ASM Pacific Technology

2019
Q3 Results
Announcement

31 October 2019

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Forbes Asia
2019
BEST OVER A BILLION

ASIA'S OUTSTANDING COMPANIES POLL 2019
ASIAMONEY

SINGAPORE QUALITY AWARD
2019 WINNER

VLSIresearch RANKED 1st SUPPLIERS Customer Satisfaction 2019

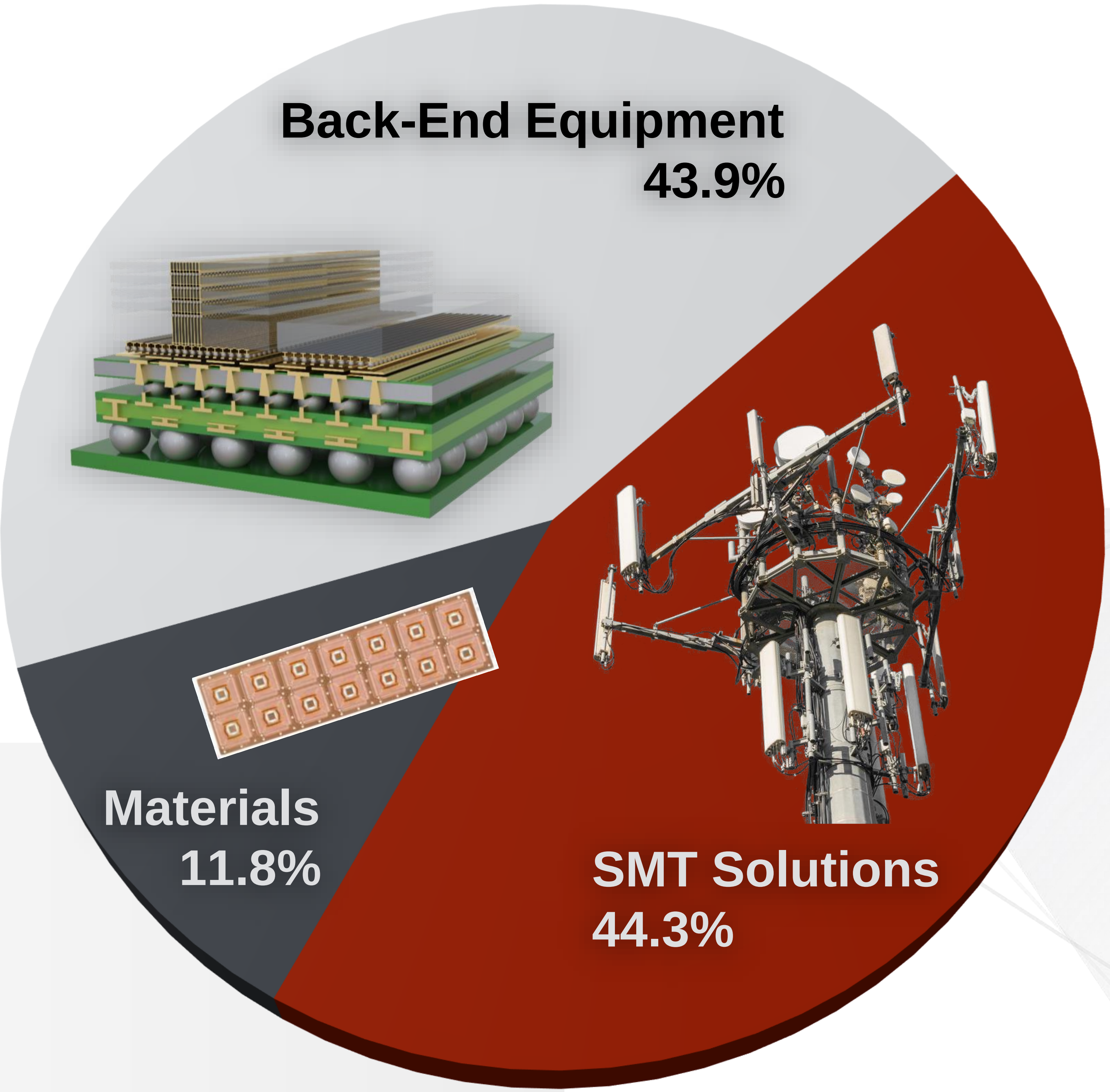
VLSIresearch THE BEST SUPPLIERS Customer Satisfaction 2019

VLSIresearch 10 BEST SUPPLIERS Customer Satisfaction 2019

2019 HKMA Quality Award
GRAND AWARD

Business Excellence is at the Core of ASMPT

The World's Technology & Market Leader



Q3 2019 Group Revenue:

USD 531m

(CAGR 2009 – Q3 2019 LTM 13.1%)

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

ASM Pacific Technology

ASMPT'S
Major Facilities
Around The World

● Sales Offices

⬢ Business Centre / R&D / Manufacturing Site

Three Business Segments With
Leading Market Positions

BACK-END EQUIPMENT

#1 in Assembly & Packaging Equipment Market

Since 2002

2018 Worldwide
PAE Market Share:
~25%

SMT SOLUTIONS

#1 in SMT Equipment Market

Since 2016

2018 Worldwide
SMT Market Share:
~23%

MATERIALS

#3 in Leadframe Market

Since 2018

2018 Worldwide
Leadframe Market Share:
~9%

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 |

2019 Q3 Highlights

Double-digit Increases in Q3 Billing QoQ

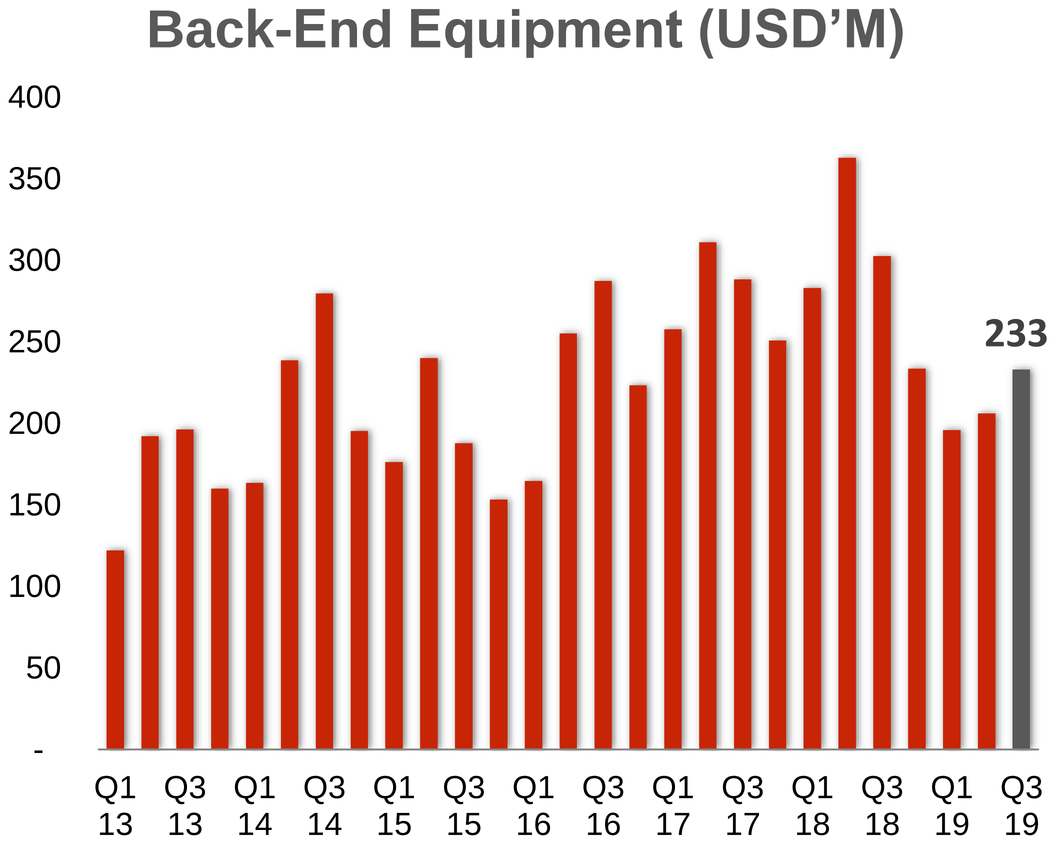
	USD	QoQ
Group	531m	**+15.1%**
Back-end Equipment Segment	233m	**+12.8%**
Materials Segment	63m	**+9.8%**
SMT Solutions Segment	235m	**+19.0%**

- **Group:** slightly below guidance due to deferral of revenue recognition of some tools to Q4
- **BE:** Advanced Packaging + CIS contributed to >50% Q3 BE revenue
- **SMT:** Continued to be driven by 5G infrastructure
- **Materials:** Leadframe market clearly on track to recovery

Q3 Billings – Business Segments

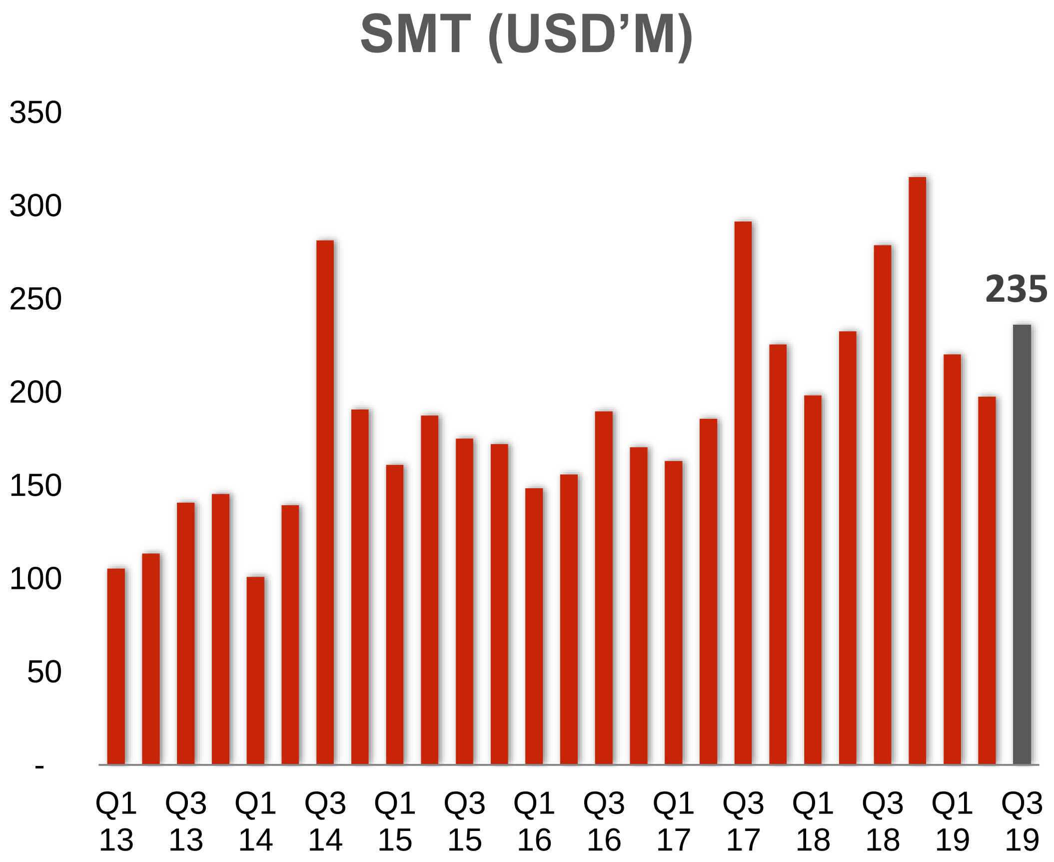
QoQ Growth:

