Company Name: Applied Materials
Company Ticker: AMAT US
Date: 2017-11-16
Event Description: Q4 2017 Earnings Call

Market Cap: 61,685.62
Current PX: 57.84
YTD Change($): +25.57
YTD Change(%): +79.238

Bloomberg Estimates - EPS
Current Quarter: 0.931
Current Year: 3.756
Bloomberg Estimates - Sales
Current Quarter: 4008.417
Current Year: 16283.944

Q4 2017 Earnings Call

Company Participants

- Michael Sullivan
- Gary E. Dickerson
- Daniel Durn

Other Participants

- C. J. Muse
- Atif Malik
- Harlan Sur
- Toshiya Hari
- Krish Sankar
- Romit Jitendra Shah
- Farhan Ahmad
- Joseph L. Moore
- Y. Edwin Mok
- Patrick J Ho
- Thomas Robert Diffely
- Sidney Ho
- Craig A. Ellis

MANAGEMENT DISCUSSION SECTION

Michael Sullivan

GAAP and Non-GAAP Financial Measures

Today's call also includes non-GAAP adjusted financial measures

Reconciliations to GAAP measures are contained in today's earnings press release and in our reconciliation slides, which are available on the Investor Relations page of our website at appliedmaterials.com

Gary E. Dickerson

Business Highlights

Opening Remarks

- On November 10, Applied celebrated our 50th anniversary, and in this milestone year, we delivered all-time record performance, far exceeding our previous highs
- In FY2017, we grew revenues 34% and operating profit at more than twice that rate

- I'd like to thank all our employees for making this a great year for Applied, and their passion for creating value for customers and shareholders
    - It's Applied's breadth that sets us apart, and across the company, we are firing on all cylinders
- We have tremendous momentum and our outlook is strengthening
- I'm confident that in 2018, we can deliver strong double-digit growth across our semiconductor, display and service businesses

Strategy

- Applied is working at the foundation of major technology trends and playing a larger and more valuable role in the electronics industry
- Our vision is to make possible the technology shaping the future, and we've never been in a better position to do that
- In today's call, I'll talk about our markets and the large emerging trends that are driving sustainable growth in semiconductor and display
- I'll describe how Applied is positioned, our strategy and how we're translating our broad portfolio of products and capabilities into differentiated performance for the company
- Dan will then provide more details about our execution, financial performance and outlook

IoT Applications

- Let me start by providing context
- Our markets are strong and getting stronger, because there's a much broader set of demand drivers than in the past
- In the annual war for leadership in the smartphone market, handset manufacturers are adding more and more functionality to their devices
- IoT applications are expanding rapidly and data generation is exploding
- Major inflections are taking place in the data center, and there's an emerging battle for leadership in high-performance computing and artificial intelligence
- And there is huge demand for new display technology, while at the same time, average screen sizes for both TVs and mobile devices are growing considerably

Internet of Things

- A customer recently told me that this is the most exciting time in the history of the electronics industry, and I strongly agreed
- We are at the start of a completely new wave of growth
- The Internet of Things, big data and artificial intelligence have the potential to transform entire industries and create trillions of dollars of economic value

Transportation and Health Care

- As a result, we are seeing a broad spectrum of companies investing in AI-related technology
- From transportation and health care to entertainment and retail, future success is dependent on capturing, storing, and understanding vast amounts of data
    - This is driving major innovations in sensors, memory, storage, and especially compute, which is key to turning raw data into valuable information

AI Leadership

- Leading AI companies are telling us they need a step change in computing performance
- This is driving a trend towards new highly-specialized architectures customized for AI workloads as well as much larger chips
- Huge advancements in computing are taking place both in the cloud and at the edge
- For applications where latency and security are important, like autonomous vehicles, natural language processing or safety systems, data will be processed and stored at the edge
    - This means more logic and memory content in edge devices, where power requirements are much more critical than in the cloud
- The AI architecture war is shaping up to be the biggest battle of our lifetimes and is going to be a major driver for the logic foundry road map
- The winning architectures will provide large improvements in performance and power, and Applied is in a unique position to deliver the innovative materials needed to enable AI leadership

Memory

- I'll now translate these end-market trends into an outlook for our served markets
- In memory, shipments are at record levels, and market dynamics remain very healthy
- DRAM and NAND content in smartphones is growing considerably
- For example, the average NAND content in entry-level phones has doubled from 32 gigabytes in 2016 to 64 gigabytes today
- Content is also growing in the data center, and the total cost of ownership of NAND-based solid-state drives is on track to cross over 10-K hard disk drives in 2018, increasing the SSD opportunity to around 35% of the enterprise storage market

Bit Demand Growth

- Overall, bit demand growth remains strong, in a range of 20% to 25% for DRAM and greater than 40% for NAND
- Our customers are making disciplined investments in both capacity and new technology to address the explosion of data generation and the need for high-performance memory to support emerging applications
- And as the memory road map is enabled by materials innovation, this is very positive for Applied

