

INVESTOR PRESENTATION

Introducing: Onto Innovation

December 2019

innovation™

onto

Safe Harbor

The information presented herein contains forward-looking statements that relate to anticipated future operating results and performance. These statements are only predictions based on management's current expectations and assumptions, including market size and forecasted growth, Served Available Market (or "SAM") and revenue estimates, and necessarily involve risks and uncertainties. We do not assume any obligation to update the information provided. Actual events or results may differ materially from those projected, including as a result of changing industry and market trends, reduced demand for our products, the timely development of our new products and their adoption by the market, increased competition in the industry, price reductions and other subsequent developments and business conditions. Additional information and considerations regarding the risks faced by Nanometrics and Rudolph are available in Nanometrics' and Rudolph's Form 10-K reports for the year ended December 2018 and other filings with the Securities and Exchange Commission.

The presentation includes non-GAAP financial measures which are not intended to be considered in isolation or as a substitute for the financial information prepared and presented in accordance with GAAP. Management uses both GAAP and non-GAAP measures when evaluating the business internally and therefore believes it is important to make these non-GAAP measures available to the financial community. Reconciliations of non-GAAP measures to the most relevant GAAP amounts are included in the Company press releases.

As the forward-looking statements are based on Onto Innovation's current expectations, the company cannot guarantee any related future results, levels of activity, performance or achievements. Onto Innovation does not assume any obligation to update the forward-looking information contained in this presentation.

Two Strong and Complementary Companies Coming Together…



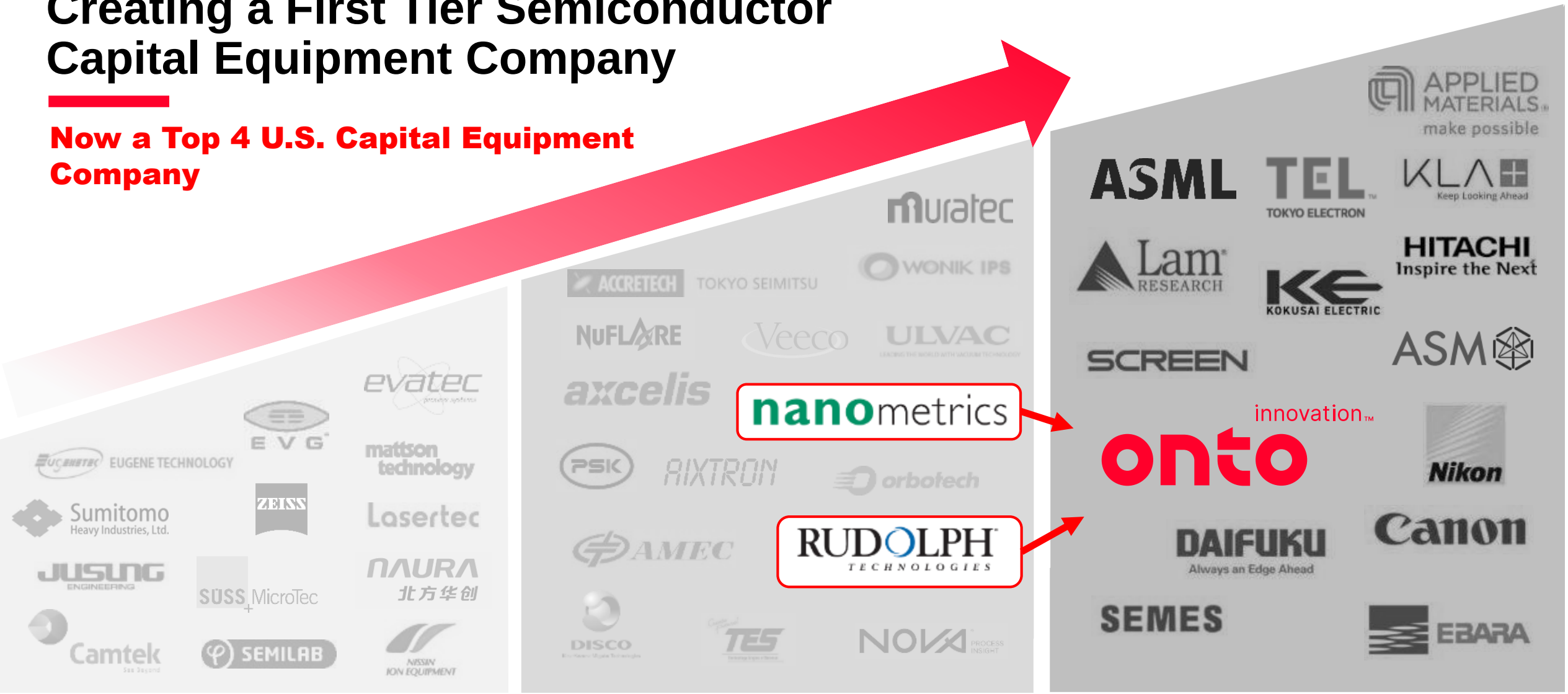
$286M TTM
- Optical Metrology
- Surface Analysis

$248M TTM
- Defect Inspection
- Film Metrology
- Lithography
- Software



Creating a First Tier Semiconductor Capital Equipment Company

Now a Top 4 U.S. Capital Equipment Company



TOP 45 WFE Companies

TOP 30 WFE Companies

TOP 15 WFE Companies

Onto Innovation (Merger: Oct 2019)

High tech capital equipment company specializing in process solutions for semiconductor and related markets

