



# Investor Presentation

August 1<sup>st</sup>, 2018

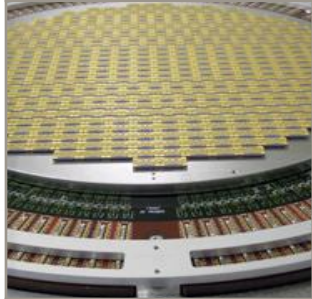


# Forward-Looking Statements; Non-GAAP Financial Measures

This presentation contains forward-looking statements that are based on our current expectations, forecasts and assumptions, and that involve risks and uncertainties. These statements include, but are not limited to, statements regarding our future performance (such as our projected operating results, financial results, financial condition and targets), business strategy and plans, and anticipated developments in our business and industry. Forward-looking statements may contain words such as “target,” “might,” “will,” “could,” “should,” “expect,” “plan,” “anticipate,” “believe,” “estimate,” “intend,” and “continue,” and the negative or plural of these words, and similar expressions. Our actual results may differ materially from those described in this presentation and related discussions for a variety of reasons. Factors that could cause or contribute to such differences include, but are not limited to: macro-economic conditions; business cycles; changes in the competitive environment; changes in the technologies or test strategies used by customers and other factors affecting the demand for our products; challenges to the efficient development and manufacturing of our existing and new products; disruptions or price increases in our supply chain; risks associated with selling products internationally; and risks to our ability to further diversify or realize benefits from past or future acquisitions. More information about factors that could affect our operating results is included under the caption “Risk Factors” and elsewhere in our annual report on Form 10-K and quarterly reports on Form 10-Q with the U.S. Securities and Exchange Commission, copies of which may be obtained by visiting the Investor Relations section of our website at <http://investors.formfactor.com> or the SEC's website at [www.sec.gov](http://www.sec.gov). All information in this presentation and the related discussions are as of August 1, 2018. Undue reliance should not be placed on these forward-looking statements, which are based on information available to us on the date hereof. No assurances are, or can be, given that any of the circumstances or events anticipated by the forward-looking statements will transpire or occur, or if any of them do occur, what impact they will have on our results of operations or financial condition. Unless required by law, we are under no obligation, and disclaim any obligation, to update or revise forward-looking statements whether as a result of new information, future events, or otherwise.

This presentation and related discussions contain non-GAAP measures relating to our financial performance. These measures may be different from non-GAAP financial measures used by other companies. The presentation of this financial information is not intended to be considered in isolation of, or as a substitute for, financial information prepared and presented in accordance with generally accepted accounting principles. You can find the reconciliation of non-GAAP financial measures to the most directly comparable U.S. GAAP measures in the Supplemental Information at the end of this presentation.

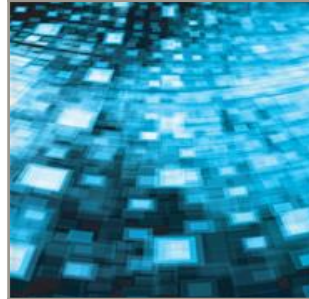
# Investment Themes



Largest supplier of semiconductor probe cards and engineering systems from R&D to production - serving a \$1.5 billion growing market



Aligned with technology trends in data centers, mobile, and automotive end markets



Technology leadership enables customers' most critical roadmap advancements

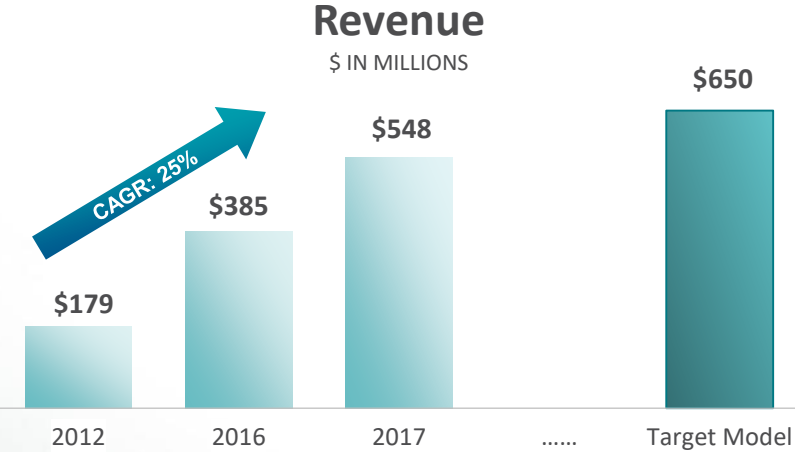


Structurally profitable financial model delivering earnings growth and strong cash flow

