Q1 2020 Earnings Call

Company Participants

- Dan Durn, Senior Vice President Chief Financial Officer
- Gary E. Dickerson, President and Chief Executive Officer
- Michael Sullivan, Corporate Vice President

Other Participants

- Atif Malik
- C.J. Muse
- Harlan Sur
- John Pitzer
- Joseph Moore
- Krish Sankar
- Patrick Ho
- Pierre Ferragu
- Timothy Arcuri
- Vivek Arya

Presentation

Operator

Welcome to the Applied Materials Earnings Conference Call. During the presentation, all participants will be in a listen-only mode. Afterwards, you will be invited to participate in a question-and-answer session. I would now like to turn the conference over to Michael Sullivan, Corporate Vice President. Please go ahead, sir.

Michael Sullivan {BIO 16341622 <GO>}

Good afternoon and thank you for joining Applied's First Quarter of Fiscal 2020 Earnings Call, which is being recorded. Joining me are Gary Dickerson, our President and CEO; and Dan Durn, our Chief Financial Officer. Before we begin, I'd like to remind you that today's call contains forward-looking statements, which are subject to risks and uncertainties that could cause our actual results to differ.

Information concerning the risks and uncertainties is contained in Applied's most recent Form 10-K and 8-K filings with the SEC. Today's call also includes non-GAAP financial measures, reconciliations to GAAP measures are found in today's earnings press release and in our reconciliation slides, which are available on the IR page of our website at appliedmaterials.com.

And now, I'd like to turn the call over to Gary Dickerson.

Gary E. Dickerson {BIO 2135669 <GO>}

Thanks, Mike. I'm pleased to report that earnings for our first fiscal quarter exceeded the top end of our guidance, reflecting outstanding execution across the company in a market environment that is strengthening. Based on our calendar year revenues, we believe we outperformed both the market and our direct peers in 2019.

We enter 2020 with momentum and the signals we see give us increased confidence that the years ahead will be very good for the industry and especially for Applied Materials. In today's call, I'll give you my perspective on how our markets are evolving and provide our near-term outlook. Then, I'll highlight the key components of our strategy to address the changing needs of our customers and drive sustainable profitable growth for Applied Materials.

Before I get started, I'll take a minute to address the implications of the coronavirus outbreak to direct a comprehensive response across all the regions, where we operate, we quickly activated our business continuity teams. Our top priority is the health and safety of our employees and their families. We're also doing everything we can to provide our customers the support they need to minimize disruption to their business. In addition, the Applied Materials foundation is sending medical equipment into Wuhan and we've created humanitarian response funds for our employees in China and the communities where they live and work. In terms of the business, our current assessment is that the overall impact for fiscal 2020 will be minimal.

However, with travel and logistics restrictions, we do expect changes in the timing of revenues during the year. We are actively managing the situation in collaboration with our customers and suppliers. While we're making the necessary adjustments to our near-term plans, we are not taking our eye off the powerful trends that are driving the semiconductor industry forward and creating a structurally larger and less volatile market at the low point of this recent downcycle in customer spending, which occurred in the second calendar quarter of 2019, the combined quarterly revenues of the top 5 semi equipment companies were only 17% lower than at the cycle's peak. In contrast, during the industry cycles that took place between 2000 and 2013, peak to trough, revenues for the same 5 companies combined dropped on average 44%. Another important metric we look at is equipment intensity or annual equipment spending as a percentage of annual semiconductor industry revenues. Between 1990 in 2014, this equipment intensity metric fluctuated between 17% and 6%, however, when we look at the most recent 5-year period, equipment intensity has been in a tight band of 10.5% to 12% with a mean of 11.5%. We believe this is a good estimate going forward and reflects the ever more complex technology challenges we're addressing and the increasing value we're delivering to the ecosystem.

In addition to the higher growth and lower cyclicality we see in the market as a whole, Applied is demonstrating even lower volatility than our peers. The reasons for this include the breadth of our product portfolio and the balance we have across different device segments. Dan will provide more color on this topic in his section.

