KEYSIGHT TECHNOLOGIES
Investor Presentation

Results as of fiscal year-end 2018 (October 31, 2018)
Safe Harbor

This communication contains forward-looking statements as defined in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and is subject to the safe harbor protections created therein. Statements preceded by, followed by, or that otherwise include the words “anticipate,” “plan,” “estimate,” “expect,” “intend,” “forecast,” “target,” “project,” “believe,” “outlook,” “prospect” and similar words or expressions, or future or conditional verbs such as “will,” “should,” “would,” “may,” or “could,” or statements regarding the company’s goals, priorities, anticipated revenues, anticipated demand, growth opportunities, customer service and innovation plans, new product introductions, anticipated financial condition, anticipated gross and operating margins, future earnings, the anticipated continued strengths and expected growth of the markets the company sells into, and future operations, earnings, and tax rates are intended to identify forward-looking statements. These forward-looking statements are based on management’s expectations contemplated by these forward-looking statements. Keysight disclaims any intention to, and undertakes no responsibility to, update or revise any forward-looking statement, whether as a result of new information, a future event, or otherwise. Such risks and uncertainties include, but are not limited to, changes in the demand for current and new products, technologies, and services; customer purchasing decisions and timing; and our ability to realize the savings or benefits expected from integration and restructuring activities. For additional risks and uncertainties that could impact Keysight’s actual results, please see our latest Form 10-Q filed with the SEC on March 5, 2019, included but not limited to the discussion under “Risk Factors” therein, which may be viewed at www.sec.gov.

This presentation includes a number of different financial measures, both GAAP and non-GAAP, in analyzing and assessing the overall performance of the business, for making operating decisions and for forecasting and planning for future periods. Non-GAAP measures exclude primarily the impacts of amortization of acquisition-related balances, share-based compensation, acquisition and integration costs, non-recurring items such as goodwill impairment, legal settlement, gain on divestitures, Northern California wildfire-related costs and others. Also excluded are tax benefits or expenses that are not directly related to ongoing operations and which are either isolated or cannot be expected to occur again with any regularity or predictability. Most of these excluded amounts pertain to events that have not yet occurred and are not currently possible to estimate with a reasonable degree of accuracy. Accordingly, no reconciliation to GAAP amounts has been provided. The definitions of these non-GAAP financial measures may differ from similarly titled measures used by others, and such non-GAAP measures should be considered supplemental to and not a substitute for financial information prepared in accordance with GAAP. Keysight generally uses non-GAAP financial measures to facilitate management’s comparisons to historic operating results, to competitors’ operating results and to guidance provided to investors. In addition, Keysight believes that the use of these non-GAAP financial measures provides greater transparency to investors of information used by management in its financial and operational decision-making. Refer to slide 23 for more details on the use of non-GAAP financial measures.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Presenter</th>
<th>Duration (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Company Overview and Strategic Direction</strong></td>
<td>Ron Nersesian</td>
<td>President and Chief Executive Officer</td>
</tr>
<tr>
<td><strong>Technology Leadership</strong></td>
<td>Jay Alexander</td>
<td>SVP and Chief Technology Officer</td>
</tr>
<tr>
<td><strong>Communications Solutions</strong></td>
<td>Satish Dhanasekaran</td>
<td>SVP, President – Communications Solutions Group</td>
</tr>
<tr>
<td><strong>Ixia Solutions</strong></td>
<td>Mark Pierpoint</td>
<td>SVP, President – Ixia Solutions Group</td>
</tr>
<tr>
<td><strong>Electronic Industrial Solutions</strong></td>
<td>Gooi Soon Chai</td>
<td>SVP, President – Electronic Industrial Solutions Group</td>
</tr>
<tr>
<td><strong>Services Solutions</strong></td>
<td>John Page</td>
<td>SVP, President – Services Solutions Group</td>
</tr>
<tr>
<td><strong>Global Sales</strong></td>
<td>Mark Wallace</td>
<td>SVP – Global Sales</td>
</tr>
<tr>
<td><strong>Financial Update</strong></td>
<td>Neil Dougherty</td>
<td>SVP and Chief Financial Officer</td>
</tr>
<tr>
<td><strong>Closing Remarks</strong></td>
<td>Ron Nersesian</td>
<td>President and Chief Executive Officer</td>
</tr>
</tbody>
</table>
Keysight’s Compelling Investor Value Proposition

**MARKET LEADERSHIP**
Market-leading position in diverse and growing end markets

**GAINING MARKET SHARE**
Four consecutive years of market share gains since separation from parent in 2014

**INCREMENT RECURRING REVENUE**
Growing software and services solutions portfolio

**TECHNOLOGY LEADERSHIP**
Recognized technology leader with broadest portfolio of software, hardware and services solutions; ~50% of non-services revenue from products released within the last 5 years

**BROAD CUSTOMER DIVERSITY**
>32,000 end customers annually with no single customer accounting for more than 3% of revenue

**OPERATIONAL EXCELLENCE**
Profit expansion through culture of continuous improvement, proven track record of acquisition cost synergy capture, highly leverageable operating model and operational expertise

**RAISED THE BAR**
Increased target operating margin 400bps to 21-22% revenue and increased FCF conversion expectations

1 Per company estimates, 2 FY18
Table of Contents

**Company Overview and Strategic Direction**  
Ron Nersesian | President and Chief Executive Officer

**Technology Leadership**  
Jay Alexander | SVP and Chief Technology Officer

**Communications Solutions**  
Satish Dhanasekaran | SVP, President – Communications Solutions Group

**Ixia Solutions**  
Mark Pierpoint | SVP, President – Ixia Solutions Group

**Electronic Industrial Solutions**  
Gooi Soon Chai | SVP, President – Electronic Industrial Solutions Group

**Global Sales**  
Mark Wallace | SVP – Global Sales

**Financial Update**  
Neil Dougherty | SVP and Chief Financial Officer
Company Overview and Strategic Direction

Ron Nersesian
President and Chief Executive Officer
## Key Messages

<table>
<thead>
<tr>
<th>1</th>
<th>Industry leader with 80 years’ experience at the forefront of the communication revolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Deeply knowledgeable, experienced and enhanced leadership team, which has significantly transformed Company for success</td>
</tr>
<tr>
<td>3</td>
<td>Aligned to critical industry growth themes and attractive end markets; increasing growth through recent share gains and market expansion</td>
</tr>
<tr>
<td>4</td>
<td>Accelerated R&amp;D investment to innovate ahead of emerging technologies; enabling our customers to win through end-to-end design, test and optimization solutions</td>
</tr>
<tr>
<td>5</td>
<td>Executed three-year strategy ahead of plan; balanced capital allocation to drive shareholder value</td>
</tr>
<tr>
<td>6</td>
<td>Well-positioned to achieve higher growth, operating margins and free cash flow...an exciting time at Keysight</td>
</tr>
</tbody>
</table>
# Keysight Technologies at a Glance

## FY’18 KEY STATISTICS

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headquarters</td>
<td>Santa Rosa, CA</td>
</tr>
<tr>
<td>Spin-off Date</td>
<td>November 1, 2014</td>
</tr>
<tr>
<td>Market Capitalization</td>
<td>~$10.7B (as of 10/31/18)</td>
</tr>
<tr>
<td>Revenue Growth</td>
<td>20% (13% core)</td>
</tr>
<tr>
<td>Free Cash Flow</td>
<td>$423M</td>
</tr>
<tr>
<td>Operating Margin</td>
<td>18.8%</td>
</tr>
<tr>
<td>Total Customers</td>
<td>&gt;32,000</td>
</tr>
<tr>
<td>Countries Served</td>
<td>100+</td>
</tr>
</tbody>
</table>

## FY’18 REVENUE MIX

- **Commercial Communications**: $1.42B
- **Aerospace, Defense and Government**: $0.97B
- **Electronic Industrial Solutions**: $1.07B
- **Ixia Solutions**: $0.45B

---

1 Spin-off from Agilent  
2 Core revenue growth excludes the impact of acquisitions, divestitures and currency  
3 Free cash flow is operating cash less capital expenditure  
4 Non-GAAP measure, refer to reconciliation in Appendix. Operating Margin restated to reflect the Q1’19 adoption of ASU 2017-07, “Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost”  
5 Includes indirect sales channels; no customer >3% of total revenue  
6 Communication Solutions: $2.39B
We Are at the Heart of the Digital Revolution

SMART TECHNOLOGY CONNECTS THE WORLD

INNOVATION IS EVERYWHERE

✓ Devices ✓ Infrastructure
✓ Cities ✓ Defense
✓ Vehicles ✓ Wearables

Transforming from Hardware-centric Product to Software-centric Solutions Company

ACCELERATING INNOVATION TO CONNECT AND SECURE THE WORLD
Network Transformation Requires New Solutions End-to-End

5G Brings >10X Expansion on Most Attributes*

**5G Technology Impact**
- Chipsets
- Devices
- Network Access
- Core Network
- Data Centers

**Communications “Stack Layers”**
- Layer 1
- Layers 2-3
- Layers 4-7

**Electrical, RF and Optical Test**
- Channel Emulation
- Mobile Device Test
- Drive Test
- Mobile Network Test
- Customer Experience Management
- Network and Application Testing, Visibility and Security

**Keysight Technologies**
- *Per company estimates*
## Segment Overview: World-Class Electronic Measurement Capabilities Making the World More Productive and Secure

<table>
<thead>
<tr>
<th>Communications Solutions (CSG)</th>
<th>Electronic Industrial Solutions (EISG)</th>
<th>Ixia Solutions (ISG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serves customers spanning worldwide communications end market</td>
<td>Serves electronic industrial end markets, focusing on high growth applications</td>
<td>Helps customers worldwide validate performance and the security of their networks and associated applications</td>
</tr>
<tr>
<td>• Wireless Communications</td>
<td>• Automotive and Energy</td>
<td>• Network Test</td>
</tr>
<tr>
<td>• Internet Infrastructure</td>
<td>• Semiconductor Design and Mfg.</td>
<td>• Network Visibility</td>
</tr>
<tr>
<td>• Aerospace, Defense and Government</td>
<td>• Consumer Electronics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Education</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Medical Electronics</td>
<td></td>
</tr>
<tr>
<td>CUSTOMERS</td>
<td>OEMs and suppliers of Electronic Industrial Products and Services</td>
<td>NEMs, Enterprise, Operators and Government Organizations</td>
</tr>
<tr>
<td>OVERVIEW</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Commercial Companies and Government Agencies Worldwide**

**OEMs and suppliers of Electronic Industrial Products and Services**

**NEMs, Enterprise, Operators and Government Organizations**
<table>
<thead>
<tr>
<th>Department</th>
<th>Title</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Planning and Technology</td>
<td>Chief Executive Officer</td>
<td>Ron Nersesian</td>
</tr>
<tr>
<td>Communications Solutions Group</td>
<td>Chief Administrative Officer</td>
<td>Ingrid Estrada</td>
</tr>
<tr>
<td>Ixia Solutions Group</td>
<td>Chief Marketing Solutions Group</td>
<td>John Page</td>
</tr>
<tr>
<td>Electronic Industrial Solutions Group</td>
<td>Finance</td>
<td>Neil Dougherty</td>
</tr>
<tr>
<td>Keysight Global Services</td>
<td>Legal (Acting)</td>
<td>Jeffrey Li</td>
</tr>
<tr>
<td>Keysight Global Sales</td>
<td>Order Fulfillment &amp; IT</td>
<td>Gooi Soon Chai</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Keysight Has Transformed for Long-Term Growth

Transformed organization from product-focused to industry-focused
Create differentiated solutions combining Hardware, Software and Services; enable customer success through new Go-to-Market and R&D strategies

Increased investment in R&D process
Began investing earlier in the cycle to be first-to-market with leading R&D solutions

Dramatically increased emphasis on customer
Increased focus on Voice of Customer to accelerate innovation

Strengthened portfolio; diversified and expanded SAM through strategic M&A
Focused on faster-growing markets and higher-margin software

Invested in our talent
Built out senior leadership team with key hires; focused on reinvigorating culture, speed to opportunity and enhancing skillsets (e.g., software, services)
New Go-To-Market Strategy for Customer Success

**FROM**
- Individual Products with hardware bias
- Slower, complex decision-making due to multiple owners interfacing with customers
- Incentivized and compensated on “parts” of a solution