Foundry

- In foundry, we see strong demand at the leading edge, driven by next-generation mobile devices, automotive and high-performance computing
- We're also seeing significant investment in trailing geometries, especially for image sensors
  - This is driven by the adoption of dual cameras in smartphones as well as IoT devices, including public safety systems

China

- Looking ahead, we expect the emerging battle for leadership in AI and high-performance computing to be a major driver for the 7- and 5-nanometer nodes
- Increasing investment in China is additive to overall wafer fab equipment and especially good for Applied, since we have very high share in this market
- We now see total spending in China being around $2B higher in 2018 compared to 2017, with more significant growth to come over the next several years

Wafer Fab Equipment Spending

- Bringing all of this together, our outlook for wafer fab equipment spending has strengthened since our Analyst Meeting in September
- We now believe combined investment in 2017 and 2018 will be several billion dollars above our prior forecast of $90B and that 2018 will be larger than this year
  - This positive market environment increases our confidence that we will sustain our growth momentum in 2018 and make meaningful progress towards our 2020 financial model
- Applied has never been in a better position than we are today, thanks to the breadth of our capabilities and product portfolio
- Our breadth not only gives us by far the largest exposure to industry inflections, it also is creating strong pull for earlier and deeper collaborations with customers

Customer Engagement

- In these customer engagements, we are combining our unique capabilities to create new materials with our innovative technologies in materials removal, materials modification and e-beam inspection and metrology to deliver new integrated solutions
- Our breadth also provides us with speed advantages
- Speed of innovation is more important than ever for our customers, and bringing new devices to market faster is tremendously valuable
- Because we bring together the most enabling capabilities in one place, we can help customers to develop winning devices faster and more effectively

R&D Investment

- To strengthen customer collaborations that are made in technology center and in their labs, we recently aligned the organization to better connect our broad capabilities across the company

- We also increased our R&D investment by more than $230mm in 2017

Semiconductor

- In semiconductor, our process equipment businesses, that provide materials engineering solutions, grew about 40% in FY2017; and our inspection and metrology business grew at around 20%, delivering all-time record revenues
- This was an especially strong year for our PVD, CMP and thermal products, driven by the mass adoption of advanced interconnects in logic as well as increasing use of logic-like processes in memory
- We also made strong gains in patterning and 3D NAND, and we're in a great position to grow in DRAM, as customers transition to new higher-performance devices over the next several years

Innovative Materials and Structure

- As we look ahead, we see customers increasing their focus on innovative materials and structures to drive the major advances in transistor and interconnect needed to enable high-performance computing in AI
- As a result, there is increasingly strong pull for our leadership products that improve performance and power efficiency of leading-edge devices

Service

- In service, our momentum is accelerating as we introduce new ways to deliver value to customers
- We delivered record performance in 2017, with fourth quarter revenues up 20% compared to the same period last year
- In 2017, the fastest-growing business in our portfolio was display, with revenue growth of 57% year-on-year
- Due to the physical size of display equipment, lead times are much longer than in semiconductor, and that gives us extended visibility
  - We expect 2018 and 2019 will be very strong

Display Revenue

- In our last earnings call, we said 2018 display revenue would be up more than 30% vs. 2017
- Our view for 2018 is now even more positive, and we see revenue growth exceeding our previous estimates

Summary

Before I turn the call over to Dan, I'll quickly summarize

FY2017 was a record-breaking year for the company

We have great momentum, and we're confident that in 2018, we can deliver strong double-digit growth across our semiconductor, display and service businesses

- This is underpinned by sustainable strength in our markets

As new demand drivers layer on top of traditional computing and mobility, AI will transform industries over the coming years, and Applied plays a fundamental role creating the materials that enable the next-generation of memory

and high-performance computing

In addition, Applied is uniquely positioned to drive differentiated performance, thanks to the breadth of our portfolio of products and capabilities

Daniel Durn

Q4 Highlights

Performance

- Let me start by saying that the semiconductor industry is more exciting today than it's been in many years
- This is absolutely the perfect environment for Applied Materials, because we're the biggest, broadest and most capable company in delivering leading-edge process technology to our customers
- The future Gary described needs an order of magnitude improvement in processing performance and in performance per watt, plus geometric cost reductions in solid-state storage, the future is not going to happen with the same chips and chip-making methods that got us to where we are today

New AI Era

- Shrinking isn't enough anymore
- We also need breakthroughs in materials, materials engineering, which is why we're so focused on disruptive products, new material combinations and rapid learning
- For me personally, it's been an amazing and eye-opening three months
    - So much of what the semiconductor industry does begins with Applied Materials
- The talent and the technology inside this company are second to none, and we're going to play a huge role in enabling the new AI era of computing

R&D Dollar

- Now, I'll talk about what we're focusing on and how we're executing as a company
- First, we're focused on making sure we're putting our R&D dollars to work in the right areas, to create and enable the inflections, and to grow in those inflections
- We're also focused on being disciplined execution machine we need to be, to satisfy our customers and investors and keep increasing our profitability and shareholder returns
    - Since it's the end of our FY, I'll summarize how we're doing across the major parts of our portfolio