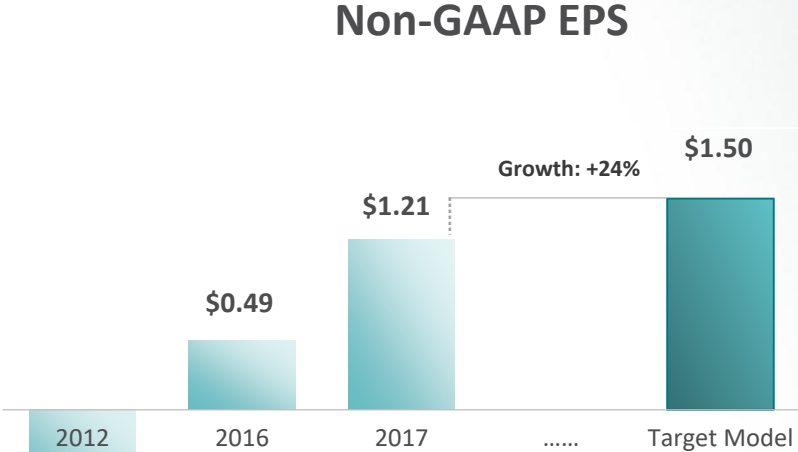


Successful acquisition strategy has provided scale & diversification

# Delivering Strong Financial Results



Growing and diversifying revenue



Expanding Earnings Per Share

See Supplemental Information for reconciliations of non-GAAP financial measures to the most directly comparable GAAP financial measures.

# Aligned with High Growth Semiconductor Technology Trends

## DATA CENTER



- High Performance Micro-processor
- Server DRAM
- NAND Flash

**8% End Market Growth**

## MOBILE



- Application Processors
- Mobile DRAM
- NAND Flash
- Filters (BAW & SAW)

**6% End Market Growth**

## AUTOMOTIVE



- Stringent test requirements
- Infotainment
- Sensors
- Micro-controllers (drive trains)

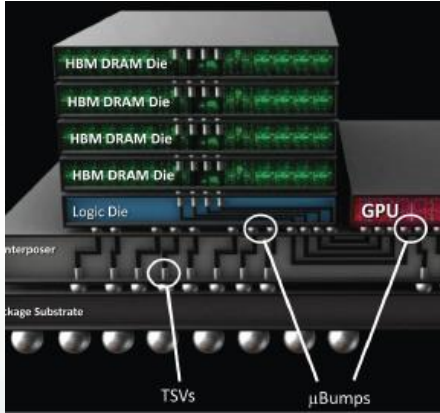
**14% End Market Growth**

# Selected Line of Sight Growth Opportunities

			FormFactor Customers' End Markets		
			Data Center	Mobile	Automotive
			8%	6%	14%
Market CAGR (2016-2020)					
FormFactor Products	Engineering Systems		3%		
	Probe Cards	Foundry & Logic	7%	Advanced Packaging +\$60M	Automotive ICs +\$30M
		DRAM			
		Flash			

**Total Cumulative Opportunity = +\$130M**

# Advanced Packaging: Higher Wafer Test Intensity Requires More High-Performance Probe Cards



## THE MARKET OPPORTUNITY

- Heterogeneous die integration (2.5D/3D, InFO, etc.) taking over from Moore's law
- Fanout adoption at 87% CAGR 2015-2020\*
- >20% test-time increase moving to 10nm fanout wafer-level packaging flow\*\*

## THE CUSTOMER NEED

- Pitch moves to <math><100\mu\text{m}</math> with exploding density
- High-fidelity electrical performance for known-good-die (KGD) test
- KGD required for cost: a 4-die assembly of 90%-yielding die has <math><66\%</math> net yield\*\*\*