**OLD**

**TO**
- Complete Solutions: Hardware + Software + Services
- Faster customer commitments and solution development; one decision owner
- Incentivized and compensated on total customer solutions by industry organization

**NEW**

COE = Center of Excellence

Keysight Labs
# Growth Initiatives – Significant Progress Since 2015

<table>
<thead>
<tr>
<th>Be First in 5G Wireless</th>
<th>Enter New Verticals (e.g., Automotive)</th>
<th>Expand Leadership in Design and Test SW</th>
<th>Grow Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• First-to-market with 5G design solutions</td>
<td>• 70+ auto and IoT solutions introduced</td>
<td>• &gt;$500M software portfolio in FY’18</td>
<td>• Focused on multi-brand calibration, Test Asset Optimization services and refurbished equipment</td>
</tr>
<tr>
<td>• Winning in the market with triple-digit 5G order growth in FY’18</td>
<td>• Strong double-digit auto order growth in FY’18</td>
<td>• 13% core SW order CAGR since 2015</td>
<td>• Integrated Services into CSG and EISG; logical next step in Keysight’s customer solutions oriented go-to-market strategy</td>
</tr>
<tr>
<td>• Collaborating with top industry leaders and customers</td>
<td>• Opened automotive solutions centers in strategic locations around the globe</td>
<td>• Ixia and Anite materially expanded software revenues and engineering capabilities</td>
<td></td>
</tr>
</tbody>
</table>

- Well-positioned to capitalize on early lead
- “Early innings” for a large market opportunity
- Launched PathWave; our new integrated simulation, design, test and analysis platform
- Launched KeysightCare; Industry’s first cloud-based customer experience with dedicated, proactive support

---

ACHIEVED 13% CORE’ GROWTH IN FY18

---

1 Non-GAAP measure. Core revenue growth excludes the impact of currency and revenue from acquisitions or divestitures closed within the last twelve months
Leveraging Our Strengths and Competitive Advantages

**CORE STRENGTHS**

- Aligned to **critical industry growth trends** in attractive and diversified end markets
- **Strong culture of execution** focused on accountability, urgency and customer first
- Proven **operational excellence** with a focus on continuous improvement
- Attractive and **flexible financial foundation** to drive long-term profitable growth

**COMPETITIVE DIFFERENTIATORS**

- Experienced leadership; globally recognized technologists and expertise; institutionalized knowledge and IP
- Depth of technology, proprietary technical and measurement science expertise and scale
- Market leader with broadest offering of software, hardware and service solutions in the industry
- Deep, long-term customer relationships; embedded with market leaders across multiple industries
Global Footprint Unmatched in the Industry

- 12,900 employees worldwide\(^1\)
- Operating in over 100 countries around the world; naturally-hedged expenses and revenues
- Aligned with our customers’ local needs across all regions

\(^1\) As of October 31, 2018
\(^2\) Based on non-GAAP revenue

OUR GLOBAL PRESENCE

- 40% AMERICAS
- 19% EUROPE
- 41% ASIA-PACIFIC

Global Headquarters
Santa Rosa, CA

\(\text{\% FY'18 REVENUE}^2\)
Build a better planet by accelerating innovation to connect and secure the world and employing a global business framework of ethical, environmentally sustainable and socially responsible operations.

Selected Recognitions

- MSCI 2018 Constituent MSCI ESG Leaders Indexes
- ISS QualityScore 1
- Barron's 100 Most Sustainable Companies
- AMERICA'S MOST JUST COMPANIES
- Great Place To Work Certified

### Delivering for our Customers

#### DEEP CUSTOMER RELATIONSHIPS & MARKET-LEADING POSITIONS

#### CUSTOMER COVERAGE\(^1\) (2018)

<table>
<thead>
<tr>
<th>Count</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>29 of 30</td>
<td>Top Technology Companies</td>
</tr>
<tr>
<td>25 of 25</td>
<td>Top Auto Electronics Suppliers</td>
</tr>
<tr>
<td>24 of 25</td>
<td>Top Telecom Operators</td>
</tr>
<tr>
<td>10 of 10</td>
<td>Top Telecom Equipment Companies</td>
</tr>
<tr>
<td>23 of 25</td>
<td>Top Aero and Defense Contractors(^2)</td>
</tr>
<tr>
<td>25 of 25</td>
<td>Top Semiconductor Suppliers</td>
</tr>
<tr>
<td>25 of 25</td>
<td>Top Engineering &amp; Tech Universities</td>
</tr>
</tbody>
</table>

#### BREADTH OF CUSTOMERS\(^3\)

- ADI Hittite
- Alphabet
- Amazon
- Arris
- AT&T
- BAE Systems
- Boeing
- Broadcomm
- Cisco
- Continental Auto
- Daimler
- Datang
- Delphi
- Denso
- Facebook
- Finisar
- Fujitsu
- Harris
- HP
- HTC
- Finisar
- Innolight Tech
- Leonardo
- LG
- Lumentum
- Marvell Semiconductor
- MediaTek
- Microsoft
- muRata
- Naval Research Lab
- Nvidia
- Qorvo
- Qualcomm
- SAIC Motor
- Samsung
- Schneider
- Siemens
- Skyworks
- Sporton International
- Spreadtrum
- Tesla
- Thales
- Toyota
- Tsinghua University
- TSMC
- Wistron Neweb
- ZheJiang University

#### LEADING POSITIONS\(^4\)

- **#1** Software Revenue For Electronic Design and Test
- **#1** Hardware Revenue For Electronic Design and Test
- **#1** Commercial Comms, Aerospace and Defense, Electronic Industrial, Network Test (Ixia)

---

\(^1\) Source: Forbes, IHS Technology, Statista, Defense News, IHS Markit, Times Higher Education  
\(^2\) Two of the top 25 defense companies are on the U.S. Gov’t embargoed list  
\(^3\) Select customers from 32,000+ customers; added 2,500+ customers in FY18  
\(^4\) Market-leading Positions Source: Prime Data, IHS Technology and Company estimates
Leadership Position with Room to Grow

$16.3B
Served Addressable Market\(^1\)

3-5%
Avg. Market Growth Rate\(^3\)

Keysight Market Share: ~24\(^2\)

Served Addressable Market

- Ixia
- Commercial Comms
- Aerospace, Defense & Gov’t
- Electronic Industrial

1. Per Company estimates. Includes Network Test; excludes Network Assurance
2. Per Company estimates
3. Per Company estimates; average over 3-5 years
Sustain and Accelerate Organic Growth

Deepen Leadership Position through Differentiated Business Model

Balanced Capital Allocation to Drive Shareholder Value

A Strategic Framework for Value Creation
Identify trends and invest early to provide innovative solutions

Aggressively pursue opportunities aligned with strong macro growth trends

Be first-to-market with differentiated technology solutions via superior innovation approach

Moving from hardware-centric to software-centric approach; advance intimate solution selling

Innovate ahead of emerging technologies and extend industry lead
The Keysight Leadership Model (KLM)

EMPLOYEE GROWTH
- Encourage passion
- Inspire and facilitate growth
- Anticipate change

OPERATIONAL EXCELLENCE
- Highest quality
- Continuous improvement
- Flexible operating model

MARKET INSIGHT
- Early trend identification
- Accelerate Innovation

CAPITAL ALLOCATION
- Focus on ROIC
- Flexible, balanced approach

FIRST-TO-MARKET SOLUTIONS
- Committed to being first
- Exceed the customer needs
Three Phases to Keysight’s Transformation

**Phase 1**
**Form Public Company**
- Stabilize as Independent Company
  - Completed April 30, 2015
  - 6 months ahead of schedule

**Phase 2**
**Transform for Growth**
- Sustained 4% CAGR Over Cycle
  - M&A as priority use of cash
    ✓ Thales Services (Aug. 2018)
    ✓ Scienlab (Aug. 2017)
    ✓ Ixia (Apr. 2017)
    ✓ Anite (Aug. 2015)
  - Disciplined return of capital

**Phase 3**
**Return Capital**
- Value Creation
  - Appropriate leverage and commitment to investment grade credit metrics
  - Disciplined M&A

**From 2015 Investor Day**

**Return of Capital**
- Completed
- 3 - 4 Years
- Beyond

TRANSFORMATION LARGELY COMPLETE; TRANSITIONING TO PHASE 3

- Completed April 30, 2015
- 6 months ahead of schedule
Capital Allocation Priorities – Dynamic and Return-Based

1. Reinvestment to Drive Organic Growth
2. Disciplined M&A
3. Return of Capital

Operating Principle – Maintain Flexibility and Limit Excess Cash
# Our Long-Term Expectations

<table>
<thead>
<tr>
<th>Core Revenue Growth(^1)</th>
<th>Previous Target (2015 Investor Day)</th>
<th>NEW Target</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sustainable 4% CAGR</td>
<td>Sustainable 4-5% CAGR</td>
</tr>
</tbody>
</table>

| Operating Margin\(^1\)   | 17-18%                             | 21-22%     |

| EPS Growth\(^1\)          | 8-10%                              | ≥10%       |

Operating Margin targets restated to reflect the Q1'19 adoption of ASU 2017-07, “Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost”

\(^1\)Non-GAAP measure. Core revenue growth excludes the impact of acquisitions, divestitures and currency.
**Transformed, Growing, and Exceeding Commitments**

| Transformed organizational structure to align with customers and increased investments focused on key growth initiatives | Accelerated profitable growth and momentum driven by focus on customer success and solutions | Differentiated business model enabling superior execution | Strong management team meeting and exceeding commitments | An exciting time at Keysight… significant runway ahead |

---

27
Technology Leadership

Jay Alexander
Senior Vice President and Chief Technology Officer
<table>
<thead>
<tr>
<th></th>
<th>Technology Leadership</th>
<th>Key Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Increased R&amp;D investment from ~12% to ~16% of revenue in 4 years; emphasizing first-to-market innovations that enable our customers’ growth</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Improved R&amp;D efficiency with industry-focused solutions groups that capitalize on differentiated technology supplied by central Keysight Labs team</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Expanding our leadership on all three dimensions of Keysight’s differentiation: Hardware + Software + People (expertise)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Executing on strategic software initiative – added $200M+ of incremental annual software revenue over 3 years and introduced PathWave, a breakthrough design and test software platform</td>
<td></td>
</tr>
</tbody>
</table>
Transformed R&D for Solutions and Customer Success

FROM
- Product-focused divisions
- Internal goals
- One form factor
- Product line run-rate funding

TO
- Solution-centric business groups
- Customer-driven specifications and timetables
- Multiple implementations (feature-rich box, modular, handheld)
- Strategic Keysight growth investments

CUSTOMER

OLD

CUSTOMER

CUSTOMER

CUSTOMER

Division 1
Division 2
Division 3
Division 4
Division 5
... Division N

Product 1
Product 2
Product 3
Product 4
Product 5
... Product N

R&D Lab 1
R&D Lab 2
R&D Lab 3
R&D Lab 4
R&D Lab 5
... R&D Lab N

NEW

CUSTOMER

CUSTOMER

CUSTOMER

COMPLETE SOLUTION

COMPLETE SOLUTION

COMPLETE SOLUTION

CSG

EISG

ISG

COE

Keysight Labs

COE

COE

COE

COE = Center of Excellence
R&D Overview – 3 Differentiators that Enable R&D Efficiency and Customer Success

1. Keysight Labs Central Teams
   Develop game-changing hardware and software innovations – breakthroughs created for maximum impact and scale

2. R&D Centers of Excellence
   Create hardware and software solution components that can address many applications, focusing on deep competency areas such as High Frequency Measurements and Digital and Photonics Measurements

3. Solutions Groups
   Partner with leading customers to create high-value solutions with faster time-to-market than previously possible
Leveraging Insight and Expertise to Deliver Solutions

CUSTOMER WORKFLOW SOLUTIONS
SOFTWARE AND SERVICES
HARDWARE TECHNOLOGY PORTFOLIO
DEEP EXPERTISE / STANDARDS BODIES
MARKET TRENDS AND CUSTOMER NEEDS
CUSTOMER INSIGHT
Investing to Win with Leadership in Hardware + Software ...