COMPANY

NYSE **(ONTO)**

Balance Sheet

$337 Million Cash
No Debt

REVENUE*

$534 Million

MANUFACTURING

California, Minnesota & Massachusetts

EMPLOYEES

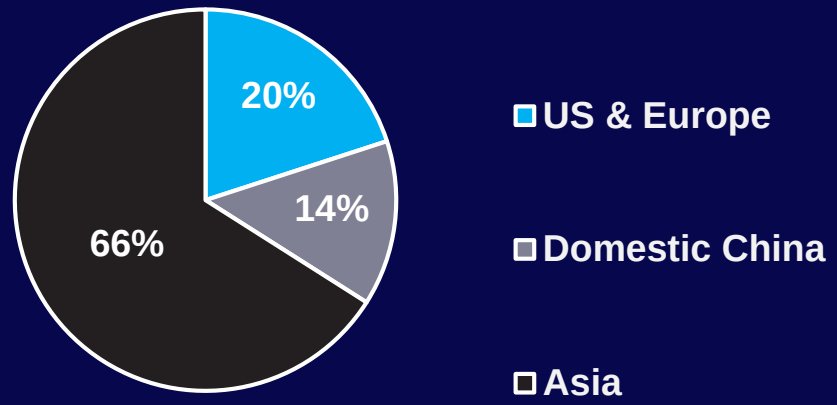
~1350

CUSTOMER FACING: SALES AND CUSTOMER SUPPORT*

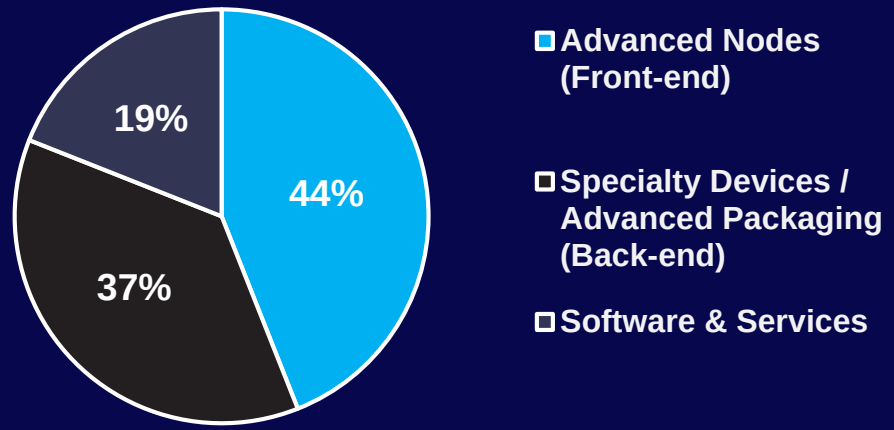
Direct in all regions

*combined trailing 12 months

Pro-Forma Revenue Mix by Geography



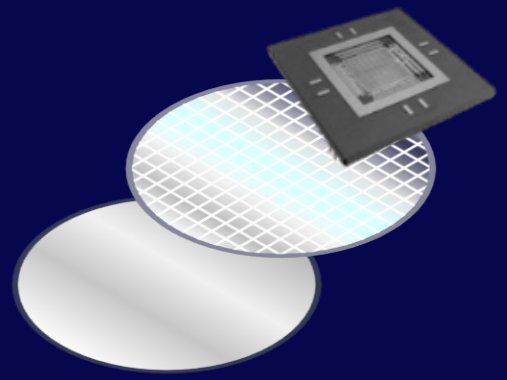
Pro-Forma Revenue Mix by Market



**Based on TTM revenue

Thesis for Growth

Focus on Innovation, Growth, and Value for Customers & Shareholders



MARKET AND PRODUCT DIVERSITY TIED TO HIGH GROWTH SEGMENTS



LEVERAGE $100M R&D SPEND
$20M SYNERGIES IN 2020



STRONG CASH POSITION AND CASH GENERATION

OUTPERFORM MARKET

EXPAND GROSS AND OPERATING MARGINS

INCREASE SHAREHOLDER VALUE

Multiple Mega-trends Drive Demand for Semiconductors

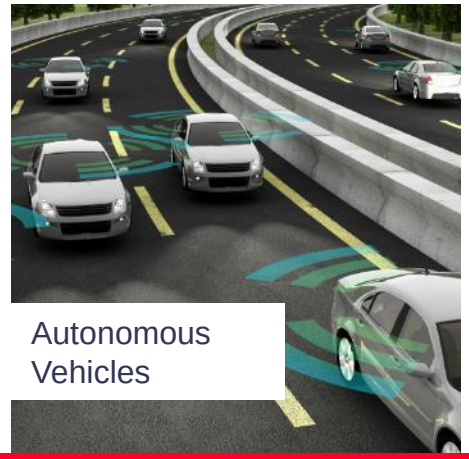
Process innovation is needed to achieve leading-edge technologies



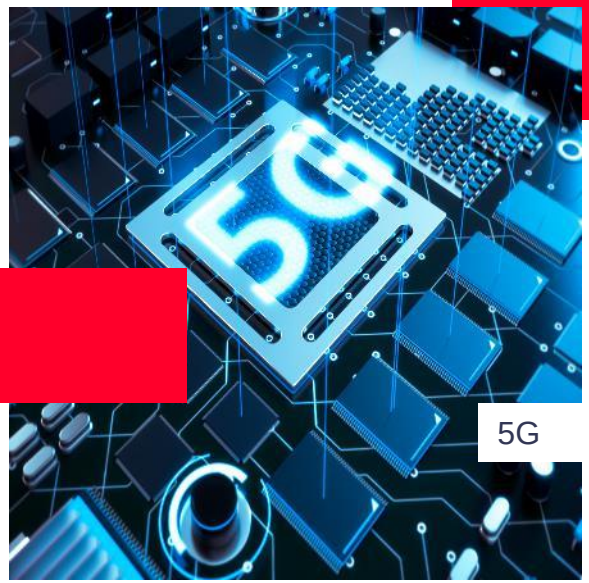
Data Center



VR



Autonomous Vehicles



5G

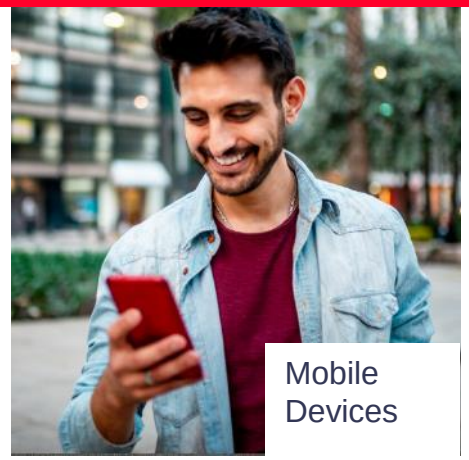
Semiconductors enable transformational change in the world



Medical



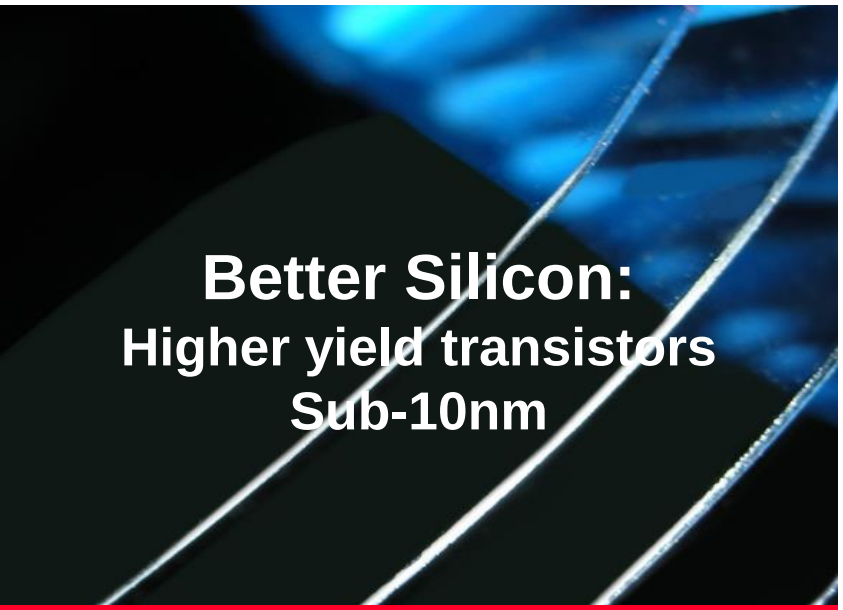
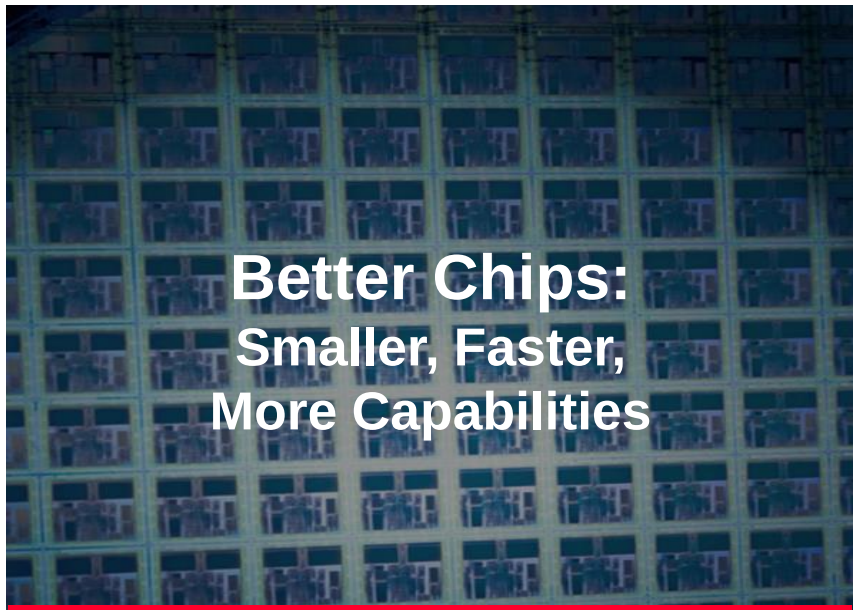
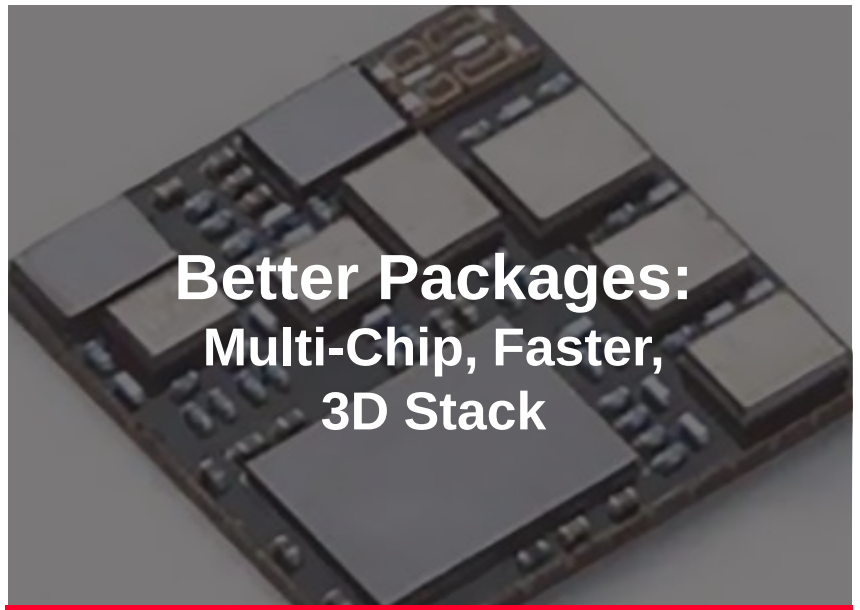
Facial Recognition



