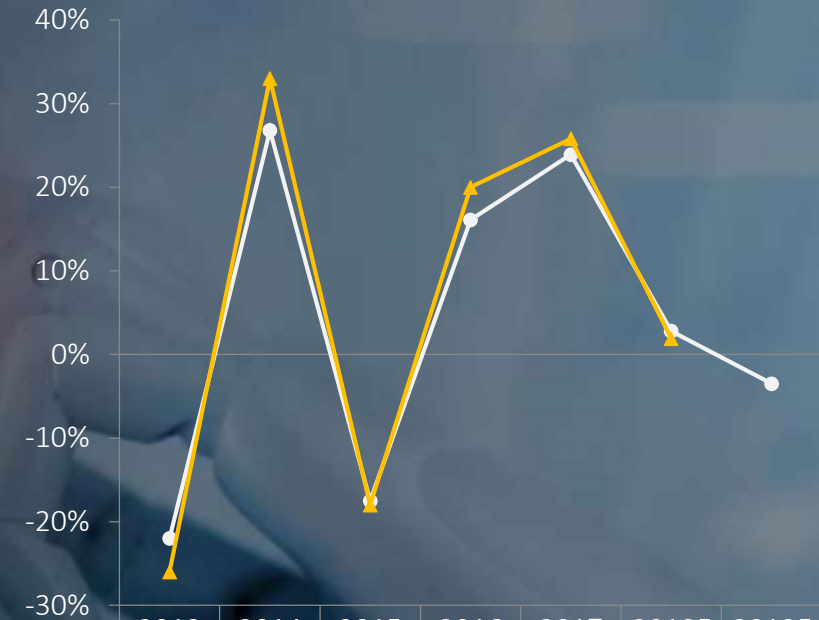
# Outlook

# Industry Growth Forecast (2018-2019)

## Semiconductor Industry



## Forecast Global Assembly & Packaging Equipment Market



	2013	2014	2015	2016	2017	2018F	2019F
—●— VLSI Assembly & Packaging Equipment (Oct-18)	-22%	27%	-18%	16%	24%	3%	-4%
—▲— SEMI Assembly & Packaging Equipment (Dec-17)	-26%	33%	-18%	20%	26%	1.9%	



# Outlook

**Q1 Group Billing: US\$460 million – US\$510 million**

- **Back-end Equipment:** Expected to be flat or small decline QoQ
- **SMT solutions segment:** Expect QoQ ▼ , YoY ▲

**Q1 Group Booking: Likely flat or rebound slightly QoQ**

**Q1 Group Gross Margin: Expected to be mid 30%**

**2019 Group Billing:**

- **Expect 2019 to be challenging**
  - Expect Revenue ▼ YoY
  - Advanced Packaging revenue expected ▲

# ASMPT Has Entered Into a High Growth Period

Group Half Yearly Billings  
(US\$ m)







# **2018** **Financial Results**

# 2018 Group Financial Highlights

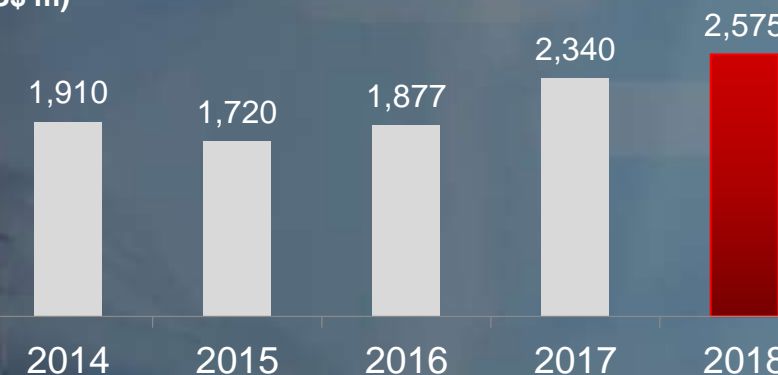
	FY2018	FY2018	2H 2018		Q4 2018	
		YoY	HoH	YoY	QoQ	YoY
Bookings (USD)	2,575m	+10.0%	-26.3%	+2.1%	-23.3%	-4.5%
Billings (USD)	2,494m	+11.6%	+3.3%	+6.4%	-7.7%	+12.8%
Gross Margin	38.0%	-220bps	-520bps	-453bps	-485bps	-629bps
Net Profit (HKD)	2,212m	-14.7%*	-41.7%	-38.1%	-64.8%	-53.2%