**TYPICAL MEASUREMENT PROCESS**

**Leading-Edge Hardware**

- Critical foundation for world-class measurements; needs to be 10X better than what is being measured
- Keysight is vertically integrated to develop and deliver these differentiated core technologies
- Key enabler for high-margin solutions

**Software and Value-Added Services**

- Hundreds of high-value SW application packages
- >$500M software business; market leader by revenue; recognized with Frost & Sullivan award
- Increasing recurring revenue with more time-based licenses, support contracts and additional services

CUSTOM CHIPS, MODULES & INTERCONNECTS ENABLE SUPERIOR PERFORMANCE AND TIME-TO-MARKET

SOFTWARE AND SERVICES DELIVER DIFFERENTIATION, HIGHER MARGINS AND REVENUE STABILITY

1 FY ‘18 data.
... + People | Delivering Our Unique Expertise

**INDUSTRY-LEADING TECHNOLOGISTS**

- ~3,000 R&D engineers, over 1/3 with M.S. or Ph.D. degrees
- Deep connections with leading research universities such as Stanford, UCSD, Georgia Tech, Bristol, Tsinghua, among others

**THOUGHT LEADERSHIP**

- Active in 30+ standards bodies and industry consortia
- 3,000+ patents awarded\(^1\), with hundreds of new applications and trade secrets generated each year

**EMBEDDED WITH MARKET LEADERS**

- Diverse and deep customer relationships around the world
- Viewed as trusted advisor and partner

\(^1\) Patents awarded to Keysight and Keysight’s business under Agilent and HP
Keysight Developers Are Close to Customers Worldwide

Key Technology Development Centers

1. **Santa Rosa, CA**
   - Custom analog chipsets, modules, interconnect

2. **Santa Clara, CA**
   - Keysight Laboratories foundational innovations

3. **Colorado Springs, CO**
   - Custom digital chips and multi-chip modules

4. **Atlanta, GA**
   - Design and test platform software

5. **Böblingen, Germany**
   - Optical measurement technology

6. **Bucharest, Romania**
   - Network test, visibility and security software

7. **Beijing, China**
   - Worldwide wireless test software

8. **Fleet, United Kingdom**
   - Network emulation solutions

9. **Manesar, India**
   - Instrument and solution software

10. **Austin, TX**
    - Network test and visibility solutions

11. **Penang, Malaysia**
    - Low frequency measurements

**Countries**
- Countries with >50 developers
- Countries with <50 developers

**HARDWARE + SOFTWARE + PEOPLE = INSIGHTS**
Used M&A to Gain Capabilities & Expand Our Served Market

**ADDED CAPABILITIES**

**COMMUNICATIONS SOLUTIONS**
- Anite
- ixia

**ELECTRONIC INDUSTRIAL SOLUTIONS**
- scienlab

**SERVICES SOLUTIONS**
- Thales Calibration Services Australia
- Liberty Calibration
- Electroservices
- PSNA

- Wireless protocol development test, full stack network test, visibility and security
- Charging infrastructure test, automotive battery, and power system
- Multi-brand and dimensional calibration; leadership position in antenna test

Increased Served Market and Added New Growth Vectors

---

1 ixia acquisition originated by CSG; became standalone reporting segment upon close of acquisition in Q2’17
Increased our Competitive Differentiation

KEYSIGHT FAB
Santa Rosa, CA

- Proprietary chips, modules, and interconnects, purpose-built for advanced solutions such as 5G
- Optimized with hundreds of years of expertise
- Delivers performance, time-to-market and cost benefits for Keysight and our customers

KEYSIGHT SOFTWARE DESIGN CENTER
Atlanta, GA

- Platform software developed with Agile methods; used by Keysight businesses to speed customers' time-to-market by connecting the entire design and test workflow
- 60+ new developers growing to 200 focused on:
  - Big data analytics and visualization
  - Cloud-first design and deployment
  - Data management and streaming
- In partnership with the Georgia Institute of Technology

VERTICALLY INTEGRATED FOR DIFFERENTIATED TECHNOLOGIES
Dramatically Increasing Software Development Capabilities

KEY INITIATIVES

• Consolidated core software technology development under CTO (Nov. 2015)
• Advanced our software leadership with acquisitions of software-centric businesses
  • Anite (Aug. 2015)
  • Ixia (Apr. 2017)
• Opened Atlanta Software Design Center (Oct. 2016)

~1,800 SOFTWARE ENGINEERS

+65% Growth

FY'14  FY'17

INVESTING IN CAPABILITIES THAT DRIVE DIFFERENTIATION AND VALUE CAPTURE
Major Unaddressed Market Need: Unify Fragmented Design & Test SW for Faster Time-to-Market & Lower Costs

- **SIMULATE**
  - Electronic Design Automation (EDA) Software
    - Simulate designs before they are built to find and fix issues

- **PROTOTYPE**
  - Graphical Test Software
    - Allows non-programmers to design and execute tests
  - Text-Based Test Software
    - Test products with maximum speed and flexibility

- **VALIDATE**
  - Measurement Algorithms and Application Software
    - Ensure traceable performance to complex specifications and standards
  - Data Analytics Software
    - Use large datasets to gain insight for optimizing the design or the test process

- **MANUFACTURE**

- **OPTIMIZE**
  - Customer productivity killer: Inability to share test software, specifications, and results across lifecycle phases, leading to costly and time-consuming duplicate work

Lifecycle Phases

Core Keysight Offering
PathWave – A Superior Software Platform that Increases Productivity Across the Overall Workflow

A breakthrough design and test software solution that accelerates the overall workflow from simulation of early concepts through manufacturing and optimization of deployed systems

- Integrates Keysight’s leading software solutions, including design software, measurement applications, and instrument control
- Adds an open and flexible development environment with common data formats and a consistent user experience
- Result is an open, scalable and predictive platform that will be the foundation for many customer solutions going forward
In order to achieve its performance goals, 5G is far more complex than 4G

- Higher frequencies; to 28 GHz and beyond
- Advanced modulation (signal processing)
- Multi-element antennas using beamforming
- Requires detailed simulation, prior to building a prototype and then validation of actual performance
Our R&D Strategy Builds On Our Leadership Position

- Accelerate Investment in Software
  - Solutions for higher layers in the stack
  - Additional staffing of Software Design Center in Atlanta
  - PathWave platform proliferation

- Continue High-Return Investments to Extend Lead in 5G
  - Custom chips for higher frequencies and more channels
  - Systems architecture to enable scalable solutions
  - Over-The-Air (OTA) and millimeter-wave technology

- Leverage Technology Synergies from Ixia Acquisition
  - Leverage Keysight hardware expertise into Ixia solutions
  - Apply Ixia software and services expertise to Keysight

- Enable Diversified Growth Beyond Communications
  - Differentiated Automotive solutions
  - Value-added services beyond Calibration and Repair
IN SUMMARY

Continuing to Extend Keysight’s Technology Leadership

Global R&D capabilities with central Keysight Labs fueling first-to-market innovations and solutions

Furthering our unmatched value proposition:
Hardware + Software + People = Insights

Accelerating our software platform and solutions investments to continue introducing breakthroughs such as PathWave
Communications Solutions Group

Satish Dhanasekaran
Senior Vice President, President - Communications Solutions Group
Communications Solutions Group | Key Messages

1. #1 position in CSG end markets with ~27% share¹

2. Transformed organization to industry focus, creating a go-to-market competitive advantage

3. Established first-mover advantage in 5G through early investments and acquisitions

4. Well-positioned with industry leaders; relationships permeate end market ecosystems

5. Strong operating model to deliver on financial commitments

¹ Per Company estimates
## FY’18 HIGHLIGHTS

<table>
<thead>
<tr>
<th>Division</th>
<th>Revenue</th>
<th>Orders</th>
<th>Operating Income</th>
<th>Operating Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commercial Communications</strong></td>
<td>$2.4B</td>
<td>$2.5B</td>
<td>$0.47B</td>
<td>19.8%</td>
</tr>
<tr>
<td><strong>Aerospace, Defense and Government</strong></td>
<td></td>
<td></td>
<td>$1.0B</td>
<td></td>
</tr>
</tbody>
</table>

### Recognized leadership in 5G trials and standards
- Provide end-to-end solutions beyond the physical layer for mobile chipsets, smart sensors/devices, wireless base stations, networks, data centers and cloud
- Solve challenges around user Quality of Experience, mobility and security

### Decades of experience delivering mission-critical solutions
- Provide solutions to agencies, primes and supply chain for electronic warfare, radar, space and signal monitoring
- Solve challenges around new mission threats enabled by digital transformation
- Provide public safety solutions required for increased intelligence (e.g., public events, power plants, airports, border security)

---

1. Net revenue for Communications Solutions Group excludes the impact of fair value adjustments to acquisition related deferred revenue balances for the Anite acquisition.
2. Operating income and Operating Margin restated to reflect the Q1’19 adoption of ASU 2017-07, “Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost”. Segment operating income and operating margin is consistent with the non-GAAP measures discussed in Safe Harbor on slide 2.
Significant Steps Taken to Transform CSG

**INITIAL OBSERVATIONS**

- 5G technology wave drives growth across the communications ecosystem as industry invests for time to market advantage
- Geopolitical dynamics create opportunities in Aerospace and Defense Communications
- CSG focuses on operational excellence to create value across the business cycle

**ACTIONS TAKEN FY17, FY18**

- Transformed to industry-focused solution-centric organization - launched 50+ new solutions
- Expanded software talent with Anite to gain a first-mover advantage in 5G
- Operational initiatives in place to drive profitable growth and margin expansion

**SIGNIFICANT ACCOMPLISHMENTS**

**Commercial Communications**

- Double-digit order growth 3 of past 4 quarters¹
- 12 consecutive quarters of double or triple digit 5G order growth
- Strong adoption of 400G R&D solutions

**Aerospace Defense & Government**

- Double-digit order growth 4 of past 5 quarters²
- Strong adoption of Electronic Warfare and Signal Monitoring solutions

¹ FY18 ² Q4’17 – Q4’18
Expertise brings customer insight, workflow analysis, and improved business outcomes

PathWave leverages measurement platforms to enable customer workflows

Broader offering of industry-leading measurement platforms

100 industry experts
300 R&D hardware engineers
550 R&D software engineers

Electronic Warfare
5G Network Emulation
Computer Datacom

#1 in Hardware
#1 in Software

1 Prime Data Test Instrument Industry Service (May 2018) and Company estimates
2 Frost & Sullivan Global Test and Measurement and Data Acquisition Software Market report (November 2017) and Company estimates
LARGE, GROWING MARKET

Total Market $9.3B

Our Share $2.4B

Market Dynamics

<table>
<thead>
<tr>
<th></th>
<th>Commercial Communications</th>
<th>Aerospace and Defense Communications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>$5.2B</td>
<td>$4.1B</td>
</tr>
<tr>
<td>Growth Rate</td>
<td>3-6%</td>
<td>2-3%</td>
</tr>
<tr>
<td>Drivers</td>
<td>Explosive data growth and effective use of spectrum</td>
<td>Global defense modernization in response to emerging threats</td>
</tr>
<tr>
<td></td>
<td>New business models and services for operators (e.g., artificial intelligence, cloud)</td>
<td>Security needs in public safety infrastructure</td>
</tr>
<tr>
<td></td>
<td>China’s push to become innovation leader</td>
<td>Connected battlefield</td>
</tr>
</tbody>
</table>

1 Per Company estimates. Restated to include services. 2 Per Company estimates; average over 3-5 years
Communications Solutions Value Creation Strategy

**WIN IN 5G**
by enabling the ecosystem workflow

- Win the technology waves
- Advance software solutions offering
- Differentiate through business model

**GROW**
by enabling defense modernization

- Extend market leadership
- Capture the outsourcing trend
- Expand into information warfare solutions

**FOCUS**
on operational excellence

- Deliver solutions with leverageable platform strategy
- Drive supply chain excellence and continuous cost reductions
- Lead with rigorous customer experience and quality management
Investments in Place to Capture Mega Trend Opportunities

- 5G
- Edge Computing
- Electronic Warfare
- Industry 4.0
- Connected Smart Devices (IoT)
- Cloud
- Emerging Applications (Virtual Reality, AI, Big Data, Autonomous Driving)
- Signal Monitoring
Commercial Communications
Technology Waves Are Driving Growth Across Communications Ecosystem