**+\$60M**  
INCREMENTAL  
REVENUE

## WHY FORMFACTOR WINS

- Proprietary MEMS probe & assembly technology gives best performance and cost
- Demonstrated adoption at all 10nm Foundry & Logic customers/fabs

\* Advanced Packaging Trends, TechSearch Int'l 2016

\*\* Teradyne Q1'17 Earnings Call, May 2017

\*\*\* Quality/Reliability Requirements for Bare Die, Micron TN0014

# Mobile Data: Explosion of Data Traffic Packed into Narrow Spectrum Drives RF Semi Content and Technology



## THE MARKET OPPORTUNITY

- Mobile data traffic growing 7x 2016-2021\* over increasingly crowded spectrum
- RF filter and front-end IC at 14% CAGR 2016-2022\*\*
- 5G adoption and infrastructure buildout provides significant long-term RF growth

## THE CUSTOMER NEED

- Uncompromised RF fidelity to ensure high test yields for ultra narrow-band devices
- Scale and breadth to keep pace with dynamic capacity and design cycles

**+\$40M**  
INCREMENTAL  
REVENUE

## WHY FORMFACTOR WINS

- Best-in-class RF performance from engineering through high-volume production
- Integration of RF and digital test technologies to mirror customers' roadmaps

\* Cisco VNI Forecast, February 2017

\*\* RF FE modules and components for cellphones, Yole 2017



# Automotive ICs: Rapidly-Growing Semiconductor End Market with Stringent Quality and Test Requirements



## 2015 ASSIST

- Sensor
- Driver Active
- Fail Safe

## 2020 AUTOMATE

- Sensor Fusion
- Co-pilot
- Dependable

## 2030 AUTONOMOUS

- High Accuracy Maps
- Driverless
- Safety Cocoon

## THE MARKET OPPORTUNITY

- ICs & sensors improve both performance & safety on the path to autonomous vehicles
- Highest major end market growth in semiconductors at 14% CAGR 2016-2020\*
- Proliferation and integration of digital ICs, RF (mmWave radar) and MEMS sensors

## THE CUSTOMER NEED

- Required defect levels is at least 10x more stringent than mobile and consumer applications\*\*
- Extreme test conditions—high power/ current, high + low temperatures, etc.
- Supplier scale and sustainability important

**+\$30M**  
INCREMENTAL  
REVENUE

## WHY FORMFACTOR WINS

- Best-in-class electrical performance over broad range of test conditions
- Long history as key supplier to top companies in automotive supply chain



 TEXAS INSTRUMENTS

\* IC Market Drivers 2017 Update, IC Insights  
\*\* Spotlight on Automotive, PwC Semiconductor Report 2013

# MicroLED Testing: An Emerging Example of Our Next-Generation Opportunities



## THE MARKET OPPORTUNITY

- Projected growth to 330 million display units in 2025 from near-zero today\*
- GaN technology offers improved brightness and energy efficiency over OLED in small-format displays