+12.8%



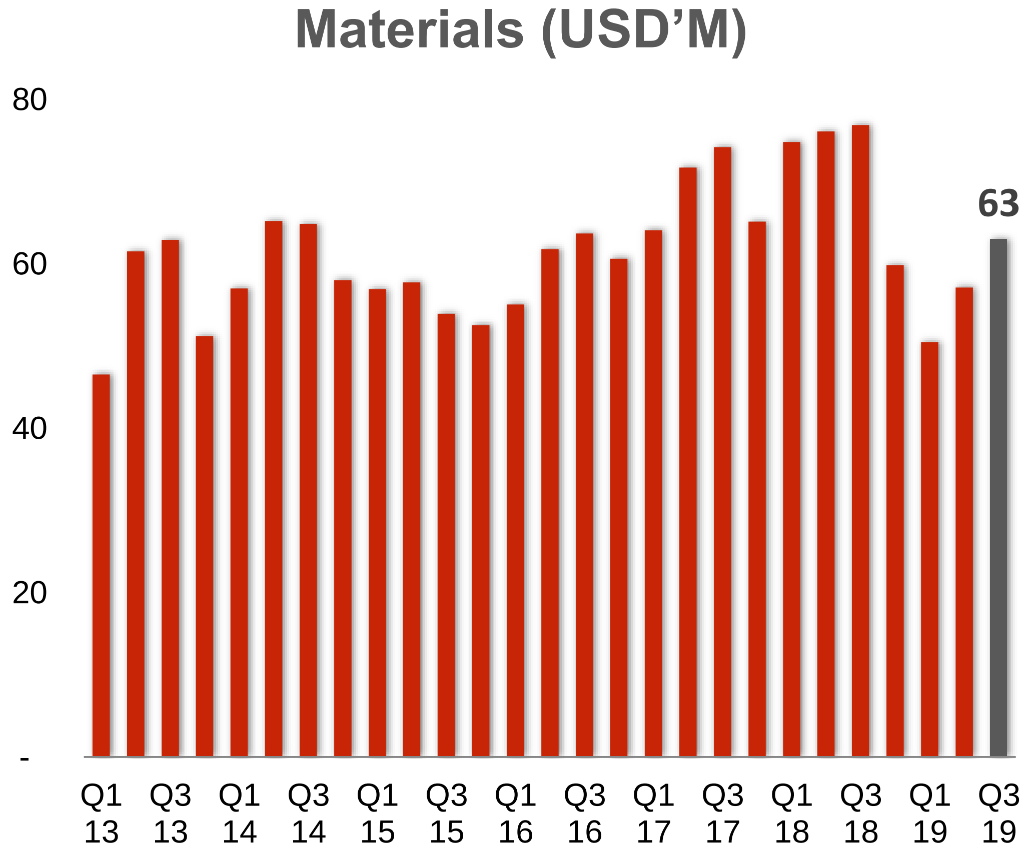
QoQ Growth:

+19.0%



QoQ Growth:

+9.8%



Back-end & Materials Booking momentum continued in Q3

	USD	QoQ
Group	514m	-14.6%
Back-end Equipment Segment	262m	+6.2%
Materials Segment	64m	+7.6%
SMT Solutions Segment	188m	-36.5%

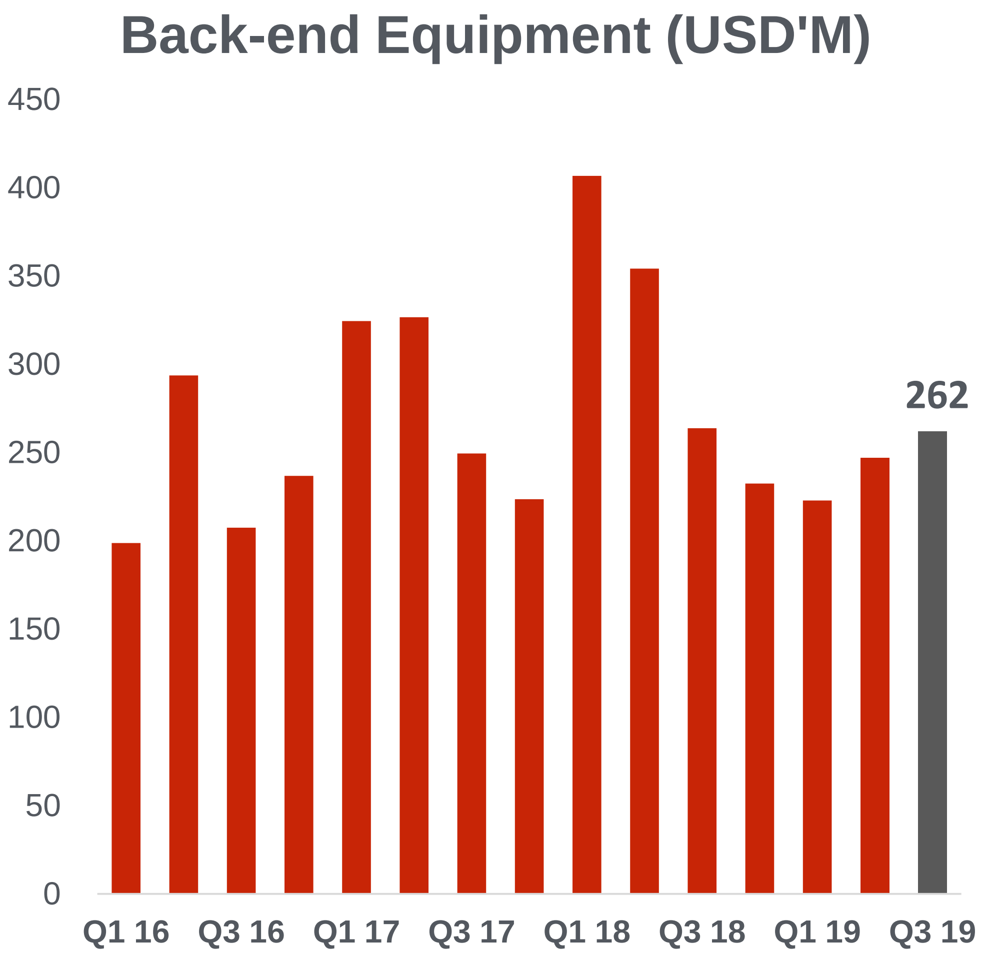
- **BE: Strong bookings led by CIS and China**
- **Materials: 3 quarters consecutive QoQ bookings growth – a clear sign of market recovery**
- **SMT: Q3 bookings ▼36.5% vs. high booking level in Q2**
- **Customers remain cautious in view of macro uncertainties**