COMMERCIAL COMMUNICATIONS

Value Chain

- Technology Waves: 5G, WLAN, MIPI
- 400G, Terabit, Optical

Component/Chipsets

Devices

Base Stations

Network Equipment/Storage

Attractive Industry Attributes

- Business focused on technology advancement for the Information and Communications Technology industry
- Industry leaders invest for time-to-market advantage, which creates opportunities in R&D
- Standards and regulations mandate new design and test requirements
- Operators specify additional testing to their supply chain for better user experience

WE PROVIDE END-TO-END SOLUTIONS THROUGHOUT THE INNOVATION LIFECYCLE
### 5G Ecosystems Have Formed

**INTEROPERABILITY IS KEY FOR GLOBAL DEPLOYMENT**

<table>
<thead>
<tr>
<th>Spectrum</th>
<th>sub-6GHz</th>
<th>mmWave</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;1GHz</td>
<td>28GHz</td>
</tr>
<tr>
<td></td>
<td>2.5GHz</td>
<td>39GHz</td>
</tr>
<tr>
<td></td>
<td>3.4 – 3.7GHz</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.4 – 4.9GHz</td>
<td></td>
</tr>
<tr>
<td>ISM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GEOGRAPHY</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPERATOR</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AT&amp;T T-Mobile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sprint China</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three Orange EE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vodafone Telecom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>China Telecom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTT Docomo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SK Telecom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTT Docomo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SoftBank China</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verizon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT&amp;T T-Mobile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTT Docomo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SoftBank KT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SK Telecom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verizon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT&amp;T T-Mobile</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AT&amp;T T-Mobile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sprint China Mobile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three Orange EE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vodafone Telecom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China Telecom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTT Docomo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SK Telecom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTT Docomo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SoftBank China</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verizon AT&amp;T T-Mobile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTT Docomo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SoftBank KT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SK Telecom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verizon AT&amp;T T-Mobile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Robust Solution Portfolio Propels 5G Growth

**KEYSIGHT SOLUTIONS**

- Protocol Design
- MIPI\(^1\) Digital Test
- 5G Waveforms
- Beamforming
- Channel Emulation
- WiFi Coexistence
- Over-The-Air (OTA) Test
- mmWave Parametric
- Key Performance Indicators

**INDUSTRY FIRSTS**

- 5G full stack connection
- Demonstrated 5G data rates >4Gbps, Over-the-Air
- Solution for narrow-band IoT deployments
- Enabled IMT 2020\(^2\) progression

Solution enabled by acquisition: Anite, Ixia, AT4

---

1. Mobile Industry Processor Interface (MIPI)
2. International Mobile Telecommunication 2020, the target date to set the system standard
Keysight Uniquely Positioned to Win in 5G

5G PHASES

2010 - 2015
Research

2016 - 2019
Prototyping, Standards and Trials

2020 - 2025+
Commercialize, Deploy & Ramp

KEYSIGHT 5G VALUE PROPOSITION

1. Invested early in broad set of differentiated technology to enable 5G
2. Broad solution portfolio solving 5G challenges from research to deployment
3. Insights from industry engagements and trials

SIGNIFICANT PROGRESS

✓ Triple-digit 5G order growth in FY18
✓ Strong order results driven by first-to-market solutions
✓ Industry-leading millimeter wave solutions
✓ 60+ key contributions made to industry technology standards
Aerospace, Defense and Government Communications
Geopolitical Dynamics Are Creating Growth Opportunities

Attractive Industry Attributes

- Mission-critical requirements demand extreme performance and highest reliability
- Security challenges multiply as commercial technology proliferates
- Multi-decade programs require multi-decade support and service
- 2-3% CAGR\(^1\) in global defense spend – geopolitical dynamics lead to business diversification
- Public safety concerns drive technology infrastructure investments

AEROSPACE AND DEFENSE COMMUNICATIONS

Solutions for design and manufacturing including multi-decade support

\(^1\) Per Company estimates
Providing Solutions Across Entire Defense Ecosystem

Defense Modernization Requires Broad Solutions

**ELECTRONIC WARFARE AND RADAR**
- Threat Simulation
  - Mission effectiveness
  - Hardware-in-loop
  - Open-air ranges

**SIGNAL MONITORING**
- Public Safety
  - Signal intelligence
  - Unmanned aerial vehicle detection
  - Compliance

**SUPPLY CHAIN**
- Subsystems
  - Materials
  - Integrated circuits
  - Metrology

**OPERATIONS**
- Field and Service
  - On-board or pre-flight check
  - Uptime services in-country

Solutions Across Aerospace and Defense Communications Workflow
Keysight Enables Virtualized Connected Battlefield

REAL WORLD

RF ELECTRONIC WARFARE SIMULATION LAB

Keysight threat simulators selected by U.S. DoD for *hardware-in-the-loop* simulation¹
Focus on Operational Excellence in Communications Solutions Group

**EXECUTING A LEVERAGEABLE PLATFORM STRATEGY**
- Developing solutions on PathWave software framework
- Increasing investment across all form factors for faster development of solutions
- Accelerating technology investments to sustain differentiation

**RELENTLESS FOCUS ON SUPPLY CHAIN EXCELLENCE**
- Maximizing margins through cost reductions, supply chain optimization and value engineering
- Increased manufacturing capacity to meet demand for high-frequency products

**RIGOROUS CUSTOMER EXPERIENCE AND QUALITY MANAGEMENT**
- Laser focus on highest product quality
- Voice of Customer processes enable continuous improvement and high satisfaction scores

**CREATING VALUE THROUGH OPERATIONAL EXCELLENCE**
Customer Validation of Our Superior Offerings

“We need a leading partner with your attributes.”

“Keysight is a strategic partner and we want to outsource test activity to you.”

“We need your expertise to define the IoT security space.”

“We value your collaboration on IoT. We depend on your team.”

“You are ahead of the competition in the 5G space - very different than what we are used to from you in 4G.”

“The whole chipset ecosystem is embracing you for mmW.”

“You give us the fastest path to execute our project.”

“I trusted you and you delivered.”
### IN SUMMARY

**Market Leader – Positioned to Drive Revenue and Earnings Growth**

| Portfolio repositioned to focus on higher margin R&D solutions | Acquisitions augmented solution portfolio and expanded SAM | Organization focused on 5G solutions and defense modernization challenges | Strong momentum exiting FY’18 in a $9.3B¹ market |

¹ Per company estimates
IXIA SOLUTIONS GROUP

Mark Pierpoint
Senior Vice President, President - Ixia Solutions Group
We make networks and applications stronger
- Expanding from pre-deployment network test into production networks

Be first and best in the markets we serve
- Highest performance with virtual and cloud scalability

Keysight + Ixia combination drives customer expansion and new revenue opportunities and profit expansion
## 2018 HIGHLIGHTS

<table>
<thead>
<tr>
<th><strong>Net Revenue(^1)</strong></th>
<th>$0.45B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gross Margin(^2)</strong></td>
<td>74%</td>
</tr>
<tr>
<td><strong>Operating Income(^2)</strong></td>
<td>$0.02B</td>
</tr>
<tr>
<td><strong>Operating Margin(^2)</strong></td>
<td>3.6%</td>
</tr>
</tbody>
</table>

### REVENUE BY REGION

- **Americas**: 61%
- **Asia Pacific**: 19%
- **Europe**: 20%

### REVENUE MIX

- **Product**: 62%
- **Support**: 38%

---

1 Net revenue for Ixia Solutions Group excludes the impact of fair value adjustments to acquisition related deferred revenue balances for the Ixia acquisition.  
2 Operating income and Operating Margin restated to reflect the Q1'19 adoption of ASU 2017-07, "Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost". Segment gross margin, operating income and operating margin are consistent with the non-GAAP measures discussed in Safe Harbor on slide 2.
Ixia Adds Solutions for Layers 2-7 in the Core and Cloud

5G Brings >10X Expansion on Most Attributes

- Achievable Data Rates (Gb/s)
- Traffic Capacity
- Spectrum & Bandwidth Flexibility
- Number of Devices per Square Kilometer
- Mission Critical Suitability (high reliability, low latency)

5G Technology Impact

- Chipsets
- Devices
- Network Access
- Core Network
- Data Centers

Communications “Stack Layers”

Layers 4-7
- Mobile Device Test
- Base Station Emulation
- Drive Test
- Mobile Network Test
- Customer Experience Management

Layers 2-3

Layer 1

Electrical, RF and Optical Test

Channel Emulation

Keysight

Anite Acquisition

Ixia Acquisition

WITH IXIA, KEYSIGHT ADDRESSES THE ENTIRE NETWORK TRANSFORMATION, FROM WIRELESS TO THE CLOUD

* Per company estimates
What We Do: Make Networks and Applications Stronger

**TEST**
- Harden infrastructure
- Validate app performance
- Verify provisioning

**VIABILITY**
- Eliminate blind spots
- Real-time intelligence
- Optimize network tools

**SECURITY**
- Identify vulnerabilities
- Provide resilient security
- Reduce attack surface

Network Design
Network Operations
Network Rollout

WE CHALLENGE THE INFRASTRUCTURE, HARDEN SECURITY & VISUALIZE THE APPLICATIONS
Value-Added in Network Test: End-to-End Validation, Conformance and Certainty

<table>
<thead>
<tr>
<th>DEVICES</th>
<th>WIRELESS NETWORKS</th>
<th>CLOUD / WAN DEPLOYMENTS</th>
<th>SECURITY</th>
<th>LAN DEPLOYMENTS</th>
<th>DATA CENTER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IxVeriwave</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IxLoad/IxChariot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PerfectStorm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CloudStorm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LTE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

WiFi Performance / Reliability

Wireless / LTE

Infrastructure Performance

Security Resilience

SDN / NFV Migration

Application QoE

Hyper Scale DC Performance

IxNetwork

IxLoad and IxNetwork

Ixia Solutions
Highly Differentiated, Software-Driven Solutions

Technology Leadership
- Scale, performance, density

End-to-End Coverage
- Physical, virtual, cloud
- Device, Network, Mobility, Data Center

Comprehensive Offering
- Protocol and application depth
- Real-world attacks and applications

Financial Services Company

CUSTOMER NEED
Fortune 1000 financial derivatives marketplace needed to evaluate Distributed Denial of Service (DDoS) mitigation and ensure DDoS attack response

IXIA SOLUTION
- BreakingPoint Security Solution
- Tested configuration and mitigation process with real-life application profile and DDoS attacks

OUTCOME
10x Reduction in Response Time

REAL AND SIGNIFICANT BUSINESS IMPACT
Value-Added in Network Visibility: Access and Optimization of Security and Performance

THE DATA CENTER

Taps and Bypass

Switch

Acquire

Switch

Acquire

Servers

Acquire

Network Packet Brokers

• Aggregation
• Filtering
• Load Balancing
• SSL Decryption
• NetFlow

Analyze and Decide

ixia Solutions

Acquire

Distribute

Network Operations

Application Operations

Security Admin

Forensics
**Highly Differentiated, Software-Driven Solutions**

**NETWORK VISIBILITY**

**Massive Scale and Performance**
- Single pane of glass
- Physical, virtual, cloud, passive and in-line

**True Intelligence**
- Application, session, threats, load balancing

**Human User Experience**
- Patented Dynamic Filter Engine - exponentially easier to configure and manage

**CUSTOMER NEED**
Large European bank needed to analyze suspect traffic entering network and ensure high availability of security tools

**IXIA SOLUTION**
Deployed iBypass 40-10 with inline Network Packet Brokers (NPB) for high-availability security and reduce overall deployment costs

**OUTCOME**
50% Reduction in Deployment Costs

**Director of Banking**
IT Operations Executive

**REAL AND SIGNIFICANT BUSINESS IMPACT**
Capturing Growth in Enterprise Segment

REVENUE MIX

- Digitization is impacting every business
- Added solutions and capability to address Enterprise segment
- Expect this to continue to achieve target mix by 2020

CUSTOMER BASE CONTINUES TO GROW AND DIVERSIFY
## Addressing Growing Market with Differentiated Solutions

