



Analyst Day 2020

December 10, 2020



Introduction to Today's Speakers

09:00

**Precision
Delivered**



John T.C. Lee
President &
Chief Executive Officer

09:30

**Semiconductor
Market:
Driving Continued
Leadership and
Outperformance**



Eric Taranto
SVP & GM
V&A Division



Marc Tricard
VP & GM
Optical Solutions

09:45

Break

10:00

**Advanced Markets:
Positioned to Win
in the Age of
Complexity and
Miniaturization**



Mark Gitin
SVP & GM
L&M Division



John Williams
VP & GM
E&S Division

10:25

**Roadmap to
Long-Term
Value Creation**



Seth Bagshaw
SVP, CFO
& Treasurer

10:40

Q&A

Please submit questions to
the Q&A window on your
webcast, or email to
David.Ryzhik@mksinst.com

Safe Harbor for Forward-Looking Statements

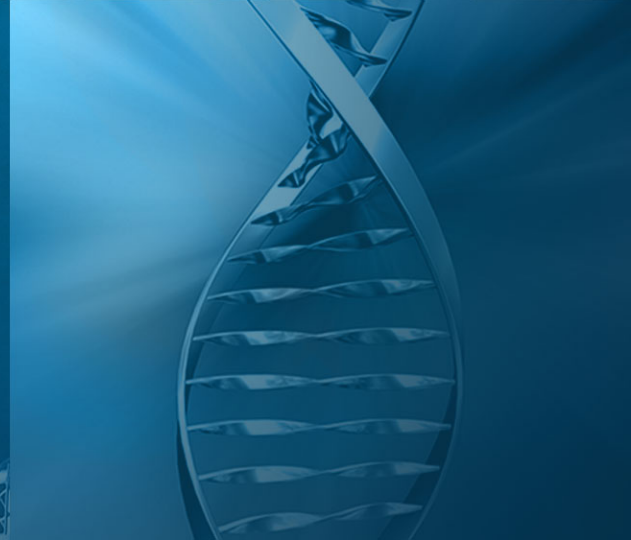
This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933 and 21E of the Securities Exchange Act of 1934 regarding the future financial performance, business prospects and growth of MKS Instruments, Inc. ("MKS" or the "Company"). These statements are only predictions based on current assumptions and expectations. Any statements that are not statements of historical fact (including statements containing the words "will," "projects," "intends," "believes," "plans," "anticipates," "expects," "estimates," "forecasts," "continues" and similar expressions) should be considered to be forward-looking statements. Actual events or results may differ materially from those in the forward-looking statements set forth herein. Among the important factors that could cause actual events to differ materially from those in the forward-looking statements are the conditions affecting the markets in which MKS operates, including the fluctuations in capital spending in the semiconductor industry and other advanced manufacturing markets, fluctuations in sales to our major customers, the impact of the COVID-19 pandemic on the global economy and financial markets, including any restrictions on MKS' operations and the operations of MKS' customers and suppliers resulting from public health requirements and government mandates, the terms of our term loan, competition from larger or more established companies in MKS' markets, MKS' ability to successfully grow our business and particularly that of Electro Scientific Industries, Inc.'s business, the challenges, risks and costs involved with integrating the operations of the companies we have acquired, potential fluctuations in quarterly results, dependence on new product development, rapid technological and market change, acquisition strategy, manufacturing and sourcing risks, volatility of stock price, international operations, financial risk management, and the other factors described in MKS' most recent Annual Report on Form 10-K for the year ended December 31, 2019 and any subsequent Quarterly Reports on Form 10-Q, as filed with the SEC. MKS is under no obligation to, and expressly disclaims any obligation to, update or alter these forward-looking statements, whether as a result of new information, future events or otherwise after the date of this presentation.

Use of Non-GAAP Financial Measures

This presentation includes measures that are not in accordance with U.S. generally accepted accounting principles (“Non-GAAP financial measures”). These Non-GAAP financial measures should be viewed in addition to, and not as a substitute for, MKS’ reported GAAP results, and may be different from Non-GAAP financial measures used by other companies. In addition, these Non-GAAP financial measures are not based on any comprehensive set of accounting rules or principles. MKS management believes the presentation of these Non-GAAP financial measures is useful to investors for comparing prior periods and analyzing ongoing business trends and operating results. Please see the Appendix entitled “GAAP to Non-GAAP Reconciliations” at the end of this presentation for reconciliations of our Non-GAAP financial measures to the comparable GAAP financial measures.

Precision Delivered

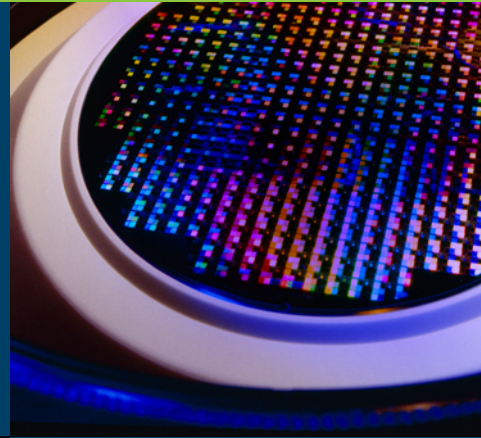
John T.C. Lee
President & CEO



MKS Value Proposition



Enabling key
technology trends
with foundational
solutions



Semi subsystems
leader with
broadest portfolio

Positioned for
growth in
complementary
Advanced Markets



Focus on
miniaturization
and technical
complexity drives
shareholder value



MKS At-A-Glance



2020E
REVENUE⁽¹⁾

\$2.3B



2015-2020E
REVENUE CAGR⁽¹⁾

23%



2015-2020E
NON-GAAP EPS
CAGR⁽¹⁾

26%



TOTAL CUSTOMERS

25K+



2019 FORTUNE 100
FASTEST GROWING

#21



PATENTS
WORLDWIDE

~2,200



LEADING POSITION
IN PRODUCT
CATEGORIES⁽²⁾

15

⁽¹⁾2020E data includes Q4 2020 guidance midpoint.

⁽²⁾Product categories where Company estimates it is #1 or #2.

An abstract graphic on the left side of the slide. It features a glowing blue globe with a grid of latitude and longitude lines. Overlaid on the globe are numerous circuit-like lines in blue and yellow, some with small dots at their ends, suggesting a technological or digital theme.

VISION

Enabling the Technologies that
Transform our World

MISSION

Innovation Leader and Valued Partner
Pushing the Boundaries of Possibility

Corporate Social Responsibility Is CORE To MKS



Our People and Communities



Our Environment



Our Shareholders

Driving Sustainability and Value for All Stakeholders

- Diversity is core to MKS and starts at the top:
 - Board: 50% Gender Diverse; 25% Racially Diverse
 - Exec Team: 30% Gender Diverse; 30% Racially Diverse
 - Diversity & Inclusion training rolled out in 2020 to MKS leaders, more initiatives coming in 2021
 - Robust measures to ensure employee safety and wellness
 - Philanthropy and Volunteerism initiatives across the Company
- Enabling sustainability with our products:
 - Enabling Solar manufacturing with our Flow, Valves, Pressure, Lasers, and Photonics
 - Dissolved Ozone for wafer clean, a green alternative to toxic gases
 - Advanced Analyzers for emissions monitoring
 - Strict measures for responsible sourcing
- Strong, diverse and independent Board:
 - 75% of Board is independent
 - >60% of Directors have tenure of <3 years
 - Board possesses a diverse skillset across key functional areas
 - Executive pay incentives aligned with Corporate financial performance goals

Since 2015 MKS Has Transformed

Focus on Semi

1961

MKS founded,
developed
first Baratron®
Capacitance
Manometer

1999

Became
public company,
Nasdaq MKSI,
revenue
~\$265M

Advanced Markets Expansion

2016

Acquired Newport,
expanding
Advanced Markets
capabilities and
customer base

2019

Acquired ESI
laser-based
systems solutions
for Advanced
Electronics Market

2021

Will celebrate
60 years of
sustainable
and profitable
growth

~60 Years of Cutting-Edge Innovation

A Stronger, More Diverse Company

	2015	2020E
Total Revenue	\$0.8B	\$2.3B ⁽¹⁾
• Semiconductor Market	\$0.6B	\$1.4B ⁽²⁾
• Advanced Markets	\$0.3B	\$0.9B ⁽²⁾
Leading Product Categories	7 ⁽³⁾	15 ⁽³⁾
Patents	~1,100	2,200
Non-GAAP Dilutive Earnings per Share	\$2.22	\$7.09 ⁽¹⁾

⁽¹⁾Data includes Q4 2020 guidance midpoint. ⁽²⁾Based on Company's expected breakdown of total revenue for Semiconductor and Advanced Markets for FY 2020.

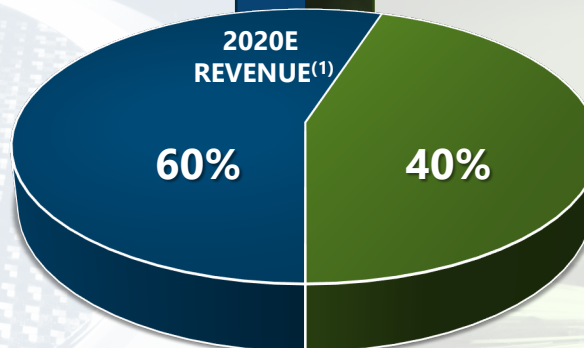
⁽³⁾Product categories where Company estimates it is #1 or #2. ⁽⁴⁾From December 31, 2015 to November 30, 2020.

MKS Stock Appreciation >280%⁽⁴⁾

Broad and Deep Capabilities Addressing Multiple End Markets

Semiconductor

- **Deposition**
 - Atomic Layer Deposition, Plasma Enhanced Chemical Vapor Deposition
- **Etching**
 - Extreme Vertical Structures
- **Lithography**
 - 193nm Immersion, EUV
- **Metrology & Inspection**
- **Critical Wet Processing**
 - Dissolved Reactive Gases



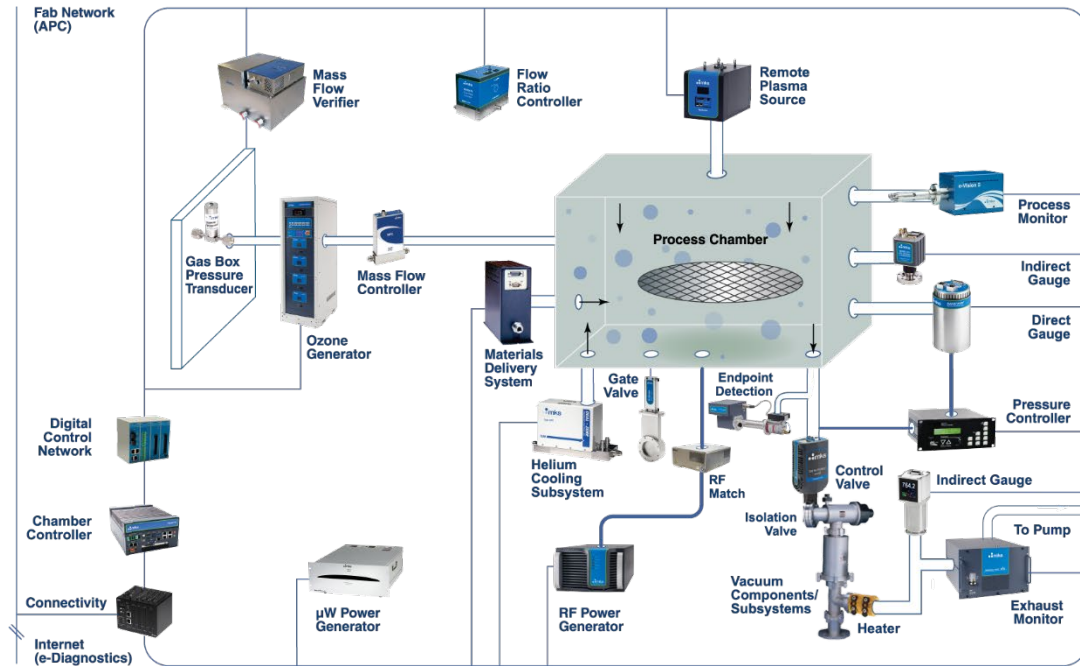
Advanced Markets

- **Advanced Electronics Manufacturing**
 - PCB Manufacturing, Electronic Component Manufacturing, Electronic Thin Film
- **Industrial Technologies**
 - Process Industries, Telecom/Datacom, Industrial Manufacturing
- **Life & Health Sciences**
 - Analytical & Medical Instrumentation, Biopharma, Bioimaging, Surgery
- **Research & Defense**
 - Imaging/Infrastructure, Protection/Surveillance, Electronics/Biological Research, Ultrafast Laser Studies

⁽¹⁾Based on Company's expected breakdown of total Semiconductor and Advanced Markets for FY 2020.

Semiconductor Market's Critical Solutions Provider

Deposition & Etch



Lithography & Inspection



⁽¹⁾2020E Semi revenue based on the Company's expected \$1.4B Semi/\$0.9B Advanced Markets breakdown of total revenue for FY 2020. ⁽²⁾Company estimates.

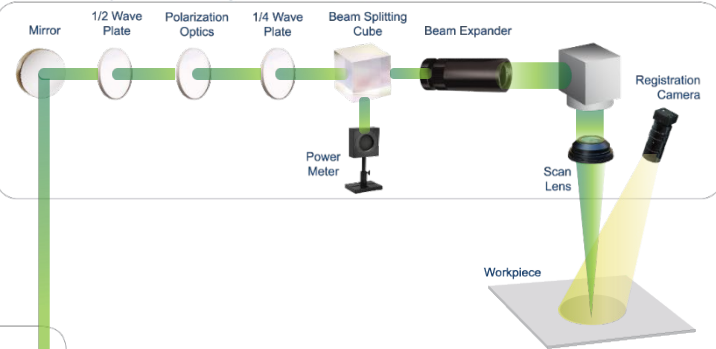
From 2000-2020, Semi Revenue has Grown ~300%⁽¹⁾; Share of WFE has Grown ~150%⁽²⁾