Semiconductor Systems Group

- As I outlined at the Analyst Day in New York, our Semiconductor Systems group has a wide range of product lines that can be summarized in two areas
    - Leadership and high growth

- In leadership semi, we have unique, strong share of businesses that enable high-performance, low-power transistors and interconnects
- Our team is focused on expanding our reach beyond logic and foundry, because DRAM and NAND chips also need to be faster and consume less power
    - This is increasingly true in both AI workloads and cloud data centers

Memory

- Within memory, our leadership semi businesses were up 45% y-over-y
- Over the past four years, they've grown by a factor of four in memory, contributing an additional $1.5B in revenue growth and 2.5 points of our company's share gain in memory over that same time period

DRAM

- I'll share some of the applications that are driving this great performance
- When NAND moved to 3D, our epi technology was adopted to increase read and write speeds
- Today, in DRAM, the control circuitry is adopting advanced logic structures, to increase data access performance and reduce power consumption
    - This is driving more demand for our PVD, implant and thermal technologies

3D NAND

- The second area of our Semiconductor Systems group are high-growth semi businesses, are about cost-effective 2D and 3D scaling
- Our teams have been extending our wins in 3D NAND to new wins in 2D scaling
- The old patterning steps are being replaced with new techniques, including self-aligned multi-patterning and EUV
- Applied is growing and gaining share in these areas, because we introduced new platforms, including Sym3 and Selectra

Imaging and Process Control Group

- The greatest challenge in advance patterning is aligning the features between the critical layers
- We are solving this challenge with new materials-based alignment techniques, along with EB measurement and inspection
- As a result, our patterning share is growing by four points y-over-y, and our Imaging and Process Control group generated its highest revenue ever

Services Business

- Our services business is about helping our customers to manage the increasing process complexity and generate high returns in an era of higher capital intensity
- This year, we drove a 25% increase in tools under comprehensive service agreements

- The agreements enable us to generate more value by helping our customers get to yield faster, and maintain higher yields and lower operating costs over the life of each node
- We grew our services business by 17% this year to a record $3B, and plan to keep growing at a 15% compound rate through 2020

Display Business

- Our display business is about bigger and better TVs, along with mobile displays that are thinner, lighter and better looking than ever
- The team has done an excellent job in ramping a new generation of our tools for Gen 10.5 display factories
- Gen 10.5 substrates are 80% larger and will allow customers to make the leap to affordable 65-inch and 75-inch TVs

Mobile

- In mobile, our team established the leading position in thin-film encapsulation, which enables OLED smartphones that are now the hottest selling products of the leading brands
- We grew the display business to a record $1.9B this year
    - While the business units are generating product wins and strong revenue growth, the manufacturing and support organizations are also executing well

Manufacturing Team

- Our manufacturing teams are delivering 1.4 times the volume of prior-year years, and at the same time, they've reduced cycle times while improving our overall quality metrics
- Going forward, we will keep a sharp focus on further improving our operational performance, cost structure and continuing to drive spending discipline

Financial Performance

Revenue and Non-GAAP Operating Profit

- Now, I'll share our financial performance
- We're pleased to report that in Q4, we delivered strong y-over-y growth across the company
- In Semiconductor Systems, we grew revenue by 14% and non-GAAP operating profit by 19%

Services

- In services, we increased both revenue and non-GAAP operating profit by 20%
- And in display, we grew revenue by 50% and non-GAAP operating profit by 109%
- Applied as a whole delivered record revenue and earnings in Q4, landing near the high-end of our guidance range

Non-GAAP Gross Margin and OpEx

- Our 2017 FY was our best ever
- We grew revenue by 34% to a new record level
- We increased non-GAAP gross margin by 2.9 points
  - We reduced non-GAAP OpEx as a percentage of revenue by 3.2 points
- We increased non-GAAP operating profit by 6.2 points, and grew non-GAAP EPS by 86% to a record $3.25

Operating Cash Flow

- All of this resulted in record operating cash flow of $3.6B, equal to 25% of revenue
- We paid $430mm in cash dividends, and we used $1.2B to repurchase 28mm shares of common stock at an average price of $42.08

Outlook

WFE

- Now, I'll turn to our outlook
- Looking ahead to 2018 and 2019, one word leaps to mind, sustainability
- Our markets are sustainably strong and our momentum is sustainably strong
- Gary mentioned that wafer fab equipment is going to be comfortably above $90B in 2017 and 2018 combined
- We believe WFE will remain sustainably higher and more stable than in the past
- There are three strong reasons for this
  - First, unit demand is growing
  - Second, capital intensity is higher
  - And lastly, our customers are very healthy, and making sound investments to generate profitable growth in the next wave of computing, which will take a decade or more to fully build out

Smartphones and TVs

- In fact, the markets for chips and displays are both fundamentally strong
- And that's great for Applied Materials, as the company with the most growth levers in our space
- We enable better smartphones and TVs, and we power the Internet of Things, big data and artificial intelligence, which together, are creating a new data economy

Consumer Electronics Show

- At the Analyst Day, Gary showed that Applied now captures 1% of all of the spending in the electronics industry and that our share has doubled in the past four years alone