<table>
<thead>
<tr>
<th>MARKET GROWTH DRIVERS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLOUD</strong></td>
</tr>
<tr>
<td>90%</td>
</tr>
<tr>
<td>Mobile Data Traffic Moves to Cloud Apps by 2019³</td>
</tr>
<tr>
<td><strong>NETWORK SECURITY</strong></td>
</tr>
<tr>
<td>36%</td>
</tr>
<tr>
<td>Growth in Global Security Incidents 2015 to 2016⁴</td>
</tr>
<tr>
<td><strong>BIG DATA</strong></td>
</tr>
<tr>
<td>25GB</td>
</tr>
<tr>
<td>of Data per Capita per Month by 2020⁵</td>
</tr>
<tr>
<td><strong>IoT</strong></td>
</tr>
<tr>
<td>20B</td>
</tr>
<tr>
<td>Connected Devices by 2020⁶</td>
</tr>
</tbody>
</table>

### MARKET GROWTH DRIVERS

- **CLOUD**: 90% Mobile Data Traffic Moves to Cloud Apps by 2019³
- **NETWORK SECURITY**: 36% Growth in Global Security Incidents 2015 to 2016⁴
- **BIG DATA**: 25GB of Data per Capita per Month by 2020⁵
- **IoT**: 20B Connected Devices by 2020⁶

### Notes:

1. Per Company estimates
2. Average over 3-5 years
3. www.forbes.com
4. www.idgenterprise.com
5. The Zettabyte Era by Cisco
6. www.gartner.com

### Total Addressable Market

$2.2B

5-9% Growth Rate

---

1. www.forbes.com
2. www.idgenterprise.com
3. The Zettabyte Era by Cisco
4. www.gartner.com
5. www.gartner.com
### Looking Ahead: Key Trends Align with Keysight Strengths

<table>
<thead>
<tr>
<th>Massive Data Growth Drives New Technologies</th>
<th>Digitization Pervasive Across Businesses</th>
<th>Shift to the Cloud Challenges Existing Business Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher speeds and wider bandwidths</td>
<td>Pressure on costs and scalability</td>
<td>Restructuring of the market</td>
</tr>
<tr>
<td>• 400G+</td>
<td>• Virtualization</td>
<td>Cloud</td>
</tr>
<tr>
<td>• 5G, WiFi and IoT</td>
<td></td>
<td>• New, non-traditional customers</td>
</tr>
<tr>
<td>Big Data and Machine Learning</td>
<td>Increased risk of security and privacy breaches</td>
<td></td>
</tr>
<tr>
<td>Automation</td>
<td>• Increased use of encryption</td>
<td></td>
</tr>
<tr>
<td>• Transportation</td>
<td>• New security standards</td>
<td></td>
</tr>
<tr>
<td>• Industry 4.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IMPLICATIONS**

- Increased use of encryption
- New security standards
- Challenge of deploying complex technologies across enterprises
- Increased need for solutions

**INCREASED DEMAND FOR COST EFFECTIVE, WORLD-CLASS SOLUTIONS**

---

**Higher speeds and wider bandwidths**
- 400G+
- 5G, WiFi and IoT

**Big Data and Machine Learning**
- Transportation
- Industry 4.0

**Automation**
- Transportation
- Industry 4.0

**Pressure on costs and scalability**
- Virtualization | Cloud | Automation

**Increased risk of security and privacy breaches**
- Increased use of encryption
- New security standards

**Challenge of deploying complex technologies across enterprises**
- Increased need for solutions

**Restructuring of the market**
- Consolidations
- New, non-traditional customers
Winning Combination Delivers New Solutions

WiFi / Cellular Interworking

5G Network Stress Testing

Base Station

+ Automotive, IoT, Video Test and more

Keysight

Anite Acquisition

Ixia Acquisition

Layer 1

Electrical, Optical, and Wireless Test

Layer 2-7

Mobile Device Test

BTS Emulation

Drive Test

Mobile Network Test

Customer Experience Management

Network Test, Visibility, Security

Channel Emulation

Keysight

Anite Acquisition

Ixia Acquisition

Wireless, Electrical, Optical, and Wireless Test

Keysight UXM

Ixia Wave Test System

Test Automation Platform

RF/uW Converter

Ixia XAir3 and X100-5G

Channel Emulation
Ixia Solutions Value Creation Strategy

EXTEND
Product to Solution Leadership

EXPAND
Customer Base

ENHANCE
For Emerging Hybrid-Cloud
Extend Product to Solution Leadership

• Be first-to-market with market-leading speeds and performance: 400G+, 5G, 802.11ax and SSL

• Streamline hardware platforms with fewer more scalable offerings across portfolio

• Leverage key software platforms for virtualization and cloud as networking evolves – new business models

• Develop sources of external innovation

• Provide complete solutions for application driven needs in enterprise cloud operations, threat intelligence and security risk reduction

LEVERAGE PLATFORMS TO ENABLE END-TO-END SOLUTIONS
Expand Customer Base

• Capitalize on sales leverage
  • Geographic expansion in Europe and Asia-Pacific | Aerospace, Defense and Government and Primes | Tier 2 / Tier 3 Service Providers

• Increased go-to-market investment in visibility and security

• Continue to develop and enhance indirect go-to-market partners and programs

• Enhance solutions to include needed tools, deployment and support for target areas

• Combine IP and technology expertise from Keysight and Ixia
  • WiFi | 5G Base Station Test | Automotive Test

CONTINUE STRATEGIC EXPANSION WITH NEW SOLUTIONS AND ENTERPRISE
Enhance intelligence and security for hybrid-cloud

- Offer our customers and partners
  - Increased network and application intelligence
  - Enhanced security solutions
- Highly scalable and software offerings for traditional, hybrid, and cloud networks
- Evolve visibility and test solutions for artificial intelligence and machine learning
IN SUMMARY

Keysight + Ixia Combination Extends Our Technology Leadership and Drives New Opportunities

- Powerful long-term growth drivers
- Combination of leading capabilities creating breakthrough products
- Expanding customer base and market opportunities
Electronic Industrial Solutions Group

Gooi Soon Chai
Senior Vice President, President - Electronic Industrial Solutions Group
Head of Order Fulfillment and IT
Targeted investments to win in our markets with an emphasis on high growth and expanding end markets (high-value automotive, emerging IoT applications)

Rapid expansion of solutions for the connected and autonomous automobile

Strategy in place to continue to win and capture profitable growth from China semiconductor investments

Deep relationships with customers to provide next-generation solutions; leveraging our global presence, scale and decades of measurement expertise

Well-positioned to win through technology leadership
Overview: Electronic Industrial Solutions Group
A Leader in Test and Measurement Solutions Across a Broad Set of Electronic Industrial End Markets

<table>
<thead>
<tr>
<th>FY’18 HIGHLIGHTS</th>
<th>$4.8B ADDRESSABLE MARKET</th>
<th>KEY CUSTOMERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>$1.1B +15% YoY</td>
<td>AUTOMOTIVE</td>
</tr>
<tr>
<td>Orders</td>
<td>$1.1B +13% YoY</td>
<td>GENERAL ELECTRONICS</td>
</tr>
<tr>
<td>Operating Income</td>
<td>$0.25B +18% YoY</td>
<td>SEMI-CONDUCTOR</td>
</tr>
<tr>
<td>Operating Margin</td>
<td>22.9% +40 bps</td>
<td></td>
</tr>
</tbody>
</table>

1 Per Company estimates 2 Operating income and Operating Margin restated to reflect the Q1’19 adoption of ASU 2017-07, “Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost”. Segment operating income and operating margin is consistent with the non-GAAP measures discussed in Safe Harbor on slide 2.
# Global Trends Shaping the World

## Proliferation of Connected Devices
- 20B connected devices by 2020\(^1\)
- Each person will be connected to more than 10 devices by 2020\(^2\)

## Automotive Industry Transformation
- Electronic content in vehicles to double by 2030\(^3\)
- 90% of new cars will be connected cars by 2020\(^4\)
- 30% electric vehicles (EVs) by 2030\(^5\)

## Massive Data Volumes
- 50 Trillion gigabytes of stored data by 2020\(^6\)
- Demand for faster processing, low power, higher density integrated circuits

---

\(^1\) www.gartner.com, \(^2\) MarketPlace March 2014, \(^3\) Spotlight on Automotive, PWC semiconductor report Sept 2013, \(^4\) Centric Digital May 2016, \(^5\) Continental 2016 Factbook, \(^6\) EE Times Sept 2016
Significant Steps Taken to Transform EISG

### INITIAL OBSERVATIONS
- Opportunities in high-value automotive, emerging IoT applications and China semiconductor investments
- Product-centric vs. solution-centric
- Realigning to needs of the ecosystem

### ACTIONS TAKEN FY17, FY18
- Expanded into automotive and emerging IoT applications by broadening solutions portfolio
- Established Detroit and Japan Automotive Solutions Centers to complement existing presence in Europe (Germany) and Asia (China)
- Collaborated with key foundries to enable leading-edge process node migration and new memory architectures
- Focused on operational excellence through Lean activities across R&D and Supply Chain
- Delivered 15% revenue growth and 18% profit growth in FY’18\(^1\)
- Eight consecutive quarters\(^2\) of double-digit Automotive and Energy order growth
- Added 100+ new automotive and IoT applications customers
- Introduced 70+ solutions for automotive and IoT
- Captured new investment in China foundries (new setup and expansion)

---

\(^1\) Operating profit is consistent with the non-GAAP measures discussed in slide 2.  
\(^2\) Q1’17 – Q4’18
Keysight Helps Accelerate Innovation to Connect and Secure the World

Enabling building blocks that power the connected devices ecosystem

OUR ROLE

Providing End-to-End Solutions throughout the Innovation Lifecycle

SIMULATE  PROTOTYPE  VALIDATE  MANUFACTURE  OPTIMIZE
Electronic Industrial Solutions Value Creation Strategy

ACCELERATE
growth in the
Connected Devices
Ecosystem

- High-value automotive
- Emerging IoT

ENABLE
technology
advancement and
expansion in the
semiconductor
industry

- Process nodes advancement
- Capture China semiconductor investments
Solutions to Accelerate Growth in the Connected Devices Ecosystem

CONNECTED DEVICES ECOSYSTEM

- Smart Home
- Personal Wearable
- Medical Diagnostic
- Industry 4.0
- Digital Healthcare
- Automotive

KEYSIGHT DIFFERENTIATED SOLUTIONS

- Design Simulation
- Wireless Coexistence
- Compliance Tests
- RF Over-the-Air (OTA) Test Solutions
- Digital Signal and Data Test
- Battery and Power Consumption Test
- e-Mobility

PROVIDING SOLUTIONS TO ENABLE INNOVATION
Providing Total Solutions for e-Mobility

**INTELLIGENCE**
- Electronics
  - Engine Control Unit
  - Body Control Unit
  - Tire Pressure Monitoring Systems
  - Safety (Radar and ADAS¹)
  - Airbag Control Unit

**CONNECTIVITY**
- Telematics and Infotainment
  - Navigation systems
  - Automatic emergency call
  - “Vehicle-to-everything” (V2X) communications
  - Entertainment and information

**POWER**
- Battery and Charging Infrastructure
  - Li-ion cell performance test
  - Charging function and interoperability test
  - Power converters
  - Optimize testing time from weeks to hours

**SECURITY**
- Network and Safety
  - Engine Control Unit (ECU) Security
  - Automotive internet security
  - Leveraging Ixia solutions

---

¹ Advanced Driver Assistance System

70+ Solutions Introduced Over Past 3 Years
Deliver Automotive Innovations through Multiple Technologies

Power Steering Control
Rear-view Camera
Backup Sensors
Power Seat Control

Infotainment / Navigation Modules
(DVD, eCalls, Hands-Free Telephony, GPS)

Climate Control System

Fuel Injection Module
Power Train and Engine Management (MiL, SiL, HiL)

Emission Control Module

Radar Collision Avoidance

Adaptive Lighting Control

Anti-Lock Brake System
Tire Pressure Monitoring System

Hybrid Electric Vehicle (HEV) / Electric Vehicle (EV)

Electronic Stability Control Module

Remote Keyless Entry

Instrument Clusters

Personnel Occupancy Detection Systems (PODS) for Air Bag systems

Automotive OEMs

Electronic Components Suppliers

Semiconductor Chipset Manufacturers

Battery and Charging Infrastructure Providers

Compliance Lab
CASE STUDY: WINNING PROJECTS BY TAILORING TESTING SOLUTIONS (RADAR TARGET SIMULATOR)

CUSTOMER NEED
Develop long-range radar for Advanced Driver Assistance Systems (ADAS)

THE CHALLENGE
Rapid developments in the autonomous vehicle with demand for greater safety features are fueling the need for highly sensitive and accurate auto radar technology.