Mobile Devices

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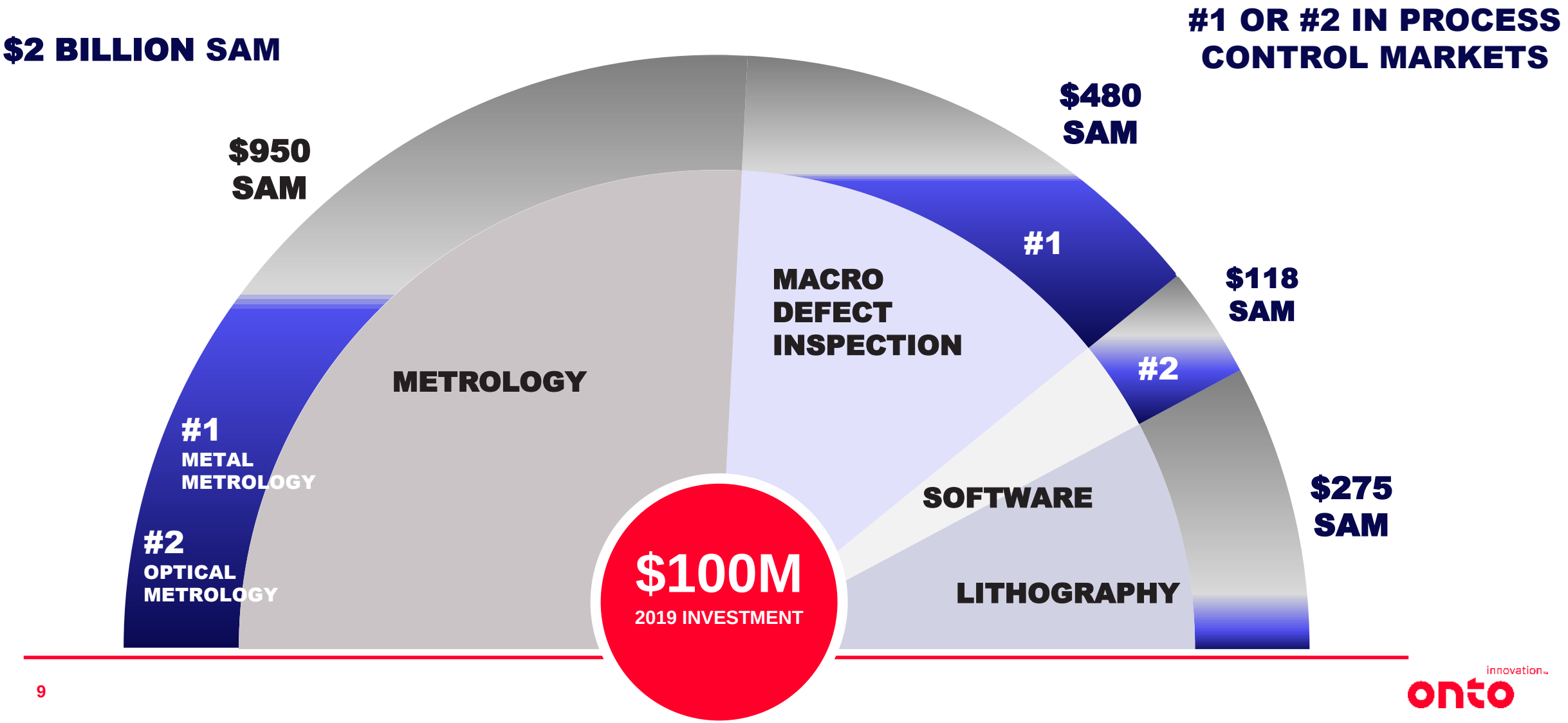
Our Products Strengthen the Semiconductor Value Chain

WAFER MANUFACTURING	FRONT-END ADVANCED NODES	ADVANCED PACKAGING
 **Better Silicon:** Higher yield transistors Sub-10nm	 **Better Chips:** Smaller, Faster, More Capabilities	 **Better Packages:** Multi-Chip, Faster, 3D Stack
NovusEdge | QS4300	Atlas | MetaPULSE	Dragonfly G2 | Firefly | JetStep

Discover Enterprise Yield and Package Traceability Software

R&D Leverage Strengthens Core Product Lines

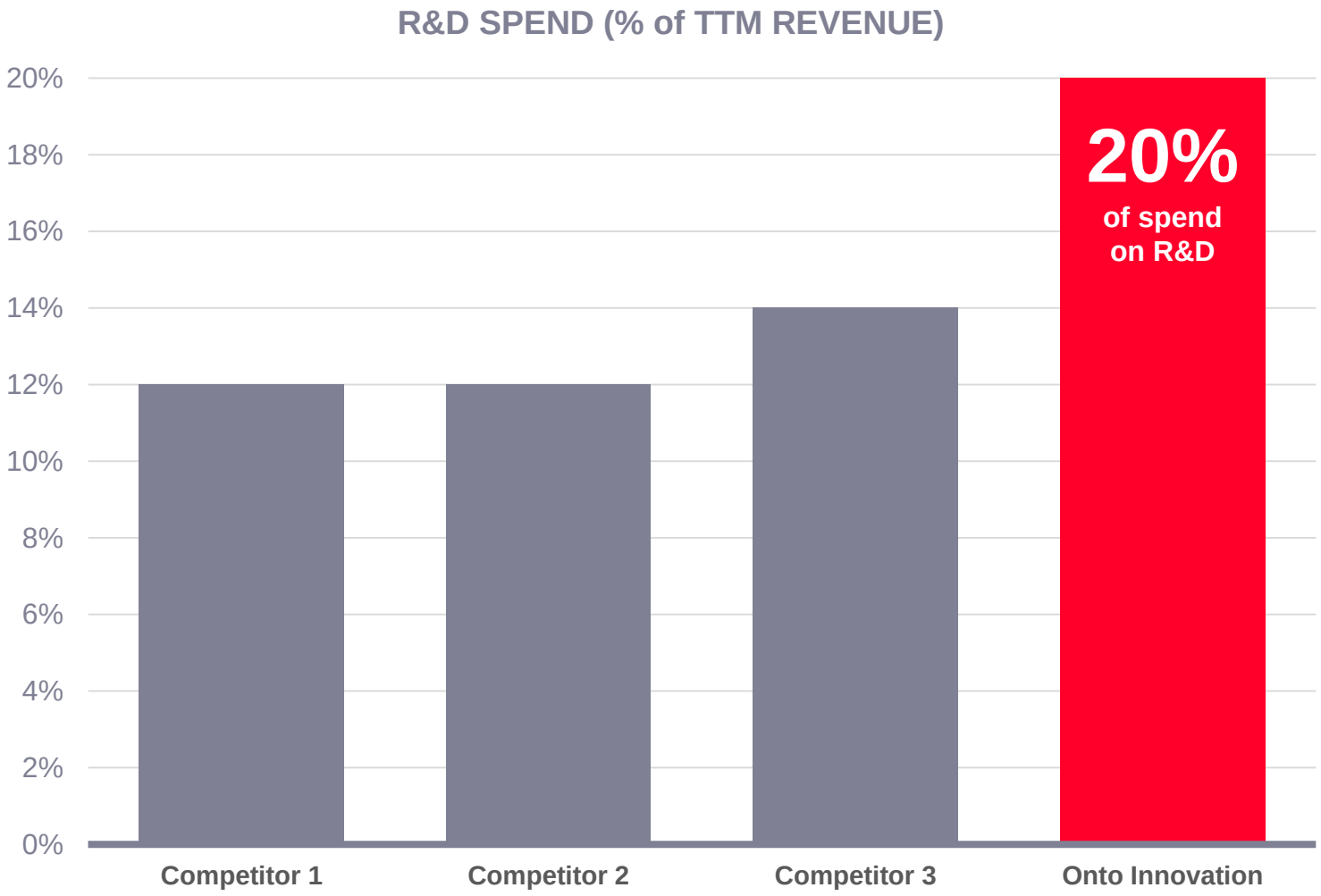
IP and Technology Leverage to Accelerate Pace of Innovation