- In January, Gary and I are attending the Consumer Electronics show to meet with investors and explain how we'll continue to grow the company by enabling these major trends shaping how we live our lives
- In today's earnings release, we included a table detailing our year-end backlog
- It gives you a better sense of the year we just had, and more importantly, our momentum going into 2018

Backlog

- In 2017, Applied generated record orders of $16.1B, and we ended the year with a record backlog of over $6B and a book-to-bill ratio of 1.11
- Our backlog entering 2018 is large and broad-based; in semi, it's $3B
  - In services, it's $1.1B
  - And in display, $1.85B
- In 2018, we anticipate that each of our segments will grow faster than the rate needed to achieve our 2020 model on schedule
- So, we're off to a great start executing to the target model we discussed at our recent Analyst Day in New York

Semiconductor Systems

- Now, I'll share our guidance
- In Q1, we expect revenue to be in the range of $4.0B to $4.2B, the midpoint would be up nearly 25% y-over-y
- We expect our Semiconductor Systems revenue to increase by about 32% y-over-y
- We expect our services revenue to grow about 17% y-over-y, but will be lower sequentially, which is normal seasonality due to the customer production schedules during the holiday season

Display Revenue

- We expect our display revenue to increase by about 6% y-over-y
- We expect our non-GAAP gross margin to be about 46.6%
- Non-GAAP operating expenses should be $715mm, +/- $10mm
  - This amount includes holiday shutdown savings of nearly $10mm
- And we expect non-GAAP EPS to be in the range of $0.98, +/- $0.04
- The midpoint of our range is up nearly 46% y-over-y

Gross Margin

- Lastly, because it's the beginning of a new year, I wanted to offer you some help with your models
- Gross margins for full-year 2018 are likely to be near our guidance level for Q1
- We remain laser-focused on gross margin improvements across our businesses, and some of our progress is likely to be masked by a rapid growth in display throughout the year

Non-GAAP Tax Rate

- Our display outlook is stronger
- And while Q1 display revenue and operating margin will be lower sequentially, we expect both to be higher in the balance of the year
  - We recently increased our display operating margin goal to the high-20s
- And our non-GAAP tax rate is likely to be around 10%
- I hope this additional color helps with your models

QUESTION AND ANSWER SECTION

<Q - C. J. Muse>: I guess my question centers around the operating margin targets. And you're hovering around 29% here and you're targeting a 2020 model of 29.6%. And I guess, thinking about the growth dynamics that you've outlined, as well as the fact that you need to obviously continue to invest in R&D, we'd love to hear kind of the push and pull that you see ahead? And would you agree that perhaps your target model is a bit conservative? Would love to hear your thoughts around that. Thank you.

<A - Daniel Durn>: Thanks, C. J. The company has made great progress over the last four years on margins. From a gross margin standpoint, the company has added about 1 point per year over that time period. If you looked at our operating margins, since 2013, we've added over 14 points to our operating margins. The company is performing and executing incredibly well.

If we look at the way the company is compressing discretionary spend and funneling more resources to R&D, it's what's leading to the rapid organic growth that the company is delivering. Gary is incredibly focused, inflection-driven organic grower and we're going to continue to execute against that strategy.

So company has made good progress historically, will continue to make progress. You'll see operating leverage in the model going forward, and we're going to be looking for additional opportunities to improve margins beyond the target model and beyond the guidance that we gave on both the gross margin and operating margin lines. And we'll deliver that to shareholders when we find those opportunities to execute on. So, we're really confident and we've done a great job historically and we'll continue to execute well.

<A - Gary E. Dickerson>: Yeah. One other thing, C. J., I would add, as Dan talked about on the call, we're off to a great start. So, if you look at the model we talked about just a couple of months ago, and the data that we provided in the call today, we're going to be well along the way towards that financial model for 2020. Certainly, we're not going to update anything this soon, but we're off to a really great start.

<Q - Atif Malik>: Gary, if you can just qualitatively talk about what's driving the upside to the $90B number WFE that you shared at your Analyst Day, which end-markets are looking better? Is it the image sensors? Is it domestic China? And similarly, on the display side, is it TVs or is it more OLED that's driving higher than 30% y-over-y growth? Thank you.

<A - Daniel Durn>: Thanks, Atif. This is Dan. Let me jump in. 2017 was a record year for the industry. At our Analyst Day, we said 2017, 2018 combined would be $90B. Gary, in his prepared comments, said several billion more than that, and we see the fundamentals into 2019 being strong as well.

As we take a look at what's driving this level of activity, I'd put it into three buckets. First, demand drivers; second, capital intensity; third, our customers are very healthy. From a demand drivers standpoint, we're layering in additional layers of end-market demand, things like artificial intelligence, Internet of Things, big data, autonomous driving. We still have significant content gains to go in the handset and we're seeing significant demand for solid state drives.

So, as we look across the industry, the demand drivers are multiple and broad-based. And as we take a look at how that translates to activity within our industry, each of the device types is showing strength. Capital intensity is up across the industry. In foundry, it's up 100% over the last handful of years. And in that same time period, NAND is up 60% and DRAM is up 40%.