A Leading Enabler of Laser Processing

Critical Solutions for Laser Processing

System Level Expertise

Beam Delivery & Conditioning



Laser Source

Motion & Positioning

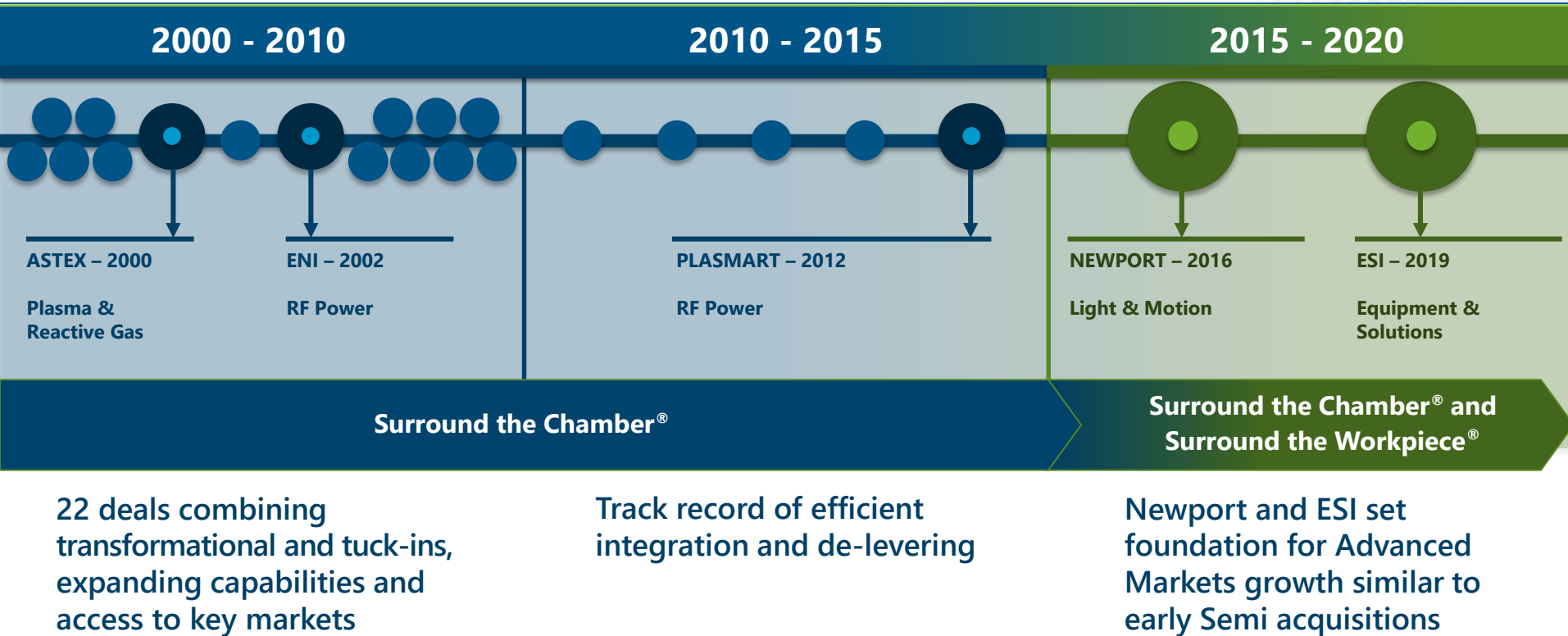


Process Control



Leveraging Surround the Workpiece[®] Strategy to Drive Growth


M&A is Core to MKS Growth Strategy



Multiple Secular Opportunities Driving MKS Growth



Data growth
fueling chip
demand



Mechanical to
laser-based
manufacturing



5G and IoT
proliferation

MKS is Uniquely Positioned for

Market share gains
as equipment
spend increases

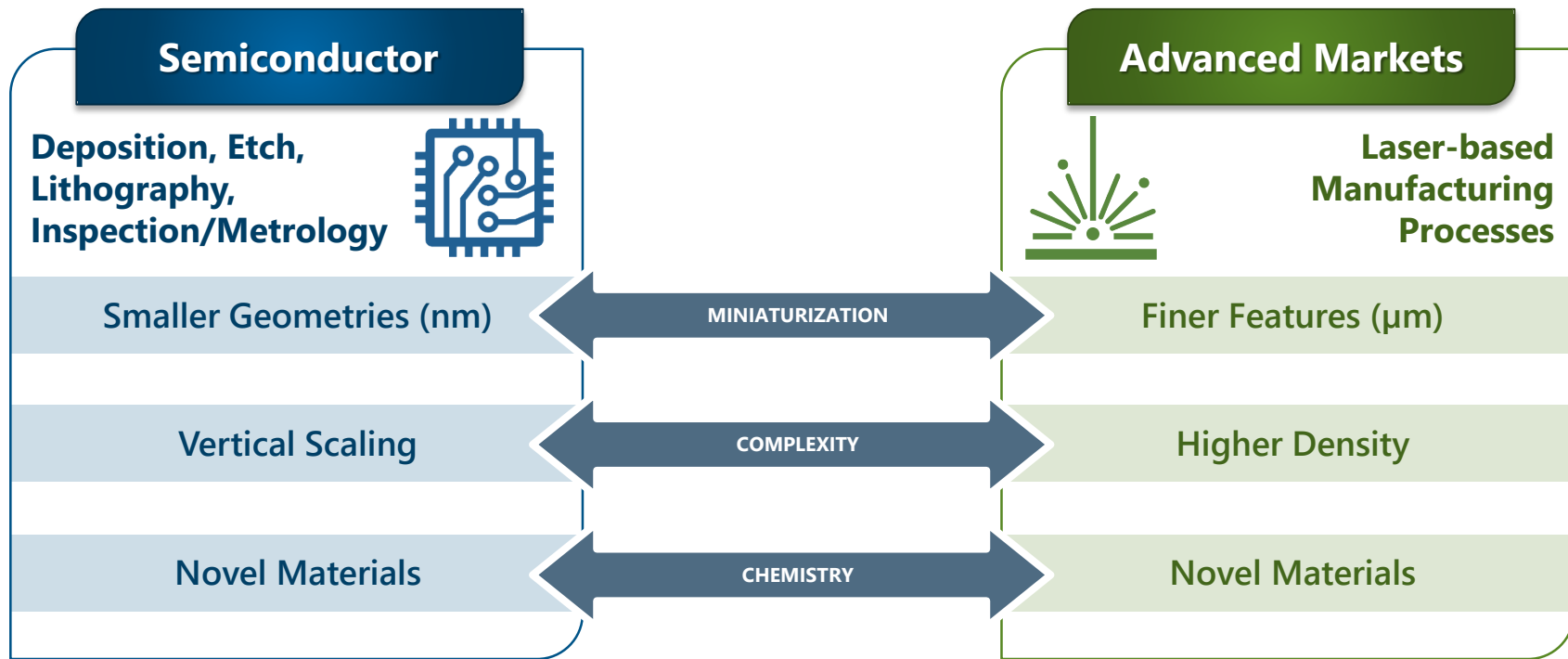
Accelerating adoption
of Lasers, Optics
and Photonics

Ubiquitous
expansion
of electronics

Customer Challenges: Miniaturization – Density – New Materials

MKS Sits at the Foundation of the Hardest Problems

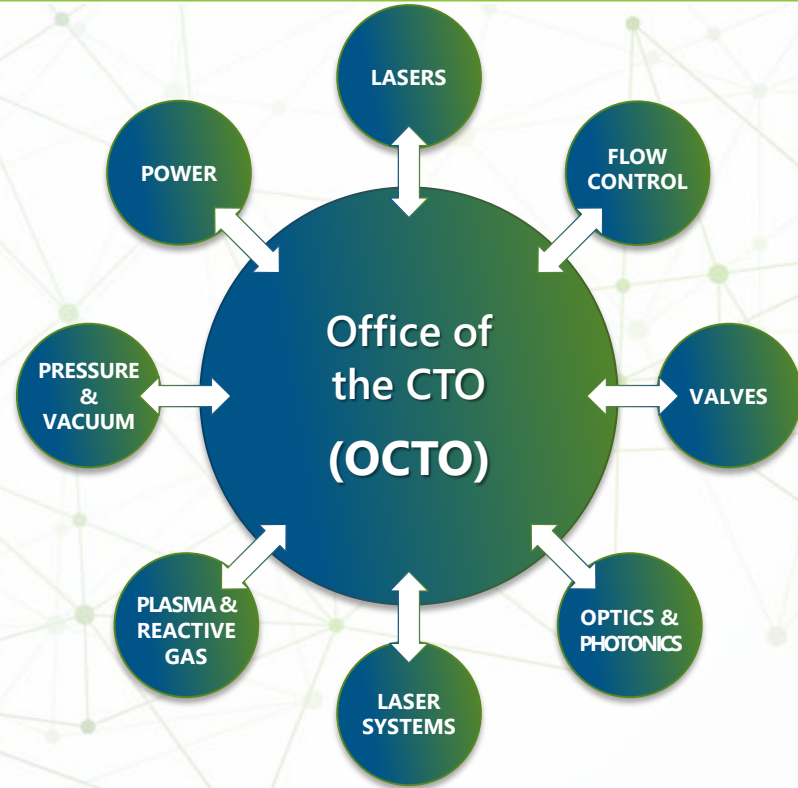
Precision Engineering Enables Technology Advances from Wafer to Workpiece



POWER PLASMA & REACTIVE GAS PRESSURE OPTICS LASERS OPTICAL SUBSYSTEMS MOTION SYSTEMS

MKS Approaches Innovation Differently...

- Drives cross-collaboration
- Provides critical insights as inflections arise
- Fosters culture of innovation and leadership
- Addresses customer problems holistically
- Facilitates deeper customer relationships



Empowers Product Experts to Bring Technical Expertise Closer to our Customers

...Creating a Virtuous Cycle that Drives Growth and Expansion



Aligning Innovation Roadmap with Critical Trends

Extreme Vertical Scaling



RF Power capabilities are increasingly critical for growing complexity in etch processing

Atomic Layer Processing



Plasma & Reactive Gas capabilities address challenges for increasing clean chamber requirements

Precision Laser Processing



Cross-collaboration leverages Lasers, Optics, Photonics & Systems expertise that provide a roadmap to miniaturization

MKS is a Leader in Increasingly Important Products and Technologies

- #1** : RF Power for Dielectric Etch
- #2** : Overall RF Power

- #1** : Plasma & Reactive Gas

- #1** : Nanosecond UV
- #1** : Flex PCB via Drilling
- #1-2** : Laser Optics
- #2** : Overall Pulsed Lasers

Sustainable Competitive Advantage

Highly
differentiated
portfolio



Advanced vacuum
subsystems to complex
photonics to precision
laser systems

Culture of
continuous
innovation



Deep technical
expertise sustains
continuous innovation

Leading solutions
and customer
centricity



Critical technology
enabler and long-term
trusted partner with
proven track record

Compelling Growth Poised to Continue

2015 – 2020E⁽¹⁾ Market Segment Revenue CAGR

SEMICONDUCTOR

- Innovations and inflections drive market share gains
- Exposure to higher growth segments within WFE
- Executed Surround the Chamber[®] strategy

TOTAL
19%

ADVANCED MARKETS

- New product innovations
- Exposure to higher-growth segments
- Executing Surround the Workpiece[®] strategy

TOTAL
29%

⁽¹⁾2020E Semi and Advanced Markets revenue based on the Company's expected breakdown of total revenue for FY 2020.

Continued Semi Outperformance – Early Innings for Advanced Markets

Strategically Positioned to Outperform

Leverage
highly successful
strategies



Surround the Chamber[®]
strategy has led to >85%
WFE penetration; now
executing same playbook for
Surround the Workpiece[®]

Source: Company estimates.

Industry leader
across
technologies



#1, #2 or #3 player across
more than 20 adjacencies
spanning Vacuum & Analysis,
Light & Motion,
Equipment & Solutions

Source: Company estimates.

Financial flexibility
and operational
discipline

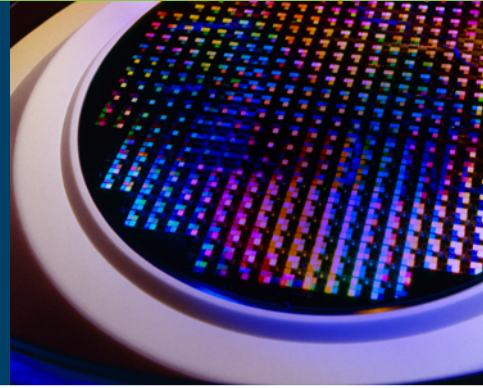


Investing via strong cash
flows and operational
efficiencies to rapidly turn
insights into new market
opportunities

Looking Ahead



Innovation expertise and OCTO structure create competitive advantage



Semi business expected to drive continued outperformance vs. WFE

A Transformed MKS is Well-Positioned for an Exciting Future

Early innings of Advanced Market growth driven by similar Semi trends



Track record of strong operational execution and robust capital allocation continues

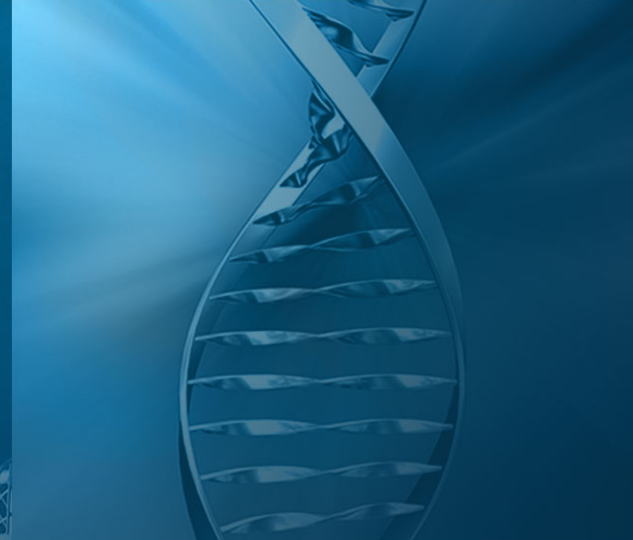


Semiconductor Market:

Driving Continued
Leadership and
Outperformance

Eric Taranto
SVP & GM
V&A Division

Marc Tricard
VP & GM
Optical Solutions



Key Messages



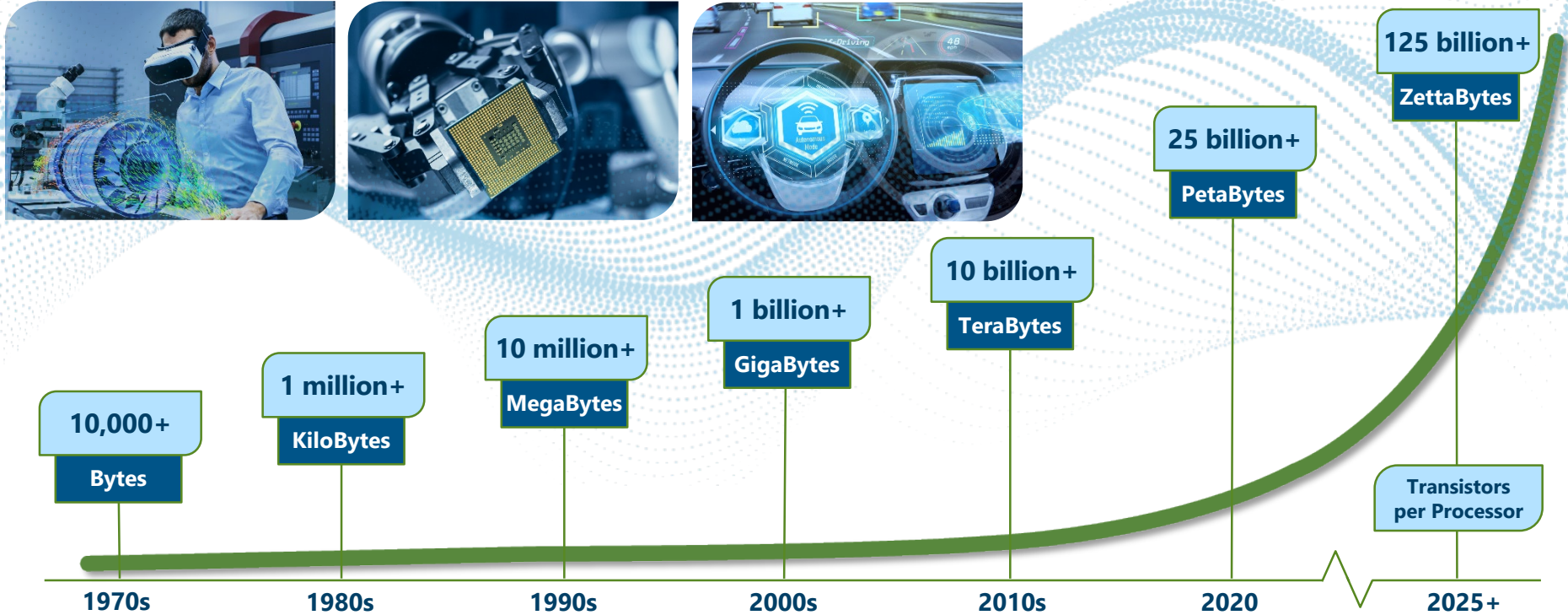
Significant secular growth within a dynamic industry

A leading critical subsystems provider at the forefront of semiconductor market inflections

Competitive advantage driven by strong innovation, broad portfolio and deep customer relationships

Continued Leadership and Outperformance in Semi

Data Explosion Driving Semi Capacity and Complexity



Source: IC Insights, Company estimates.