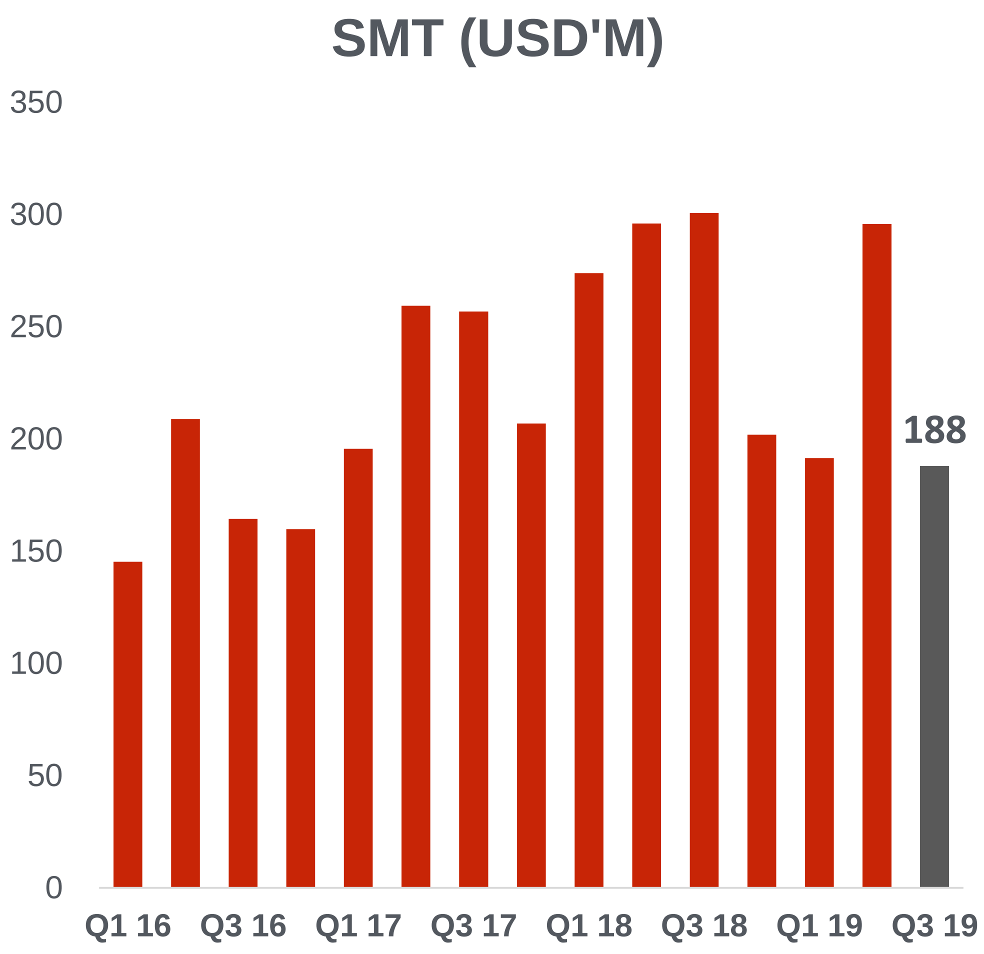
Q3 Bookings – Business Segments

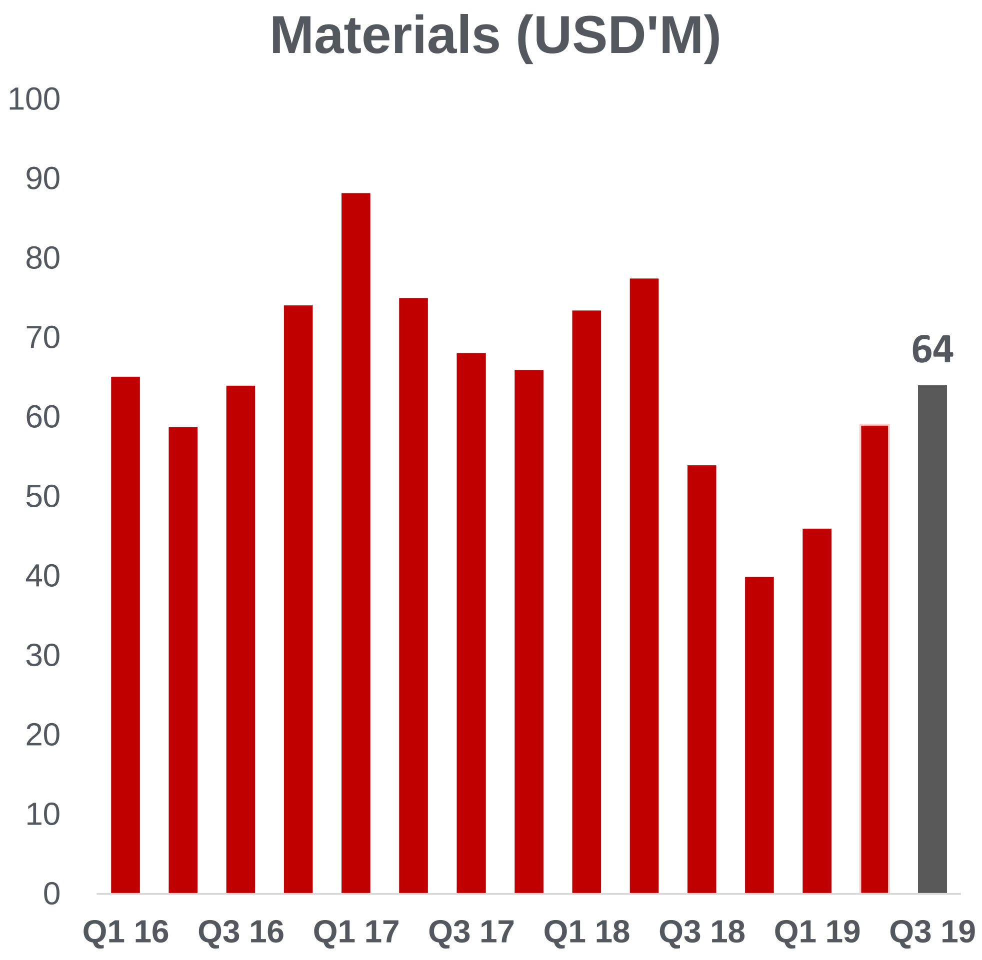
QoQ Growth:
+6.2%

QoQ Growth:
-36.5%

QoQ Growth:
+7.6%







Significant improvement in PBT & Net Profit QoQ

	Gross Margin	QoQ
Group	34.7%	**-100 bps**
Back-end Equipment Segment	43.4%	**+267 bps**
Materials Segment	10.3%	**-111 bps**
SMT Solutions Segment	32.7%	**-486 bps**
PBT	HKD 345m	**+85.6%**
Net Profit	HKD 222m	**+217.4%**

- **Back-end: GM ▲267 bps QoQ due to favorable product mix**
- **SMT: GM ▼486 bps due to sustained effort in penetrating Asian customer base with typically a lower GM**

QoQ Bookings Growth:
+6.2%

Key Highlights:

Back-end Equipment Segment

- Advanced Packaging and CIS together contributed to more than 50% of BE revenue in Q3
- Significant increase in orders contributed by China
- Demand for die and wire bonders showed signs of stabilization
- Segment profit ▲168.9% QoQ
- Cost reduction initiatives taking effect – YoY ▼10 bps in GM despite YoY ▼23.2% in Billings

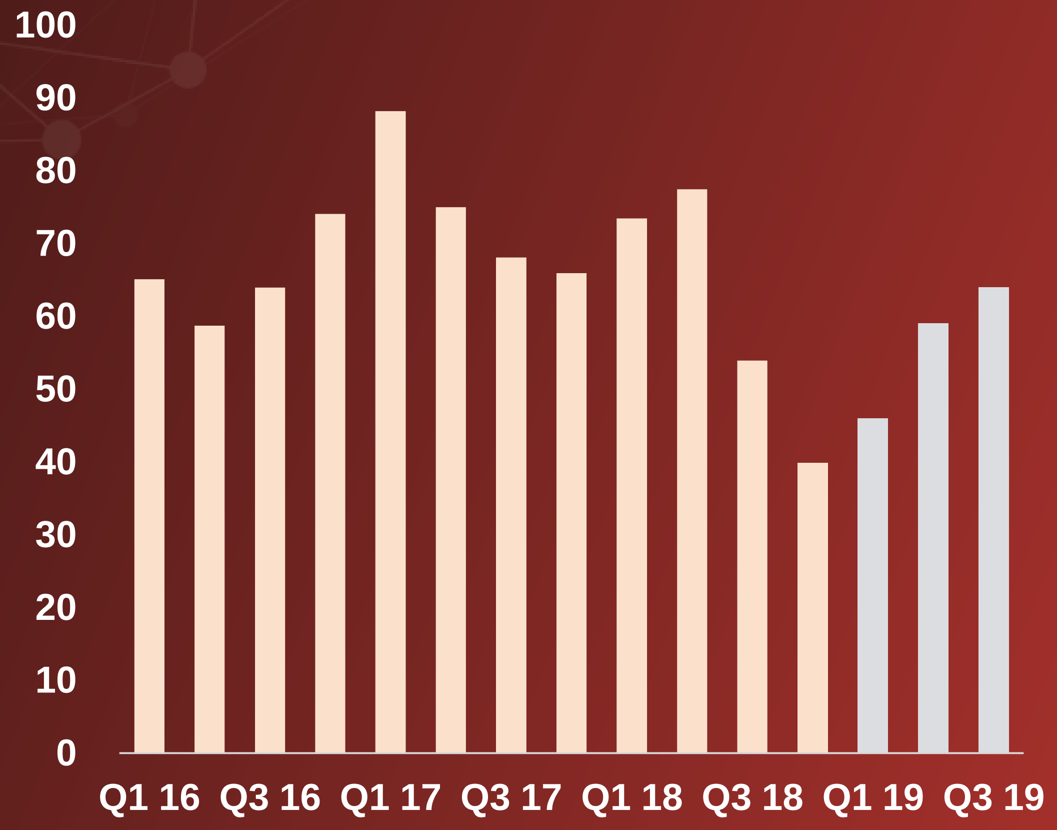
Key Highlights:

SMT Segment

- Excellent performance extended to Q3 with Billings ▲19% QoQ
- Orders continued to be driven by 5G infrastructure, though offset by weaker Automotive market
- 9M Billing ▼ only 8% YoY despite challenging year

QoQ Bookings Growth:
+7.6%

Quarterly Materials Bookings (USD'M)

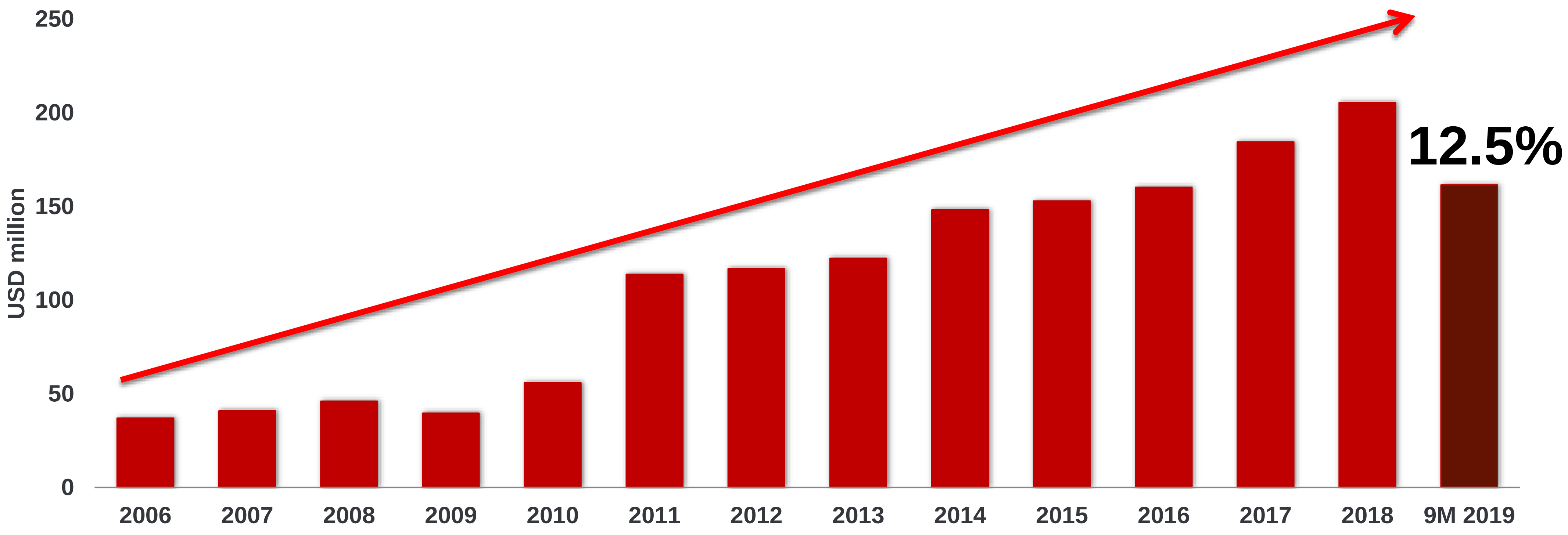


Key Highlights:

Materials Segment

- Lead frame market clearly on track to market recovery with consecutive 3 quarters Bookings growth
- Double digit YoY ▲17.9% Bookings growth for Materials

R&D Commitment Makes Us a Preferred Partner of Choice

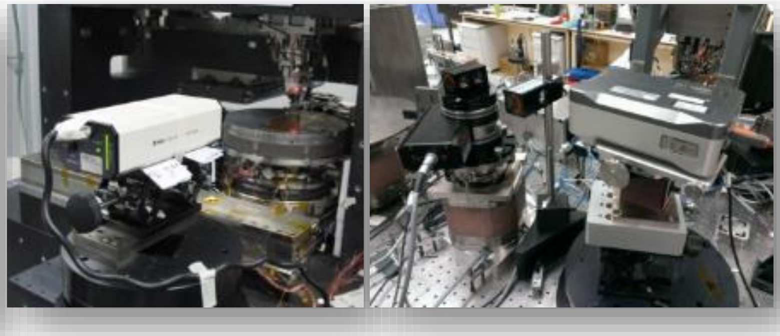


USD1,584 million invested in R&D

9 months 2019 R&D expenditure

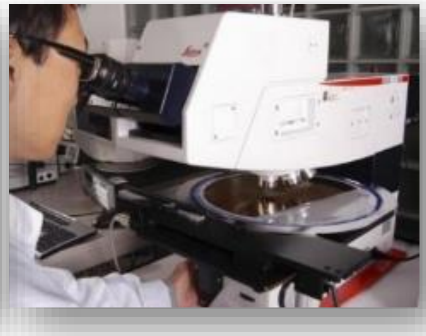
- US$ 161 million
- 12.5% of Equipment Sales