And customers, they're investing a lot, but they're making a lot of money. The level of investment, as a percentage of their profitability, EBITDA, is down over the last five years in memory, it's down 40%; in foundry and logic, it's down 50%. So, the ecosystem customers are healthy and will continue to invest and generate returns on that investment.

As we look at the industry and where we're at, at the very highest level, I would say there is strong balance between foundry logic and memory, with maybe a slight weighting towards memory. And within memory, we see NAND about two-thirds of that market and DRAM about a third.

In foundry logic, we see foundry about two-thirds and logic about one-third. And in 2018, we see that same or similar profile that we're seeing in 2017. So, we think that the upside is broad-based. We see NAND up, we see logic up, we see foundry strong, we see DRAM strong. So, we're pretty happy with the fundamentals through 2018 and into 2019.

<A - Gary E. Dickerson>: Yeah, I'll answer the question on display. Basically, two big drivers for display. One is TVs and the other is mobile OLED.

In the large screen televisions, we have 13 factories that we're tracking that are Gen 10.5. And a data point for that is, if you're building 65-inch television with Gen 10.5, large panels, you can get eight TVs; if you're building then with Gen 8.5, you get three. So, as the consumers are going to larger screens, there is a compelling value proposition to move to Gen 10.5. So that's driving part of the market. And then of course, for smartphones, OLED is a big factor.

And what we see through 2020 in mobile OLED, with the investment that's being made, you'll be able to build about 50%, right around 50% of smartphones with OLED screens in that timeframe. So those are the two drivers; large screen televisions and mobile OLEDs.

The mix relative to revenue, 2017 is more weighted to mobile vs. TV. The mix in 2018 is pretty balanced between TV and mobile. But, again, both cases, we see these as multiyear drivers for display. And as we mention in the prepared remarks, we have a long lead times for display, and we see display healthy 2018 and 2019.

The other thing I'd mention about display is, it is unique for Applied Materials; in expanding our materials innovation into this market, the complexities increasing and it really has been a great growth driver for the company.

<Q - Harlan Sur>: Hey, congratulations on the solid execution and the outlook. Last earnings call, you guys articulated a view that total DRAM capacity has been relatively flattish over the past five years. And looking into next year, DRAM bit demand looks actually quite strong, you guys articulated some of that on the call. And it would argue for some growth in the installed base capacity in 2018. I think you guys also said last call that it's looking like maybe 75k growth and 50k net add of capacity to the total installed base at DRAM.

So I guess the question is, has that view changed? Because we've heard of some potentially new greenfield DRAM programs. And the point here is we just want to make sure that from your perspective, capacity growth outlook still looks relatively disciplined for this segment of WFE market?

<A - Gary E. Dickerson>: Thanks, Harlan. I think the short answer is yes, we still see a very disciplined market. We've got healthy customers, and the market is being demand-led. We see about 25% bit demand growth, and we see a very disciplined add of incremental bit capacity to match that bit demand growth. So, we see overall a very healthy market. We see the market being demand-led, customers are healthy, making money, so we're encouraged by what we see.

I think the news this year for us, the interesting news, is we increasingly see in the memory market adoption of power and performance capabilities in the memory devices, and we see it in both DRAM and NAND, which means our leadership businesses, as I said my prepared comments, are showing strong growth into the memory market going forward, higher input/output feeds. And the logic periphery that sits around memory cells and DRAM are increasingly

adopting logic-like power and performance capabilities. So, we're really encouraged by what we see in this market.

<Q - Toshiya Hari>: I had a question on your display margins. And I guess, this quarter, I was positively surprised by the huge up-tick in operating margins in the segment. So, I guess, the question is, what drove that? Was it something one-time or was it simply a function of revenue, or was there something more sustainable and fundamental behind the big up-tick? And going forward, how should we think about margins in display as you start to ramp your new products and as you expand your SAM? Thank you.

<A - Daniel Durn>: Thanks, Toshiya. Yeah. So, I would look at the scale of the business getting larger, the continual improvements. We put out a target for this business of being high-20s, and that's what I would look to longer-term out of this business. I think you'll see it profiled differently into Q1 and get stronger throughout next year. But the way to think about this business is high-20s operating margin. We'll obviously look for opportunities to do better, but I think that's the right place to look at.

<Q - Krish Sankar>: I had a two-part question, I want to ask both upfront. One is, I think, Dan, you articulated the DRAM supply demand, wondering if you can articulate a similar one for NAND in 2018, if you think demand bit growth will exceed supply bit growth for NAND?

And the second part question is that, I completely agree with you on the sustainability of WFE, but that question always comes up every now and then with investors. And if you believe 40-plus-billion or $45B is the new norm for WFE, why wouldn't you increase the dividend to reflect that so that it will put some of these questions to rest? Thank you.