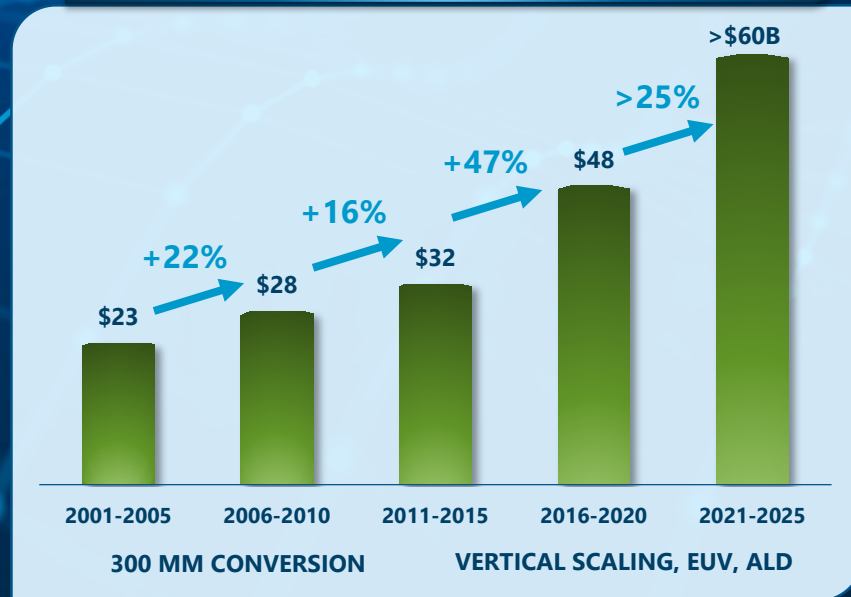
Higher Memory Bit Density and Transistor Count

Attractive Long-Term Market Growth

Average Chip Revenue (\$B)



Average WFE Spending (\$B)



Source: VLSI, internal Company data.

More Data → More Powerful Semi Chips → More Complexity → MKS Enabling Technologies

MKS: Broadest Critical Subsystem Provider in WFE Ecosystem

DEPOSITION & ETCH

- RF Power
- Plasma & Reactive Gas
- Pressure & Vacuum Measurement
- Gas Delivery & Pressure Control

CRITICAL WET PROCESSING

- Dissolved Reactive Gas

**Addresses
>85% of
WFE⁽¹⁾**

METROLOGY & INSPECTION

- Optics & Optical Subsystems
- Lasers
- Precision Motion
- High Performance DUV Thin Film Coating

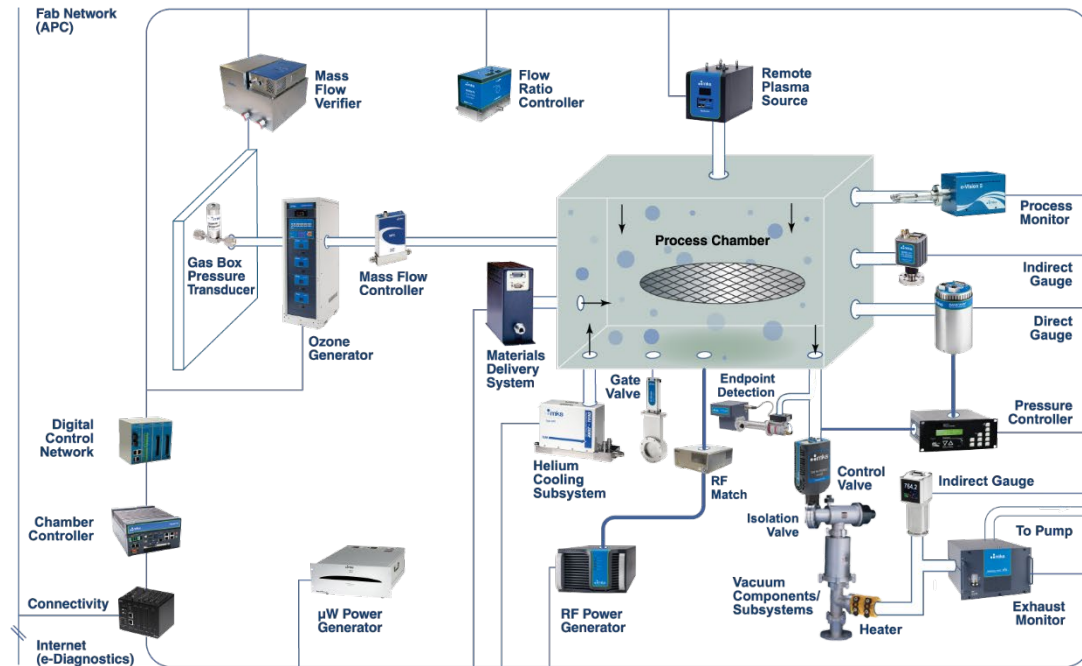
LITHOGRAPHY

- Optics & Optical Subsystems
- Precision Motion
- Vibration Control
- Light Source Assemblies

⁽¹⁾Company estimates.

Semiconductor Market's Critical Solutions Provider

Deposition & Etch



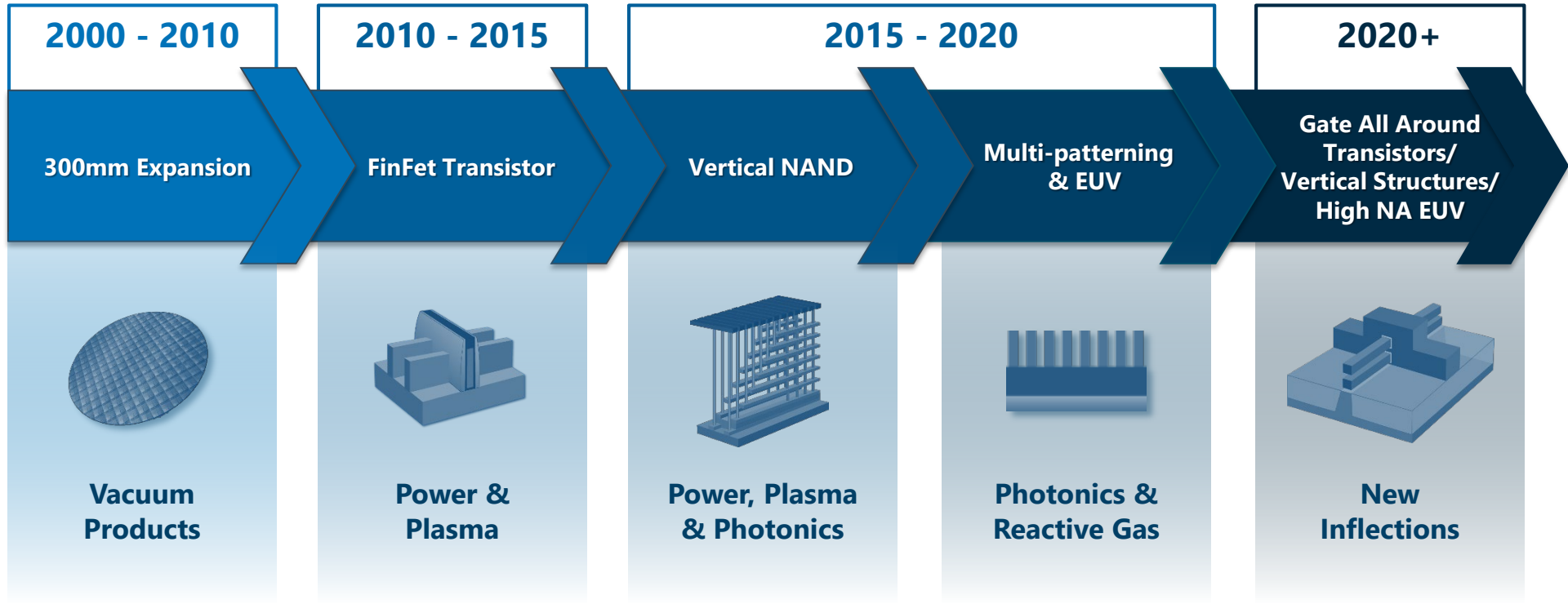
Lithography & Inspection



⁽¹⁾2020E Semi revenue based on the Company's expected \$1.4B Semi/\$0.9B Advanced Markets breakdown of total revenue for FY 2020. ⁽²⁾Company estimates.

From 2000-2020 Semi Revenue has Grown ~300%⁽¹⁾; Share of WFE has Grown ~150%⁽²⁾

MKS at the Leading Edge of Semi Transitions



MKS Critical Subsystems have Enabled Every Key Inflection in Semi Device Manufacturing

MKS Semi Business Has Outperformed WFE

Executing On Surround the Chamber

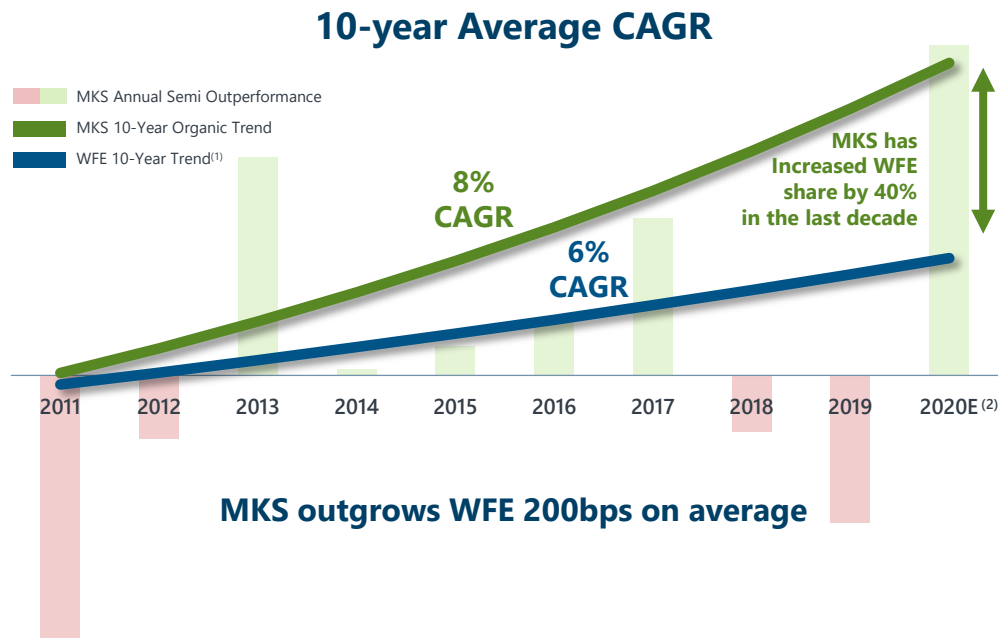
- SAM expansion, technology enablement, portfolio breadth

Capitalizing on Key Technology Inflections

- Due to unique innovation model

Time-To-Market

- Drives increased customer intimacy



⁽¹⁾WFE Source: Company estimates.
⁽²⁾2020E Semi revenue based on the Company's expected \$1.4B Semi/ \$0.9B Advanced Markets breakdown of total revenue for FY 2020.

Strong 2015-2020 Organic Revenue Growth of ~17%⁽²⁾

Why MKS Wins: RF Power Case Study



Spotting the Inflection

- Evaluated vertical memory scaling challenges (OCTO)
- Identified critical role for RF Power
- Initiated targeted R&D investments



Technology Leadership

- Multi-level RF pulsing, pulse shaping & wafer edge control
- Smart control algorithms & modularity
- Unprecedented acceleration of development cycles – critical for OEM roadmaps



MKS Execution

- Developed novel High Aspect Ratio (HAR) etch solutions & secured design wins
- Enabled ~6x increase in RF Power output
- Leveraging dielectric etch innovations to capture share in conductor etch

YTD 2020 Power Solutions Y/Y Growth of >110%⁽¹⁾

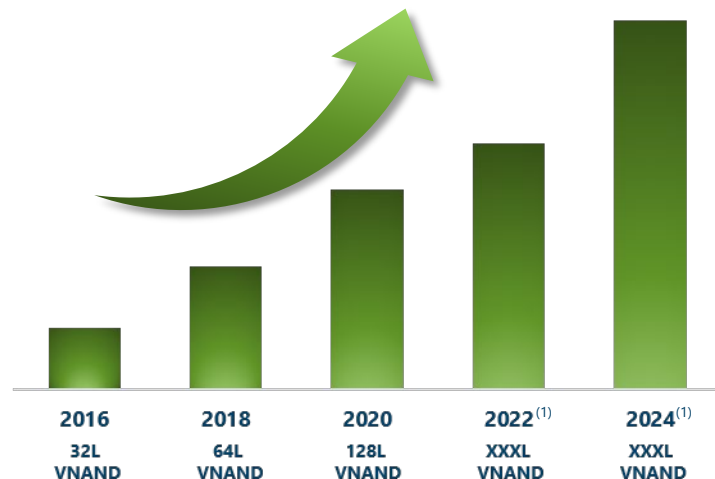
⁽¹⁾Based on revenue from first three quarters of 2020.

VNAND Scaling Requires Increasing Power Intensity

RF Power Drivers

- Complex etches needed to enable increasing layer counts
- Reduced etch process times required for both single and double stacking
- Complex, customized control algorithms for each customer
- Technology upgrades on existing equipment, driving increased demand for MKS generators

**~2x Increase in RF Power (kW) Content
Expected Between 2020-2024**

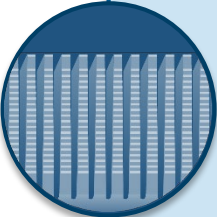


⁽¹⁾Company estimates.

Smarter Control, Modularity and Faster Development Cycles Remain Key Differentiators

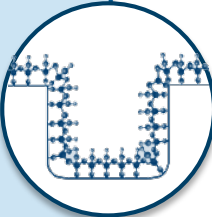
It's Getting Harder, Not Easier

RF Power



Enables drilling billions of holes with aspect ratios $>55:1$, perfectly straight & parallel; equivalent to hitting a target >1 mile away with a deviation of <0.5 inch


Plasma & Reactive Gas



Enables depositing thin films conformally – one atomic layer at a time, billions of atoms across with zero defects


**MKS is a Leader
in Critical
Subsystems
Vital to Future
Inflections**

Pressure Measurement



Enables unprecedented sensitivity and accuracy for pressure measurement detecting a $1/25$ of an inch movement from >0.5 mile away

Precision Optics



Enables focusing light to image features that are 10 atoms across ($10,000\times$ smaller than the width of a human hair)

Well-Positioned for Key Inflections

Structure

- Extreme Vertical Structures
- Gate All Around
- Greater Precision, Uniformity and Selectivity

Materials

- Transition to Novel Thin Film Metal Layers
- Introduction of EUV Resist
- Novel Hard Mask Materials



Process

- Advanced High Aspect Ratio (HAR) Etch
- Atomic Layer Processing (ALD, ALE)
- Advanced Lithography (DUV – EUV – High NA)

MKS is THE ONLY Subsystem Provider with Expertise Across Vacuum Processing & Photonics

Process Inflections Drive MKS Vacuum & Photonics Solutions

Advanced High Aspect Ratio (HAR) Etch

Increasing multi-frequency RF Power capabilities to improve uniformity and yield

Atomic Layer Processing (ALD, ALE)

Precise concentration of Plasma & Reactive Gases for on-wafer processing; precise Ozone control and advanced wafer pre-treatment solutions

Advanced Lithography (DUV, EUV, High NA)

Very high precision and performance Optics, Optical Subsystems, Motion Stages, Photonics Components

Applying Broad Expertise Across Today's Challenges to Deliver Custom-Built Solutions

Strategic Investment into Optical Capability (WCO)



Lithography & Inspection Customers Need

- Higher performance optical assemblies
- Shorter lead times and flexibility
- Cost-effective solutions

MKS World-class Optics Offer

- Depth of optical expertise (~250 engineers)
- Scale to invest in R&D, as well as capex for optical fabrication equipment
- Proprietary equipment (e.g. computer controlled polishing capability, custom metrology)
- Process recipes and thin film coating expertise

WCO Investments Benefit Advanced Markets as well as Semi

Our Competitive Advantage: MKS Innovation Engine



TIME TO MARKET

- Cross-technology expertise to accelerate customer roadmaps

STRONG CUSTOMER RELATIONSHIPS

- Customer intimacy and strategic relationships drive share of wallet

TECHNOLOGY AND IP

- Scale to continuously innovate regardless of industry cycles

Broad-based Technology Leader to Solve Today's Increasingly Complex Problems

Semi Well-Positioned for Continued Outperformance



Broad portfolio and technology leadership in critical subsystems

Scale to invest in innovation and address market inflections

Deep customer relationships

Proven track record

⁽¹⁾MKS long-term target model. ⁽²⁾Growth rate for Wafer Fabrication Equipment spend for the period 2020-2025.