Package Interconnection



Optics precision engineering

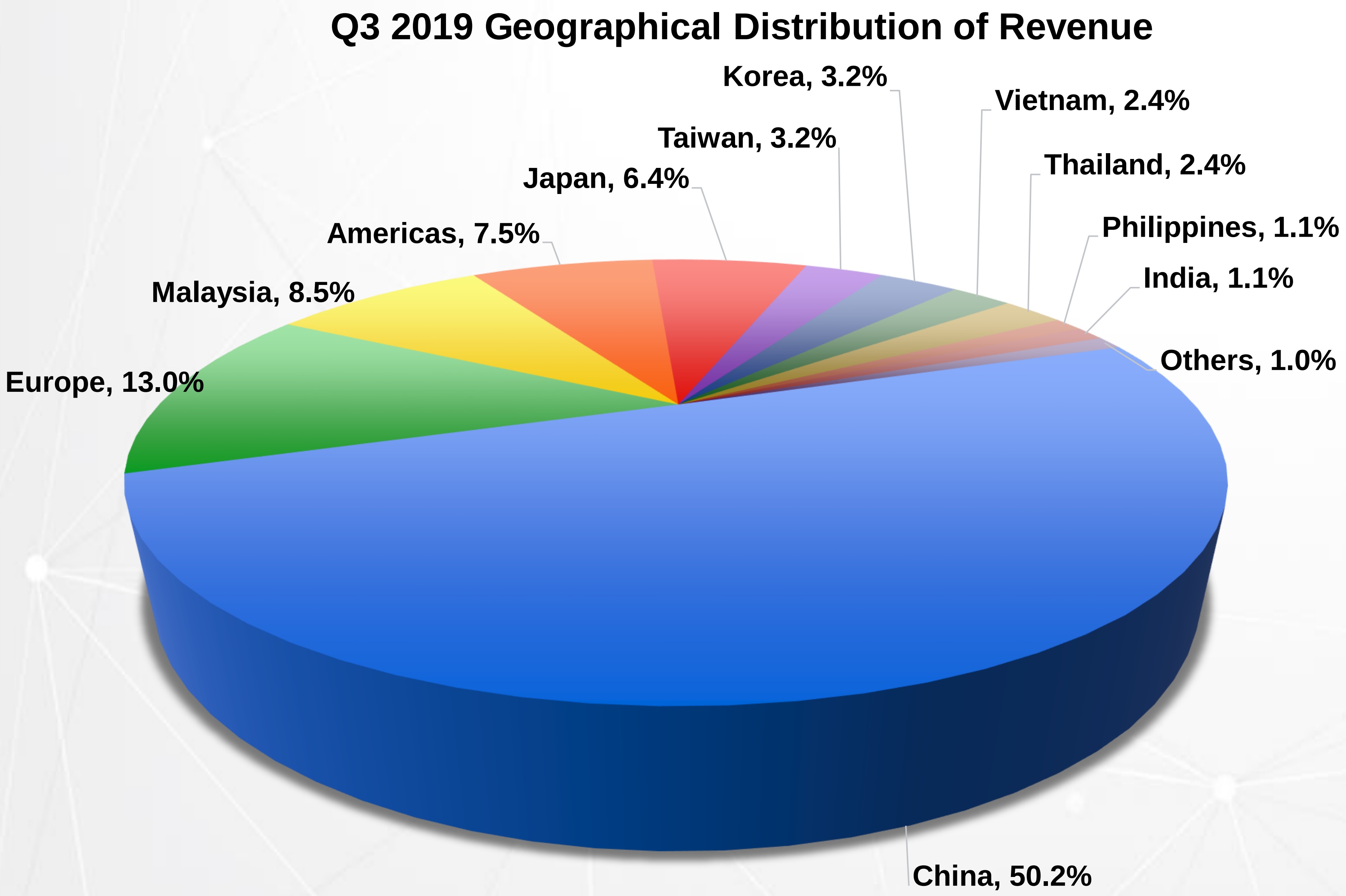
Vibration control



Laser dicing & grooving

SMT

An Extensive Customer Base

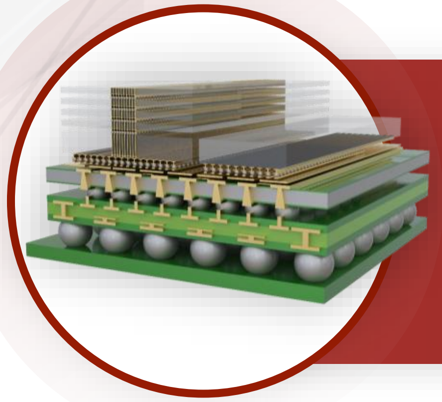


China Leads Market Recovery

- No single customer accounted for more than 10% of Group revenue
- Top 5 customers accounted for 18% of Group's Q3 2019 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:
  - 6 from SMT Solutions segment
  - 4 from both Back-End Equipment & SMT Solutions segment

Endless Opportunities for ASMPT in the Digital World

Q3 2019 Revenue Drivers



Advanced Packaging

CMOS Imaging Sensor

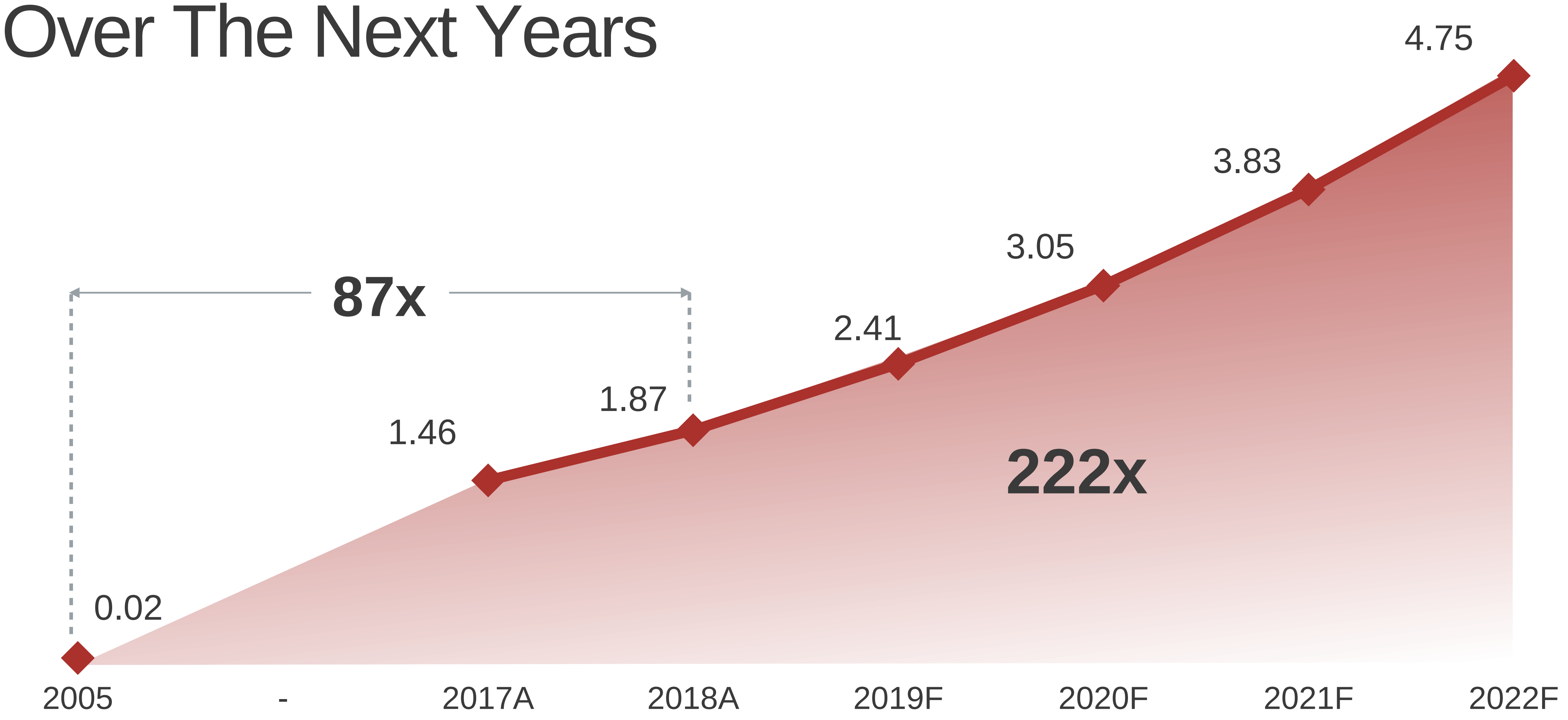
5G

China Market

Data-Centric Era will **spur Semiconductor Demand**

	Collect	**Transmit**	**Store**	**Analyse**	**Visualise**
	Camera, 3D Sensing, Industry IoT, Sensor, LIDAR	*5G, WiFi, LiFi*	*Big Data Centre, Cloud Computing, Memory*	*AI, TPU, Data Analytics, HPC*	*AR, VR, Micro LED, Mini LED*
ASMPT's Enabling Solutions	• CMOS Imaging Sensors • Active Alignment • Precision Die Attach	• Silicon Photonics • RF Filters • Wire Bonding • SAW Filters • BAW Filters • SMT Solutions • PVD	• Silicon Photonics • TCB • Wire Bonding • PLFO • Laser Dicing	• WLFO • PLFO • Pick & Place • Laser Grooving • TCB • PVD/ECD • Precision Die Attach • Heterogeneous Integration	• High Precision Die Attach • Mini/Micro LED Displays

Data Traffic To Continue **'Exploding In Waves'** Over The Next Years

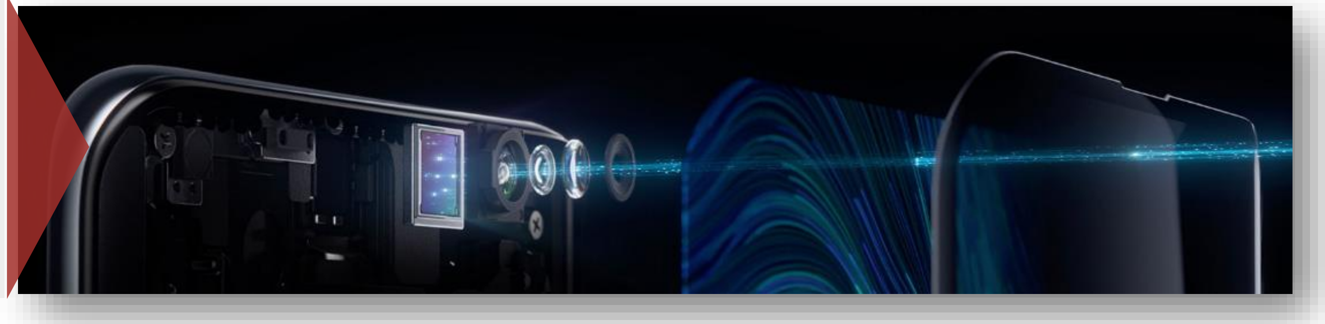


Global Data Traffic Facts (in Zettabytes)