Moving to our near-term outlook, we see robust foundry, logic investment continuing, There is a strong commitment on the part of these customers to advance the leading edge as they get ready for demand related to the rollout of 5G.

At the same time, we're also seeing healthy spending for specialty nodes to support growing demand from the IoT, communications, automotive, power, and image sensor markets. Progression in the memory market is consistent with the view we've shared over the past several quarters. NAND appears to be in the early stages of recovery with prices rising and inventory levels down to 4 to 5 weeks, that's compared to 8 to 10 weeks this time last year.

We also see a good setup for DRAM to recover, encouraging signs include supplier and end market inventories that are starting to get back to normal levels and prices that appear to have bottomed. These leading indicators bode well for a pickup in investment by memory customers later in the year.

Overall, we like the way the market is shaping up for 2020 and beyond. We believe that our semiconductor business can deliver strong double-digit growth this year and feel very good about our longer-term opportunities. In display, there are no major changes to the outlook we provided last quarter. We expect FY '20 revenues to be similar to FY '19 as the industry navigates the bottom of this spending cycle.

We still believe that display is an attractive adjacent market for Applied that provides good long-term growth opportunities. The business remains solidly profitable even as we make the necessary investments to ensure that we have the right portfolio products ready for when the market picks up.

Stepping back and looking at this year in its broader context, it's important to note that the overall electronics industry is in a period of expansion and diversification. Major new growth drivers including IoT, big data, and artificial intelligence are layering on top of traditional demand for smartphones and PCs.

As I look ahead, I strongly believe that the future will not be like the past. The emerging workloads that will shape the next era of computing required domain specific approaches, new system architectures and new types of semiconductor devices. I believe that we need a new playbook for semiconductor design and manufacturing to deliver the power performance and area of cost improvements that will unlock the potential of AI and Big data.

At Applied, we've aligned our strategy and investments around this new playbook, so that we can enable new system architectures, new devices in 3D structures, the introduction of novel new materials, new advances in 2D geometric shrinks, and new ways to connect chips together through advanced packaging. Applied has a unique portfolio of materials engineering capabilities and products to enable the new playbook. Getting these new technologies to market faster has never been more valuable and this is a major emphasis across the company, for example, we're using advanced metrology sensors, data science and simulation to improve learning rates, speed up the transfer of new technologies from

Applied's labs to customers factories and reduce the time it takes to optimize device performance, yield, output and costs.

In addition, we have more engagement with a broader ecosystem than ever before, focused on accelerating innovation, all the way from materials to systems. Our strategy is yielding results for our customers in Applied. Calendar 2019 was a new record for our foundry, logic revenues and the current leading edge node transition further grows our opportunity. For an equivalent number of wafer starts, our available market increases by more than 10%. We're also generating record revenue from specialty markets, where customers build their technology upon trailing geometries.

For these customers, the innovation roadmap is driven by materials innovation, rather than geometric scaling. Strength and leading edge combined with healthy investments and specialty nodes means that several of our leadership businesses including metal deposition in EPI are delivering record revenue. At the same time, we continue building momentum in areas of the market, where we still have plenty of room to grow.

In the quarter, we secured major application wins for critical etch steps at both foundry, logic and memory customers. Our process diagnostics and control business delivered record quarterly revenue driven by strong adoption of our new optical wafer inspection system and continued strength in our leading ebeam products. We're also making great progress in packaging. As the industry introduces increasingly sophisticated packaging approaches, our strategy has been to focus on addressing the most critical process steps. As a result, we've been steadily gaining market share. Our packaging business delivered record revenues in 2019 while winning well over 50% of our available market. Another important growth factor for the company is our service business. Equipment maintenance is an attractive recurring revenue stream for Applied and in calendar 2019, we added more than 2000 systems to our installed base. As I've talked about before, we are finding new ways to deliver value through data enabled services that accelerate customers fab ramps and optimize their device performance, yield, output and cost in high volume manufacturing.