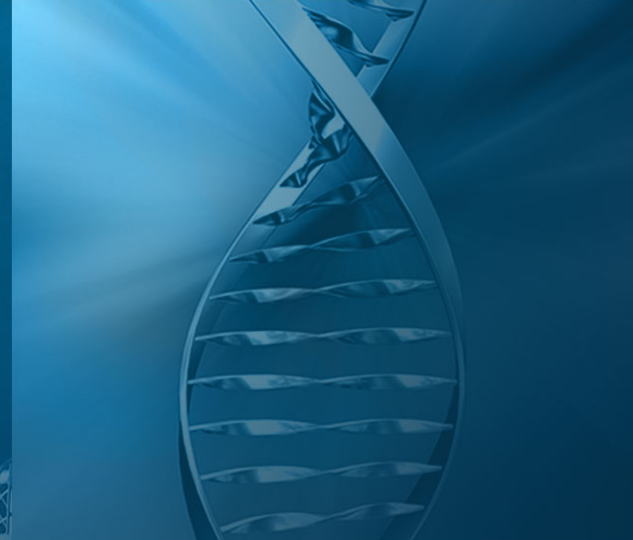
2020-2025⁽¹⁾: MKS Semi to Grow at WFE⁽²⁾ + 200bps CAGR

Advanced Markets:


Positioned to Win in
the Age of Complexity
and Miniaturization

Mark Gitin, PhD
SVP & GM
L&M Division

John Williams
VP & GM
E&S Division



Key Messages



Broad trends driving Semi innovation will be an increasing factor in Advanced Markets

Early innings of a paradigm shift towards precision laser-based processing

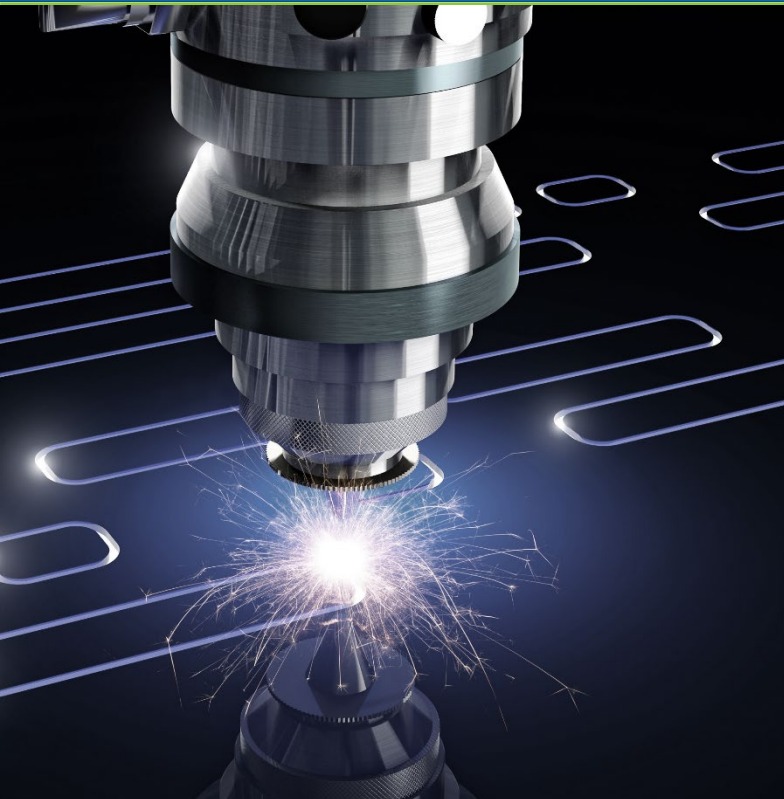
Attractive growth opportunity led by advanced electronics manufacturing

MKS is a More Balanced and Valuable Company with Advanced Markets

ity



Stage is Set for Broad Adoption of Laser Manufacturing



2000 - 2010

**Advanced
Devices**

Large electronic components, less processing power, bulky design

**Mechanical
Manufacturing
Processes**

2010 - 2020

**Smartphones,
Wearables, IoT**

Very small electronic components, extremely fast processing power

**Laser
Manufacturing
Select Use-Cases**

2020+

**Hyper-
Connectivity,
Miniaturization**

Extremely small form-factor, continued acceleration of processing power

**Laser
Manufacturing
Broad Adoption**

Precision Laser Growth Opportunity in Electronics Manufacturing

Compounding Effects of Multiple Industry Drivers



Expansion
of Devices



100s
Components/Device

**Greater
Density**

10,000s
Components/Device



- TOUCHSCREEN PATTERNING
- PC BOARD DEPANELING
- FLEX PCB DRILLING
- CAMERA WINDOW CUTTING
- PACKAGE CUTTING
- ENCLOSURE MARKING
- CERAMIC SCRIBING

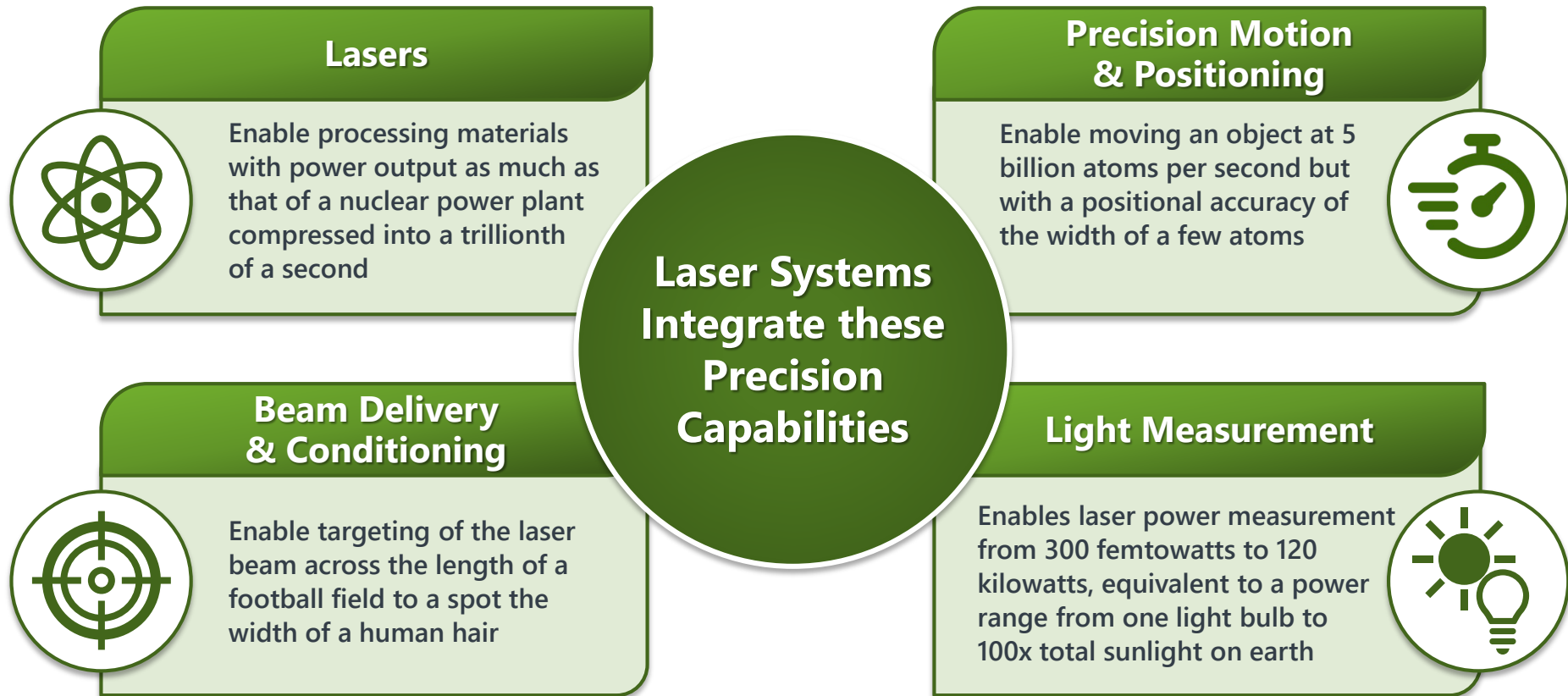
**Growth in New
Laser Processes**

- NANOMATERIALS PROCESSING
- FLEXIBLE DISPLAY FILM CUTTING
- SURFACE FUNCTIONALIZATION
- GLASS CUTTING & WELDING
- COMPOSITE MATERIAL PROCESSING
- ENCLOSURE DRILLING & CUTTING
- TOUCHSCREEN PATTERNING
- CAMERA WINDOW CUTTING
- LASER DOPING
- THIN FILM ABLATION
- BATTERY PROCESSING
- PC BOARD DEPANELING
- FLEX PCB DRILLING
- PACKAGE CUTTING
- ENCLOSURE MARKING
- CERAMIC SCRIBING



Growing Laser Processing Opportunity In Electronics Manufacturing

It's Getting Harder, Not Easier

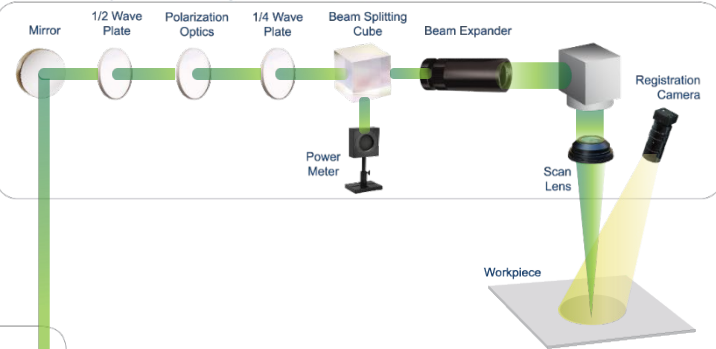


A Leading Enabler of Laser Processing

Critical Solutions for Laser Processing

System Level Expertise

Beam Delivery & Conditioning



Laser Source

Motion & Positioning



Process Control

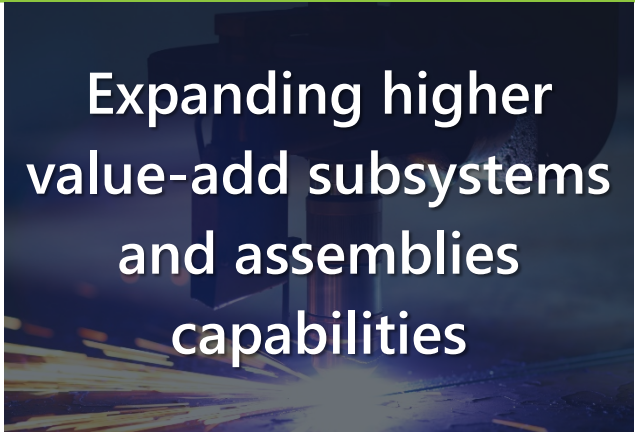


Leveraging Surround the Workpiece[®] Strategy to Drive Growth


Advancing Surround the Workpiece® via ESI



Innovation in critical technologies across the portfolio



Expanding higher value-add subsystems and assemblies capabilities



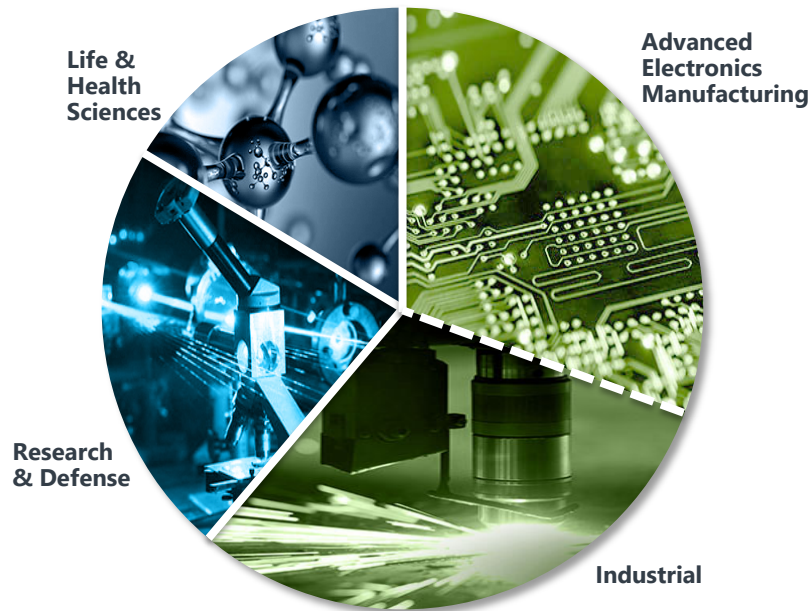
Integrating systems and application expertise

- ESI is an important play on complexity and miniaturization
- Leveraging core technology to improve ESI's positioning in the marketplace
- ESI is more valuable with MKS versus standalone

ESI Strengthens Our Presence in Key Segments of Advanced Markets

Advanced Markets: Broad-Based Exposure

2020E Revenue⁽¹⁾



2020E-2025E Revenue CAGR⁽²⁾

<ul style="list-style-type: none">• Research & Defense• Life & Health Sciences• Industrial	GDP⁽³⁾ (Low to Mid-Single Digits)
<ul style="list-style-type: none">• Advanced Electronics Manufacturing	Low Double Digits
Total Advanced Markets	GDP + 300bps (Mid-to-High Single Digits)

⁽¹⁾The Company's expected 2020 Advanced Markets revenue breakdown. ⁽²⁾Based on MKS long-term target model.

⁽³⁾ Growth rate for Nominal Gross Domestic Product for the period 2020-2025.