Source: Cisco Visual Networking Index: Forecast and Trends, 2017–2022 White Paper (Updated February 2019)

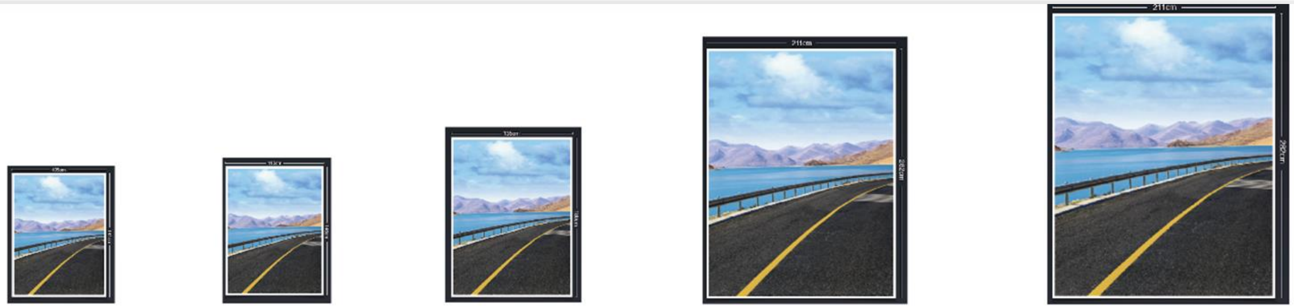
Smartphone Innovations
Continue to Drive CIS Business

Under-Screen Camera (USC)
(Super-thin, thread-less lens)



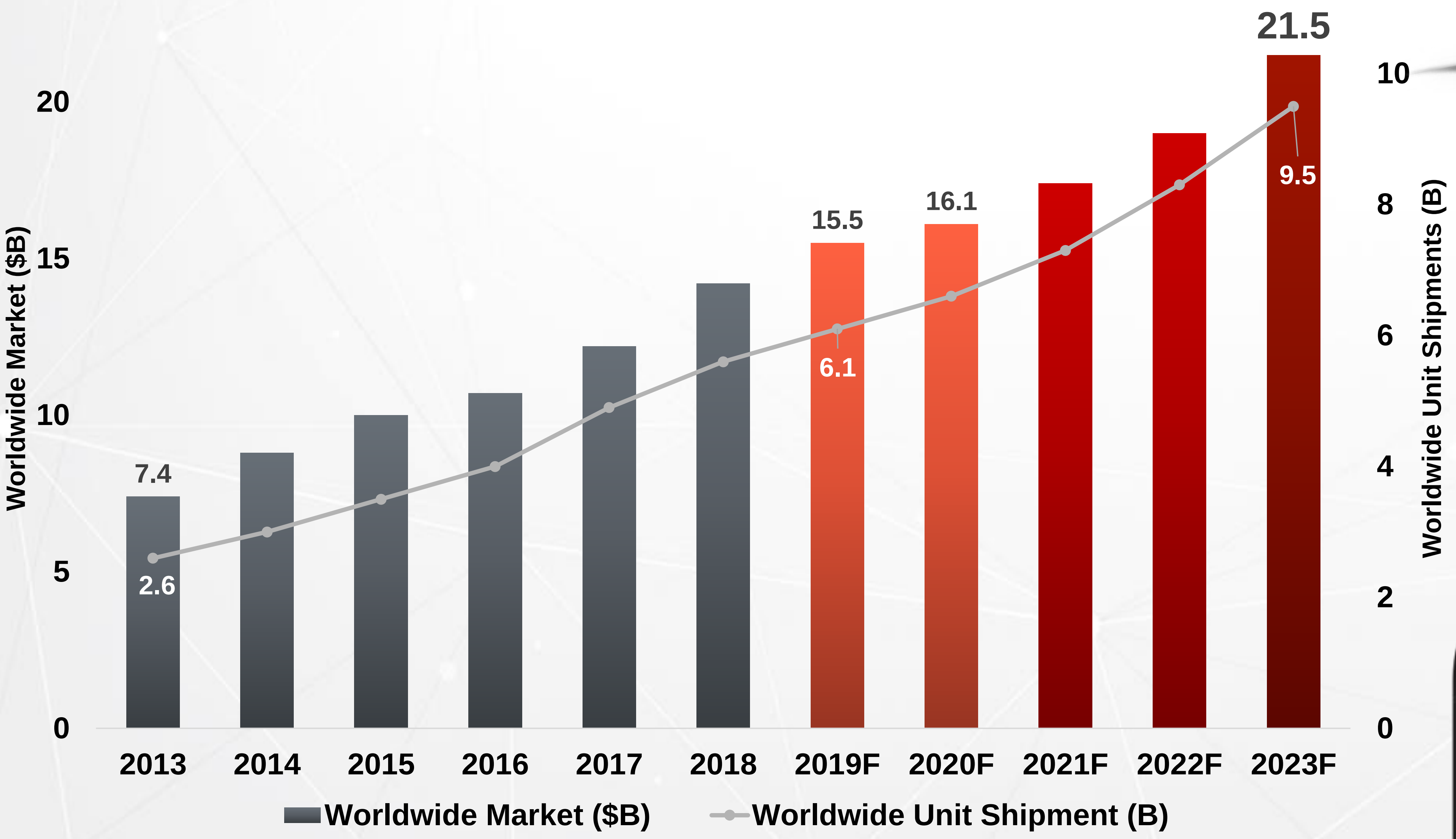
Multi-Camera Combo, Folded optics
(WFOV -> 50x Super Zoom)

Super High Resolution
(24MP -> 48MP -> 64MP -> 100MP)



Biometrics
3D sensing, Under-Display FPS

Even more broad-based applications driving
Multi-year CIS growth



Source: ICinsights

The Role Of The Camera In The Data Era **Redefined**

Today

- Videos
- Still Images
- Social Media Content

Future

- Industrial Inspection with Drones
- Security: Features Recognition
- AR/VR
- Autonomous Vehicles
- Artificial Intelligence

Source: Youtube, Facebook, Instagram, IT World Canada, Nvidia, Precision Security Australia, Cramer.com, Weibo, Netflix, Youku |

Advanced Packaging:
The Game Changer In Semiconductor Revolution

FIREBIRD
TCB
FLI

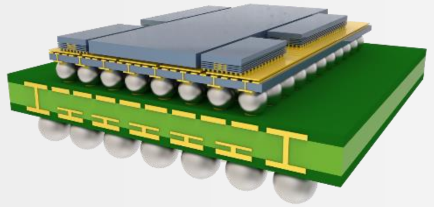
NEXX
PVD | ECD
Bumping,TSV
& RDL

LASER 1205
Laser Separation
Wafer Dicing and
Grooving

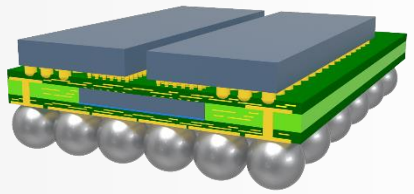
NUCLEUS
Pick and Place
Wafer and Panel

SIPLACE CA
Die Attach & SMT
Wafers and SMT
Feeders

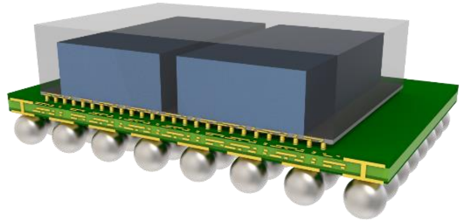
Advanced Packaging Approaches



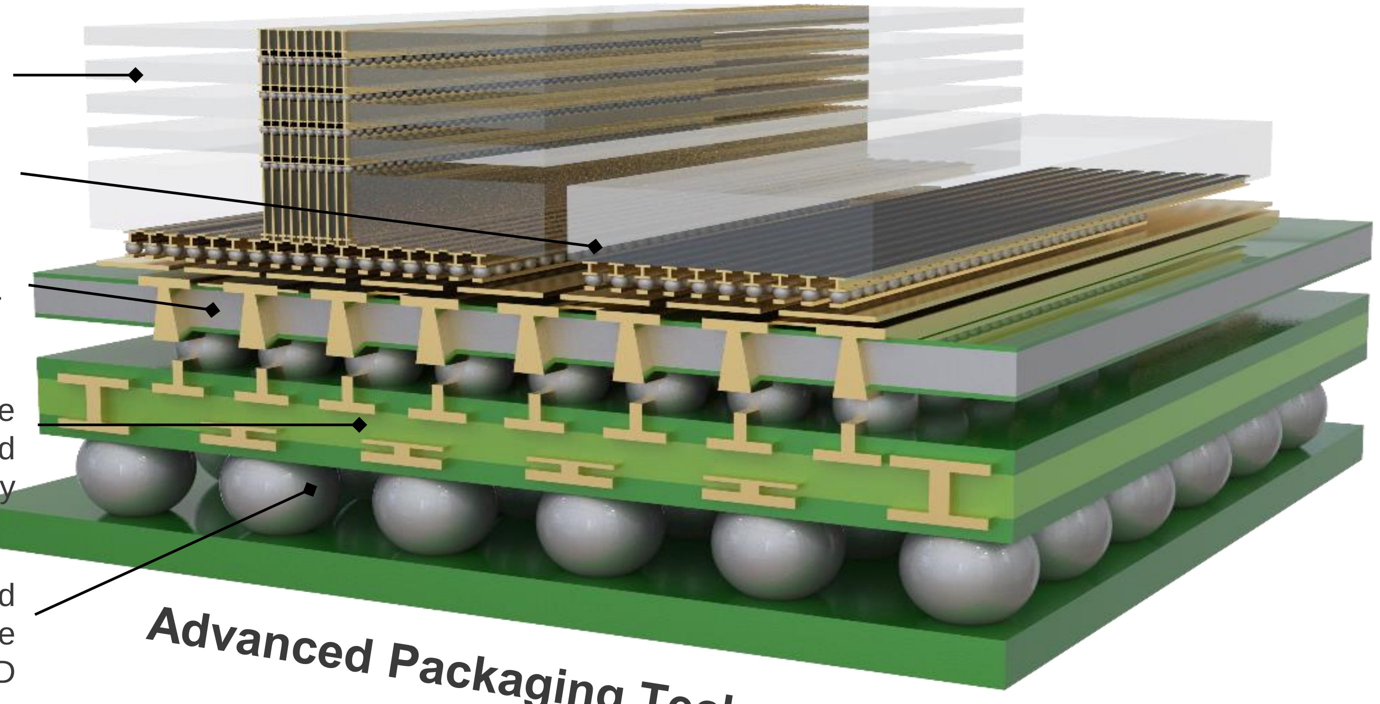
SI TSV INTERPOSER



EMBEDDED BRIDGE



HIFO



Advanced Packaging Technology Enabler

End Applications:

DATACENTERS
for HPC, Machine Learning

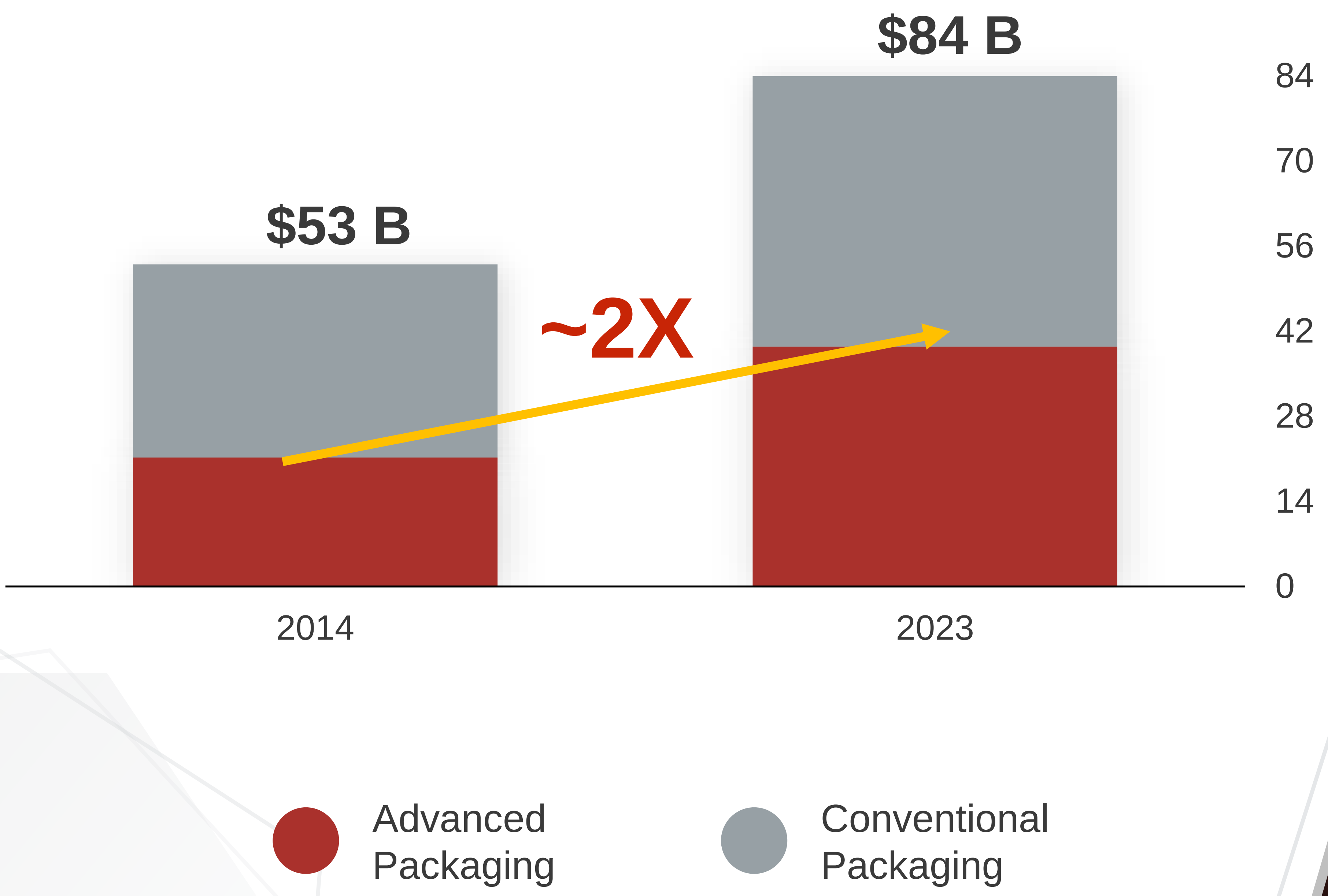
IoT ERA
Smart Wearables & Smart Machines (Factories)

AUTOMOTIVE
Sensors, Camera, Body Electronics, Safety Systems, Infotainment

GPU
for VR/AR & AI

Growth of Packaging Market Mainly Driven by Advanced Packaging

Global Packaging Market (Billion $)



A.I. Share within Semi Industry Expected to Grow to >$100B in the Next Decade

Deep learning

Language processing

Robots

Vision

Source: YOLE Development, PwC Strategy & analysis, IC Insights, JP Morgan

5G Will Transform the World Beyond Our Imagination

5G

Infrastructure

Terminal

2019-2025: 25-30mil
New 5G
Base Stations
Source: Topology Research

Mobile

Big Data
Cloud Servers

Smart Consumer

"Power" Up
All Industries

50 MEMS & Sensors
per car
Automotive
Source: Bosch, 2019

ASMPT Solutions:

Photonics Solutions

IC & Discrete Solutions

Image Sensor Solutions

Advanced Packaging

SMT Solutions

Power Solutions

Wafer Separation

Future Growth Drivers for OPTO Business

MiniLED

Medium to Large RGB / BLU Display

~ 66.1%

Market Size CAGR
(2019 – 2027)

MicroLED

Small Gadget & Transparent Display

~ 139.5%

Market Size CAGR
(2019 – 2027)

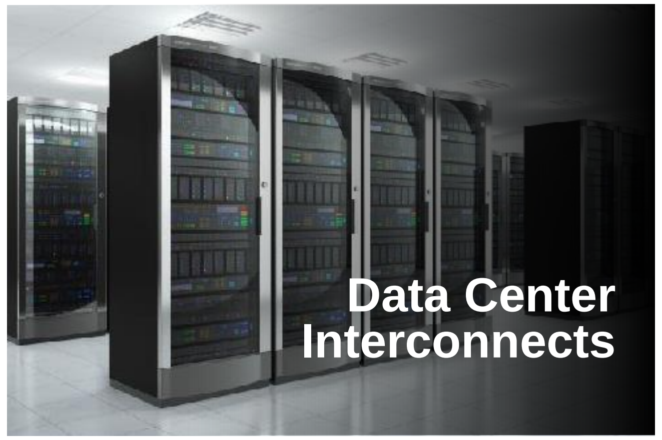
Source: Yanoresearch, Apr 2019

Booming Applications
In Photonics Market

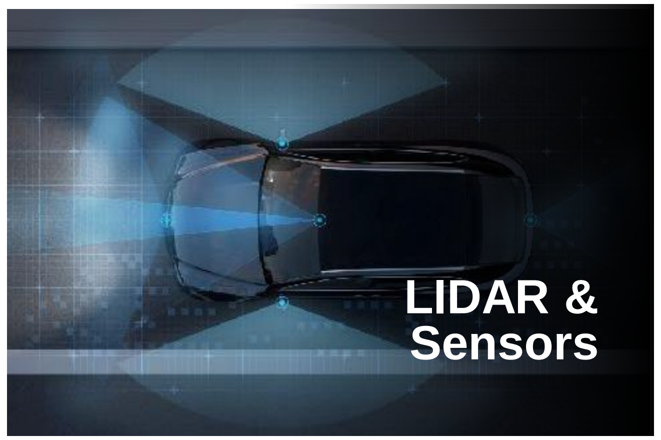
Si Photonics-based Transceivers
Revenue CAGR (2018 – 2024)

~ 44.5 %

Source: Yole, Apr 2019


Data Center Interconnects


Telecommunication


LIDAR & Sensors

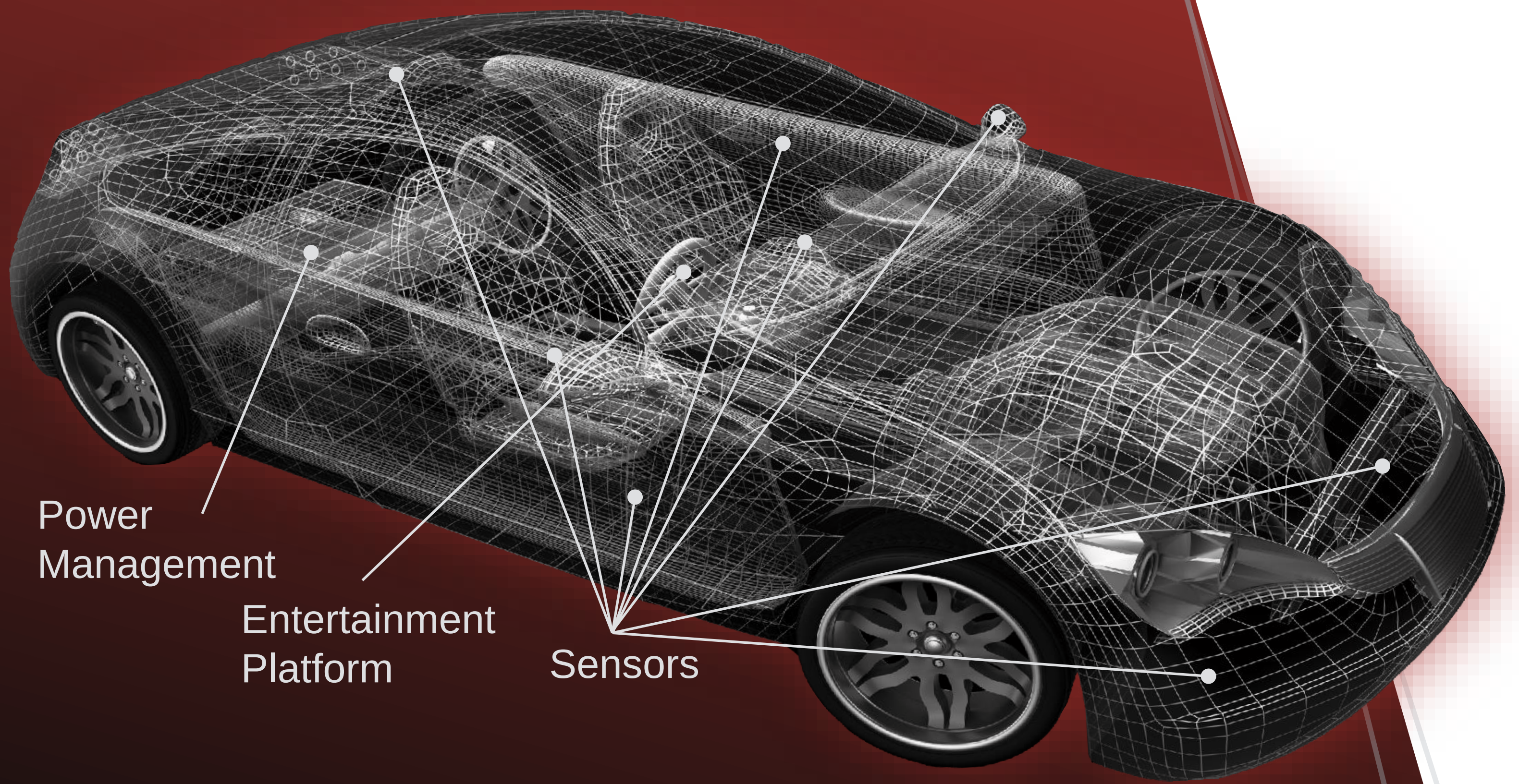

Defence & Aerospace


Intra-car Interconnects


Industrial Communication


Medical

How will 'Smart Cars' Drive ASMPT's Growth?