As we do this, we're increasing the number of installed base systems covered by long-term maintenance agreements. In the past 12 months alone, we have grown the number of systems covered by these agreements by nearly 15%. Before I hand the call over to Dan. I will quickly summarize. While we're adapting our near-term plans in response to the coronavirus outbreak, our outlook for 2020 remains very positive.

We believe we can drive strong double-digit growth in our semiconductor business this year and significantly outperform the market. We also like the setup for 2021 and beyond. Our markets are better than ever with powerful new growth drivers, still only in their early innings. Applied's opportunities have also never been better. We are uniquely positioned to enable the new playbook for semiconductor design and manufacturing, while helping our customers accelerate innovation from Materials to systems.

And now I'll turn the call over to Dan.

Dan Durn {BIO 17483115 <GO>}

Thanks, Gary. Applied Materials return to year-over-year growth in Q1 with revenue up 11% and non-GAAP EPS up 21% versus the same period last year. Revenue and gross margin exceeded the midpoint of our guidance and earnings were above the high end of our range. Our revenue performance was driven by Semiconductor Systems, which was up 24% year-over-year. We generated nearly $1 billion in operating cash flow during the quarter and returned close to $400 million to shareholders.

Our business outlook calls for continued strength in Q2 and our second half, our relative performance is especially strong. We outgrew the overall semi equipment market in calendar 2019 and we significantly outperformed our closest peers. Applied has made strong investments across our portfolio in recent years and today we are a larger and more resilient company that performs well in a variety of market conditions.

One of Applied's unique attributes is our broad portfolio, which is more diversified across end markets and more balanced among semiconductor device types, including memory, leading edge and specialty nodes in logic and packaging. Our portfolio makes us more stable relative to our past and relative to our peers, the closest of which were 50% to 100% more volatile in the recent cycle. Today, our traditional strength in foundry, logic is apparent. As we set new quarterly records for overall foundry, logic revenue as well as in metal deposition and process control system sales, our investments in memory have given us a balance share profile and this will enable us to continue to generate strong returns when spending recovers later this year.

A key pillar of our stability is our aftermarket business, which includes Applied Global Services and our 300 millimeter upgrades and refurbs. Our aftermarket revenue was a product of 3 drivers, installed base growth, the higher service intensity of new nodes and our data-enabled service agreements. Our service agreements provide a higher return on investment for our customers and subscription like recurring revenue for Applied. In Q1, AGS generated record revenue of nearly $1 billion.

Our overall aftermarket business also set a new record in Q1 and it's grown in every year since 2013. Against this backdrop, we're pleased to be making further progress towards the acquisition of Kokusai Electric, which has an outstanding equipment business, a very large installed base and a highly talented management team.

During the quarter, we received regulatory approvals from Japan and Korea and we grew our cash position by over $350 million as we prepare for the transaction. As a reminder, upon close, we plan to prioritize our free cash flow towards repaying the term loan we're using to help finance the transaction. We expect to limit buybacks until we've repaid the loan.

Next, I'll comment on the near-term environment and provide our Q2 guidance. Since the middle of January, our business continuity team has been working around the clock assessing the needs and capabilities of our employees, customers and suppliers. I'm impressed by the decisive action and compassion being demonstrated by our people across the globe.

Our Q2 guidance ranges are wider than usual and our revenue forecast reflects all of the risk factors we can see today. In Q2, we expect our overall revenue to be $4.34 billion plus or minus $200 million, which would be up by about 23% year-over-year. We expect non-GAAP earnings to be $1.04 per share, plus or minus $0.06, the midpoint would be up nearly 50% year-over-year. Within the outlook, we expect Semiconductor Systems revenue to be around $3.05 billion, up by around 40% year-over-year.