Stable, Diverse Business Mix with Attractive Advanced Electronics Growth Opportunity

Research & Defense



Surveillance

MKS ENABLES

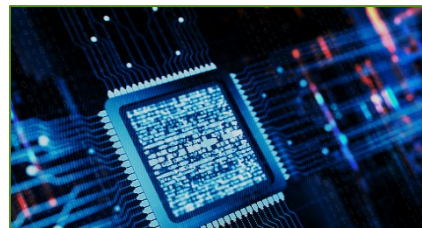
ultra long-range
high-performance infrared
detection from >25km
away, aerial/UAV
and land-based



Advanced Research

MKS ENABLES

developing new materials and
fabrication techniques,
space science, and satellite
imaging and
communications



Quantum Computing

MKS ENABLES

advanced quantum
computing research aimed
at making today's
computers millions of
times faster



Other Applications

- **Chemical Threat Detection**
- **Remote Sensing**
- **Aerial Mapping**
- **Terahertz Science**

Applying Broad Expertise Across Today's Challenges to Deliver Optimized Solutions

Life & Health Sciences



Neuroscience Imaging

MKS ENABLES

neurodegenerative disease research by observing billions of connections with 3D video in a live animal brain



Medical Diagnostics

MKS ENABLES

manufacturing of life-saving equipment such as coronary stents, pacemakers, endoscopes and other implantable devices



Ophthalmic Surgery

MKS ENABLES

LASIK eye surgery and cataract surgery using lasers



Other Applications

- **Analytical Instrumentation**
- **Genetic Material Sorting**
- **Food & Beverage**
- **Sterilization Equipment**

A Leader Across Multiple Critical Applications

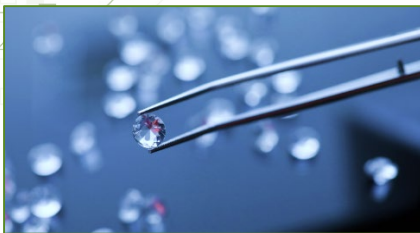
Industrial



Datacom/Telecom

MKS ENABLES

test & measurement of ultra-high-speed fiber-optic links and devices



Synthetic Diamonds

MKS ENABLES

manufacturing of diamonds for jewelry and industrial applications using advanced deposition processes



Materials Processing

MKS ENABLES

advanced processing techniques, such as precision machining, welding, and cutting of diverse array of materials



Other Applications

- **Commercial Surveillance**
- **Additive Manufacturing**
- **Batteries/Energy Storage**
- **Airborne LiDAR**

Leveraging MKS' Core Technologies Across Specialized Markets

Advanced Electronics Manufacturing

Flexible and HDI⁽¹⁾ PCBs



GROWTH DRIVER: 5G, Wearables, Connected Devices

MKS ENABLES: higher density and higher RF frequency PCBs at lower cost per part

⁽¹⁾High Density Interconnect

Electronics and Advanced Packaging



GROWTH DRIVER: proliferation of electronic devices

MKS ENABLES: higher density and lower power consumption electronics

OLED Displays



GROWTH DRIVER: smartphones, TVs, Wearables

MKS ENABLES: improved yields and performance of OLED displays

High Efficiency Solar Cells



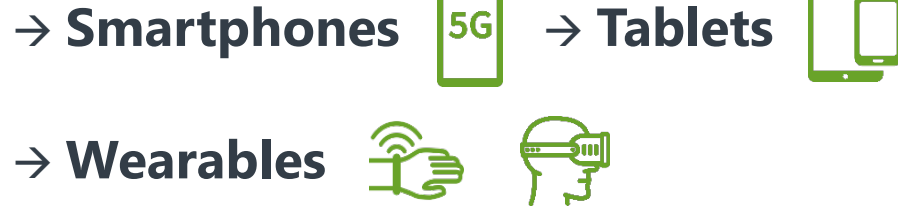
GROWTH DRIVER: solar proliferation

MKS ENABLES: significant cell efficiency improvement and material reduction in \$/W/panel

Surround the Workpiece[®] is a Core Differentiator Leveraging Technologies Across MKS

5G and Smartphones Driving Flex PCB Opportunities

INCREASING NEED FOR FLEX PCBs



INCREASE IN SMARTPHONE FLEX PCBs

3G	2010 - 2015	~15% - 25%
4G	2015 - 2020	~20% - 30%
5G	2020 - 2025	~30%+

Source: Company estimates.

TECHNOLOGY TRANSITIONS



New materials for components such as 5G antenna drive new Flex tool expenditure



Smaller, more accurately placed vias enable increased via density per PCB layer

CAPACITY CHANGES



Increasing circuit complexity drives more vias per layer and more layers per PCB

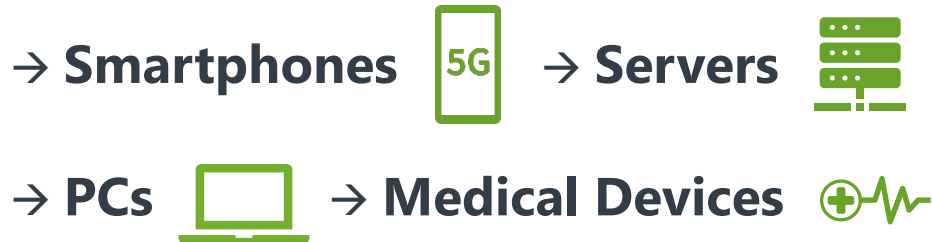


New features (camera, sensors, facial recognition) drive increased Flex PCB unit count

MKS is a Leader in Flex PCB Via Drilling

HDI: an Important New Market for MKS

INCREASING NEED FOR HDI PCBs



MKS OFFERS A COMPELLING COMPETITIVE ADVANTAGE

- **THROUGHPUT:** highest capacity with ultimate flexibility and optimal energy control
- **QUALITY:** highly optimized laser-material interaction, high yield and expanded application scope
- **FOOTPRINT⁽¹⁾:** 72% lighter and 30% smaller than competing solutions

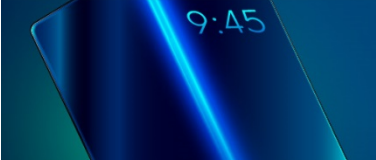


⁽¹⁾Company estimates.

POSITIVE SIGNS IN THE MARKETPLACE

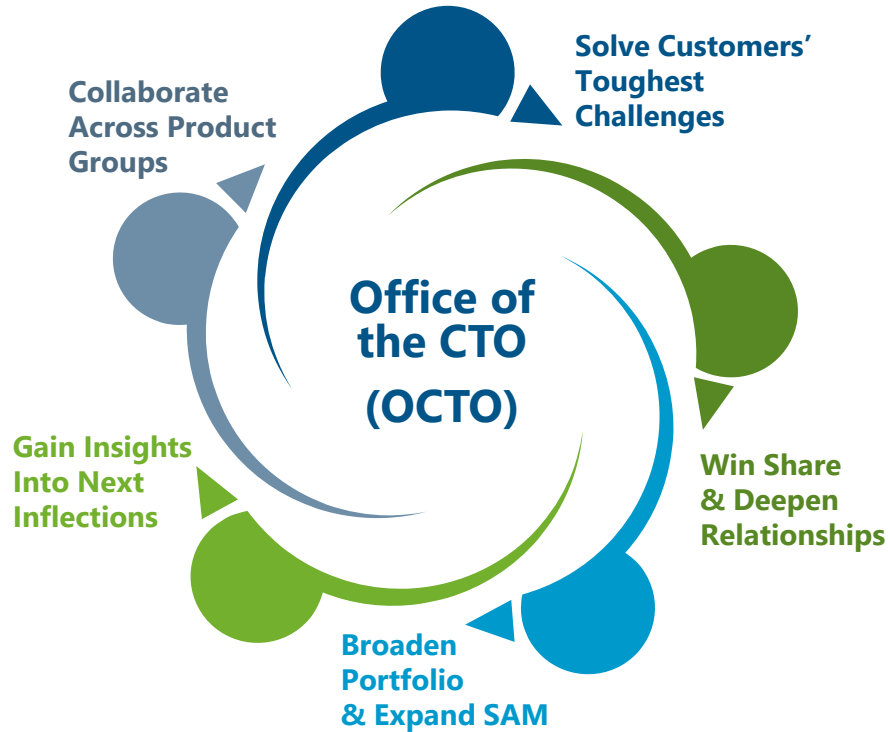
- Successful qualifications by key HDI PCB manufacturers
- Multiple systems operating in high-volume production
- More systems being actively evaluated, interest remains strong

Harnessing Groundbreaking Innovation to Penetrate HDI Market

Advanced Electronics: Multiple Growth Drivers

MAJOR CHALLENGES		MKS SOLUTIONS	
OLED DISPLAYS 	<ul style="list-style-type: none">• Contamination-free thin films• Precise cutting with minimal damage to surrounding areas	<u>Lasers, Photonics</u> <ul style="list-style-type: none">• Display cutting• Scribing• Drilling and repair	<u>Liquid Ozone, Plasma, Pressure</u> <ul style="list-style-type: none">• Surface cleanliness• Deposition chamber pressure measurement• Chamber cleaning
ELECTRONICS & ADVANCED PACKAGING 	<ul style="list-style-type: none">• Increasing device density and smaller features• Contamination, micro-cracks, warping, aspect ratio, throughput	<u>Lasers, Systems, Photonics, MLCC Test Systems</u> <ul style="list-style-type: none">• Dicing and cutting• Packaging lithography• Drilling• Component testing	<u>Power, Plasma, Flow, Pressure</u> <ul style="list-style-type: none">• Singulation• Etching• Cleaning
HIGH EFFICIENCY SOLAR CELLS 	<ul style="list-style-type: none">• Cell efficiency improvements• Precise drilling and metallization	<u>Lasers, Photonics</u> <ul style="list-style-type: none">• Passivated Emitter and Rear Contact (PERC) drilling• Laser doping• Structuring layers	<u>Ozone, Valves, Flow, Pressure, Mass Spectrometry</u> <ul style="list-style-type: none">• Deposition• Etching• Wet cleaning

Our Competitive Advantage: MKS Innovation Engine



MINIATURIZATION AND COMPLEXITY

Trends that drove Semiconductor Market are coming to Advanced Markets

BROAD INDUSTRY EXPOSURE

Diversified customer base provides insights into today's most pressing challenges

PROVEN PLAYBOOK

Leveraging proven playbook & expertise across MKS to capitalize on trends

Positioned for Leadership as Laser-based Manufacturing Proliferates

Attractive Long-Term Drivers Remain Intact



Secular Trends

- Increase in devices that require precision laser processing
- Significant increase in electronic components per device
- Growth in laser processing being deployed in value-add manufacturing processes



Recent Headwinds

- Trade war and Huawei ban
- Digestion of strong electronics-related capital spend in 2017-2018
- COVID-related Research market headwinds in 1H 2020




MKS Execution

- Introduced new picosecond UV Lasers in 2019; >10 design wins
- Strong traction in Precision Motion with design wins across electronics applications
- Successful market adoption of latest generation Flex PCB via drilling tool

MKS Continues to Strengthen Its Strategic Position in Advanced Markets

Early Innings of Long-Term Advanced Markets Opportunity



Complexity and miniaturization will accelerate in Advanced Markets

A broad Advanced Markets leader with attractive advanced electronics growth opportunity

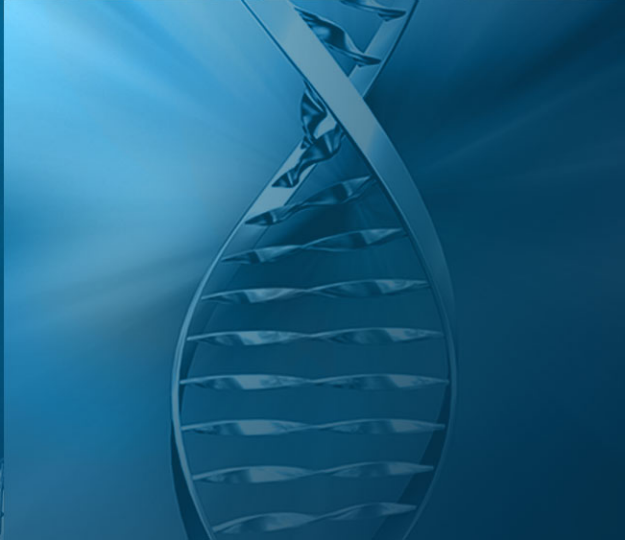
Core capabilities and strategic acquisitions position MKS well, as wider adoption of laser-based manufacturing occurs

⁽¹⁾Based on MKS long-term target model.

2020-2025⁽¹⁾: Advanced Markets to Grow at GDP + 300bps CAGR Led by Advanced Electronics

Roadmap to Long-term Value Creation

Seth Bagshaw
SVP, CFO & Treasurer



The MKS Growth Story

Business Transformation



- A leading critical subsystem provider in Semi Market
- Advanced Markets poised to capitalize on growing need for laser-based processing
- Strategic acquisitions accelerate growth and broaden capabilities

Financial Execution



- Delivered on promised synergies
- Culture of continuous cost improvement
- Consistent track record of de-levering post acquisitions

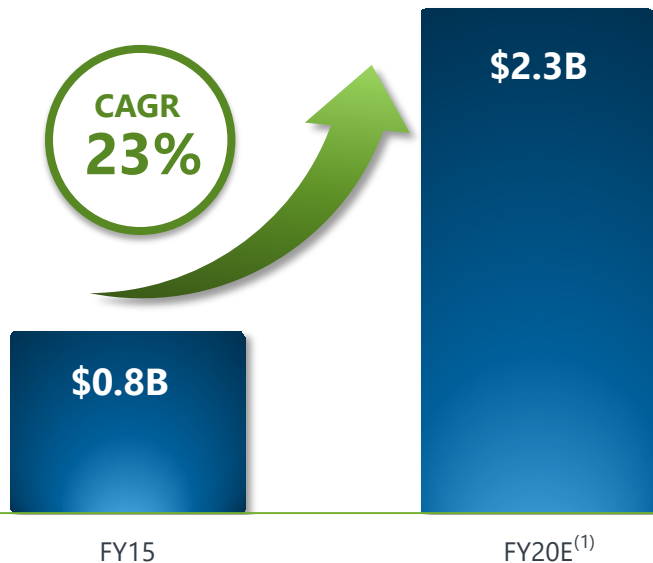
Value Creation



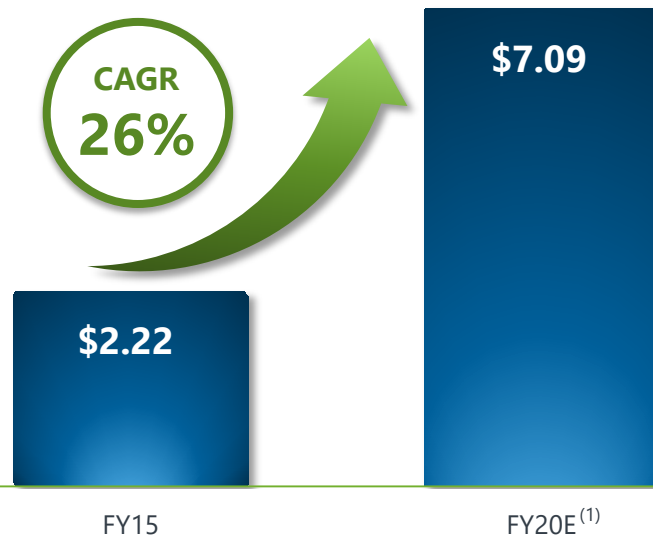
- Strong through-cycle free cash flow (FCF) provides balance sheet optionality
- Attractive long-term earnings growth outlook
- End-market diversity and execution underpin strong return on equity (ROE)

Multiyear Record of Profitable Growth

REVENUE AS REPORTED



NON-GAAP EPS



⁽¹⁾Data includes Q4 2020 guidance midpoint.