5G to Cloud Connectivity

Vehicle-to-X (Vehicle, Infrastructure, Network, Devices) communications

Enable "V2X" communications

Sensors

Image, LIDAR, Radar

The eyes and ears to gather information from the Road

Power Management

Battery Technology for thermal management

Thermal management (e.g. Ag Sintering) will play important role

Entertainment Platform

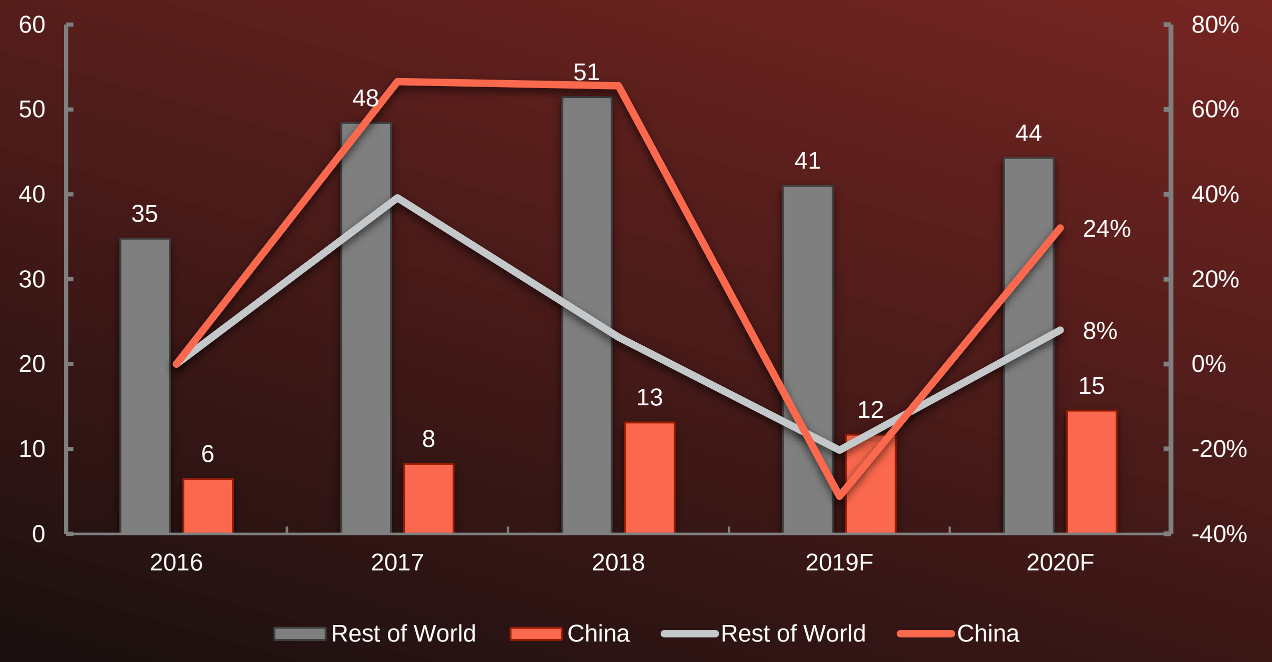
Television, Mobile devices, VR/AR, Gaming, etc.

Frees up driver's attention on road for entertainment

Equipment Industry to Benefit from China Supply Chain Localisation

Semi Equipment Spending 2020F Growth

China: 24%
Rest of World: 8%



Total Semiconductor Equipment Spending
(in US$ bil)

Source: SEMI July 2019, Equipment Market Data Subscription

Outlook

Outlook

- **On a full year basis: expect all 3 business segments to experience YoY revenue decline**

- **Q4 Billing**
  - Group Billing: USD 460m to USD 510m (subject to actual timing for revenue recognition)
  - Materials: anticipate QoQ and YoY revenue growth
  - BE/SMT: anticipate QoQ and YoY revenue decline

- **Q4 Group Booking**
  - Expect double-digit QoQ decline

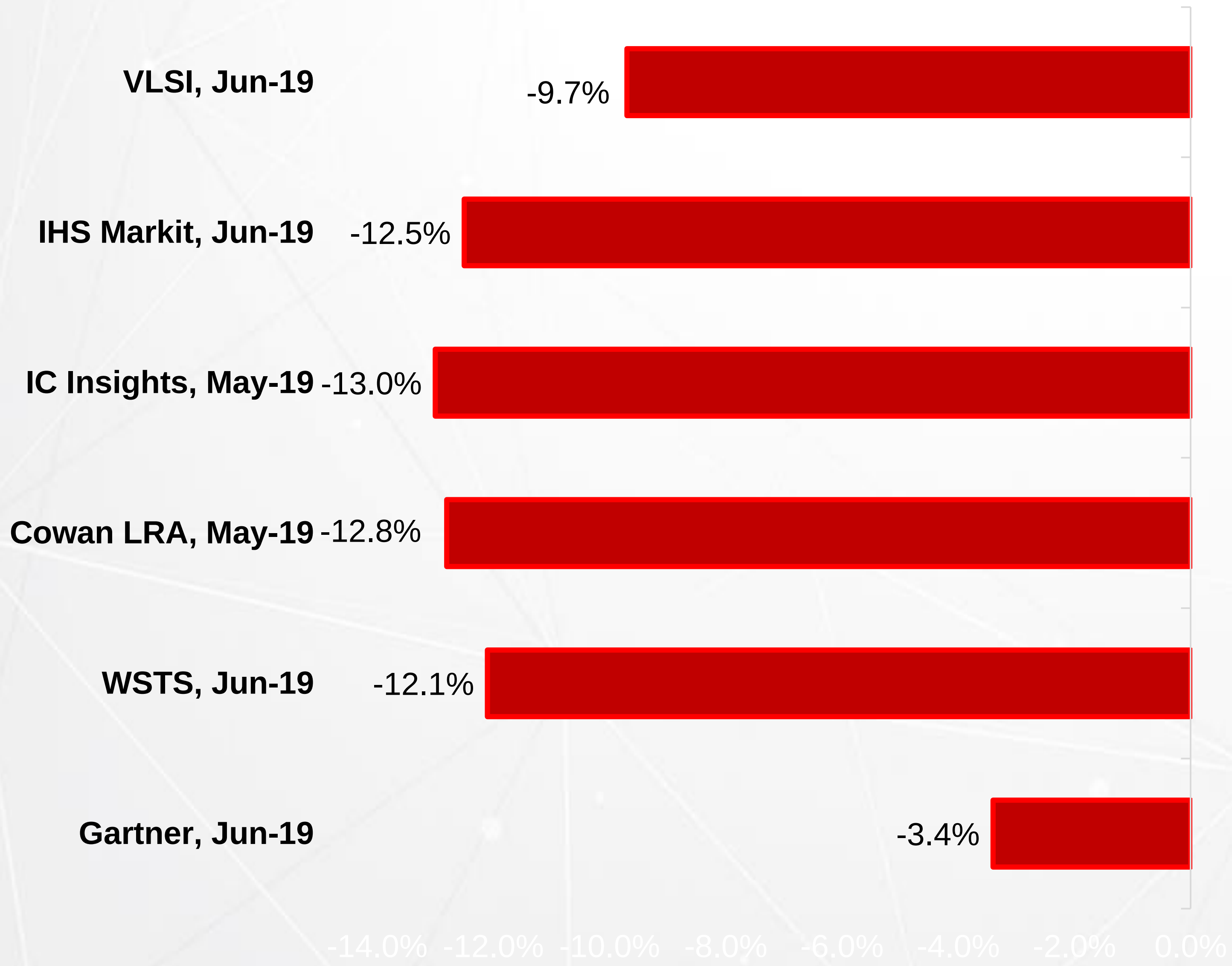
- **Q4 Group Gross Margin**
  - Anticipate to decrease slightly due to forecasted lower revenue

On Track to Recovery Amidst Macro Uncertainties

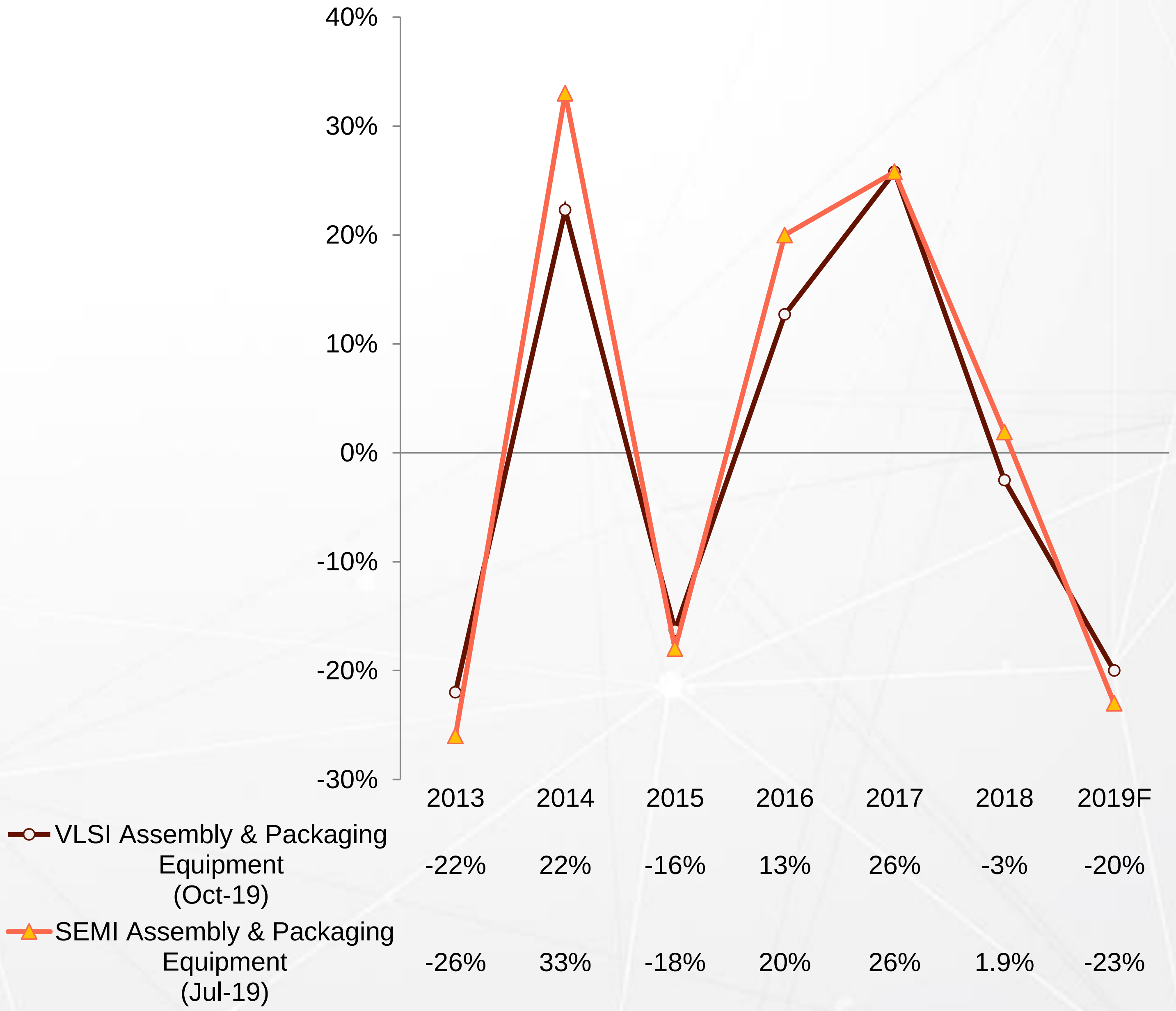
- **Expect more revenue recognition for substantial orders for Advanced Packaging panel deposition tools**
- **Best-in-class packaging/assembly solutions for mini/micro LED well accepted by leading players**
- **CIS poised to benefit from multi cameras and innovation in camera differentiation features**
- **Positively optimistic re longer-term growth potential for**
  - Advanced Packaging, CIS, 5G, IoT, automotive electrification, Si Photonics, mini/micro LED
- **Market reach expanding beyond IDM, OSAT, and EMS**