Our services revenue should be about $955 million and Display revenue should be around $310 million. We expect non-GAAP gross margin of around 45.4%, which would be up nearly 2 points year-over-year and non-GAAP OpEx should be around $820 million. Finally, I will give you some additional color on how our risk-adjusted Q2 guidance compares to the strong underlying demand for our products and services. Absent the near-term risks, our revenue guidance would have been about $300 million higher at the midpoint or up about 30% year-over-year and AGS revenue would have exceeded $1 billion. While the situation remains fluid, we believe we can address the vast majority of our unmet Q2 demand in Q3 and Q4 and deliver strong growth for the year. In summary, we are seeing very strong demand for our products, solutions and services. We have a broad, diverse and balanced portfolio that is delivering strong relative performance and stability in a variety of market conditions. As Gary outlined, the semiconductor industry is enjoying a new wave of growth and the equipment industry is growing along with our customers.

For Applied's part, we're investing in new products and solutions that will accelerate the new playbook and position Applied Materials to deliver superior performance stable growth and shareholder returns.

Now Mike let's begin the Q&A.

Michael Sullivan {BIO 16341622 <GO>}

Thanks, Dan. Now, I know there are a lot of people on the call today to help us reach as many of you as we can. Please ask just one question and not more than one brief follow-up. Operator, let's please begin.

Questions And Answers

Operator

(Operator Instructions). And our first question comes from the line of C.J. Muse from Evercore. Your line is now open.

Q - C.J. Muse

Good afternoon and apologizes for the noise in the background. First question, can you speak to gross margin leverage as you look forward, particularly around an accelerating service business combined on the (inaudible) side, where you are, mix wise from leadership, verses growth and some of the new products as they layer in. Would love to hear your thoughts around that.

A - Michael Sullivan {BIO 16341622 <GO>}

Thanks C.J. As we look at gross margins, I think it's important to look at the evolution of the business over time. We're different business today, we're driving a significant amount of growth in foundry, logic, but we're also more diversified business than we've been in the past. If you were to go back a handful of years, you would have seen us spike highly in the foundry business from a share perspective and the other 3 device types were mid-teens.

And today, we're very balanced portfolio and I think that served us really well in 2019, both from a revenue volatility standpoint, significantly less than the peers in the industry, but also from a gross margin standpoint, the company has performed pretty well in the most recent downturn. As we go forward, Foundry logic is going to continue to be a strong market for the industry. The trend line on foundry, logic is up into the right, every quarter won't be a record, but we will see an upward trending market, less volatility and higher highs and higher lows embedded within that strength in foundry, logic is growth in specialty nodes and technologies as edge devices proliferate.

This is a great business for a strong driver of cash flow, strong driver of operating margins. You're also seeing us in the broad set of markets, drive businesses like etch over time, we are making significant share gains into the NAND market, followed by DRAM and then foundry, logic and the company is performing really, really well growing that market share and we're going to continue to do that going forward.

And so you see an evolution and profile change of the business. You also see our services business going structurally larger, it's a great source of stable revenues, cash flows and operating margin for the business and so we're a broader, bigger, more resilient business and it's going to change the profile of the business over time.

As you look at gross margin for the rest of this year, our Semi Systems business on a half over half progression looks fairly linear and then you see a growing services business into the back half of the year and a growing display business into the back half of the year, and all 3 of those business look position to grow well into 2021 and so where we're guiding Q2, we expect to be around those levels for the rest of 2020 against this mixed profile as we see into the back half of the year. Are we ever satisfied with gross margins as they exist toda, no. Are we looking to continually optimize the performance of this company and drive as much value for our shareholders, absolutely we're going to continue to drive as hard as possible at delivering that value, but I think that gives you a good sense of where gross margin is going to go for the rest of this year and some of the drivers of our business that deliver that result.

Q - C.J. Muse

Very helpful, I guess as a quick follow-up, can you speak to, I guess the improved visibility that you have to memory and kind of one of the diapers that gives you the confidence on the second half hand and from foundry over to memory to sustain the growth through the year and into next year. Thank you.