A Closer Look at Performance Since 2018

Semiconductor

- Delivering strong growth in 2020 following SemiCap slowdown in 2019
- Executed on design wins and market share gains in RF Power; gained share in overall Critical Subsystems category
- Successfully managed through COVID-19 supply disruptions

Advanced Markets

- Unexpected economic, trade and COVID-19 headwinds constrained growth
- Digestion of strong electronics-related capital spend that occurred in 2017-2018
- Executed well on qualification and design wins to position for Lasers, Motion, HDI opportunity

Non-GAAP Gross & Operating Margins

- Delivered ESI cost synergies ahead of target
- Strong margin expansion YTD 2020 even amidst COVID-19 disruptions⁽¹⁾
- Dilutive operating margin impact from ESI and lower revenues impacted operating leverage

Cash Flow & Balance Sheet

- Voluntary pre-payments of debt totaling \$150M and completed two term loan re-pricings since ESI acquisition
- Achieved net leverage ratio of 0.2x exiting Q3 2020
- Projected to generate record Free Cash Flow in 2020⁽²⁾

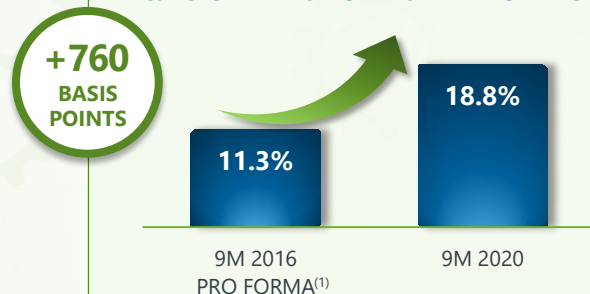
⁽¹⁾YTD 2020 means through the first three quarters of 2020. ⁽²⁾Based on the Company's expected free cash flow for FY 2020.

Newport and ESI Acquisition Review

Newport Acquisition - April 2016

- \$946M net acquisition price
- Delivered \$38M of synergies within 17 months after acquisition (faster and above targets)
- Established foundation for growth of Advanced Markets segment

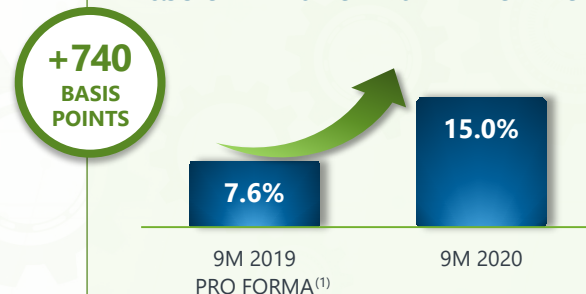
L&M SEGMENT NON-GAAP OPERATING MARGIN



ESI Acquisition - February 2019

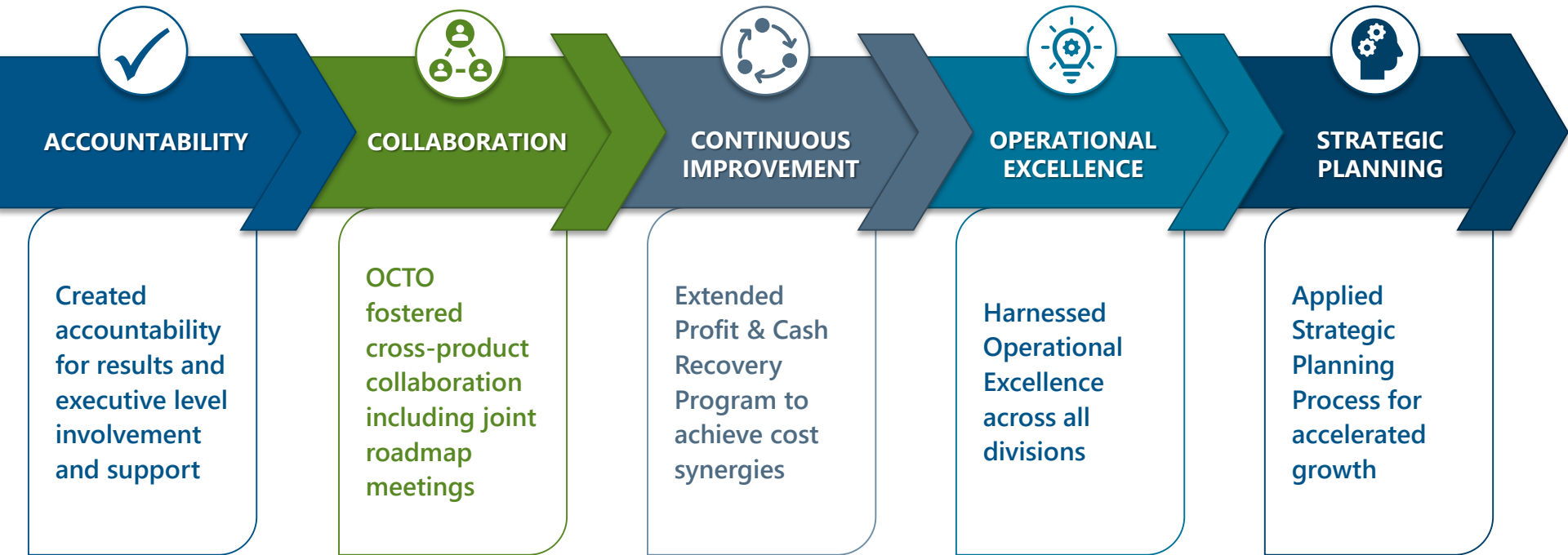
- \$1,019M net acquisition price
- Delivered \$18M of synergies within 20 months after acquisition (faster and above targets)
- Unique fit with Advanced Markets segment; well-positioned for attractive Flex and HDI PCB opportunities
- Important driver of Advanced Markets growth and gaining traction

E&S SEGMENT NON-GAAP OPERATING MARGIN



⁽¹⁾Assumes the Company acquired Newport on January 1, 2016 and ESI on January 1, 2019. 9M 2016 and 9M 2019 Pro Forma Non-GAAP Operating Margin reconciliations can be found in the Appendix.

Proven Acquisition Integration Approach



Strong Execution Positions MKS to Capitalize on Emerging Trends

Continuous Focus on Profitability Improvement

STRATEGIC MATERIAL SOURCING EXECUTION

- Develop global sourcing teams
- Align with ongoing product design

LEVERAGE COST EFFICIENT OPERATIONS

- Expand flexible, cost efficient manufacturing footprint
- Create Centers of Excellence
- Efficiently drive product roadmap with technology oversight from OCTO

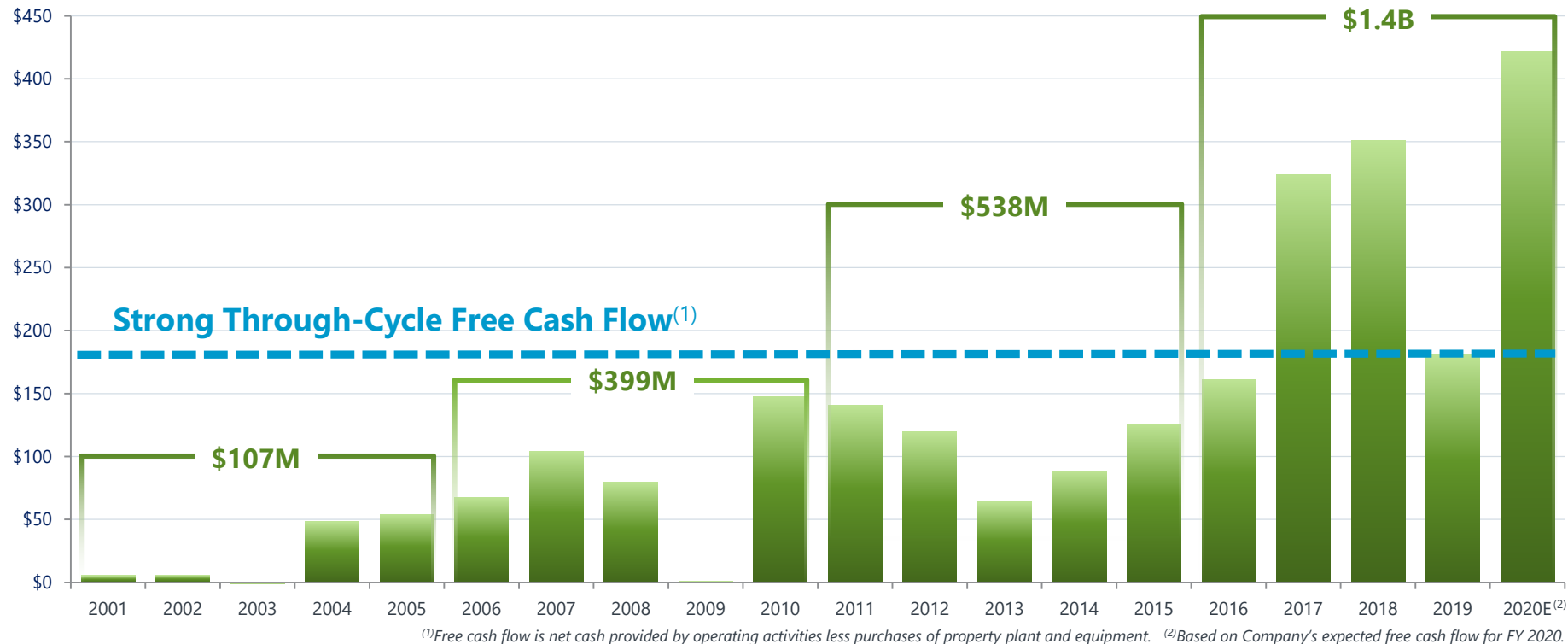
STREAMLINE COST STRUCTURE

- Consolidate G&A functions across geographies
- Implement “Lean” organizational structure and techniques

EFFECTIVE TAX STRUCTURE

- Employ multi-year strategic planning horizon
- Integrate with business functions
- Enable Corporate capital allocation objectives

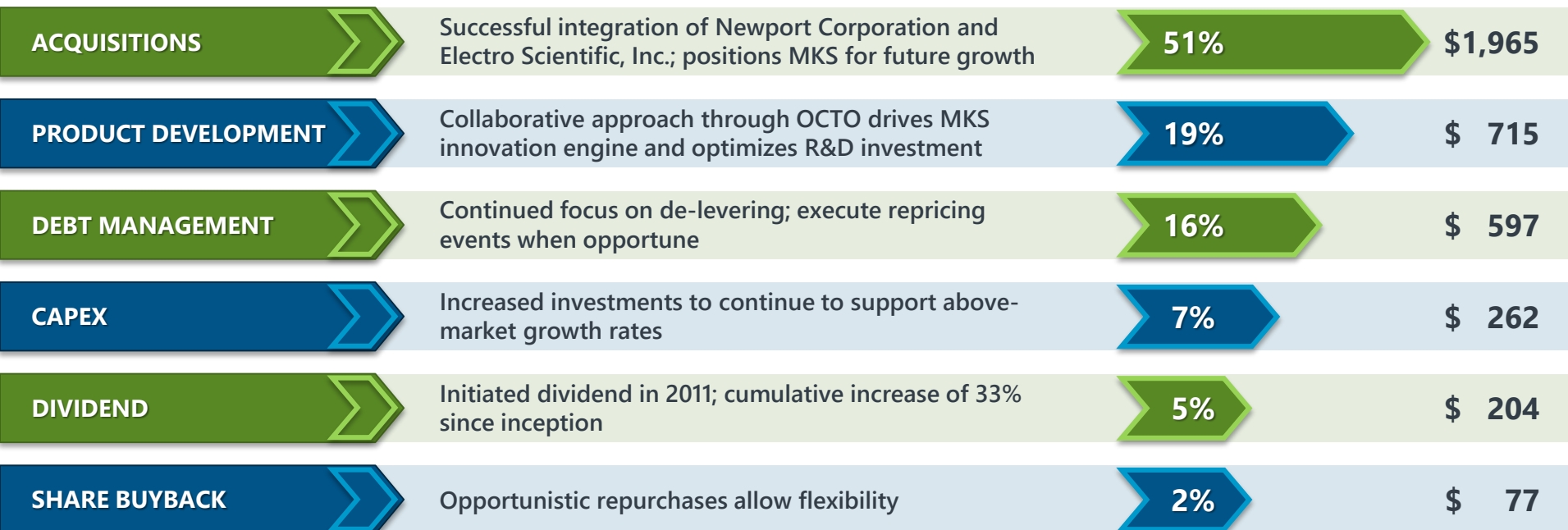
Strong and Accelerating Free Cash Flow Generation ...



2019 "Trough" Greater than any "Peak" in MKS History through 2016

... Creates Balance Sheet Optionality

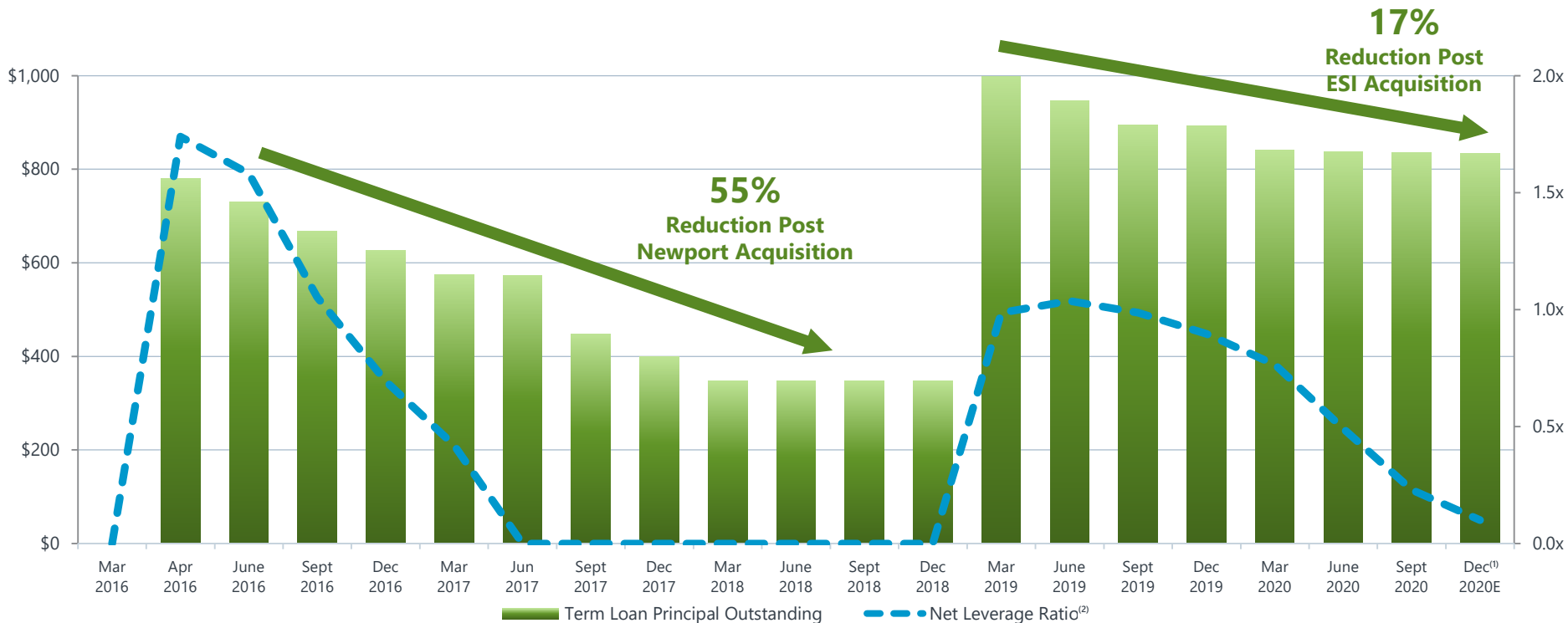
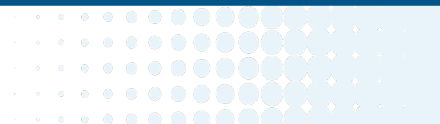
\$3.8 Billion Allocated Over Last 5 Years⁽¹⁾



⁽¹⁾Capital deployment from 2016 to 2020. The 2020 data is based on the Company's expected capital deployment amounts for FY 2020.