\* Excluded liability component of convertible bonds

Bookings  
(US\$ m)

YoY Growth: +10.0%

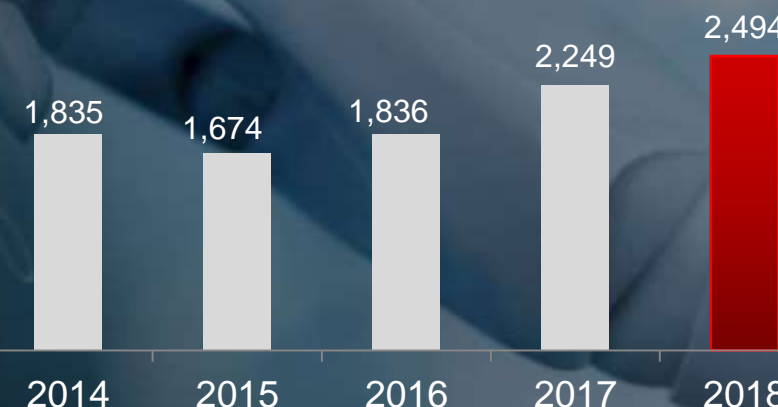
New  
Record!



Billings  
(US\$ m)

YoY Growth: +11.6%

New  
Record!

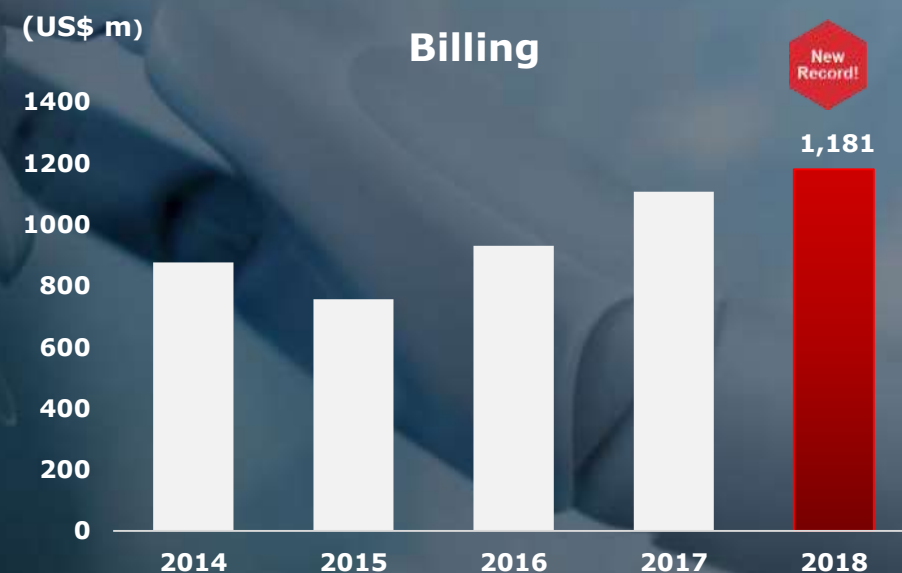




# 2018 Segment Results - Back-End Equipment Business

	FY2018	FY2018	2H 2018		Q4 2018	
		YoY	HoH	YoY	QoQ	YoY
Bookings (USD)	1,257m	+11.9%	-34.8%	+5.0%	-11.9%	+4.0%
Billings (USD)	1,181m	+7.3%	-16.9%	-0.2%	-23.0%	-6.6%
Gross Margin	45.9%	-208bps	-463bps	-522bps	-47bps	-583bps
Segment Profit (HKD)	2,011m	-7.3%	-52.6%	-36.5%	-65.8%	-61.0%
Segment Profit Margin	21.7%	-342bps	-1159bps	-880bps	-1127bps	-1257bps