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Strong R&D Investment Expands Margins and Markets

Higher % of R&D Investment vs Process Control Competition



**Process Control Equipment Competitors' Trailing 12 months*

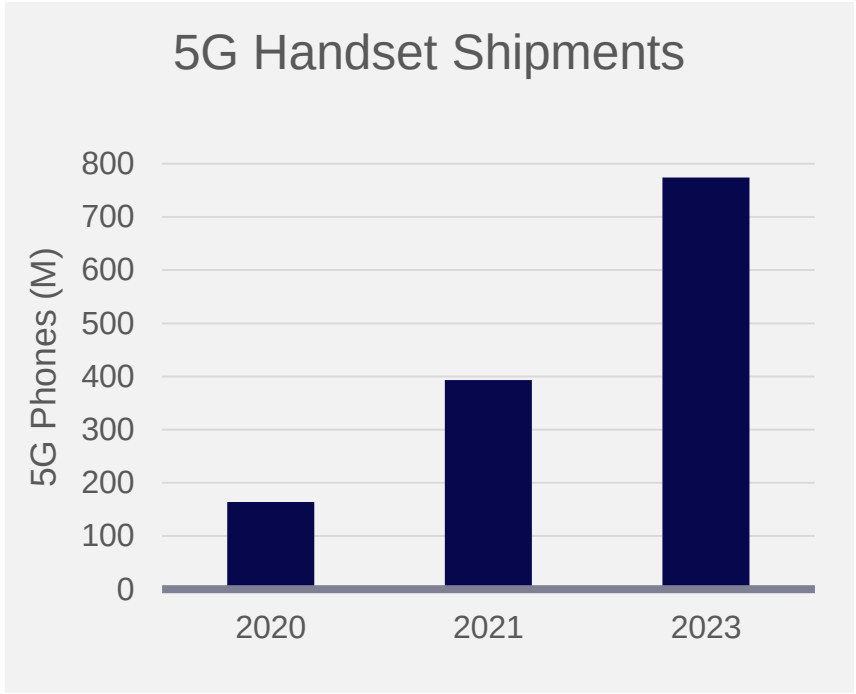
Growth Ahead

5G Adoption is Here



CEO of Skyworks

“We're at the forefront of a major inflection in 5G, a major upgrade cycle…and it's going to go well beyond the mobile phone.”



Source: Canalys 5G Forecast 2019

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5G Drives Multiple Onto Innovation Markets

10% more advanced packaging
for greater consolidation of heterogeneous ICs into single package

2X more 3D NAND
for greater device storage (video)



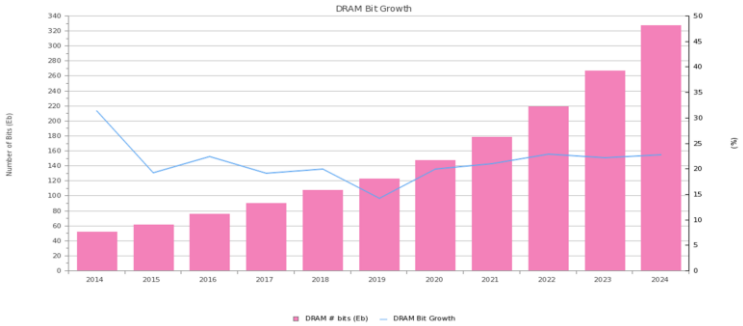
20% more silicon content
for additional RF frequencies (sub 6 and mm bands)

2X more DRAM
DDR4 needed for higher data rates and up/download speeds

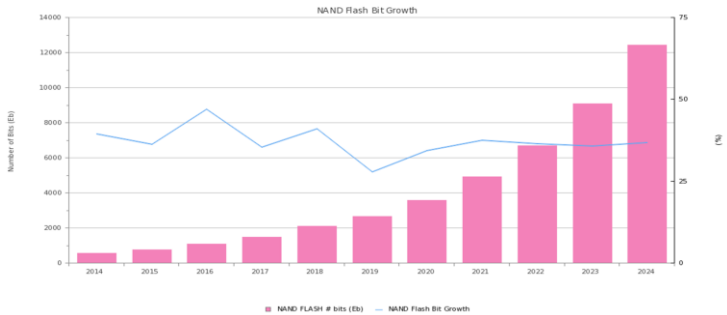
Moving to 5G drives front-end and advanced packaging volumes