THE SOLUTION
Provided a high-accuracy, high-throughput test solution to simulate radar targets in various realistic scenarios.

"Keysight solutions provide reliable and fast radar target simulation capabilities at a lower total cost of test."
Enabling Technology Advancement and Expansion in the Semiconductor Industry

**DRIVERS**

<table>
<thead>
<tr>
<th>Continuously Shrinking Dimensions</th>
<th>New Device Architectures</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Smaller, faster and denser chipsets</td>
<td>• 3D memory topology</td>
<td>• Semiconductor Independence by 2025</td>
</tr>
</tbody>
</table>

**KEYSIGHT’S SOLUTIONS**

**DESIGN VERIFICATION**
- Device modeling and characterization

**PRECISION POSITIONING**
- Nano-scale positioning supporting next-generation lithography process

**WAFER PARAMETRIC TEST**
- In-line process monitoring and wafer acceptance test
Case Study: Providing Parametric Solutions for Shrinking ICs

MARKET NEED
Address complexity of shrinking integrated circuits (ICs)

The Challenge
- Advancements in device structure and new applications require IC chipsets that have higher performance and increased functionality
- As device size shrinks, packing these chips into a small area requires complex manufacturing process

The Solution
State-of-the-art parametric test systems used to characterize wafer structure that enable customers to achieve faster time-to-market and lower cost-of-test

“Keysight parametric solutions used extensively by key wafer foundries for leading-edge process nodes.”
A Leader in Test and Measurement Solutions; Positioning to Win through Technology Leadership

Delivered strong results:
15% revenue and 13% order growth in FY’18

Broad range of solutions and strong global reach to address the new connected world

Maintaining leadership and enabling technology advancement in semiconductor industry

Well-positioned to accelerate growth in automotive and emerging IoT segments
Global Sales

Mark Wallace
Senior Vice President – Global Sales
Global Sales | Key Messages

1. Deep and trusting customer relationships
2. Global scale, leverage and capability drives high efficiency and low selling cost
3. Optimizing structure, compensation and skills for industry focus and growth
4. Doubling frontline sales capacity without increasing cost envelope
5. Deploying enhanced digital demand generation capability
Global Sales at a Glance

OVERVIEW

- Large global footprint with 2,700+ customer-facing and customer support resources
- 600+ peaked solution, industry and application experts
- Dedicated global services sales channel
- Global network of 650+ channel resellers and solution partners (~75/25 direct/indirect channel)

FY’18 KEY STATISTICS

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Orders</td>
<td>$4.1B</td>
</tr>
<tr>
<td>Core Order Growth</td>
<td>12%¹</td>
</tr>
<tr>
<td>End Customers Served Annually</td>
<td>&gt;32,000²</td>
</tr>
<tr>
<td>Countries Served</td>
<td>100+</td>
</tr>
<tr>
<td>Call Center Customer Touches</td>
<td>~1.3M</td>
</tr>
</tbody>
</table>

GEOGRAPHIC SALES TEAM

- 45% Asia-Pacific
- 33% Americas
- 22% Europe

CUSTOMERS

Unique access to industry leaders, innovators and decision-makers in commercial, government and education accounts

- 29 of 30 Top Technology Companies
- 25 of 25 Top Auto Electronics Suppliers
- 23 of 25 Top Aerospace and Defense Contractors³
- 25 of 25 Top Engineering and Tech Universities

¹ Excludes impact of currency and acquisitions or divestitures completed within the last 12 months
² Includes indirect sales channels; no customer >3% of total revenue
³ Two of the top 25 defense companies are U.S. Gov’t embargoed
Customer Buying Trends Are Driving Structural Shifts

**SHRINKING MARKET WINDOWS**
- Invest earlier in pre-standards R&D
- Require innovative solutions to speed time-to-market

**OPERATIONAL DEMANDS**
Focused on:
- Reduced costs
- Increased asset utilization
- Optimized workflow

**INDUSTRY EXPANSION**
- More companies creating smart, connected devices
- More complexity and challenges to get to market

**CHANGING BUYING PRACTICES**
- Spend >50% of buying journey online
- Use “good enough” negotiation
Significant Steps Taken to Transform Global Sales

**FY16 OBSERVATIONS**
- Great customer relationships, satisfaction and loyalty
- Viewed by market as trusted advisors with strong expertise
- Insufficient growth and reach
- Services sales not structured to capitalize on opportunity
- Sales tuned to products, not solutions

**ACTIONS TAKEN**
- Shift to solutions-based selling
- Repurposed organization to increase frontline sellers
- Transformed marketing demand generation
- Deployed dual-channel model to grow services
- Maintaining Ixia specialist focus while leveraging Keysight’s reach

**SIGNIFICANT ACCOMPLISHMENTS**
- Increased frontline sales capacity by 30% FY16-FY18
- Grew FY18 5G solutions orders by triple-digits and automotive solutions by strong double-digits
- Captured multi-brand services business in every region

**DELIVERED 12% CORE ORDER GROWTH IN FY’18**
Global Sales Strategy to Grow

**GROW New Customers**
- Double selling capacity
- Scale industry marketing to reach emerging customers

**ACCELERATE Solutions**
- Engage first and deeply with industry leaders
- Leverage first-mover advantage across entire ecosystem

**EXPAND Services**
- Deploy new services channel
- Improve customers’ business results through services
- Increase attach rates
Grow New Customers through Redeployment

KEYSIGHT APPROACH

• Double frontline salesforce and deploy leading-edge, digital marketing to accelerate new customer acquisition
• Hold selling costs flat through resource reallocation and reinvestment

2018 RESULTS

✓ Double-digit lead generation growth
✓ Added 2,500+ new customers; grew broad regional account orders by 18%
✓ Delivered 12% core order growth\(^1\)

GLOBAL SALES FORCE GROWTH

INCREASE SELLING CAPACITY WITHOUT INCREASING SALES COSTS

\(^1\) Core order growth excludes the impact of currency and acquisitions completed within the last 12 months
Accelerate Solutions through Deep Customer Engagements Earlier in the Cycle

- Dedicated Keysight global account teams, focused on Tier 1 industry leaders and their global ecosystems

- Keysight customer engagement process harnesses Keysight’s full capability – from sales to R&D to marketing – and aligns to customers’ business priorities

- Regional Solutions Delivery Centers deliver local, responsive capability to customers’ on-going solution needs

34
5G public collaborations with industry leaders

23%
Organic order growth in FY’18 in Top 100 customers

97%
Top 30 Tech companies use Keysight
Expand Services with Dual-Channel Model

Renewals
• Focused on maintaining a high renewal rate (>80%)
• Customer Success Specialists: distinctive roles who are experts at process

New Business
• Channel tuned for new business acquisition
• Skills, measures, and incentive compensation aligned to new business capture
Services: Integral to Solutions-Centric Approach

CUSTOMER EQUIPMENT LIFECYCLE

ACQUIRE
- Demo Equipment Resale

USE
- Intrinsic Support (Free)

MAINTAIN
- Keysight Equipment Calibration and Repair

OPTIMIZE
- Ad-hoc; No Formal Strategy

PRIOR FOCUS

GO-FORWARD STRATEGY

- Add new sources for used equipment
- New Premium Support Plans
- KeysightCare
- Managed Services
- Multi-brand Calibration
- Test-as-a-Service (TaaS)
- Test Asset Optimization Services
- Integration Services
CASE STUDY: CALIFORNIA SALES TEAM

Focused Sales Deployment to Drive Growth

THE SITUATION
Significant growth of R&D investments in communications sector in California

THE CHALLENGE
Account teams focused on established accounts, no capacity for expansion

THE SOLUTION
Complete management overhaul, account and territory restructuring and frontline sales expansion

- Changed 80% of managers, increased sellers by 44% and application experts by 30%
- Created Test-as-a-Service lab to provide new business model options to customers
- With restructuring, sales have increased 50%

FOCUSED SALES DEPLOYMENT IN BAY AREA TO CAPITALIZE ON DISRUPTIONS
**Global Sales Driving Long-Term Growth**

| Well-positioned to capitalize on shifting customer trends | Distinct advantages enable greater customer value creation | Global scale and leverage drives growth with low selling cost | Doubling frontline sellers while maintaining flat selling costs |
Financial Update

Neil Dougherty
Senior Vice President and Chief Financial Officer
Financial Update | Key Messages

1. Executed on targeted growth initiatives and gaining momentum
2. Delivering on our financial commitments
3. Driving expansion of operating margin
4. Increasing our focus on free cash flow conversion
5. Transitioning to a more balanced approach to capital allocation
Solid Performance Despite Transformation Investments

- **Revenue ($B)**
  - FY15: $2.86
  - FY16: $2.93
  - FY17: $3.25
  - FY18: $3.91

  - +20% y/y
  - +13% core

- **Operating Margin %**
  - FY15: 18.1%
  - FY16: 17.6%
  - FY17: 18.4%
  - FY18: 18.8%

  - +0.4 pts y/y

- **Free Cash Flow ($M)**
  - FY15: $296
  - FY16: $329
  - FY17: $256
  - FY18: $423

  - +65% y/y

- **EPS**
  - FY15: $2.52
  - FY16: $2.43
  - FY17: $2.53
  - FY18: $3.24

  - +28% y/y

- **Growth through share gains and M&A…**
- **…operating margins in-line with target model…**
- **…solid cash generation…**
- **…and increasing earnings**

---

1. Non-GAAP measure, refer to reconciliation in Appendix.
2. Operating Margin restated to reflect the Q1’19 adoption of ASU 2017-07, “Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost”.
3. Restated for ASU 2016-09, Improvements to Employee Share-based Payment Accounting.
4. FY18 Free Cash Flow includes $85 million one-time accelerated U.S. pension contribution.
## Delivering on Our Commitments

<table>
<thead>
<tr>
<th>COMMITMENT</th>
<th>PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Top-line Growth</strong></td>
<td>Achieve 4% revenue growth by FY’19</td>
</tr>
</tbody>
</table>
| **Operating Margin** | Achieved 13% core growth in FY’18  
Four consecutive years of market share gains² |
| **Anite Acquisition** | Baseline operating margin of 17-18% |
| **Ixia Acquisition** | Achieved committed incremental in FY’18  
OM% above 17% each of last 3 years |
| **Growth Initiatives** | Cost synergies achieved |
| **EPS Growth** | Revenue synergies ahead of plan (5G) |
| **Synergies** | Behind plan. Long-term thesis remains intact |
| **Mid-teens accretion to adjusted EPS within 24 months** | 4 of 5 initiatives ahead of target – 5G, automotive, software and modular on-track; services lagging |
| **Drive growth in targeted market opportunities** | Achieved 28% EPS growth in FY’18 |

¹ Non-GAAP measure, refer to reconciliation of operating margin for last 3 years in Appendix. Operating Margin targets restated to reflect the Q1’19 adoption of ASU 2017-07, “Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost”. FY18 core Operating Margin incremental 41% excluding ASU 2017-07 impact. ² Per Company estimates
### Leverage Profile

<table>
<thead>
<tr>
<th>($M)</th>
<th>As of Q2'19 ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$450M Revolving Credit Facility</td>
<td>Undrawn</td>
</tr>
<tr>
<td>3.30% Senior Notes due 2019</td>
<td>500</td>
</tr>
<tr>
<td>4.55% Senior Notes due 2024</td>
<td>600</td>
</tr>
<tr>
<td>4.60% Senior Notes due 2027</td>
<td>700</td>
</tr>
<tr>
<td>Gross Debt(^1)</td>
<td>1,800</td>
</tr>
<tr>
<td>Net Debt(^1)</td>
<td>520</td>
</tr>
<tr>
<td>Total Capital(^1)</td>
<td>4,598</td>
</tr>
<tr>
<td>LTM Adjusted EBITDA(^1)</td>
<td>$1,047</td>
</tr>
<tr>
<td>Gross Debt-to-Capital</td>
<td>39.15%</td>
</tr>
<tr>
<td>Gross Debt-to-Adjusted EBITDA</td>
<td>1.72x</td>
</tr>
</tbody>
</table>