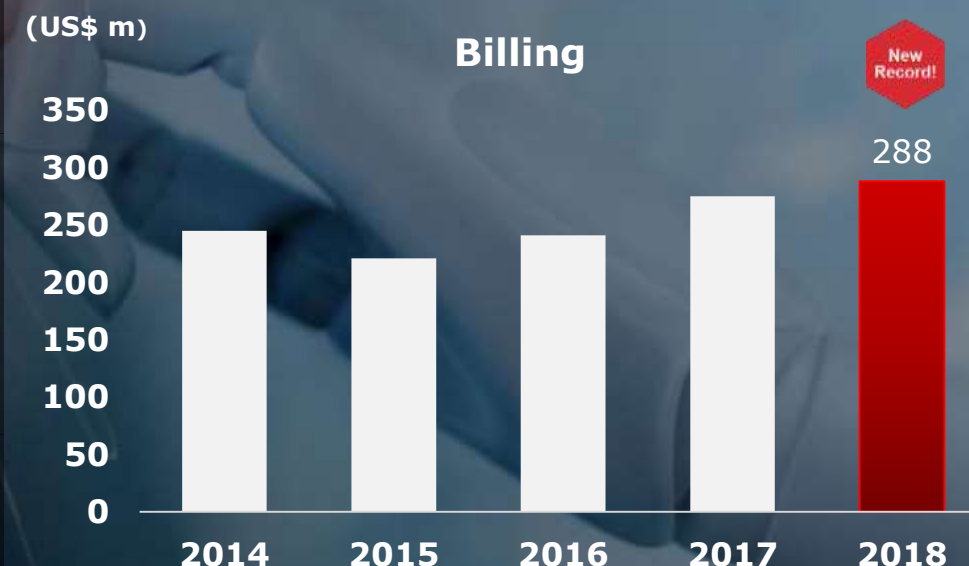
- Advanced Packaging (AP) contributed >10% of Back-end equipment revenue
- AP revenue boosted by newly acquired NEXX business
- Gross Margin ▼: Product mix and lower run rate in Q4
- Segment profit ▼: Partly due to Acquisitions



# 2018 Segment Results - Materials Business

	FY2018	FY2018	2H 2018		Q4 2018	
		YoY	HoH	YoY	QoQ	YoY
Bookings (USD)	245m	-17.7%	-37.8%	-30.0%	-26.0%	-39.5%
Billings (USD)	288m	+5.2%	-9.3%	-1.5%	-22.3%	-7.8%
Gross Margin	11.5%	-211bps	-368bps	-402bps	-330bps	-461bps
Segment Profit (HKD)	114m	-11.4%	-64.8%	-44.9%	-87.3%	-55.9%
Segment Profit Margin	5.0%	-95bps	-435bps	-218bps	-365bps	-78bps

- New billing record set in 2018
- Booking reduction suggests a challenging market in 2019