5G Opportunities for Onto Innovation

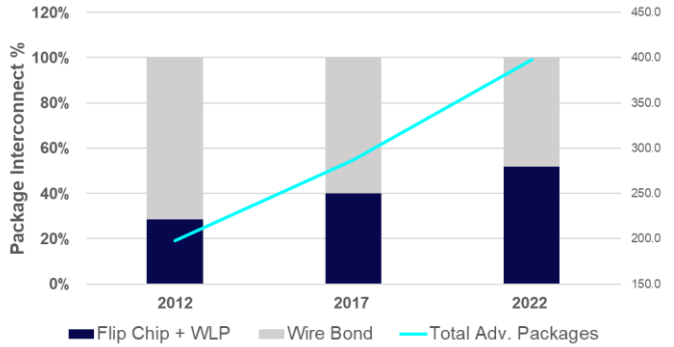
2019-2022 Average DRAM bit Growth = 24%



2019-2022 Average NAND bit Growth = 34%



2012-2022 Average Advanced Packaging Growth = 20%



5G Drives

AI &VR

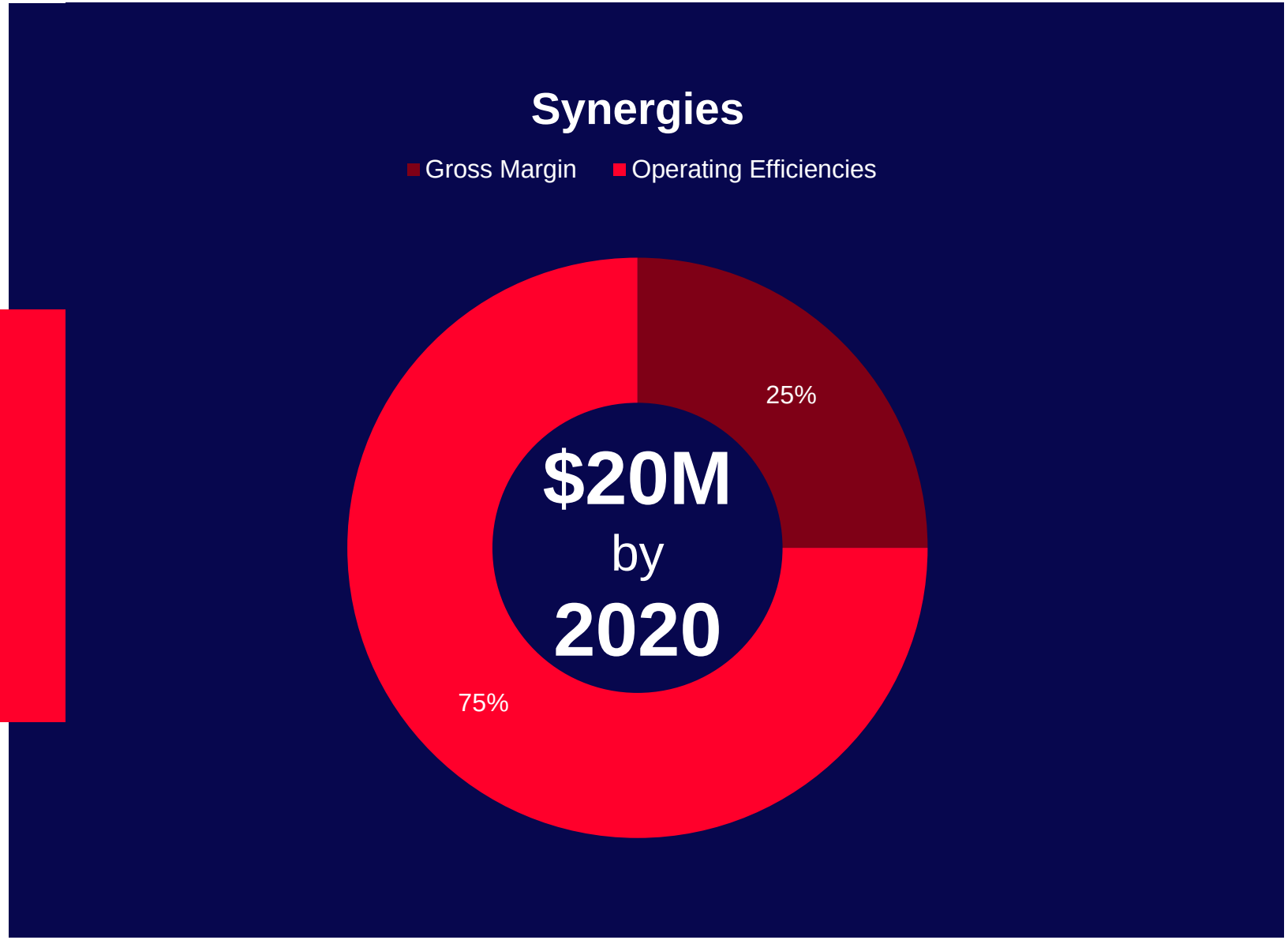
IoE
"30B devices"