<A - Daniel Durn>: Thanks, Krish. From the NAND supply demand standpoint, I think we see bit demand growing 40% in 2017, we see it higher into 2018. As you take a look at the capacity adds, today, we've got 1.6mm wafer starts per month of installed capacity, half of that is converted to 3D NAND. We still have half of that installed base to go to convert. And so, we see maybe 1.8mm to 2mm wafer starts per month in the 2020, 2021 timeframe.

So that market looks demand-led and healthy as well. We see lot of room to go for solid-state drives. We are in the very early innings of penetration of solid-state drives. Handsets still have lots of content gains to go.

As you take a look at the 3D roadmaps going forward, 48 layers, 64 layers, all the way up to 144 layers, the roadmap extends beyond several generations. And incremental NAND bit growth in the era of 3D NAND is more challenging. So, all of this comes together to give us confidence that we've got a balanced market, opportunity is there, and see demand in this market being fairly elastic. So, we feel really good about what we see.

From a capital allocation dividend perspective, so this company has had a long history and tradition of returning excess cash to shareholders. In the last five years, it's been 82%. In the last three years, it's been 89%. And we're going to continue to return cash to shareholders. As you take a look at the tax structure and the proportion of cash that gets generated overseas vs. onshore, there is a structural impediment to us being more aggressive from a dividend perspective in the near-term, but this is something that gets a lot of – we're spending a lot of time discussing this and we're watching tax policy out of Washington very closely.

And when we get clarity on tax policy, then we'll be able to determine what the right long-term proportion of dividend vs. share repurchase is, so that where we continue to return cash to shareholders in the most efficient optimal way possible to drive value for shareholders.

<Q - Romit Jitendra Shah>: I just wanted to kind of piggyback on C. J's question about margins. Dan, you laid out what we felt was conservative gross margin expectations at the Analyst Meeting, 47% in 2020. And according to your plans for this year, it looks like you'll get pretty close, 46.6%. And you alluded on the call at least that you think over time, maybe you could do better. So, my question is really how high is the ceiling for gross margin?

<A - Daniel Durn>: Thanks, Romit. I think we'll stand by our model that we put forward at our Analyst Day in 2020. We'll update that model at our next Analyst Day to the extent there will be new news. And in the meantime, the company is going to be hyper-focused on driving strong execution going forward, continuing to look for every opportunity we can to squeeze profitability out of this company and drive value for shareholders. We're off to a good start.

If we were to take the current 2017 mix and apply it to the cost structure in 2017 – I mean, I'm sorry, the cost structure in 2020, the 47% target gross margin would be over 48%. So, the progress that we're making as a company, to some extent, will be masked as display and services outgrows our semi business. But we like having multiple drivers of growth. We like our breadth, and it just gives us more opportunities to impact this industry in a really positive way, creating value for shareholders.

<Q - Farhan Ahmad>: One very simple question on – from the level of CapEx that you're seeing currently in NAND and DRAM, what level of bit growth do you expect on the supply-side for next year?

<A - Daniel Durn>: So, DRAM, we see about 25% bit growth from a supply perspective. And I would say about 40% to 45% from a NAND perspective.

<Q - Joseph L. Moore>: The WFE number keeps going up. And we were at 34B not that long ago. Now, you're talking about a number, it sounds like well north of 45B for next year. Is it the level where you start to think that we're going to level off or will decline, that – because it seems like the ceiling on supply isn't changing even though the WFE number is rising a lot. And is that – did you guys underestimate how expensive this would be to add that amount of capacity or just why you're so comfortable when you talk about this being sustainable out to 2019, when the WFE number has grown by so much?

<A - Daniel Durn>: Thanks, Joe. I think when we look at what makes the industry healthy where it is today, again, it's diversity of demand drivers, supporting macro trends that are going to unlock significant economic value. Capital intensity is up across the board, customers are investing. But again, they're healthy and profitable. And the industry never went to 450-millimeter wafers.

And so for a variety of reasons, we feel very, very good about where we sit. Is there opportunity for upside of this levels, if I had to take an over/under on WFE, I'd say over right now. But it's probably premature to see that. And again, we see the market being demand-led. And when you take a look at things like bid output per dollar invested, that growth is slower. And so, it just accrues benefit to companies that are in our business, and Applied is better positioned than any to capitalize on it.

<A - Gary E. Dickerson>: Yeah, maybe let me add something on kind of where we're at. We went from PC enterprise – everybody has long memories of waiting for the operating system upgrades – to mobile and social media, pervasive demand, annual war every holiday season for all of the consumer electronics products. And now we're moving into this AI big data era.

And many people talk about their opportunities to create trillions of dollars of economic value, transforming transportation, health care, many major industries. So if you look at what's happened over the last couple of years, the components of that are data generation, data storage and compute.

So, data generation, you have all of these smart devices and sensors that are growing very fast. And over the last period of time here, you now have foundry, 40% of foundry spending is in the trailing geometries. And all of these smart devices are continuing to grow, and there's tremendous economic value that's created there. So that's one driver that wasn't there in the past. Then all of this data is going up at a very high rate. We showed at the Investor Meeting that memory shipments are tracking data generation, and as Dan talked about, memory has never been healthier in terms of overall profitability. There's a tremendous increase in data, capturing all of that information. And then to really transform those industries, trillions of dollars of economic value, you have to process the data. And at the Investor Meeting, we talked about oil powering the industrial revolution, data powering the AI, big data revolution.