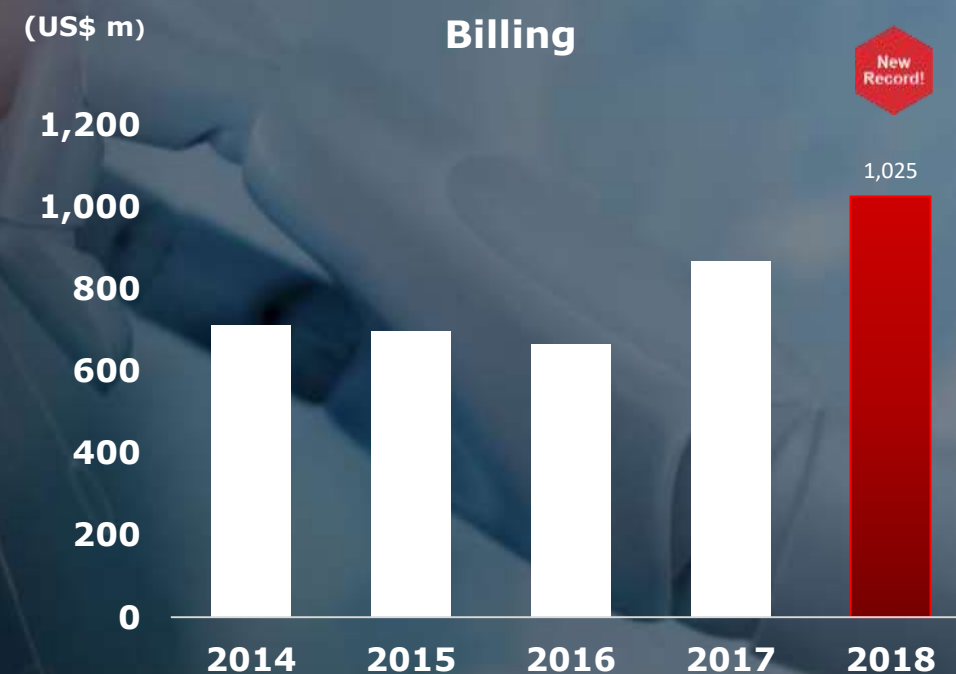




# 2018 Segment Results - SMT Solutions Business

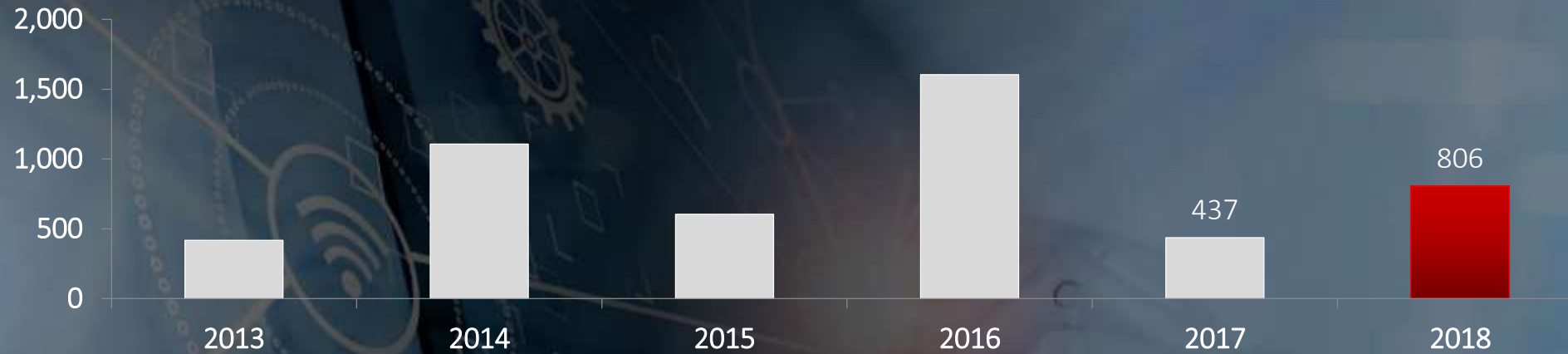
	FY2018	FY2018	2H 2018		Q4 2018	
		YoY	HoH	YoY	QoQ	YoY
Bookings (USD)	1,073m	+16.7%	-11.8%	+8.4%	-32.9%	-2.5%
Billings (USD)	1,025m	+19.1%	+37.9%	+15.3%	+12.9%	+40.3%
Gross Margin	36.5%	-238bps	-503bps	-386bps	-873bps	-603bps
Segment Profit (HKD)	1,275m	+17.6%	+36.0%	+7.2%	-31.5%	+65.7%
Segment Profit Margin	15.9%	-20bps	-23bps	-119bps	-782bps	+186bps

- Achieved US\$1B revenue in 2018
- Tremendous demand for Automotive Electronics and Industrial IoT
- HKD 93.9m charges related to discontinuing Solar Business



# Free Cash Flow and Capital Investment

Free Cash Flow  
(HK\$ m)



Capital Investment  
(US\$ m)