## THE CUSTOMER NEED

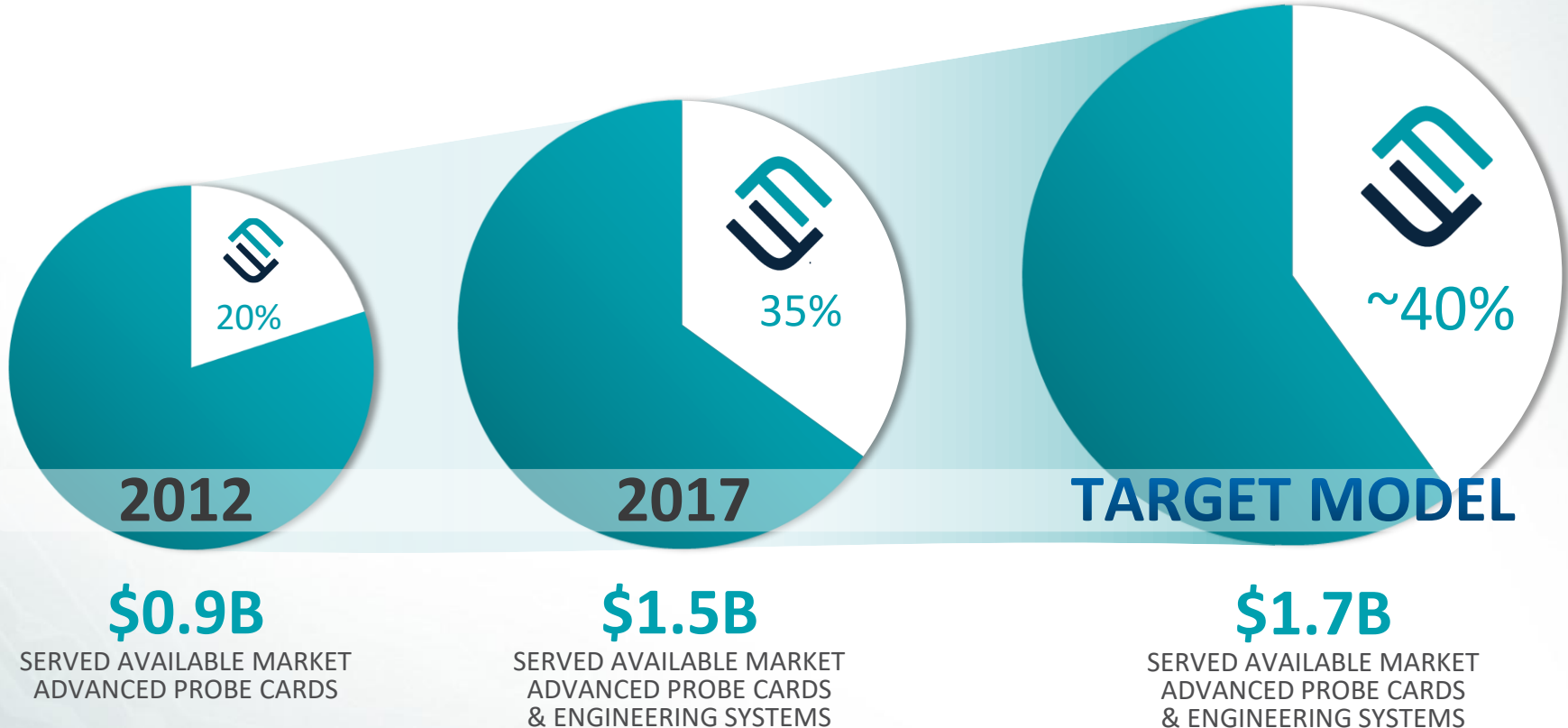
- System-level integration of electro-optics, substrate-handling, and electrical tests
- Customization and flexibility to meet rapidly-changing requirements
- Scale to support production ramps

**SIGNIFICANT  
GROWTH  
POTENTIAL**

## WHY FORMFACTOR WINS

- Engagement in engineering through high-volume production
- Application expertise in material handling/positioning, electronics, and optics

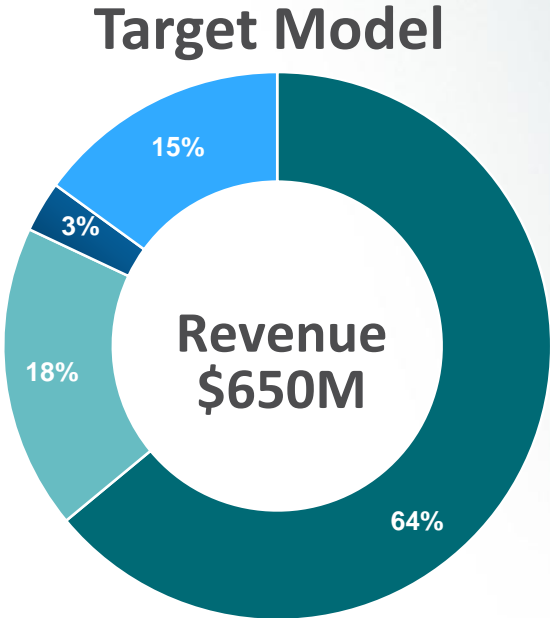
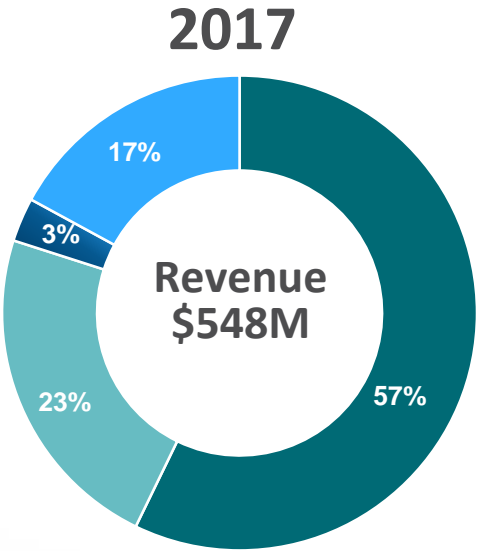
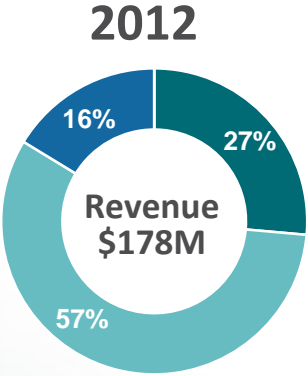
# Gaining Share in Growing Markets