A - Michael Sullivan {BIO 16341622 <GO>}

Yeah, thanks C.J. I think the best way to describe the profile and shape of the business in 2020. We're going to continue to see strength in foundry, logic throughout the year and we're seeing early signs of memory recovery today, I think ultimately what happens in 2020 is really going to depend on the magnitude of the of the memory recovery later in the year. We posted a really strong fiscal Q1, our guide into fiscal Q2 we see is very strong and we see that strength continuing into the back part of the year.

Again, we're going to be relatively balanced, half over half in our systems business and the ultimate shape of that systems business and strength in the back part of the calendar year is going to be a function of what we'd be saying for a couple of quarters now, which is it's going to depend on the magnitude of the memory recovery later in the year, but right now we feel really good given what we see fairly balanced half over half from a semi systems standpoint and I think there's an opportunity to do better in our fiscal Q4 and our fiscal Q1, as the memory recovery begins to accelerate.

A - Gary E. Dickerson {BIO 2135669 <GO>}

Yeah C.J, this is Gary. I'll add a little bit more color. Certainly, what we see for the year is foundry, logic, NAND, DRAM pretty balanced and relative to the memory recovery and timing, we talked about the supply and demand, the inventory levels on the prepared remarks and then obviously, we also have demand signals coming from our customers, so that's really what is driving our comments relative to the way the year is going to shape out and also the balance in all of those different segments. Thanks, C.J.

Operator

Thank you. Our next question comes from the line of Atif Malik from Citi. Your line is now open.

Q - Atif Malik {BIO 7312618 <GO>}

Hi, thanks for taking my questions and good job on results and guidance. I have a question on the display business flattish outlook, not super exciting this year, Gary. Does this make you look at some of the disruptive products in the R&D pipeline like the evaporation or the inkjet tools differently and if you can share the long-term view on display market.

A - Gary E. Dickerson {BIO 2135669 <GO>}

So display, we still see as a very attractive adjacent market for the company. If you look at the growth that we've seen over the last few years, it's up significantly, I think we around $0.5 billion, the business was up over $2 billion, down a little bit this year, but still a very, very attractive market and certainly our near-term guidance is impacted and also because of the coronavirus, some of our customers are in areas that are impacted and so that reduced our guidance in terms of Q2, but as Dan said we see the second half of the year being very positive.

And we also, if you think about visual experiences in the way they differentiate different mobile devices or all of the trillion connected devices that will be growing over the next several years, we see that that market is going to continue to grow. So 2021, we certainly see the business being up a fair amount over what we see in 2020. The capital intensity is rising, as new technologies are adopted, so we see a good opportunity in our core business, and certainly, just like we do in semi, we're very focused on enabling customer roadmaps and enabling new structures, new materials for our customers, so we have those investments that we're also making. In terms of display, we're making good progress on the pipeline of those new opportunities, we are not going to announce anything here on the call today, but we're still very optimistic overall about the business and also those new opportunities.

Q - Atif Malik {BIO 7312618 <GO>}

Great, and a quick one for Dan. Dan on OpEx, I know you don't like to PEG OpEx to a ratio and how should we think about the spending for the rest of the year?

A - Dan Durn {BIO 17483115 <GO>}

Yeah, I think in the current environment, $820 million a quarter, feels like about the right level. You'll obviously see us continue to drive discipline into our spend. I think you've seen that over time, over the last handful of years, operating leverage has delivered some pretty significant reductions of OpEx as a percent of sales and right now, R&D as a percent of OpEx is at an all-time high for the company, so I think the company is being very disciplined from a discretionary spend standpoint and investing the right amount of money to capture the significant opportunities we see in front of us, but we'll continue to monitor those opportunities and guide one quarter at a time, but this level feels about right.

Thanks Atif

A - Gary E. Dickerson {BIO 2135669 <GO>}

Yeah, I guess I would add one thing to that. I think we're not emotional over the investments we're making, we make investments where we think we can have drive shareholder value. So that's basically the way we look at this, we do have a point of view, I think as a leader, you need to have a point of view encouraged in terms of how you drive your business. We believe that this business is going to be fundamentally bigger based on AI, Big Data, IoT layering on top of mobile, social media and PCs, so we see that that business is going to be larger in the new playbook that I talked about in the prepared remarks for AI and Big data is absolutely essential as classic Moore's Law is slowing.