And so, again, you have the trailing geometries, you have the leading geometries and the war for the AI architectures on high-performance computing. You have drivers on the memory, the data storage and the cross-over for solid-state drives. So a number of different things that are new drivers.

The other thing I would add, it's – some small incremental add is China. We talked about China being up in 2018 in the wafer fab equipment spending by about $2B. And what we see is that we believe that that investment will continue to go higher in China, not step function change, but incrementally higher going forward in the future. So, you have all of

those drivers kind of underpinning where we're at right now. And certainly, we were able to talk about 2018 double-digit growth across all of our different businesses, because we have better visibility to customers and all of those drivers and all of their projects. So that also gives us increased confidence.

<Q - Y. Edwin Mok>: I have a question on the service side of the business. You guys – obviously, you guys have done a great job, just grew 20% y-over-y. As we go through 2018, given that it's growing above what you guys have targeted, this 15% target you talked about. Is there a risk that since you signed all these big contract now that there may be a slower growth rate as we go through 2018? And you mentioned that you have 25% increase in service contract, is there a way to kind of think about how much of your installed base is in service contract vs. how much more room you can grow?

<A - Gary E. Dickerson>: So, I think over the last several years, we've been growing service contracts net over [ph] 1,000 (48:47) per year. And as we talked about, the revenue opportunity for us is dramatically higher when we have the service contracts vs. no service contracts. So there was a big change in strategy around 2013. And since then, the service contract growth has been pretty significant.

So, if you look at what's happening with customers, they're ramping many of these new devices. 3D NAND going to 64 layers and 96 layers, and in the future, they'll be ramping [ph] 1Z (49:21) DRAM and 7-nanometer in foundry and logic. These technology nodes are very difficult. And we've reorganized service, so we're focused on being able to support our customers in accelerating yield, output and cost. And we have tremendous traction for customers. It's worth a lot of money for them to optimize those big investments they're making in their fabs. We've made changes within the organization, so that we're accelerating those new service products and we have very high confidence that we're going to continue to drive the service around a 15% rate.

In the last year, as we mentioned, it's been faster than that. But the number that we discussed at the Investor Meeting, we still have high confidence in is around 15% in terms of the compound annual growth rate.

<Q - Patrick J Ho>: Maybe for Gary, in terms of your positioning, you talked about in the past that share gains you made in areas like etch, process control, and you gave some more color today about areas like patterning. As we look at 2018, and especially with China growing as a percentage of WFE spending, how do you see those share gains moving forward, say, in both 2018 and maybe over the next few years?

<A - Gary E. Dickerson>: Thank you, Patrick. So, if you look – if you include this year, over the last six years, we've gained share five out of the last six years and we were flat one year. And as we said in the prepared remarks, we are anticipating double-digit – strong double-digit growth in both our leadership and high-growth semiconductor businesses. So, pretty broad-based.

We have very good momentum in memory. We've gained several points of market share in memory over the last several years. Dan talked about the significant growth that we've had, not only in the high-growth semi, but in the leadership products where we have extremely high market shares, we've grown in the last few years about $1.5B, I think is the number, in additional revenue growth.

And we see, as Dan talked about, in memory, moving to more logic-like structure. So, all of those leadership products where we have very, very high share in foundry and logic, we're growing significantly our share in memory also. So, that gives us a one driver.

In patterning, we also have gained significant share over the last five years. We've gained about 19 points of share in patterning. And what we showed at the Investor Meeting was another $1B growth over the next four years in patterning. And we have, again, tremendous momentum there.

In foundry, as this war for AI leadership is happening, we are creating the materials that enable power and performance. It's a very unique position. And that is leveraging all of our leadership businesses, all of those areas where we have externally high share. The power and performance for high-performance computing is coming from Applied Materials.

And in China, we talked about $2B in growth in China. We have very high share in China. We will outgrow that market growth. It's going to be a fair amount of growth. I don't want to give a specific number, but it's a significant amount of growth for us in China in 2018.

And then the last thing I would say that we're really driving that a bigger emphasis in the company is around connectivity. It's worth a lot of money, it's worth a lot money for our customers to accelerate a new device to market. If you can bring a winning AI chip to market six months or 12 months faster, that's worth a lot of money.

So, we are creating the materials that enable power and performance. We have innovative technologies and modifying materials, we're moving materials and analyzing materials. We recently made a change in the organization to better drive speed of innovation and especially connectivity across the company. We have very strong pull from our leading customers across the board, real strong pull on new materials, new innovative materials. And we're the only place where you can work all of that at the same time.

So, this focus on connectivity is stronger than we've ever had at Applied, and the pull from customers for connectivity is also very strong. Again, if I can accelerate a chip to market by 12 months, it's worth a tremendous amount of money. We've put a tremendous amount of talent into that organization and that's another driver in terms of our business going forward.