Industry Growth Forecast (2019)

Semiconductor Industry



Forecast Global Assembly & Packaging Equipment Market



	2013	2014	2015	2016	2017	2018	2019F
VLSI Assembly & Packaging Equipment (Oct-19)	-22%	22%	-16%	13%	26%	-3%	-20%
SEMI Assembly & Packaging Equipment (Jul-19)	-26%	33%	-18%	20%	26%	1.9%	-23%

Recent Awards & Recognition

Latest

VLSIresearch 10 BEST SUPPLIERS Customer Satisfaction 2019

10 BEST Segment	Rank	10 BEST CHIP MAKING EQUIPMENT SUPPLIERS OF 2019	Rating	Stars
LARGE	1	TERADYNE	9.44	★★★★★
	2	ADVANTEST	9.23	★★★★★
	3	ASML	9.18	★★★★★
	4	ASM Pacific Technology	8.79	★★★★½
	5	KLA Keep Looking Ahead	8.03	★★★★
	6	TEL TOKYO ELECTRON	7.83	★★★½
	7	KE KOKUSAI ELECTRIC	7.75	★★★½
	8	Lam RESEARCH	7.61	★★★½
	9	APPLIED MATERIALS	7.36	★★★
	10	Hitachi High-Tech	7.29	★★★
FOCUSED	1	Plasma-Therm	9.39	★★★★★
	2	AMEC	9.01	★★★★★
	3	FORMFACTOR	8.89	★★★★½
	4	EVG	8.51	★★★★½
	5	SPTS	7.46	★★★
	6	Cohu	7.09	★★★

Source: VLSIresearch
css 10BEST v19.05

VLSIresearch THE BEST SUPPLIERS Customer Satisfaction 2019

WHAT THE BEST SUPPLIERS OF 2019 ARE BEST AT

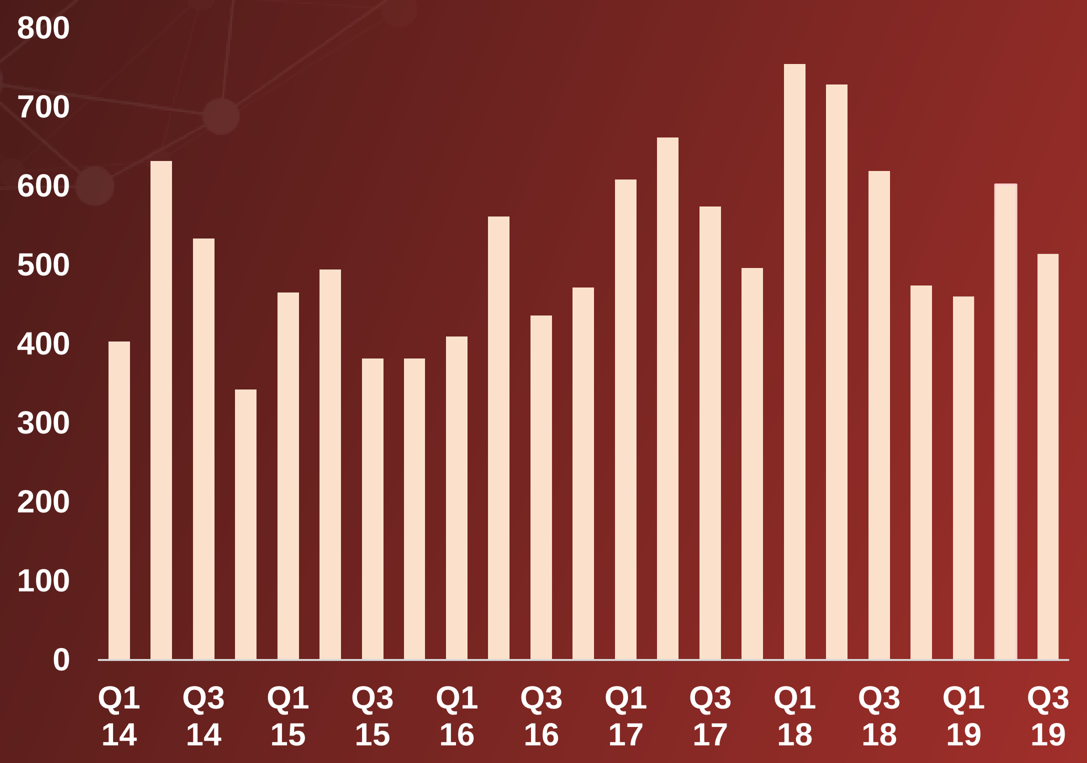
ADVANTEST	• Partnering • Technical Leadership	AMEC	• Partnering • Commitment
APPLIED MATERIALS	• Technical Leadership • Software	ASM Pacific Technology	• Partnering • Trust in Supplier
ASML	• Technical Leadership • Partnering	Cohu	• Trust in Supplier • Partnering
EVG	• Partnering • Recommend Supplier	FORMFACTOR	• Field Engineering Support • Technical Leadership
Hitachi High-Tech	• Uptime • Product Performance	JEM JAPAN ELECTRONIC MATERIALS	• Product Performance • Support After Sales
KLA Keep Looking Ahead	• Technical Leadership • Application Support	KE KOKUSAI ELECTRIC	• Partnering • Support After Sales
Lam RESEARCH	• Field Engineering Support • Recommend Supplier	Nidec SV TCL	• Commitment • Support After Sales
Nikon	• Partnering • Trust in Supplier	Plasma-Therm	• Recommend Supplier • Support After Sales
SPTS An Orbotech Company	• Recommend Supplier • Field Engineering Support	TECHNOPROBE Wafer Probing Technologies	• Commitment • Partnering and Recommend Supplier
TERADYNE	• Recommend Supplier • Technical Leadership	TEL TOKYO ELECTRON	• Technical Leadership • Uptime

Source: VLSIresearch Doc: css_THEBEST_v19.05

2019 Q3
Financial Highlights

Q3 Group Bookings

QoQ Growth:
-14.6%



Quarterly Group Bookings (USD'M)

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Q3 Group Billings

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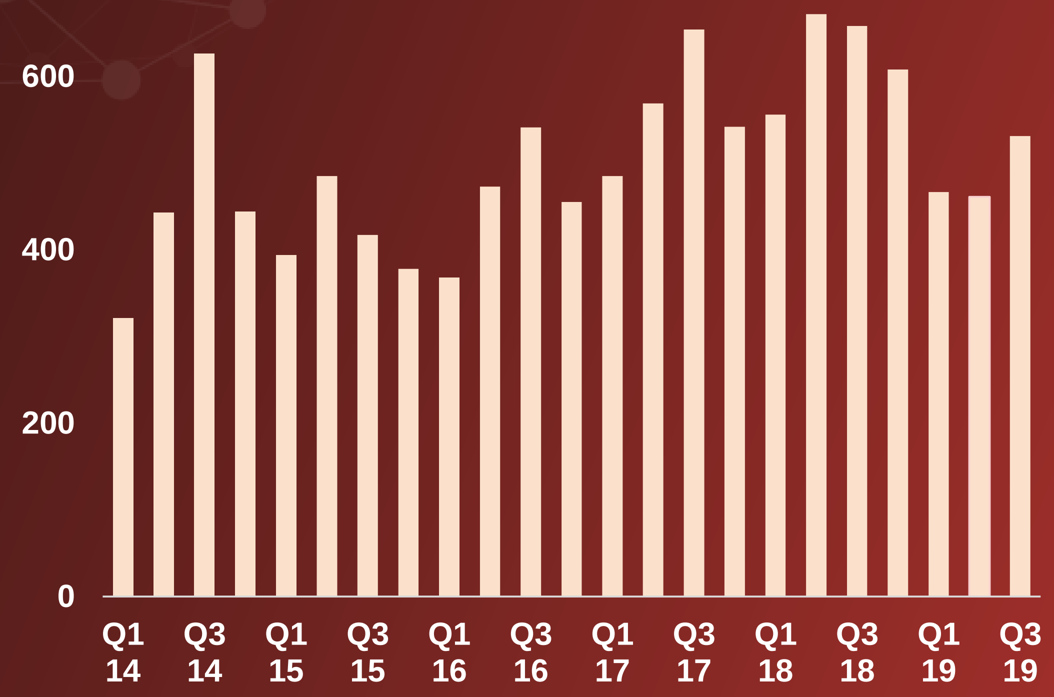

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Q3 Group Financial Highlights

	Q3 2019		
		YoY	**QoQ**
Bookings (USD)	514m	-16.9%	-14.6%
Revenue (USD)	531m	-19.5%	+15.1%
Gross Margin	34.7%	-307 bps	-100 bps
EBIT (HKD)	381m	-53.5%	+72.6%
Net Profit (HKD)	222m	-63.1%	+217.4%
Net Profit Margin	5.3%	-631 bps	+341 bps

Q3 Segment Results – Back-End Equipment Business

	Q3 2019		
		YoY	**QoQ**
Bookings (USD)	262m	-0.6%	+6.2%
Billings (USD)	233m	-23.2%	+12.8%
Gross Margin	43.4%	-10 bps	+267 bps
Segment Profit (HKD)	179m	-62.8%	+168.9%
Segment Profit Margin	9.8%	-1,047 bps	+570 bps

Q3 Segment Results – Materials Business

	Q3 2019		
		YoY	**QoQ**
Bookings (USD)	64m	+17.9%	+7.6%
Billings (USD)	63m	-18.5%	+9.8%
Gross Margin	10.3%	-63 bps	-111 bps
Segment Profit (HKD)	18m	-30.6%	-7.7%
Segment Profit Margin	3.7%	-65 bps	-70 bps

Q3 Segment Results – SMT Solutions Business

	Q3 2019		
		YoY	**QoQ**
Bookings (USD)	188m	-37.5%	-36.5%
Billings (USD)	235m	-15.7%	+19.0%
Gross Margin	32.7%	-634 bps	-486 bps
Segment Profit (HKD)	226m	-48.1%	+8.4%
Segment Profit Margin	12.3%	-764 bps	-120 bps

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