~70% of Capital Reinvested in Growth Initiatives

Consistent Track Record of De-levering

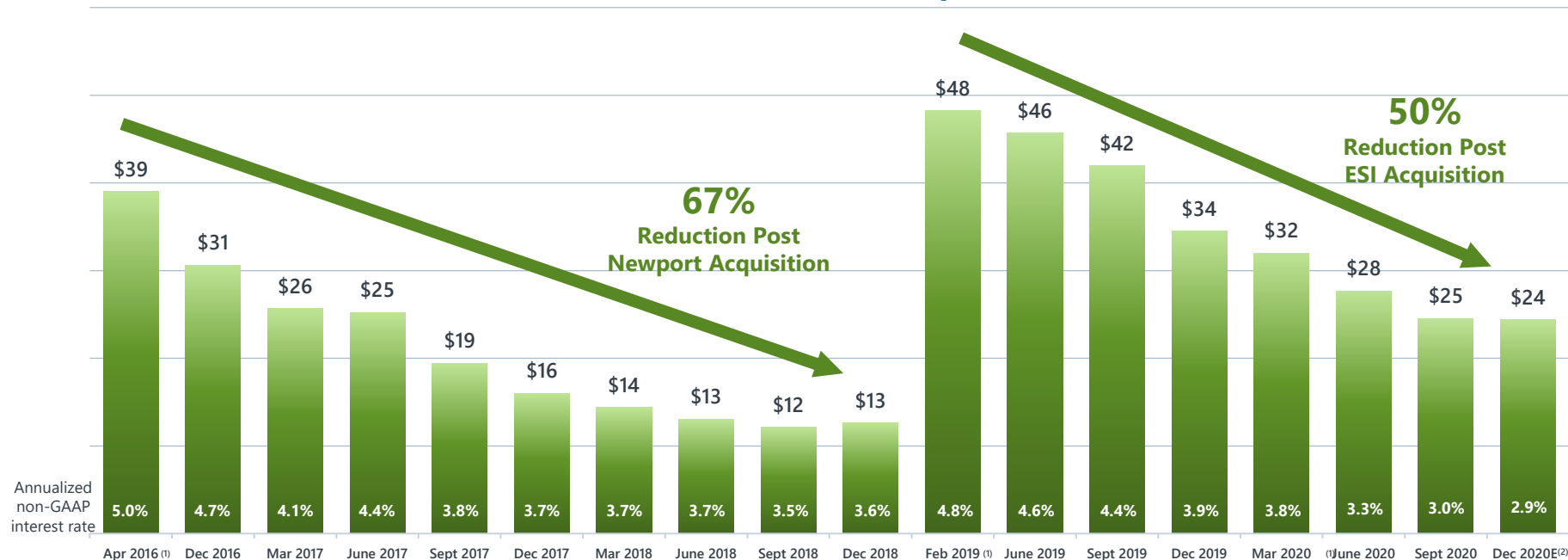


⁽¹⁾Based on Company's expected term loan balance at end of Q4 2020. ⁽²⁾Net leverage ratio is defined as term loan outstanding less cash and short-term investments, divided by trailing twelve-month adjusted EBITDA.

Enhances Balance Sheet Optionality

Strong Financial Model Further Drives Interest Savings

Annualized Non-GAAP Interest Expense and Rate (\$M)

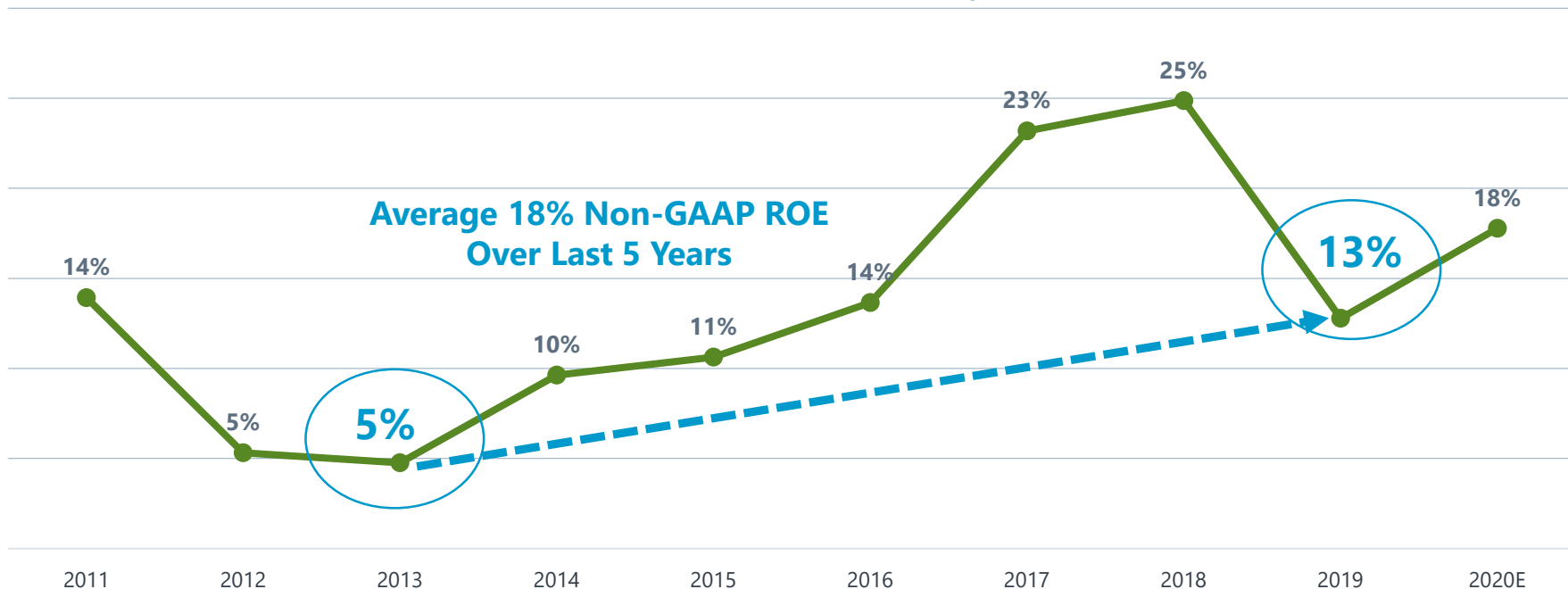


⁽¹⁾Annualized non-GAAP interest rate as of the acquisitions of Newport Corporation on April 29, 2016 and Electro Scientific Industries, Inc. on February 1, 2019. ⁽²⁾Data includes Q4 2020 guidance midpoint.

Successfully Completed 5 Term Loan Repricings

Strength and Diversity Lead to Higher Non-GAAP ROE

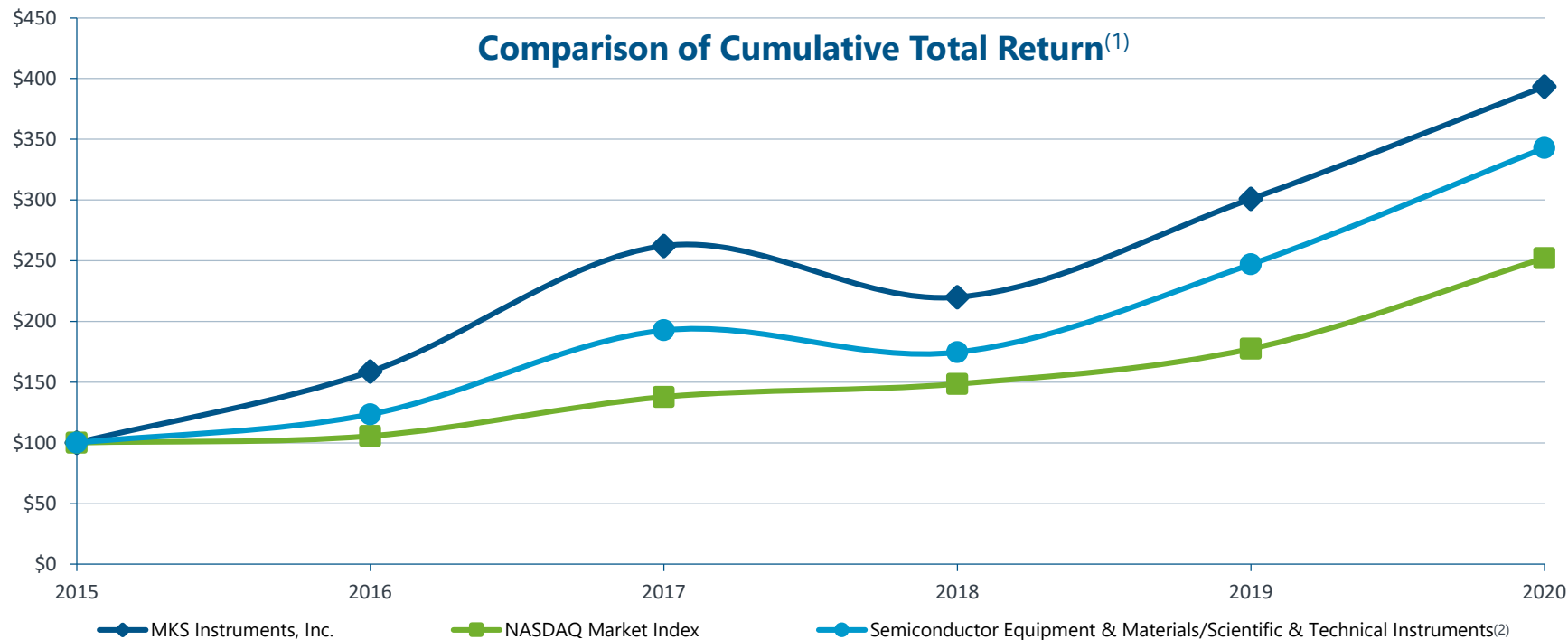
Non-GAAP Return on Equity⁽¹⁾



⁽¹⁾Non-GAAP ROE is defined as non-GAAP net earnings divided by total stockholder's equity. 2020E based on the Company's expected results for FY 2020.

Trough Non-GAAP ROE in 2019 Almost 3x Higher Than Prior Trough in 2013

Notable Share Outperformance



⁽¹⁾ Assumes \$100 invested on 12/01/15 and includes dividends reinvested through period ending 11/30/20. This graph uses peer group only performance (excludes only Company) and the Peer group indices use beginning of period market capitalization weighting. The graph was prepared by Zacks Investment Research, Inc. used with permission. All rights reserved. Copyright 1980-2021. For the index data, copyright for NASDAQ OMX, Inc. used with permission. All rights reserved. For the index data, copyright for Morningstar, Inc. Used with permission. All rights reserved.

⁽²⁾ Semiconductor Equipment & Materials and Scientific & Technical Instruments indices weighted equally.

Long-Term Target Model

2020-2025 Semi CAGR	▶ WFE⁽¹⁾ + 200bps
2020-2025 Advanced Markets CAGR	▶ GDP⁽²⁾ + 300bps
Incremental Non-GAAP Gross Margin	▶ ~50%
Incremental Non-GAAP Operating Margin	▶ ~40%
Non-GAAP Interest Expense ⁽³⁾	▶ ~\$25M
Non-GAAP Tax Rate	▶ 18%

⁽¹⁾Growth rate for Wafer Fabrication Equipment spend for the period 2020-2025. ⁽²⁾Growth rate for Nominal Gross Domestic Product for the period 2020-2025.

⁽³⁾Based on interest rate and debt levels as of Nov 30, 2020.

Non-GAAP EPS CAGR 2x Revenue Growth

Financial Takeaways

Strong execution
& historical
performance

Track record
of successfully
integrating
strategic
acquisitions

Focus on
continuous
profitability
improvement

Healthy through-
cycle FCF & low
leverage creates
balance sheet
optionality

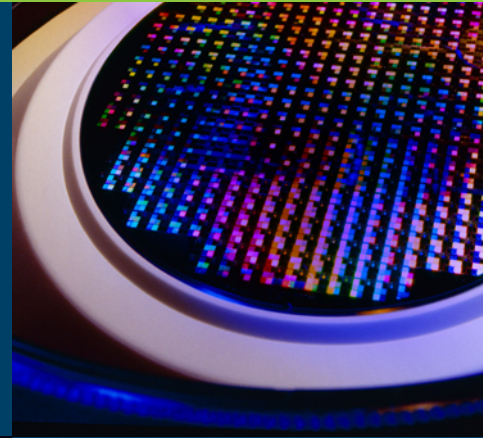
Attractive
earnings growth
profile

MKS is Well-Positioned to Drive Future Value Creation

MKS Value Proposition



Enabling key
technology trends
with foundational
solutions



Semi subsystems
leader with
broadest portfolio

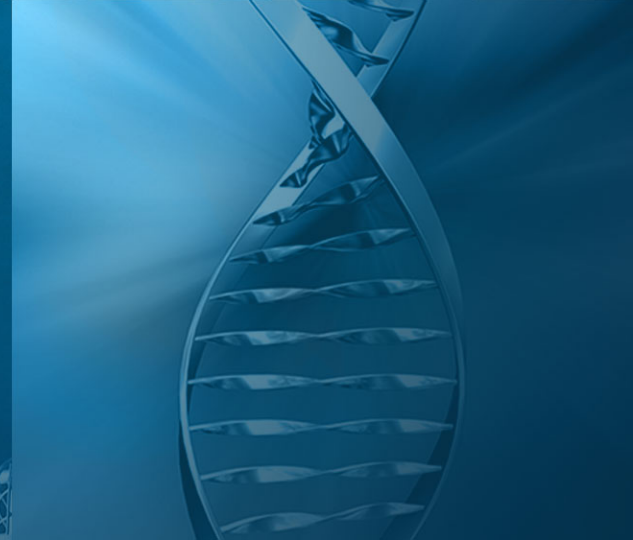
Positioned for
growth in
complementary
Advanced Markets



Focus on
miniaturization
and technical
complexity drives
shareholder value



Appendix: GAAP to Non-GAAP Reconciliations



Schedule Reconciling Selected Non-GAAP Financial Measures

Reconciliation of Net Income to Non-GAAP Net Earnings and Calculation of Non-GAAP Net Earnings Per Diluted Share:

(In millions, except per share data)	FY15	YTD 9-30-20		FY20E
		Actual	Guidance	
Net income	\$ 122.30	\$ 234.5	\$ 97.1	\$ 331.6
COVID-19 related net credits (Note 1)	—	(0.9)	—	(0.9)
Inventory charge related to exit of product groups (Note 2)	0.5	3.9	0	3.9
Sale of previously written-down inventory (Note 3)	(2.1)	—	—	—
Acquisition and integration costs (Note 4)	—	3.4	0.5	3.9
Amortization of debt issuance costs (Note 5)	—	1.3	0.2	1.5
Restructuring and other (Note 6)	2.1	6.8	3.5	10.3
Amortization of intangible assets	6.8	42.6	12.6	55.2
Asset impairment (Note 7)	—	1.2	0	1.2
Release of tax reserves (Note 8)	(7.7)	—	—	—
Windfall tax benefit on stock-based compensation (Note 9)	—	(2.4)	0	(2.4)
Deferred tax asset write-off (Note 10)	—	3.5	—	3.5
Tax effect of Non-GAAP adjustments (Note 11)	(2.8)	(12.7)	-2.9	\$ (15.6)
Non-GAAP net earnings	\$ 119.1	\$ 281.2	\$ 111.0	\$ 392.2
Non-GAAP net earnings per diluted share	\$ 2.22	\$ 5.08	\$ 2.00	\$ 7.09
Weighted average diluted shares outstanding	53.6	55.3	55.4	55.3

The referenced Notes are located on slides 5-8.