### Capital Structure

- ~$1.7B available liquidity
  - $1,277M cash/cash equivalents
  - $450M revolving credit facility
- Committed to investment grade rating
  - **Moody’s**: Baa3
  - **S&P**: BBB-
  - **Fitch**: BBB
- Gross Debt-to-EBITDA Target of 1.75x - 2.25x
Keysight Leadership Model (KLM) – Dynamic Cost Structure Key to Value Creation

**LASER FOCUS ON COST MANAGEMENT**
- LEAN
- Eliminate waste
- Continuous improvement
- High G&A leverage
- Low-cost locations

**STRUCTURAL FLEXIBILITY**
- Minimal fixed cost growth
- Outsourced supply chain
- Indirect sales channel
- Variable pay scales with results
- Flexible expenses and technology leverage

**LONG-TERM EVOLUTION**
- Allocate resources to highest return opportunities
- Proactive structural cost management
- Value engineering to reduce COGS

**EXPECT 40% INCREMENTAL OPERATING MARGIN ON CORE GROWTH AT OR ABOVE 4%**
### Driving Improved Operating Margin Targets

<table>
<thead>
<tr>
<th></th>
<th>Prior Target</th>
<th>New Target by 2021</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Margin</td>
<td>56-58%</td>
<td>61-63%</td>
<td>500 bps</td>
</tr>
<tr>
<td>R&amp;D %</td>
<td>13%</td>
<td>15%</td>
<td>200 bps</td>
</tr>
<tr>
<td>SG&amp;A %</td>
<td>25-27%</td>
<td>25-26%</td>
<td>(50) bps</td>
</tr>
<tr>
<td>Operating Margin %</td>
<td>17-18%</td>
<td>21-22%</td>
<td>400 bps</td>
</tr>
</tbody>
</table>

**Drivers**

- Improved market position
- Operating leverage
- Favorable mix shift (SW, R&D)
- Ixia synergy realization
- Ongoing cost reductions

Operating Margin targets restated to reflect the Q1 '19 adoption of ASU 2017-07, “Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost”
## KLM – Resilience Over the Economic Cycle

<table>
<thead>
<tr>
<th>Revenue Sensitivity</th>
<th>-10%</th>
<th>BASELINE</th>
<th>+10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Margin¹</td>
<td>-3-4 ppts</td>
<td>17-18% → 21-22%</td>
<td>+2-3 ppts</td>
</tr>
<tr>
<td></td>
<td>Current</td>
<td>2021</td>
<td></td>
</tr>
</tbody>
</table>

Operating Margin targets restated to reflect the Q1’19 adoption of ASU 2017-07, “Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost”

---

¹ Non-GAAP measures. ² Per Company estimates
Improving FCF Conversion Post-Transformation

Free Cash Flow Conversion\(^1\)

<table>
<thead>
<tr>
<th>Year</th>
<th>FCF Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY'15</td>
<td>69%</td>
</tr>
<tr>
<td>FY'16</td>
<td>79%</td>
</tr>
<tr>
<td>FY'17</td>
<td>55%</td>
</tr>
<tr>
<td>FY'18</td>
<td>68%</td>
</tr>
<tr>
<td>FY'19</td>
<td>80–90% Target</td>
</tr>
</tbody>
</table>

Large Investments Complete

- ✓ Post-separation IT investments
- ✓ Anite and Ixia acquisition integration completed
- ✓ Pension funding improved

FCF CONVERSION\(^1\) TARGET OF 80-90% BEGINNING IN FY19

\(^1\) Non-GAAP measure, refer to reconciliation in Appendix. FCF divided by non-GAAP Net Income
**Tax Reform Increases Balance Sheet Flexibility**

**Tax Rate Reduction**
- Tax rate\(^1\) reduced from ~17% in FY17 to 12% exiting FY18

**Increased Cash Availability**
- Move to modified territorial system increases projected U.S. cash availability from ~25% of FCF to 90%+

**Cash Repatriation**
- Deemed repatriation provided one-time U.S. cash influx of >$500M in 2018 with associated net cash tax cost of ~$95M, payable over 8 years

**Capital Deployment**
- Go-forward capital allocation strategy based on global cash generation

---

\(^1\) Non-GAAP
# Capital Allocation Priorities

<table>
<thead>
<tr>
<th>1</th>
<th>Reinvestment in Core Business to Drive Organic Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Maintain R&amp;D investment at ~15% of revenue</td>
</tr>
<tr>
<td></td>
<td>• Average annual capex of ~$100-120M¹</td>
</tr>
<tr>
<td></td>
<td>• Increase sales channel capacity without increasing costs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Disciplined M&amp;A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Continued focus on tuck-in acquisitions</td>
</tr>
<tr>
<td></td>
<td>• Aligned with targeted growth strategies</td>
</tr>
<tr>
<td></td>
<td>• Focused on software, high-value automotive and services</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>Return of Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Driven by return to organic growth</td>
</tr>
<tr>
<td></td>
<td>• Further enabled by tax reform</td>
</tr>
<tr>
<td></td>
<td>• $350M share repurchase authorization</td>
</tr>
<tr>
<td></td>
<td>• Initial intent to offset share dilution</td>
</tr>
</tbody>
</table>

---

¹ FY'18 capex of ~$132M elevated due to Tubbs fire recovery expenditures; FY'19 expected to be at FY'18 levels due to fire recovery. $15-25M expected to be covered by insurance in FY'19
A Disciplined Approach to Acquisitions

**STRATEGIC CRITERIA**

- Aligns with strategic growth priorities
- Expands Served Addressable Market (SAM)
- Increases/adds exposure to higher-growth end markets
- Provides high gross margin R&D or software solutions
- Adds key technology
- Expands services capability or reach

**FINANCIAL CRITERIA**

- Accretive to EPS within 18 months
- ROIC materially above WACC by year 5
- Cost and/or revenue synergies

Liberty Calibration
Electroservices
PSNA
Thales Services Australia
Signadyne
## Great Position in Attractive $16.3B Market

<table>
<thead>
<tr>
<th>Keysight Segments</th>
<th>Key Markets</th>
<th>Market Size¹</th>
<th>End-Market Growth Rates²⁻³</th>
<th>Revenue³</th>
<th>Position⁴</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications Solutions</td>
<td>Commercial Communications</td>
<td>$5.2B</td>
<td>3 - 6%</td>
<td>$1.4B</td>
<td>#1</td>
<td>~27%</td>
</tr>
<tr>
<td></td>
<td>Aerospace, Defense &amp; Gov’t</td>
<td>$4.1B</td>
<td>2 - 3%</td>
<td>$1.0B</td>
<td>#1</td>
<td>~24%</td>
</tr>
<tr>
<td>Electronic Indust. Solutions</td>
<td>Electronic Industrial</td>
<td>$4.8B</td>
<td>2 - 3%</td>
<td>$1.1B</td>
<td>#1</td>
<td>~23%</td>
</tr>
<tr>
<td>Ixia Solutions</td>
<td>Network Test &amp; Visibility</td>
<td>$2.2B</td>
<td>5 - 9%</td>
<td>$0.4B</td>
<td>#1</td>
<td>~18%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$16.3B</td>
<td>3 - 5%</td>
<td>$3.9B</td>
<td>#1</td>
<td>~24%</td>
</tr>
</tbody>
</table>

¹ Per Company estimates ² 3-5 year average ³ FY’18 segment revenue excludes impact of deferred revenue fair value adjustment. Non-GAAP measure, refer to reconciliation in Appendix. Revenue values rounded to tie to $3.9B total. 4 Market-leading positions sources: Prime Data, IHS Technology, Company estimates. #1 in Network Test, #2/3 in Network Visibility.
## Our Long-Term Expectations

<table>
<thead>
<tr>
<th></th>
<th>Previous Target</th>
<th>New Target</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(2015 Investor Day)</td>
<td></td>
</tr>
<tr>
<td><strong>Core Revenue Growth</strong>¹</td>
<td>Sustainable 4% CAGR</td>
<td>Sustainable 4-5% CAGR</td>
</tr>
<tr>
<td><strong>Operating Margin</strong>¹</td>
<td>17-18%</td>
<td>21-22%</td>
</tr>
<tr>
<td><strong>EPS Growth</strong>¹</td>
<td>8-10%</td>
<td>≥10%</td>
</tr>
</tbody>
</table>

**ASSUMPTIONS:**
- 21-22% operating margin to be achieved in 2021
- Share count maintained flat

¹ Non-GAAP measure. Core revenue growth excludes the impact of acquisitions and currency.
Meeting or exceeding key financial goals
Increasing focus on FCF conversion
Returning capital driven by growth
Driving EPS growth
Appendix
### Reconciliation of GAAP to non-GAAP Revenue

<table>
<thead>
<tr>
<th></th>
<th>FY18</th>
<th>FY17</th>
<th>FY16</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAAP Revenue</td>
<td>$3,878</td>
<td>$3,189</td>
<td>$2,918</td>
<td>$2,856</td>
</tr>
<tr>
<td>Acquisition-related Fair Value Adjustments</td>
<td>36</td>
<td>60</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td><strong>Non-GAAP Revenue</strong></td>
<td>$3,914</td>
<td>$3,249</td>
<td>$2,930</td>
<td>$2,862</td>
</tr>
</tbody>
</table>
# Reconciliation of Income from Operations to non-GAAP Income from Operations

<table>
<thead>
<tr>
<th></th>
<th>FY18</th>
<th>FY17</th>
<th>FY16</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income (loss) from operations, as reported</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goodwill impairment</td>
<td>709</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Amortization of acquisition-related balances</td>
<td>265</td>
<td>256</td>
<td>56</td>
<td>23</td>
</tr>
<tr>
<td>Share-based compensation expense</td>
<td>59</td>
<td>56</td>
<td>49</td>
<td>55</td>
</tr>
<tr>
<td>Acquisition and integration costs</td>
<td>49</td>
<td>57</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>Separation and related costs</td>
<td>2</td>
<td>20</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>Legal Settlement</td>
<td>25</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gain on divestitures</td>
<td>(20)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Acquisition-related compensation expense</td>
<td>-</td>
<td>28</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Northern California wildfire-related costs</td>
<td>7</td>
<td>16</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Restructuring and related costs</td>
<td>17</td>
<td>11</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td>Other</td>
<td>16</td>
<td>6</td>
<td>(7)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Non-GAAP income from operations</strong></td>
<td><strong>735</strong></td>
<td><strong>598</strong></td>
<td><strong>515</strong></td>
<td><strong>518</strong></td>
</tr>
<tr>
<td>GAAP Operating Margin</td>
<td>-10.2%</td>
<td>4.6%</td>
<td>12.9%</td>
<td>13.7%</td>
</tr>
<tr>
<td>Non-GAAP Operating Margin</td>
<td>18.8%</td>
<td>18.4%</td>
<td>17.6%</td>
<td>18.1%</td>
</tr>
</tbody>
</table>
## Non-GAAP Net Income and Diluted EPS Reconciliation

<table>
<thead>
<tr>
<th></th>
<th>FY18</th>
<th>FY17</th>
<th>FY16</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GAAP Net income</strong></td>
<td>$165</td>
<td>$102</td>
<td>$335</td>
<td>$513</td>
</tr>
<tr>
<td><strong>Non-GAAP adjustments:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goodwill impairment</td>
<td>709</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Amortization of acquisition-related balances</td>
<td>265</td>
<td>256</td>
<td>56</td>
<td>23</td>
</tr>
<tr>
<td>Share-based compensation</td>
<td>59</td>
<td>56</td>
<td>49</td>
<td>55</td>
</tr>
<tr>
<td>Acquisition and integration costs</td>
<td>49</td>
<td>87</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>Legal settlement</td>
<td>25</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Acquisition-related compensation expense</td>
<td>-</td>
<td>28</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Separation and related costs</td>
<td>2</td>
<td>20</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>Pension curtailment and settlement expense (gains)</td>
<td>1</td>
<td>(69)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Northern California wildfire-related costs</td>
<td>7</td>
<td>16</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Restructuring and related costs</td>
<td>17</td>
<td>11</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td>Gain on divestures</td>
<td>(20)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>16</td>
<td>(4)</td>
<td>(7)</td>
<td>5</td>
</tr>
<tr>
<td>Adjustment for taxes</td>
<td>(677)</td>
<td>(21)</td>
<td>(55)</td>
<td>(213)</td>
</tr>
<tr>
<td><strong>Non-GAAP Net income</strong></td>
<td>$618</td>
<td>$462</td>
<td>$419</td>
<td>$432</td>
</tr>
<tr>
<td><strong>Weighted average shares outstanding - diluted</strong></td>
<td>191</td>
<td>182</td>
<td>172</td>
<td>171</td>
</tr>
<tr>
<td><strong>GAAP Diluted EPS</strong></td>
<td>$0.86</td>
<td>$0.56</td>
<td>$1.95</td>
<td>$3.00</td>
</tr>
<tr>
<td><strong>Non-GAAP Diluted EPS</strong></td>
<td>$3.24</td>
<td>$2.53</td>
<td>$2.43</td>
<td>$2.52</td>
</tr>
</tbody>
</table>
Reconciliation of GAAP to non-GAAP Revenue by Segment