2012 and 2017 served available market and market share – VLSIresearch 2017

Target model assumptions: Advanced probe cards served available market of \$1.4B in 2019/2020 (Source – VLSIresearch 2016) and Engineering systems served available market of \$0.3B (Company's internal estimates)

# Diversification Improves Mix and Drives Profitability



## Probe Cards

■ Foundry & Logic

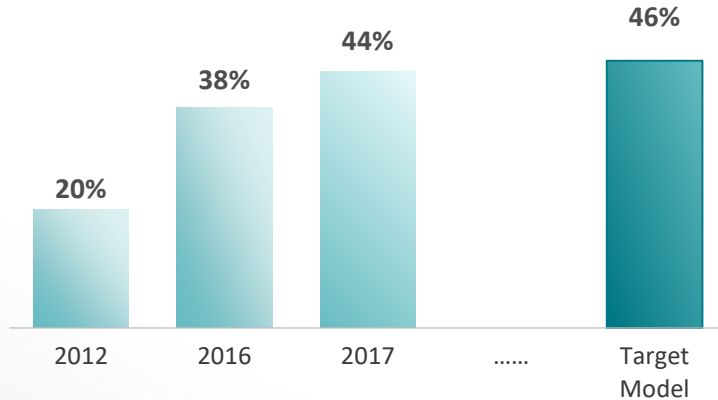
■ DRAM

■ Flash

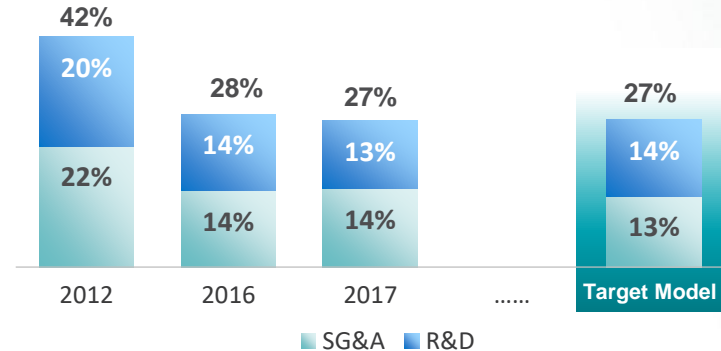
■ Engineering Systems

# Continuing to Leverage Our Operating Structure

## Non-GAAP Gross Margin as % of Revenue



## Non-GAAP Operating Expense as % of Revenue



- Leverage factory utilization and product mix to drive gross margin expansion
- Capitalize on scale to leverage our operating expense infrastructure
- Continue significant R&D investment to execute on organic growth opportunities