Schedule Reconciling Selected Non-GAAP Financial Measures

Continued

Reconciliation of Income from Operations to Non-GAAP Income from Operations and Calculation of Non-GAAP Operating Margin %:

(In millions, except per share data)

	L&M Segment	
	9M 2016	9M 2020
	Proforma*	
Income from operations	\$ (12.7)	\$ 73.9
COVID-19 related net credits (Note 1)	—	(0.1)
Inventory charge related to exit of a product group (Note 2)	—	3.0
Acquisition and integration costs (Note 4)	26.9	0.3
Restructuring and other (Note 6)	0.4	2.7
Acquisition inventory step-up (Note 12)	15.1	—
Amortization of intangible assets	20.8	16.8
Non-GAAP income from operations	50.4	96.6
Non-GAAP operating margin %	11.2%	18.8%

	E&S Segment	
	9M 2019	9M 2020
	Proforma*	
Income from operations	\$ (55.9)	\$ 0.4
COVID-19 related net credits (Note 1)	—	(1.0)
Acquisition and integration costs (Note 4)	37.3	1.6
Restructuring and other (Note 6)	2.0	3.1
Acquisition inventory step-up (Note 12)	7.6	—
Amortization of intangible assets	20.2	21.0
Non-GAAP income from operations	11.2	25.1
Non-GAAP operating margin %	7.6%	15.0%

The Light & Motion ("L&M") segment was created in conjunction with the completion of our acquisition of Newport Corporation, Inc. on April 29, 2016 ("Newport Acquisition"). The Equipment & Solutions ("E&S") segment was created in conjunction with the completion of our acquisition of Electro Scientific Industries, Inc. on February 1, 2019 ("ESI Acquisition").

*Proforma amounts assume the Newport Acquisition occurred on January 1, 2016 and the ESI Acquisition occurred on January 1, 2019.

The referenced Notes are located on slides 5-8.

Schedule Reconciling Selected Non-GAAP Financial Measures

Continued

Calculation of Free Cash Flow:

(In millions)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020E*
Net cash provided by (used in) operating activities	\$ 20.1	\$ 13.8	\$ (0.2)	\$ 66.4	\$ 64.2	\$ 78.2	\$ 119.1	\$ 92.7	\$ 4.9	\$ 163.5	\$ 156.0	\$ 137.2	\$ 76.1	\$ 101.9	\$ 138.3	\$ 180.1	\$ 355.2	\$ 413.8	\$ 244.5	\$ 506.5
Purchases of property, plant and equipment	14.6	7.9	6.3	18.3	10.3	10.7	15.1	13.5	4.2	15.8	15.6	17.7	12.4	13.2	12.4	19.1	31.3	62.9	63.9	84.9
Free cash flow	\$ 5.5	\$ 5.9	\$ (6.5)	\$ 48.1	\$ 53.9	\$ 67.5	\$ 104.0	\$ 79.3	\$ 0.7	\$ 147.7	\$ 140.5	\$ 119.5	\$ 63.7	\$ 88.7	\$ 125.9	\$ 161.0	\$ 323.9	\$ 350.8	\$ 180.6	\$ 421.6

*2020E is based upon the Company's expected results for FY 2020.

GAAP to Non-GAAP Interest Expense Reconciliation and Calculation of Annualized Non-GAAP Interest Rate:

	Apr-16	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Feb-19	Jun-19	Sep-19	Dec-19	Mar-20	Jun-20	Sep-20	Dec-20E*
GAAP interest expense	\$ 9.8	\$ 10.1	\$ 8.8	\$ 7.0	\$ 7.1	\$ 8.0	\$ 5.4	\$ 3.9	\$ 3.7	\$ 3.9	\$ 12.1	\$ 12.7	\$ 13.5	\$ 8.8	\$ 8.9	\$ 7.2	\$ 6.6	\$ 6.3
Amortization of debt issuance costs (Note 5)		2.4	2.4	0.7	2.3	4.0	1.8	0.7	0.7	0.8		1.3	3.1	0.2	0.9	0.2	0.2	0.2
Non-GAAP interest expense	9.8	7.7	6.4	6.3	4.8	4.0	3.6	3.2	3.1	3.1	12.1	11.4	10.4	8.6	8.0	7.0	6.4	6.1
Annualized Non-GAAP interest expense	39.1	30.8	25.6	25.2	19.2	16.0	14.4	12.8	12.2	12.5	48.2	45.6	41.6	34.5	32.0	28.0	25.5	24.4
Average Debt Balance	781.8	654.7	626.0	575.0	505.0	431.6	388.7	348.5	348.5	348.5	781.8	986.5	945.2	894.6	845.7	840.1	837.8	835.6
Annualized Non-GAAP Interest rate	5.0%	4.7%	4.1%	4.4%	3.8%	3.7%	3.7%	3.7%	3.5%	3.6%	4.8%	4.6%	4.4%	3.9%	3.8%	3.3%	3.0%	2.9%

*The Company's Q4-20 guidance of \$6.2M interest expense, net, included \$0.1M of interest income.

The referenced Notes are located on slides 5-8.

Schedule Reconciling Selected Non-GAAP Financial Measures

Continued

Reconciliation of Net Income to Non-GAAP Net Earnings and Calculation of Non-GAAP Return on Equity:

	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20E
Net income	\$ 129.7	\$ 48.0	\$ 35.8	\$ 115.8	\$ 122.3	\$ 104.8	\$ 339.1	\$ 392.9	\$ 140.4	\$ 331.6
COVID-19 related net credits (Note 1)	—	—	—	—	—	—	—	—	—	(0.9)
Inventory charge related to exit of product groups (Note 2)	—	—	6.4	—	0.5	—	1.2	—	—	3.9
Sale of previously written-down inventory (Note 3)	—	—	—	—	(2.1)	—	—	—	—	—
Acquisition and integration costs (Note 4)	—	1.3	0.2	0.5	—	27.3	5.3	3.1	37.3	3.9
Amortization of debt issuance costs (Note 5)	—	—	—	—	—	6.9	9.4	3.9	5.1	1.5
Restructuring and other (Note 6)	—	0.3	1.4	2.5	2.1	0.6	3.9	4.6	7.0	10.3
Asset impairment (Note 7)	—	—	—	—	—	5.0	6.7	—	4.7	1.2
Release of tax reserves (Note 8)	(2.5)	—	—	(14.6)	(7.7)	—	—	—	—	—
Windfall tax benefit on stock-based compensation (Note 9)	—	—	—	—	—	—	(11.1)	(8.2)	(2.2)	(2.4)
Deferred tax adjustment / Deferred tax asset write-off (Note 10)	—	—	—	—	—	—	(24.5)	0.9	—	3.5
Tax effect of Non-GAAP adjustments (Note 11)	(0.3)	(2.9)	(1.9)	(3.5)	(2.8)	(27.6)	(19.6)	(4.7)	(23.4)	(15.6)
Acquisition inventory step-up (Note 12)	—	0.3	—	2.2	—	15.1	—	—	7.6	—
Expenses related to the sale of a business (Note 13)	—	—	—	—	—	—	0.9	—	—	—
Litigation (Note 14)	—	5.3	—	—	—	—	—	—	—	—
Executive retirement costs (Note 15)	—	—	2.6	—	—	—	—	—	—	—
Insurance reimbursement (Note 16)	—	—	(1.1)	—	—	(1.3)	—	—	—	—
Fees and expenses related to the repricing of Term Loan Credit Agreement (Note 17)	—	—	—	—	—	1.2	0.5	0.4	6.6	—
Gain on sale of business / Gain on sale of long-lived assets (Note 18)	—	—	—	—	—	—	(74.9)	—	(6.8)	—
Amortization of intangible assets	1.0	1.0	2.1	4.9	6.8	35.7	45.7	43.5	67.4	55.2
Taxes related to the sale of a business (Note 19)	—	—	—	—	—	—	2.9	—	—	—
Income tax charge (Note 20)	—	—	6.5	1.4	—	1.3	—	—	—	—
Tax benefit and tax credits (Note 21)	—	—	(3.6)	(8.0)	—	(5.0)	—	—	—	—
Transition tax on accumulated foreign earnings and tax reform adjustments (Note 22)	—	—	—	—	—	—	28.7	(1.5)	(0.1)	—
Accrued tax on MKS subsidiary distribution (Note 23)	—	—	—	—	—	—	14.0	(5.0)	—	—
Tax cost on the inter-company sale of an asset (Note 24)	—	—	—	—	—	—	—	0.5	5.4	—
Non-GAAP net earnings	127.9	53.3	48.4	101.2	119.1	164.0	328.2	430.4	249.0	392.2
Non-GAAP return on equity	13.9%	5.3%	4.8%	9.6%	10.6%	13.7%	23.2%	24.9%	12.8%	18.1%

Notes to the Schedules Reconciling Selected Non-GAAP Financial Measures

Non-GAAP financial measures adjust GAAP financial measures for the items listed below. These Non-GAAP financial measures should be viewed in addition to, and not as a substitute for, MKS' reported GAAP results, and may be different from Non-GAAP financial measures used by other companies. In addition, these Non-GAAP financial measures are not based on any comprehensive set of accounting rules or principles. MKS management believes the presentation of these Non-GAAP financial measures is useful to investors for comparing prior periods and analyzing ongoing business trends and operating results.

Note 1: We recorded COVID-19 related costs and credits that were direct, incremental and not expected to recur. The amounts consisted of payroll-tax credits for maintaining our workforce during the pandemic, offset by shift premiums and bonuses.

Note 2: We recorded inventory charges related to the exit of certain product groups.

Note 3: We recorded a credit in cost of sales related to the sale of excess and obsolete inventory previously written down to net realizable value.

Note 4: We recorded acquisition and integration costs in each of 2012-2020 relating to the Company's acquisition of the following entities: (i) in 2012, Plasmart, Inc., (ii) in 2013 Alter S.r.l., (iii) in 2014, Granville-Phillips, a division of Brooks Automation, Inc., (iv) in 2015, Precise, LLC, (v) in each of 2016 and 2017, Newport Corporation (the "Newport acquisition") and (vi) in each of 2018-2020, Electro Scientific Industries, Inc. (the "ESI acquisition").

Note 5: We recorded additional interest expense related to the amortization of debt issuance costs related to our Term Loan Credit Agreement and our ABL Credit Agreement, (each credit agreement, as defined in our Annual Report on Form 10-K for the year ended December 31, 2019 as filed with the SEC on February 28, 2020).

Notes to the Schedules Reconciling Selected Non-GAAP Financial Measures

Continued

Note 6: During 2012 and 2013, charges were primarily for severance costs related to the consolidation of certain facilities. During 2014, charges were for severance costs related to a reduction in workforce at one of our foreign subsidiaries. During 2015, charges related to the outsourcing of an international manufacturing operation and the consolidation of certain other foreign manufacturing locations. During 2016, we recorded costs related to the closing of one of our international facilities. During 2017, we recorded costs primarily related to the consolidation of two manufacturing plants. During 2018, we recorded severance costs related to transferring a portion of our shared services functions to a third party as well as the consolidation of certain shared service functions in Asia; we also recorded environmental costs related to an Environmental Protection Agency-designated Superfund site, which we acquired as part of the Newport acquisition. During 2019, we recorded severance costs related to an organization-wide reduction in workforce, the consolidation of service functions in Asia, and the movement of certain products to lower cost regions and we also recorded a legal settlement from a contractual obligation we assumed as part of the Newport acquisition (the "Legal Settlement"). During 2020, we recorded duplicate facility costs attributed to entering into new facility leases, costs related to the exit of certain product groups and costs related to the pending closure of a facility in Europe. These costs for 2020 were offset by an insurance reimbursement related to the Legal Settlement.

Note 7: During each of 2016 and 2019, we recorded an impairment charge related to a minority interest investment in a private company. During 2017, we recorded an asset impairment charge primarily related to the write-off of goodwill and intangible assets in conjunction with the consolidation of two manufacturing plants. During 2020, we recorded an impairment charge as a result of the write-down of long-lived assets related to the pending closure of a facility in Europe.

Note 8: We recorded reserve releases related to the settlement of audits and expiration of the statute of limitations.

Note 9: We recorded windfall tax benefits related to the vesting of stock-based compensation.

Note 10: During 2017, as a result of U.S. tax reform, we recorded an adjustment to deferred taxes and reversed taxes previously accrued on a dividend from a foreign subsidiary. The deferred tax effect of tax reform was further adjusted during 2018 after additional analysis. During 2020, we recorded a write-off of a deferred tax asset related to foreign net operating losses.

Notes to the Schedules Reconciling Selected Non-GAAP Financial Measures

Continued

Note 11: Non-GAAP adjustments are tax effected at the applicable statutory rates resulting in a difference between the GAAP and Non-GAAP tax rates.

Note 12: Cost of revenues in each of 2012, 2014, 2016 and 2019, includes the amortization of the step-up of inventory to fair value as a result of the Company's acquisition of the following entities: (i) in 2012, Plasmart, Inc., (ii) in 2014, Granville-Philips, a division of Brooks Automation, Inc., (iii) in 2016, Newport Corporation and (iv) in 2019, Electro Scientific Industries, Inc.

Note 13: We recorded legal, consulting and compensation related expenses related to the sale of our Data Analytics Solutions business (the "DAS Disposition").

Note 14: We incurred charges to settle litigation with former shareholders of one of our former subsidiaries (the "Settlement").

Note 15: During 2013, the Company's then Chief Executive Officer retired earlier than expected and costs associated with his supplemental executive retirement plan and other benefits were recognized and recorded in selling, general and administrative expenses.

Note 16: During 2013, we recovered proceeds from our insurance company relating to the Settlement. During 2016, we recorded net proceeds from a Company-owned life insurance policy.

Note 17: During each of 2016-2019, we recorded fees and expenses related to four repricing amendments to our Term Loan Credit Agreement. We also recorded fees and expenses during 2019 related to Amendment No. 5 and Amendment No. 6 to our Term Loan Credit Agreement, (each amendment as defined in our Annual Report on Form 10-K for the year ended December 31, 2019 as filed with the SEC on February 28, 2020).

Note 18: During 2017, we recorded a gain on the DAS Disposition. During 2019, we recorded a net gain on the sale of two properties in Boulder, Colorado and three properties in Portland, Oregon.

Note 19: We recorded taxes related to the DAS Disposition.

Notes to the Schedules Reconciling Selected Non-GAAP Financial Measures

Continued

Note 20: During 2013, we incurred income tax charges related to an election to pay currently, at a substantially reduced rate, taxes on certain accumulated earnings from 2001 to 2011 of one of our foreign subsidiaries. During 2014, we recorded withholding tax related to a foreign intercompany dividend. During 2016, we recorded withholding tax on intercompany dividends.

Note 21: During 2013, we received credits against U.S. tax expense on amended returns related to prior years and we also recorded a tax benefit related to the enactment of the American Taxpayer Relief Act of 2012 on January 2, 2013. During 2014, we recorded a tax benefit related to a foreign intercompany dividend to the U.S and a tax benefit related to a German net operating loss resulting from a change in tax status. We also recorded a credit for the reinstatement of the U.S. research credit for the full year 2014. During 2016, we recorded a tax benefit for a legal entity restructuring.

Note 22: Transition tax and transition tax reform adjustments on accumulated foreign earnings related to the 2017 U.S. Tax Cut and Jobs Act.

Note 23: We recorded and adjusted tax accruals related to distributions of MKS subsidiaries.

Note 24: We recorded taxes on the inter-company sales of assets.