# Financial Metrics

## Return On Invested Capital (ROIC)



## Return On Equity (ROE)

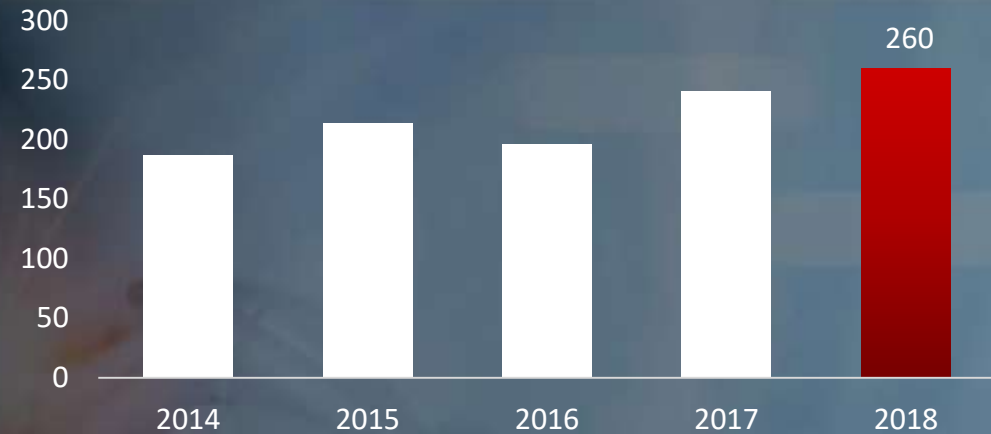


# Working Capital Management

## Working Capital



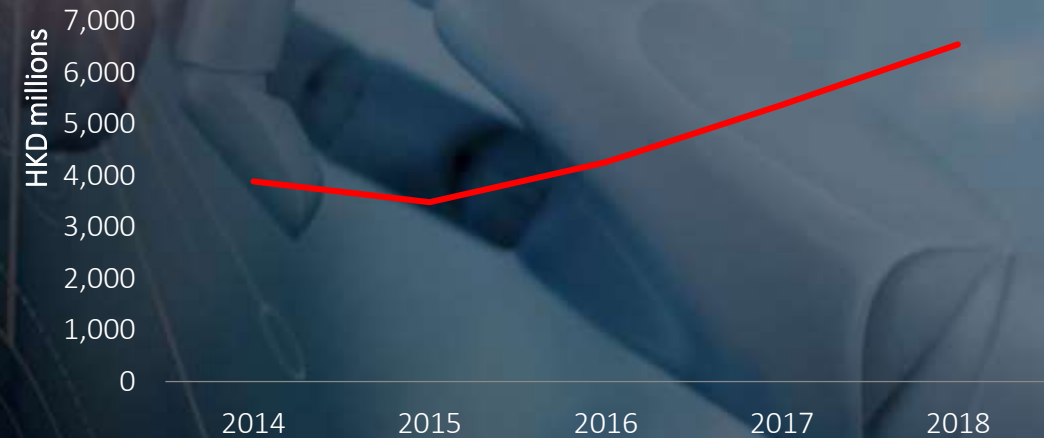
## Cash Conversion Cycle (Days)