So we see tremendous opportunities, Applied is in the best position if you look at the 5 aspects of that new playbook and we're going to make those investments and as I said earlier, 2021 shapes up really well for us on many different aspects come together and we definitely see great growth opportunities going forward, but we also are not emotional about how we make those investments. We're not married to anything.

Operator

Thank you. Our next question comes from the line of John Pitzer from Credit Suisse. Your line is now open.

Q - John Pitzer {BIO 1541792 <GO>}

Yeah, good afternoon guys. Congratulations on the solid results. Gary, you've given us a lot of sort of qualitative guidance on semi-cap equipment spending for this year. I'm wondering if you can give us a sense of what you think the overall WFE market grows in calendar year '20, but perhaps more importantly, how important is China in your mind to that growth. Can you help kind of profile the Chinese spend between sort of memory foundry, logic, I've got to imagine a lot of the trailing edge logic step you were talking about in your prepared comments situated in China, but how do we think about that?

A - Dan Durn {BIO 17483115 <GO>}

Yeah. Thanks, John. This is Dan, I'll jump in and take that. So let's break it up into pieces. Let's first talk about WFE in 2020 in the growth rate over '19 and then I'll come back and talk a little bit about China and what we see in that market embedded in that overall growth rate, so we think 2020 is going to be a really strong year for the industry, we feel good about that. The ultimate question around growth rate is a function of what you use as a starting reference point for 2019, so I'm going to break this piece by piece, hopefully I can shed some light and be helpful to clear up, I think some of the confusion that exists in the market. So what's important is, as we establish a reference point for 2019 and then we talk about growth off of that. So we know the number for 2019 WFE, it's not mid '40s. I think one advantage we have is we've got a very broad portfolio and we've got insight into all the different device types and that gives us some unique insights in terms of market sizing, so let me share with you what we're seeing and hopefully we can help out. In 2018, was $56 billion, that's according to Gartner, it's a good number, it's validated by a third party, so 2018 was $56 billion. Off of that number, we see 2019 as it down 10% to 12% and that's the baseline we're using for 2020 growth. We see 2020 as a market, up 10% to 15% based on everything we see and likely at the high end of that range, given the conversations we're having with customers. So while it's too early to know 2020 with precision, 2019 is very clear as a baseline, so hopefully now the baseline for 2019 is clear off of that baseline we're likely up 15%. We expect to significantly outgrow the market with our Semi Systems business and it's not one device type. Coming to China. Embedded in that outlook, as we think about 2019 and where that ended we see that market as about $6.5 billion and we see growth off of that market of about $2 billion to $3 billion embedded within that, if you take a look at that $2 to $3 billion. I would say a third of it is 200 millimeter trailing node foundry, logic, 2/3rd of it is 300-millimeter business. Of the 2/3 of its 300-millimeter business, it's roughly evenly split between trailing node foundry, logic and memory and there is balance within the memory profile.

And so I think that gives you a sense of what we're thinking for the China market and if I were to take a step back and to still down what we're seeing, we see consistent steady ecosystem building, investments in technology road maps with modest capacity additions and even if we look at the $2 billion to $3 billion of incremental spend that we're seeing in domestic China and we take a look at what it costs to build new memory factory $7 billion to $8 billion or a new foundry, logic factory of $15 billion to $18 billion, even embedded within that $2 billion to $3 billion of growth, it's modest capacity additions and part of that spend is 200 millimeter, part of it is 300 millimeter with diversification across device types.

Hopefully that helps shed some light on both the overall WFE market. John, as well as what we're seeing in China.