Automotive
ADAS >3

Private Cloud Data Centers
Annual Growth = 24%

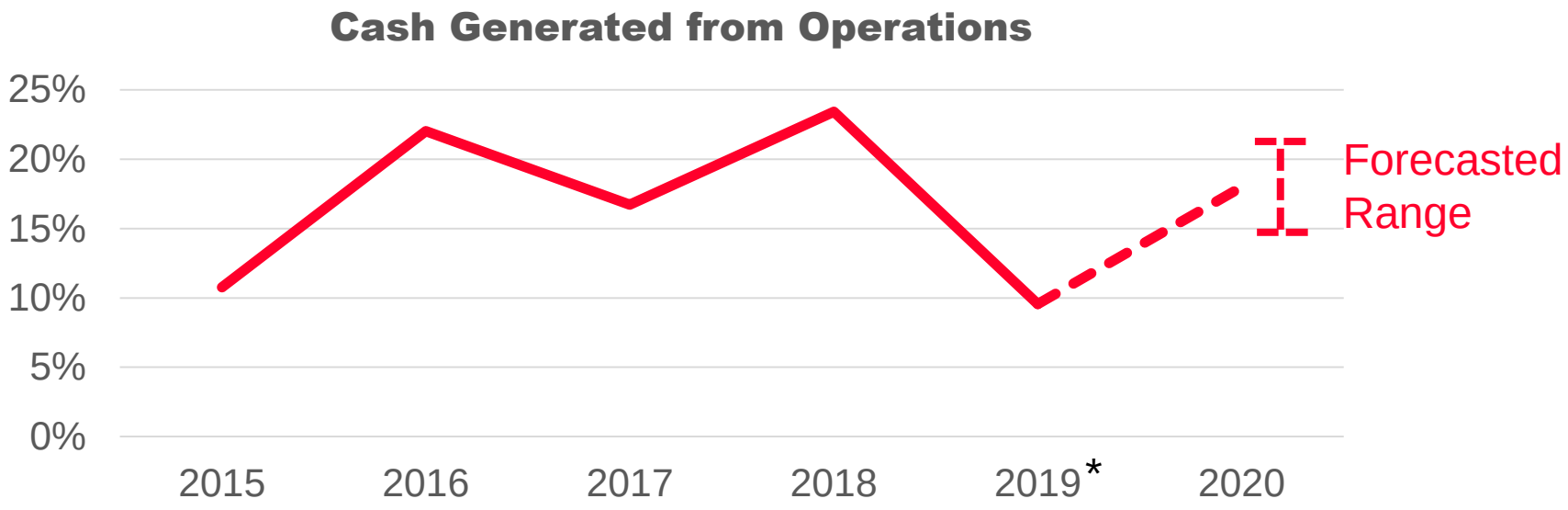
Source: VLSI Research Oct 2019

>$10M in Cost Savings by End of March



Strong Cash Generator

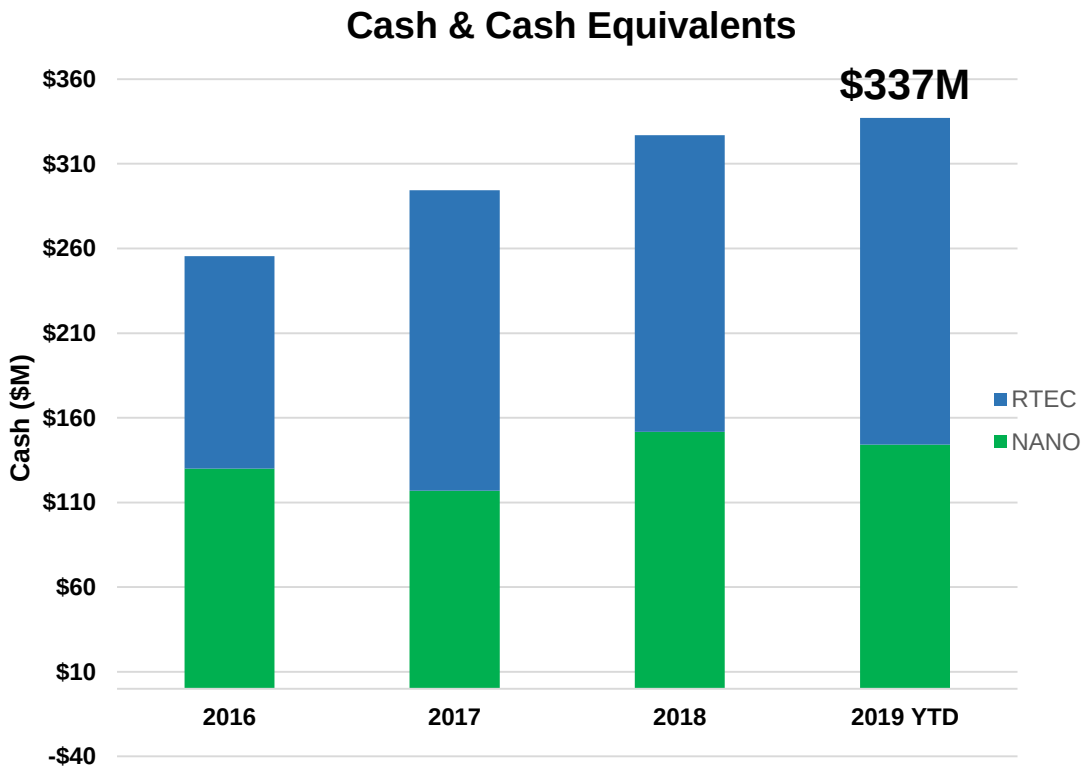
Synergies and



* Excluding ~$23M in merger expenses

$20M in Annualized Operational Synergies Enhances Cash Generation

Strong Pro-Forma Cash Position and Capital Allocation Priorities



Capital Priorities

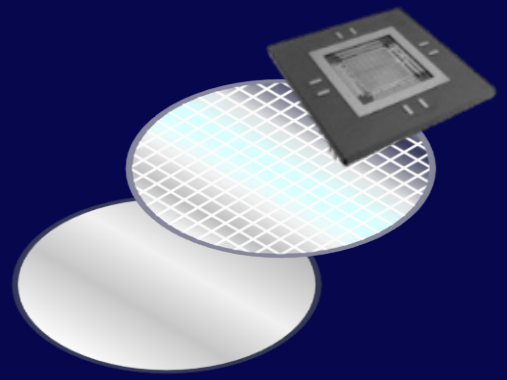
- Fund organic growth initiatives
- Strategic M&A
- Return to shareholders, $80M stock buy back authorized.

Pro Forma Model

Annual Revenue	$600M Model	$700M Model	$800M Model
Gross Margin	54% - 55%	54% - 56%	55% - 56%
Operating Profit	24% - 25%	26% - 28%	29% - 30%
Earnings per Share	$2.40 - $2.50	$3.00 - $3.25	$3.85 - $4.00

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Thesis for Growth



MARKET AND PRODUCT DIVERSITY TIED TO HIGH GROWTH SEGMENTS



LEVERAGE $100M R&D SPEND $20M SYNERGIES IN 2020



STRONG CASH POSITION AND CASH GENERATION

OUTPERFORM MARKET

EXPAND GROSS AND OPERATING MARGINS

INCREASE SHAREHOLDER VALUE

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谢谢 | 謝謝

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Thank You!

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merci

obrigado

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www.ontoinnovation.com

onto innovation™

Learning Center

Front-end Advanced Nodes

The OCD Metrology Tool For All Leading-edge Devices



Atlas III+

Precision ***2X***
Noise Level ***30% Lower***
Throughput ***30% Faster***
7/5nm Foundry & Logic
<16nm DRAM
Gen 5 3D-NAND

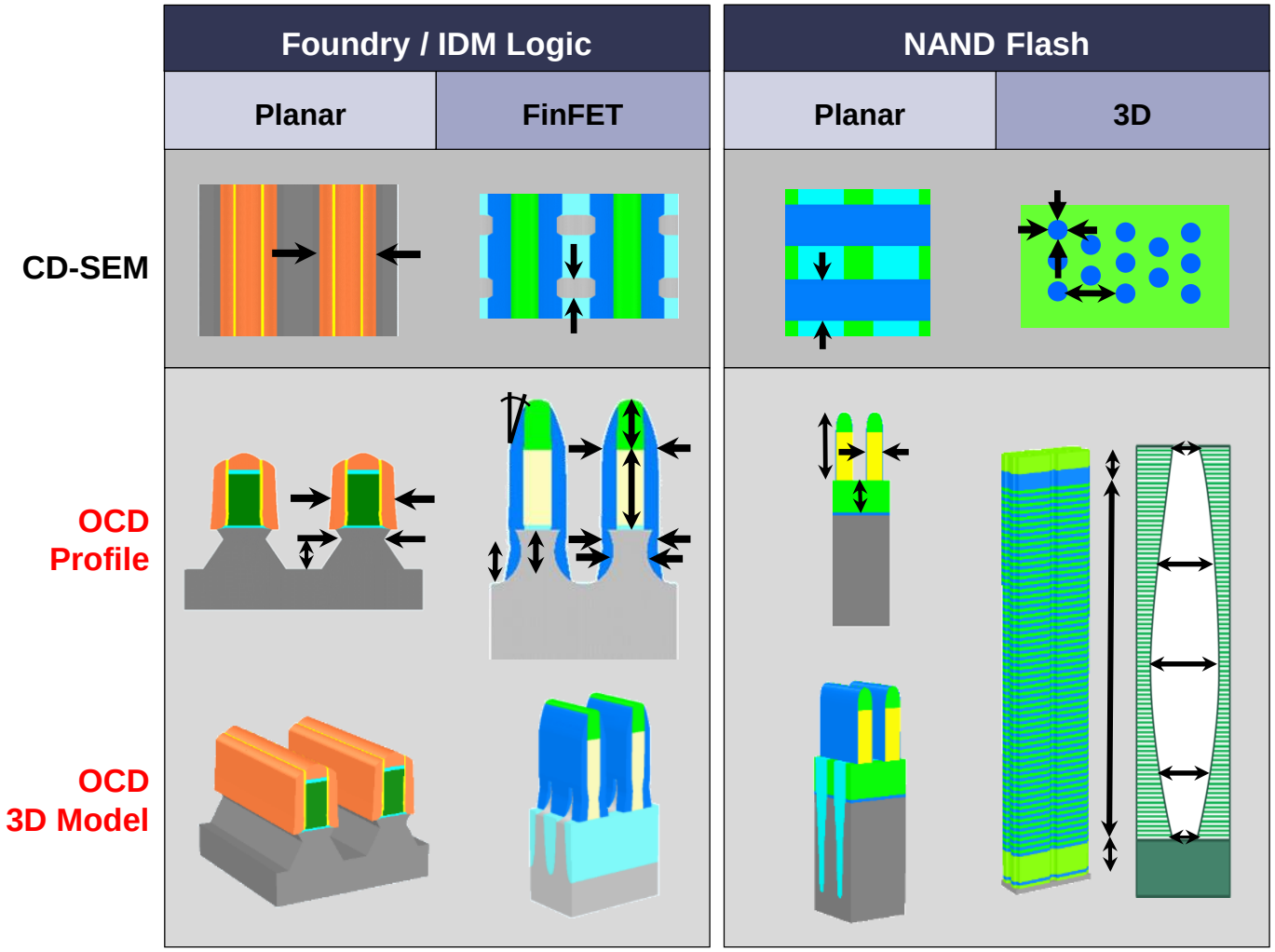
Atlas III

Precision **2X**
Noise Level **70% Lower**
Throughput **25% Faster**
Fastest Ever Nanometrics Product Ramp

Atlas II+

Increasing Pace of Innovation

OCD – Enabling 3D Process Control Metrology



- In-line & integrated solutions
- Non-destructive & high-speed
- Full structure detail
- Depth & width profile
- Atomic-level sensitivity