<table>
<thead>
<tr>
<th>Revenue by Segment</th>
<th>GAAP Revenue</th>
<th>Acquisitions Related Fair Value Adjustments</th>
<th>Non-GAAP Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications Solutions Group</td>
<td>$2,391</td>
<td>$</td>
<td>$2,392</td>
</tr>
<tr>
<td>Electronic Industrial Solutions Group</td>
<td>1,071</td>
<td>-</td>
<td>$1,071</td>
</tr>
<tr>
<td>Ixia Solutions Group</td>
<td>416</td>
<td>35</td>
<td>$451</td>
</tr>
<tr>
<td>Keysight</td>
<td>$3,878</td>
<td>$</td>
<td>$3,914</td>
</tr>
</tbody>
</table>

Note: Non-GAAP revenue is defined to exclude the fair value adjustments to the acquisition-related deferred revenue balances.
### Free Cash Flow as a Percent of non-GAAP Net Income

<table>
<thead>
<tr>
<th></th>
<th>FY18</th>
<th>FY17</th>
<th>FY16</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net Cash Provided by Operating Activities</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less: Investments in PP&amp;E</td>
<td>(132)</td>
<td>(72)</td>
<td>(91)</td>
<td>(92)</td>
</tr>
<tr>
<td><strong>Free Cash Flow</strong></td>
<td>$423</td>
<td>$256</td>
<td>$329</td>
<td>$296</td>
</tr>
<tr>
<td><strong>Non-GAAP Net Income</strong></td>
<td>618</td>
<td>462</td>
<td>419</td>
<td>432</td>
</tr>
<tr>
<td><strong>FCF/NI</strong></td>
<td>68%</td>
<td>55%</td>
<td>79%</td>
<td>69%</td>
</tr>
</tbody>
</table>

<sup>1</sup> restated for ASU 2016-09, Improvements to Employee Share-Based Payment Accounting.
# Reconciliation of Net Income to LTM Adjusted EBITDA

| Net Income | $ 274 |
| Add: Provision (benefit) for Income Taxes | (432) |
| Income (loss) before taxes | (158) |
| Add: | |
| Interest Income | (17) |
| Interest Expense | 80 |
| Depreciation and amortization | 304 |
| **EBITDA** | 209 |
| Add back: Non-GAAP adjustments | |
| Goodwill Impairement | 709 |
| Amortization of acquisition-related balances | 15 |
| Share-based compensation expense | 75 |
| Acquisition and integration costs | 16 |
| Legal Settlement | 25 |
| Gain on divestitures | (13) |
| Pension curtailment and settlement expense (gains) | 1 |
| Restructuring and related costs | 10 |
| Net unrealized gain on equity investments still held | (3) |
| Other | 3 |
| **Adjusted EBITDA** | $ 1,047 |
Reconciliation for Gross Debt, Net Debt and Total Capital

As at April 30, 2019
(in millions)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term Loan</td>
<td>$ -</td>
</tr>
<tr>
<td>Senior notes, par value</td>
<td>(1,800)</td>
</tr>
</tbody>
</table>

**Gross Debt**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less:</td>
<td></td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>$ 1,277</td>
</tr>
<tr>
<td>Restricted Cash</td>
<td>$ 3</td>
</tr>
</tbody>
</table>

**Net Debt**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Debt as above</td>
<td>$ 1,800</td>
</tr>
<tr>
<td>Add: Shareholders equity</td>
<td>$ 2,798</td>
</tr>
</tbody>
</table>

**Total Capital**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>$ 4,598</td>
</tr>
</tbody>
</table>
Executive Biographies
Ron Nersesian is president and chief executive officer of Keysight Technologies. In November, 2011, he was named executive vice president and chief operating officer of Agilent Technologies. The following year, in November 2012, he was promoted to president and chief operating officer.

When Agilent announced the separation of its electronic measurement business in 2013, Nersesian was appointed Keysight president and CEO and led the launch of the new company. Keysight became a public, independent company in November 2014.

Nersesian began his career in 1982 with Computer Sciences Corporation as a systems engineer for satellite communications systems. In 1984, he joined Hewlett-Packard and served in a range of management roles during his tenure.

In 1996, Nersesian joined another industry player as vice president of worldwide marketing. He subsequently assumed other senior management roles through 2002, including senior vice president and general manager of the company’s digital storage oscilloscope business.

Nersesian joined Agilent Technologies in 2002 as vice president and general manager of the company’s Design Validation Division. In 2005, he was named vice president and general manager of the company’s Wireless Business Unit and manager of Agilent’s Santa Rosa, California site. In 2009 Nersesian was named president of Agilent’s Electronic Measurement Group.

Nersesian holds a bachelor’s degree in electrical engineering from Lehigh University and an MBA from New York University, Stern School of Business. He also serves as an independent director on the Board of Directors of Trimble Inc. and as a member of Georgia Tech’s Advisory Board.
NEIL DOUGHERTY
SVP AND CHIEF FINANCIAL OFFICER

Neil Dougherty is senior vice president and Chief Financial Officer of Keysight Technologies. As CFO Dougherty leads the company’s global finance operations including tax, treasury, and investor relations.

Dougherty joined Hewlett-Packard in 1996 as a financial analyst. He subsequently held division and business unit controllership positions with both H-P and Agilent before becoming Agilent’s assistant treasurer in 2006. In 2010, Dougherty joined Corporate Development as a senior director where he was responsible for domestic and international acquisitions and divestitures. Dougherty was most recently Agilent Technologies’ vice president and treasurer.

Dougherty holds an MBA from the University of Chicago Booth School of Business, and a B.A. in economics from the University of California, San Diego.
Biographies

JAY ALEXANDER
SVP AND CHIEF TECHNOLOGY OFFICER

Jay Alexander is senior vice president and chief technology officer of Keysight Technologies.

Alexander leads Keysight's centralized planning and technology development team to focus on top opportunities and market trends to address unmet needs. Alexander’s role is to optimize Keysight resources to grow in areas that provide competitive advantage across the ecosystem, and to leverage Keysight’s world-class technology and platform offerings.

Alexander has held numerous leadership positions within Agilent's Electronic Measurement Group, including his most recent role as vice president and general manager for the Oscilloscope and Protocol Division.

Alexander joined Hewlett-Packard (HP) in 1986 as a manufacturing and test engineer. During his tenure, Alexander has served as a test engineering manager with HP’s Oscilloscopes and Logic Analyzers group; product planning manager for Agilent's Design Verification Division, marketing manager in Agilent's Network and Digital Solutions Business Unit and served as Agilent's electronic measurement architecture and business intelligence manager.

Alexander earned a bachelor's degree in electrical engineering from Northwestern University and a master's degree in computer science from the University of Colorado at Boulder. He is a licensed professional engineer and a senior member of IEEE. He holds 24 U.S. patents.
Satish Dhanasekaran is senior vice president of Keysight Technologies, and president of the Communications Solutions Group (CSG). Named CSG president in July 2017, Dhanasekaran leads the $1.8 billion business which addresses the complete communications ecosystem which includes wireless, wireline and aerospace and defense design and test businesses.

Dhanasekaran was most recently the company’s vice president and general manager, Wireless Devices and Operators business segment. In this role, he managed solution conception, development, and go-to-market strategies of design and test solutions for the wireless industry. He led transforming Keysight's portfolio to test software layers in mobile devices. Prior to that, he served as marketing manager for Keysight's Microwave and Communications Division which produced industry-leading performance products in the RF space. During his career with Agilent Technologies and Keysight Technologies, Dhanasekaran has held a variety of customer-facing leadership positions, including wireless 4G business development manager and national application engineering manager.

Before joining Agilent Technologies in 2006, Dhanasekaran worked at Motorola designing and leading development for first-generation smartphone devices.

Dhanasekaran holds a master's degree in Electrical Engineering from Florida State University. He actively sponsors Keysight representation in standards bodies such as 3GPP, CTIA - The Wireless Association, GCF/PTCRB and industry consortia including IMT-2020 and the International Wireless Industry Consortium (IWPC).
GOOI SOON CHAI
SVP, PRESIDENT – ELECTRONIC INDUSTRIAL SOLUTIONS GROUP

Gooi Soon Chai is senior vice president, Keysight, and president of the Electronic Industrial Solutions Group which addresses the automotive, energy, general electronics, manufacturing, and semiconductor businesses.

Gooi is also responsible for Keysight's Order Fulfillment, Global Procurement and IT functions. This includes the end-to-end supply chain that encompasses Manufacturing Operations, Engineering, Technology Centers and Worldwide Logistics; Global Procurement and Strategic Supplier Management; as well as IT infrastructure and application services.

Gooi was previously the president of Agilent Order Fulfilment for the company’s Life Sciences, Chemical Analysis and Electronic Measurement business groups. He was responsible for leading efforts to leverage the company’s strength in supply chain and engineering operations across the three business groups.

In 2006, he was named the vice president and general manager of the Electronic Instruments Business Unit (EIBU) at Agilent Technologies. In this role, he managed a diverse portfolio of businesses serving the general purpose, semiconductor, board-test and nanotechnology markets.

He holds a bachelor of science degree, with first class honors, in electrical and electronics engineering from the University of London, and a master of science degree in computing science from the Imperial College of Science and Technology, London.
Mark Wallace is senior vice president, global sales for Keysight. As the leader of the company's global sales function, Wallace is responsible for orders and customer satisfaction for the company.

Most recently, Wallace was vice president and general manager of the Americas Field Operations for Keysight. Prior to that position, Wallace held a variety of leadership positions across sales, marketing, and channel management.

Wallace joined Hewlett-Packard in 1985 as a field engineer selling test and measurement products to the wireless industry. In 1995, he was named global business development manager responsible for sales and business development in Asia and Europe for major wireless accounts. Two years later, he was promoted to wireless sales manager for major accounts in the U.S.

Following the Agilent split from Hewlett-Packard in 1999, Wallace joined the Wireless Business Unit as channel manager responsible for global account management and business development into the wireless industry worldwide. He was later promoted to worldwide marketing manager responsible for all inbound and outbound marketing within the Wireless Business Unit. In August 2004, he was named national sales manager within North America and through several assignments has managed all portions of the US and Canadian test and measurement sales organizations, until his promotion to Americas Field Operation vice president in November 2011.

Wallace graduated from the Illinois Institute of Technology with a bachelor's degree in electrical engineering in 1987 and has attended the University of Chicago for executive studies. He is a member of IIT's Armour College of Engineering Advisory Board.
MARK PIERPOINT
SVP, PRESIDENT – IXIA SOLUTIONS GROUP

Mark Pierpoint is senior vice president of Keysight Technologies, and president of Keysight’s Ixia Solutions Group which provides network test and visibility solutions for validating, optimizing and securing networks.

Before being named ISG president in 2018, Pierpoint served as vice president and general manager of the Internet Infrastructure business within the Communications Solutions Group at Keysight Technologies, where he was responsible for developing and delivering solutions across the commercial communications network from network access points to data centers and the cloud. Prior to this, he led Keysight’s move in modular products, growing the business to over $150 million in FY’15.

Pierpoint joined the company in 1987, when it was still part of Hewlett-Packard. He has held multiple management positions in R&D, sales, marketing, and operations across various businesses within Hewlett Packard and Agilent Technologies in both the United States and Europe.

Pierpoint holds a Ph.D. in Microwave Engineering, and a B.Sc. in Electrical and Electronic Engineering from the University of Leeds in the UK.