# Target Model Represents Significant Increase in Profitability and Free Cash Flow

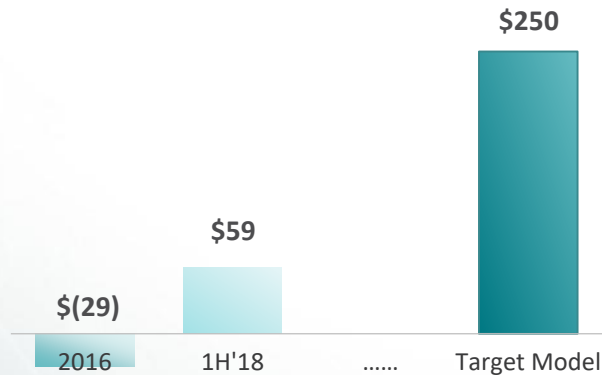
	2017 Actuals	Target Model
Revenue	\$548M	\$650M
Non-GAAP Gross Margin	44.2%	46%
Non-GAAP Operating Income	17.7%	19%
Non-GAAP Effective Tax Rate	3.5%	6.0%
Non-GAAP Diluted Earnings Per Share	\$1.21	\$1.50
Free Cash Flow	\$72.4M	\$110M

See Supplemental Information for reconciliations of 2017 non-GAAP financial measures to the most directly comparable GAAP financial measures.

# Strategic Capital Allocation: Strengthen Balance Sheet & Drive Future Growth

## Net Cash

\$ IN MILLIONS



Capital Allocation	Purpose
De-levering	<ul style="list-style-type: none"><li>• Strengthen balance sheet</li><li>• Net cash positive at end of 2017</li><li>• Continue loan pre-payments in 2018</li></ul>
Growth through acquisitions	<ul style="list-style-type: none"><li>• Greater scale</li><li>• Increased diversification</li><li>• Revenue &amp; EPS growth</li></ul>

# Recent Results and Outlook

	Revenue	Gross Margin	Diluted EPS	Free Cash Flow
Q1'18 ACTUAL	\$118.3M	43.3%	\$0.17	\$6.3M
Q2'18 ACTUAL	\$135.5M	45.9%	\$0.27	\$16.8M
Q3'18 OUTLOOK	\$130M-\$138M	42%-45%	\$0.20-0.\$26	

## Q2'18 and Q3'18 Themes:

- Benefitted from a product mix biased towards differentiated high-end products, driven in part by growth in advanced packaging application
- Expect third quarter revenue and profitability performance to be comparable to the second quarter

See Supplemental Information for reconciliations of non-GAAP financial measures to the most directly comparable GAAP financial measures.



# Strategic Focus Areas



## LEADERSHIP IN CORE MARKERS

- Continue share gains in advanced probe card market segment & engineering systems
- Leverage existing key roadmap technologies and investments across all markets



## DRIVE PROFITABILITY

- Continue to improve operating efficiency by capitalizing on leadership positions and extracting economies of scale



## ENTER ADJACENT MARKETS

- Continued long term diversification of revenue stream and customer mix through M&A in electrical test and measurement

# Supplemental Information

# FY 2017 GAAP to Non-GAAP Reconciliation

	GAAP	Adjustments							Non-GAAP
	Year Ended December 30, 2017	Stock-based Compensation	Restructuring & Impairment	Intangible Amortization	Acquisition & Integration	Contingency	Sale of Intellectual Property	U.S. Tax Reform	Year Ended December 30, 2017
Revenues	\$ 548,441	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 548,441
Cost of revenues	332,844	(3,539)	-	(23,370)	(74)	30	-	-	305,891
Gross profit	215,597	3,539	-	23,370	74	(30)	-	-	242,550
<b>Operating expenses:</b>									
Research and development	73,807	(5,341)	-	-	-	-	-	-	68,466
Sales and marketing	59,612	(3,616)	-	(8,140)	(343)	91	-	-	47,604
General and administrative	35,067	(3,734)	-	-	(2,103)	85	-	-	29,316
Restructuring and impairment charges, net	810	-	(810)	-	-	-	-	-	-
Total operating expenses	169,296	(12,691)	(810)	(8,140)	(2,446)	176	-	-	145,386
Operating profit (loss)	46,301	16,230	810	31,509	2,520	(206)	-	-	97,165
Interest expense, net	(3,943)	-	-	-	-	-	-	-	(3,943)
Other income (expense), net	(152)	-	-	-	-	-	(400)	-	(552)
Income (loss) before income taxes	42,206	16,230	810	31,509	2,520	(206)	(400)	-	92,670
Provision for (benefit from) income taxes	1,293	871	81	1,472	206	(7)	2	(715)	3,203
Net income (loss)	\$ 40,913	\$ 15,358	\$ 729	\$ 30,037	\$ 2,314	\$ (199)	\$ (402)	\$ 715	\$ 89,467
<b>Net income (loss) per share:</b>									
Basic	\$ 0.57	\$ 0.21	\$ 0.01	\$ 0.42	\$ 0.03	\$ (0.00)	\$ (0.01)	\$ 0.01	\$ 1.24
Diluted	\$ 0.55	\$ 0.21	\$ 0.01	\$ 0.40	\$ 0.03	\$ (0.00)	\$ (0.01)	\$ 0.01	\$ 1.21
<b>Weighted-average number of shares</b>									
Basic	72,292	72,292	72,292	72,292	72,292	72,292	72,292	72,292	72,292
Diluted	74,239	74,239	74,239	74,239	74,239	74,239	74,239	74,239	74,239