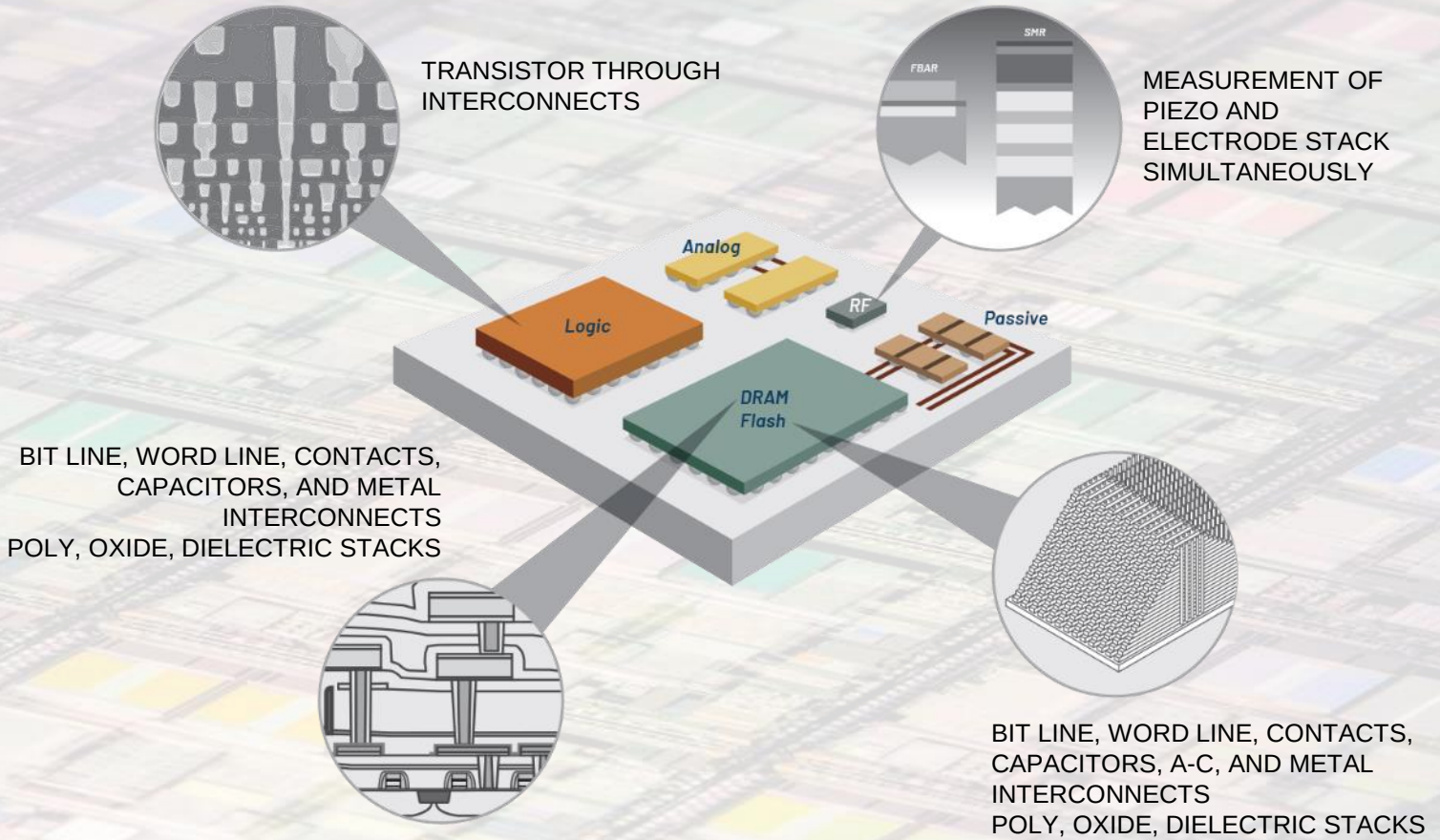
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Thin Film Metrology

MetaPULSE® System

S3000™ Series

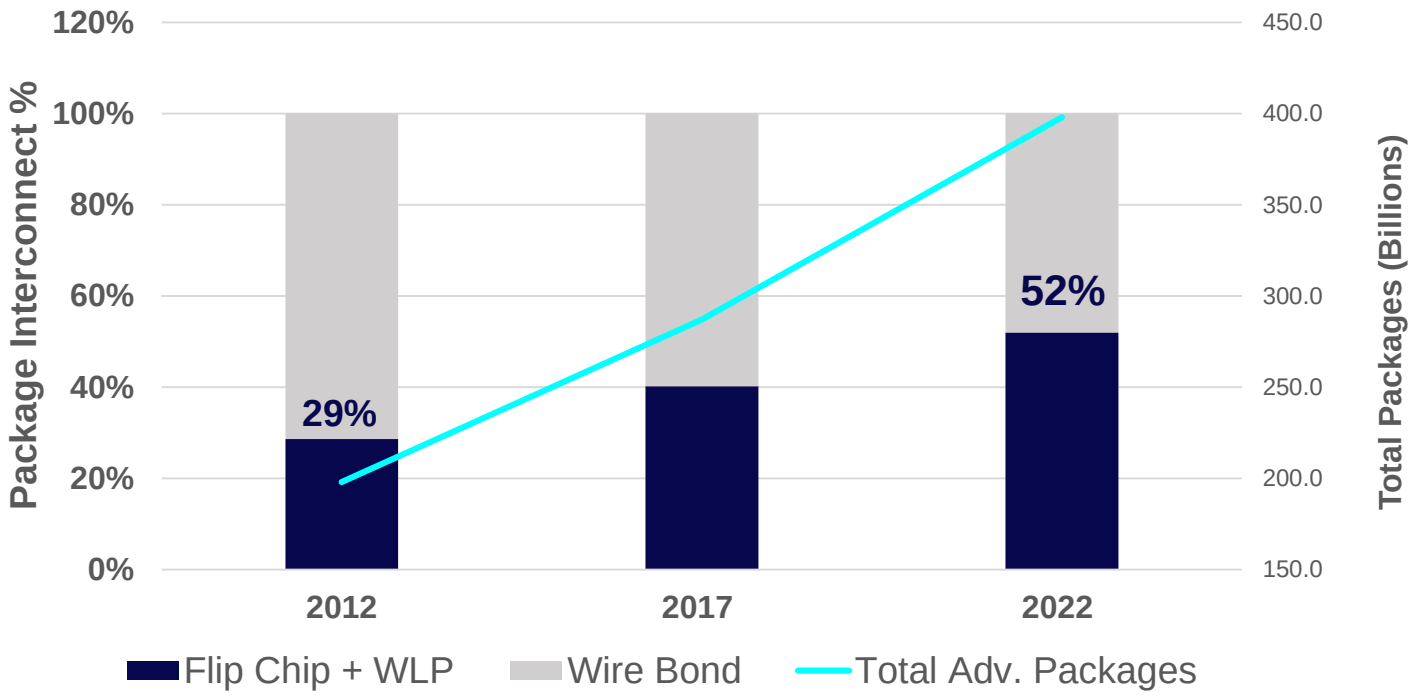
Measuring film stacks, whether opaque or transparent, requires accuracy and repeatability. Onto Innovation's techniques are well-established and trusted by semiconductor manufacturers around the globe.



Advanced Packaging

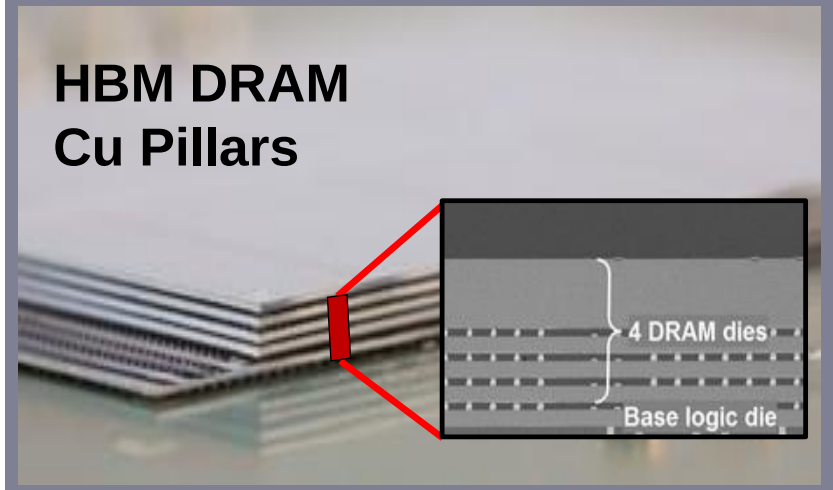
Why is Advanced Packaging Important?