## A/R

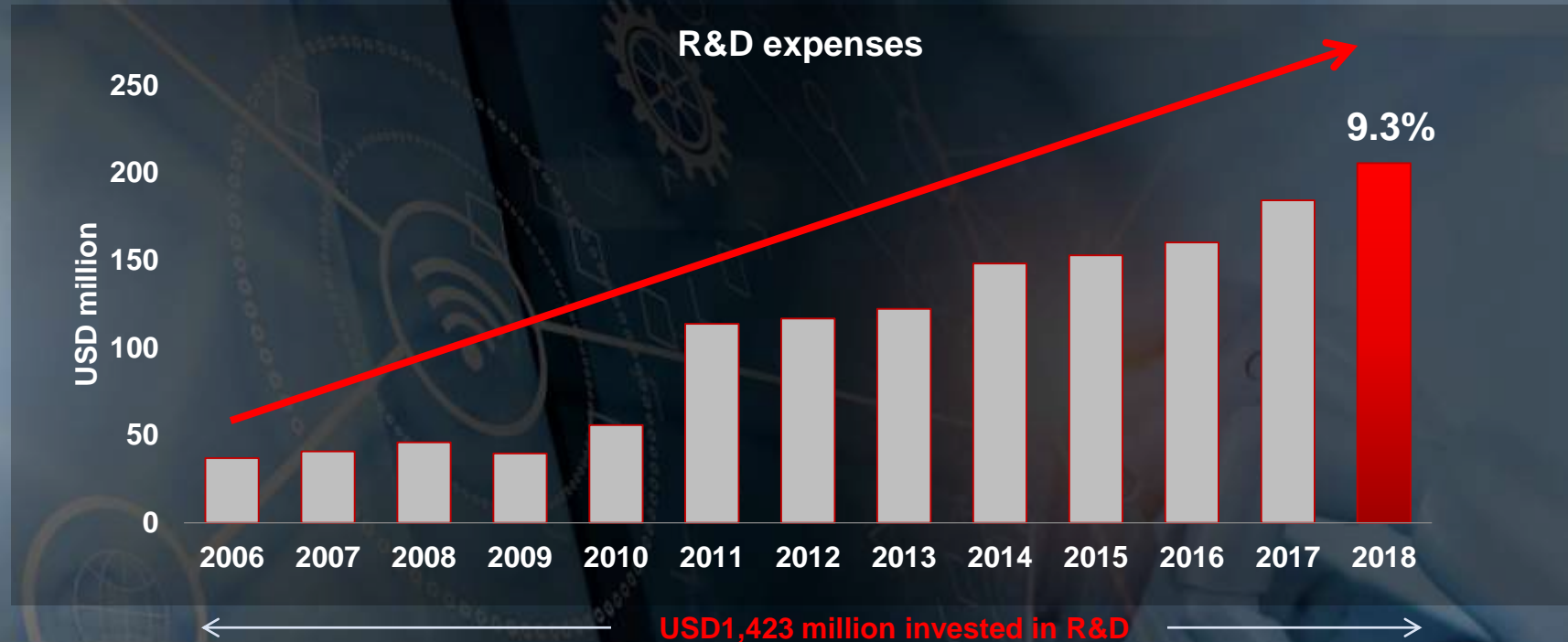


## Inventory



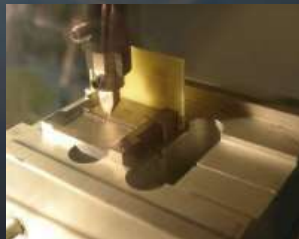


# R&D Commitment Makes Us a Preferred Partner of Choice



## 2018 R&D expenditure

- US\$ 205 million
- 9.3% of equipment sales



Package Interconnection



Optics precision engineering



Vibration control



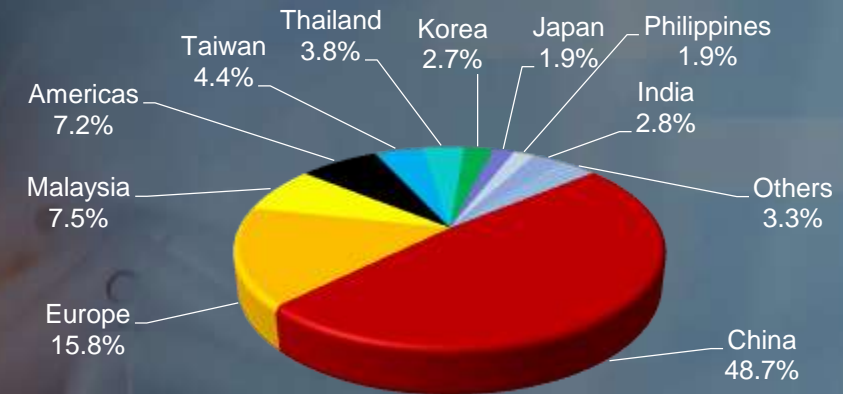
Laser dicing & grooving



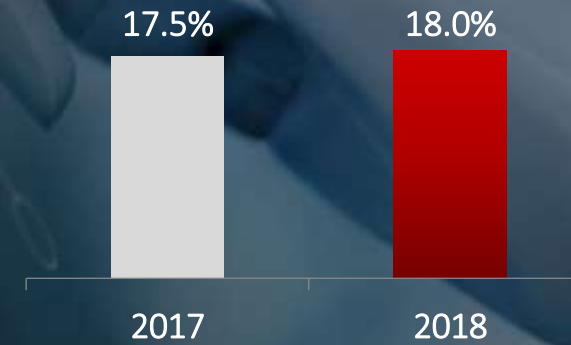
SMT

# An Extensive Customer Base

2018 Geographical Distribution of Revenue



2018 Revenue Contribution from Top 5 Customers



- No single customer accounted for more than 10% of Group revenue
- Top 5 customers accounted for 18% of Group's 2018 revenue
- Top 20 customers include:
  - World's leading IDMs
  - Tier 1 OSATs, major OSATs in China
  - Key LED players
  - Major camera module makers
  - Top EMS providers
  - Leading automotive component suppliers
- Among Top 20 customers of Group:
  - 4 from SMT Solutions segment
  - 5 from both Back-End Equipment & SMT Solutions segment



# Awards & Recognition



# Recent Awards & Recognition

- Technology Achievement Grand Award of HKIA 2017  
(for the third time)  
Federation of HK Industries



- Directors of the Year Awards 2017 (Collective Board)
- Directors of the Year Awards 2018 (Individual Director)  
Hong Kong Institute of Directors



- Hong Kong Outstanding Enterprises 2017-18  
HK Economic Digest



- 2017 All Stars of the Semiconductor Industry  
VLSI Research

VLSIresearch's 2017 All Stars

- Singapore Quality Class  
Enterprise Singapore

# Recent Awards & Recognition

- Factory of the Year 2016 Award (for SMT) by Produktion/AT Kearney



Ranked among Top 10 of Best Managed HK Companies

Ranked among Top 10 of Best at Investor Relations



- 2017 & 2018 “Triple Crown” with RANKED 1<sup>st</sup>/10 BEST/BEST Suppliers Awards from VLSIresearch