<Q - Thomas Robert Diffely>: You talked a little bit about the increase in OpEx sequentially. And first, I assume that's mainly just in the R&D line. And then what should we expect from a sequential increase in OpEx going forward?

<A - Daniel Durn>: So, when we look at OpEx, again, the company's done a great job investing for growth. Almost all of the OpEx that you see, virtually all of it, is to support R&D programs that drive growth and continue to build out our field force, as we bring new innovative products to market, engage with our customers and drive the right kind of outcomes for the customers. So, it's clearly to support growth, new inflections and building up the field force to bring innovative products to market.

As we think about the profile throughout the year, I think you could see, we're going to be up into Q2, and then a little bit into the back-half of the year and flat for the back-half of the year. So, you'll see that grow a little bit throughout the year.

<Q - Sidney Ho>: I have a more near-term question, a few companies has suggested that H1 next year, foundry will be slightly weaker. Do you agree with that? And if you look at the 7-nanometer ramp that those companies think will be as big as the 28-nanometer node, if this is being spread over say four years and we're halfway through that, does that mean the next two years, we're also looking at kind of flattish foundry spending, just trying to get some color around your comment that foundry spending will be strong next year?

<A - Daniel Durn>: Thanks, Sidney. Again, as we look at 2017, shaping up to be a record year for this industry, as we look at how we are going to close out the CY, in November and December, we see significant strength in our business rounding out the CY. As we look at the slope throughout 2018, we're confident and encouraged by what we see strength throughout the year. And the fundamentals, again, look good into 2019. So, we feel really good about where we sit and how things are going to profile.

From a foundry perspective, we do see the 7-nanometer node being on par with 28-nanometer. Our estimation, given the spend that we see on the lagging edge, is 28-nanometer is still going to grow. Initially, we thought it was going to land around 320,000 wafer starts per month. But we do see that growing.

And when you combine that with 22-nanometer optical shrinks off of 28-nanometer, you're going to get something that tips over 400,000 wafer starts per month. And when you look at 10-nanometer, 7-nanometer and 5-nanometer, we see something that's going to be on par with what we just said.

How it gets profiled, we think 7-nanometer is going to be large, and we also think 5-nanometer is going to be large as well. So when we look at foundry being strong on a go-forward basis, we really like what we see in terms of up-tick in demand and the diversification of those demand drivers.

<Q - Craig A. Ellis>: Gary, I wanted to go back to some of your comments both in the prepared remarks and in some of the questions around AI. This week an industry event NVIDIA's CEO said that, up to 70% of all data center workloads could be AI-enabled. And so the question is, as you're talking to your customers about the pressure this is putting on their capital investment, are you hearing that this is a gradual force through 10-, 7- and 5-nanometer, or did they see a step function coming at any one of those nodes or more of an investment in either logic or memory, where there are diversified suppliers? Thank you.

<A - Gary E. Dickerson>: Okay. Thank you for the question. And again, what we're seeing is, if you look at the data generation, already, we see a big impact in terms of wafer fab equipment spending in sensors, in those trailing-edge geometries, smart everything. We see about 40% of foundry spending coming from those sources, and we think that's going to continue.

And then the increase in data, again, you have to capture the data before you can process it and create the value, we're certainly seeing tremendous increase in data that's driving a healthier memory business than we've ever seen.

And for the high-performance computing, the key thing about Applied Materials is that we create the materials that enable high-performance computing. Our leadership business, if you look at EPI and PVD and implant and the advanced annealing processes, all of those areas we have very, very high market share. So, the pull that we have with customers is tremendous.

The visibility that we have around those structures for 7-nanometers, for 5-nanometers is very unique in that we have that's we are creating those materials. So the pull for us is very, very strong.

And the architecture war that's happening in AI isn't over. There is a lot of companies that are designing specific AI chips for different kinds of applications. So there's a tremendous amount of activity there. And we think that that will ramp a significant amount over time.

Daniel Durn

Q4 Highlights

Performance

- If I could – I want to say that this is incredible exciting time for me, our company and the industry as a whole
- Applied is a unique position and our breadth sets us apart
- It allows us to drive the most inflections and it generate the most growth opportunities
- The company is executing extremely well
- We're delivering record performance
  - But we're not going to be satisfied
- We're not going to rest on what we did last quarter or last year. We're going to be relentlessly focused at driving execution

R&D Investments and Gross Margin

- We're going to continue to make smart R&D investments to drive our organic growth
- We're going to continuously improve our operations

- We’re going to look for more ways to increase gross margins, deliver more value to our shareholders and we’re going to continually drive spend discipline throughout all levels of this company
    - This execution is delivering great momentum for us

Backlog

- We’re ending the year with record backlog and record orders in the year
- We’re going to expect double-digit growth across all of our businesses going into 2018
- Personally, I look forward to seeing many of you, Credit Suisse, in a week-and-a-half, at CES to start the New Year
- And I guess, lastly, for those of you who call Boston home, please make sure you give a warm Boston welcome to our friends from the Golden State when they rolled into town tonight for what is going to be an amazing game.