In thousands, except per share data

# Free Cash Flow Reconciliation

In thousands	2011	2012	2013	2014	2015	2016	2017
Net cash provided by (used in) operating activities:	\$ (29,343)	\$ (26,228)	\$ (5,802)	\$ 17,659	\$ 36,122	\$ 17,423	\$ 86,323
Add: Cash paid for interest	-	-	-	-	-	2,110	3,836
Add: Cash paid for acquisition related expenses	-	-	-	-	-	15,446	-
Capital expenditures	(7,700)	(7,952)	(8,530)	(5,670)	(8,640)	(11,521)	(17,756)
Free cash flow	<u>\$ (37,043)</u>	<u>\$ (34,180)</u>	<u>\$ (14,332)</u>	<u>\$ 11,989</u>	<u>\$ 27,482</u>	<u>\$ 23,458</u>	<u>\$ 72,403</u>

# About Non-GAAP Financial Measures

We believe that the presentation of non-GAAP earnings per fully-diluted share, free cash flow and other non-GAAP measures in this presentation provides supplemental information that is important to understanding financial and business trends and other factors relating to our financial condition and results of operations. These non-GAAP measures are among the primary indicators used by management as a basis for planning and forecasting future periods, and by management and our board of directors to determine whether our operating performance has met certain targets and thresholds. Management uses non-GAAP operating income (loss), non-GAAP earnings per fully-diluted share and other non-GAAP measures when evaluating operating performance because it believes that the exclusion of the items indicated herein, for which the amounts or timing may vary significantly depending upon our activities and other factors, facilitates comparability of our operating performance from period to period. We use free cash flow to conduct and evaluate our business as an additional way of viewing our liquidity that, when viewed with our GAAP results, provides a more complete understanding of factors and trends affecting our cash flows. Many investors also prefer to track free cash flow, as opposed to only GAAP earnings. Free cash flow has limitations due to the fact that it does not represent the residual cash flow available for discretionary expenditures, and therefore it is important to view free cash flow as a complement to our entire consolidated statements of cash flows. We have chosen to provide non-GAAP information to investors so they can analyze our operating results closer to the way that management does, and use this information in their assessment of our business and the valuation of our company. We compute non-GAAP operating income (loss) and non-GAAP fully-diluted earnings per share by adjusting GAAP operating income (loss) and GAAP earnings per fully-diluted share to remove the impact of certain items and the tax effect of those adjustments. These and other non-GAAP measures are not in accordance with, or an alternative to, GAAP and may be materially different from other non-GAAP measures, including similarly titled non-GAAP measures used by other companies. The presentation of this additional information should not be considered in isolation from, as a substitute for, or superior to, operating income (loss) or earnings per fully-diluted share and other measures prepared in accordance with GAAP. Non-GAAP financial measures have limitations in that they do not reflect certain items that may have a material impact upon our reported financial results. We may expect to continue to incur expenses of a nature similar to these non-GAAP adjustments, and exclusion of these items should not be construed as an inference that these costs are unusual, infrequent or non-recurring.

For more information on non-GAAP measures and adjustments, please see the reconciliations of non-GAAP measures included in this presentation and available at <http://investors.formfactor.com>.