- 2016-17 Corporate Governance Asia – Best Investor Relations Company (HK)
- 2017 Corporate Governance Asia – Best CEO (Investor Relations)



- 2015 Hong Kong Awards for Industries: Technology Achievement Grand Award





# VLSI Awards 2018



				
10 BEST Segment	Rank	10 BEST CHIP MAKING EQUIPMENT SUPPLIERS OF 2018	Rating	Stars
L A R G E	1	TERADYNE	9.25	★★★★★
	2	ADVANTEST	9.10	★★★★★
	3	ASML	9.05	★★★★★
	4	Hitachi Kokusai Electric	8.90	★★★★★
	5	TEL	8.45	★★★★
	6	APPLIED MATERIALS	7.55	★★★★
	7	ASM Pacific Technology	7.45	★★★
	8	Hitachi High-Tech	7.45	★★★
F O C U S E D	1	Plasma Therm	9.01	★★★★★
	2	AMEC	8.95	★★★★★
	3	FORMFACTOR	8.94	★★★★★
	4	SPTS	8.90	★★★★★
	5	Xcerra	8.76	★★★★★
	6	EVG	8.42	★★★★
	7	ACCURETECH TOKYO SEIMITSU	7.22	★★★

Source: VLSIresearch Doc: THEBEST\_v18.05

			WHAT THE BEST SUPPLIERS OF 2018 ARE BEST AT	
ACCURETECH	TOKYO SEIMITSU	<ul style="list-style-type: none"> <li>Uptime</li> <li>Usable Performance</li> </ul>	ADVANTEST	<ul style="list-style-type: none"> <li>Trust in Supplier</li> <li>Recommend Supplier</li> </ul>
AMEC		<ul style="list-style-type: none"> <li>Recommend Supplier</li> <li>Trust in Supplier</li> </ul>	APPLIED MATERIALS	<ul style="list-style-type: none"> <li>Field Engineering Support</li> <li>Uptime</li> </ul>
ASM	Pacific Technology	<ul style="list-style-type: none"> <li>Field Engineering Support</li> <li>Support After Sales</li> </ul>	ASML	<ul style="list-style-type: none"> <li>Recommend Supplier</li> <li>Technical Leadership</li> </ul>
EVG		<ul style="list-style-type: none"> <li>Technical Leadership</li> <li>Trust in Supplier</li> </ul>	FORMFACTOR	<ul style="list-style-type: none"> <li>Technical Leadership</li> <li>Recommend Supplier</li> </ul>
Hitachi High-Tech		<ul style="list-style-type: none"> <li>Trust in Supplier</li> <li>Uptime</li> </ul>	Hitachi Kokusai Electric	<ul style="list-style-type: none"> <li>Field Engineering Support</li> <li>Process Support</li> </ul>
JAPAN ELECTRONIC MATERIALS		<ul style="list-style-type: none"> <li>Partnering</li> <li>Recommend Supplier</li> </ul>	Nidec SVTCL	<ul style="list-style-type: none"> <li>Partnering</li> <li>Commitment</li> </ul>
Plasma Therm		<ul style="list-style-type: none"> <li>Trust in Supplier</li> <li>Spares Support</li> </ul>	SPTS	<ul style="list-style-type: none"> <li>Recommend Supplier</li> <li>Uptime</li> </ul>
TECHNOPROBE		<ul style="list-style-type: none"> <li>Support After Sales</li> <li>Trust in Supplier and Partnering</li> </ul>	TERADYNE	<ul style="list-style-type: none"> <li>Trust in Supplier</li> <li>Recommend Supplier</li> </ul>
TEL	TOKYO ELECTRON	<ul style="list-style-type: none"> <li>Trust in Supplier</li> <li>Uptime</li> </ul>	Xcerra	<ul style="list-style-type: none"> <li>Trust in Supplier</li> <li>Recommend Supplier</li> </ul>

Source: VLSIresearch Doc: THEBEST\_v18.05

ASSEMBLY EQUIPMENT		Rating	VLSI STARS
1	ASM Pacific Technology	7.47	★★★



# ASM Pacific Technology

## ENABLING THE DIGITAL WORLD