Recent Orders for 2D/3D Systems > $35M to Support 2.5D-3D Advanced Packaging from One Customer



200 Billion to 400 Billion Package Growth by 2022





Cu Pillars Photo: TechSearch

Source: VLSI Research Advanced Packaging Forecast, May 2019

The Macro Inspection Tool For All Advanced Packaging



Dragonfly G2

Capture Rate **2X**

Throughput **50% Faster**

Sensitivity **0.7µm**

Bumps down to 2µm

Simultaneous Inspection and Metrology

Dragonfly

Capture Rate **1.5X**

Throughput **20% Faster**

Sensitivity **2.0µm**

Next-Generation optical platform release

NSX

Increasing Pace of Innovation

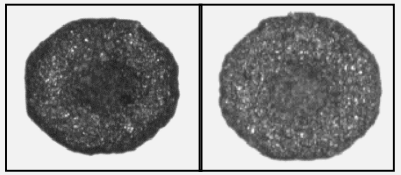
onto innovation

Automated 2D/3D Macro Defect Inspection

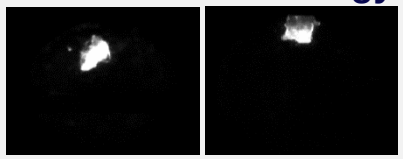
Dragonfly® G2 Inspection System

- ✓ Up to 50% Faster than Legacy Systems
- ✓ New 3D Metrology
- ✓ Bump Measurement/Analysis >50M Bumps/Wafer
- ✓ Integrated 3D Metrology & 2D Inspection
- ✓ Clearfind® Capability

BF/DF- Cannot See Residue



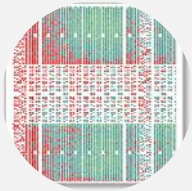
Clearfind® Technology



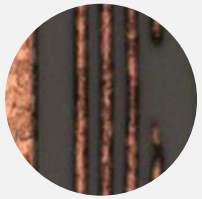
Copper Pillars



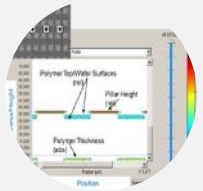
RDL Short



3D Metrology



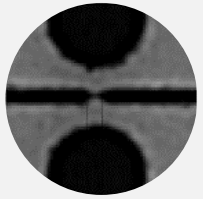
Bridging



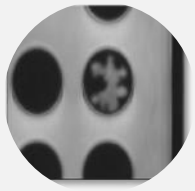
Bump Coplanarity

Firefly® Inspection System

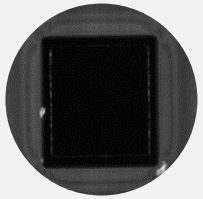
- ✓ Panel and Wafer Inspection Capability
- ✓ Sub-micron 2D Defect Sensitivity down to 0.3µm
- ✓ Clearfind® Technology Detection where BF or DF Techniques Fail
- ✓ Die Position/Metrology for Reconstituted Panel & Wafer for StepFAST™ Solution



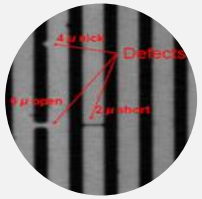
Incomplete Etch



Resist Residue



Pad Residue

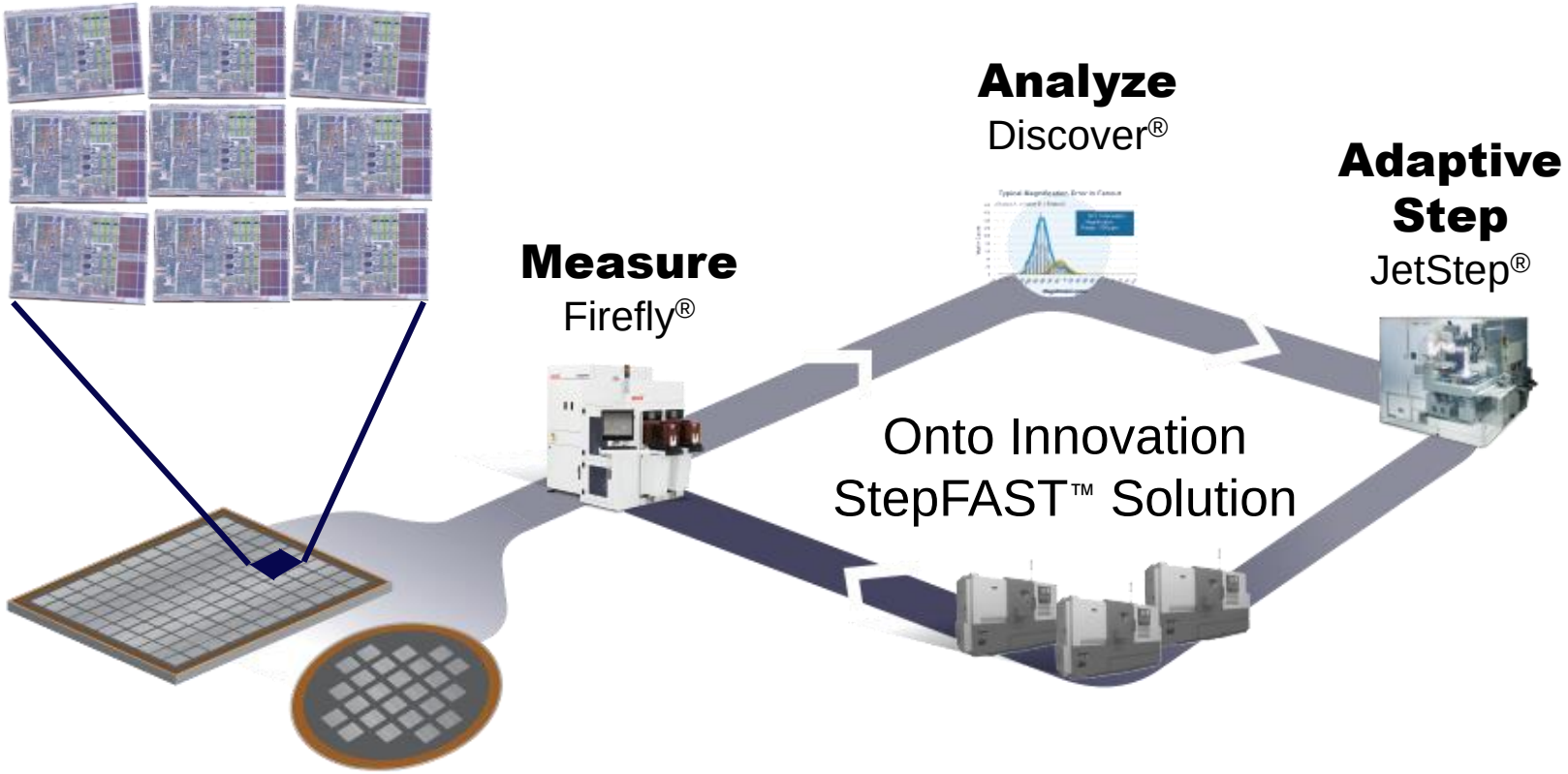


RDL Shorts

The Onto Innovation Difference: Solutions not Tools

Improving productivity and yield: reducing cost for panel lithography

Die Shift & Rotation



StepFAST™ Solution

Providing Customers Higher Productivity, Lower CoO

+3% Yield
2x Throughput