Q - John Pitzer {BIO 1541792 <GO>}

Yeah, that's great color and then quickly as my follow-up. I want to make sure I heard you correctly, I think you said in the prepared comments that for the full fiscal year, '20 you expect flat panel to be roughly flattish year-over-year, which would kind of imply a second-half run rate of close to $1 billion if not slightly over. I'm just kind of curious why you're confident about that, is it mainly because of the 300 million cushion you have in the April guidance for the Coronavirus, is mostly coming out of flat panel, If I think about the math right on that.

A - Dan Durn {BIO 17483115 <GO>}

Yeah, so let me start with the math, you are thinking about the math correctly. We've had a point of view now for a couple of quarters that revenue in 2020 in the display business is going to be similar to what we saw in 2019, everything we see in the market today increases the confidence we have in terms of that outlook, so no change to the full-year guidance. As we look at the risk we've assessed as part of the Coronavirus, first of all we think the risk is temporary and we think there is no change to our full-year fiscal year outlook as a result of that and so we think we're being prudent in derisking our guide by about $300 million and we see recovery of those revenues in Q3, Q4 as we unpack $300 million across our reporting segments.

We talked about services, would have been our first billion dollar quarter, but we've de-risked it based on the virus. In terms of rank order of the $300 million first, most impacted is our Semi Systems business, followed by our display business, followed by our service business. So if you put the pieces together without being point specific on any one of those, I think you get a sense of how much we've derisked our services business.

Display will be incrementally more than that and Semi Systems will be incrementally more than that. The sum of those 3 will equal $300 million. Our thesis around TVs going through a digestion period in the market, you'll see recovery of the handset market that framing of the profile of spend in display still holds. We see both markets are looking good into 2021 and we think we returned to nice growth profile in the back part of the year and into 2021.

Q - John Pitzer {BIO 1541792 <GO>}

Great color and congratulations again, guys.

Operator

Thank you. Our next question comes from the line of Krish Sankar from Cowen and Company. Your line is now open.

Q - Krish Sankar {BIO 16151788 <GO>}

Yeah, hi, thanks for taking my question and Dan. Again, thanks for the terrific color on all the industry stuff. Two part question. number one is based on your guidance of roughly $3 billion for semi's and around this range, maybe plus or minus $200 million for the rest of fiscal '20, you know, It looks like when I look at your last cyclical peak in April 2018, you guys did about $3 billion and then the sales trailed off. I understand that the terminals SSG, you know, it's semi systems is probably some shift in numbers, but overall, it looks like you can sustain this $3 billion sales number for the rest of the fiscal year, kind of curious from your vantage point. How much of this growth versus the prior peak number was capital intensity going up versus (inaudible) specific share gains.

And then the second quick housekeeping question, on your color on China. If I am remember right. I think you said 200 millimeter is going to be a third of your number, which is about $3 billion for China WFE, I'm kind of surprised that high, given the fact that last year, if I remember right, China 200 millimeter was only $0.5 billion. Why is it jumping up so much this year? Thank you.

A - Dan Durn {BIO 17483115 <GO>}

Yeah. Thanks, Krish. So, taking the second question first, we've been talking about specialty nodes. We've been talking about trailing node geometries. We've been talking about billions of edge devices and intelligence on the edge and sensor technologies that are supporting the build out of the Internet of things and we see trailing node geometries is one place that China can in the near-term play a strong role in helping to build out their ecosystem in a disciplined way and so it fits in with the framing that we've been talking about technology development, ecosystem development and disciplined investments to support that ecosystem from a capacity standpoint and so it's very consistent from a framing standpoint.

A - Gary E. Dickerson {BIO 2135669 <GO>}

Yeah, maybe I can add something on this on this part of the question. If you look at this market, IoT communication, auto power devices sensors, it has very, very high growth rate, innovation is driven by materials innovation, so 2018 was the first year machines generated more data than people, in the next 5 years the forecast are the machines will generate 10 times more data than people and when you go to CES, you see everything getting smarter. So this market is a big market, I think specifically to your question in China, your numbers are roughly correct, our numbers are little bit different, but roughly correct that there is a lot of growth in China in these areas and they can build those types of devices.

And so, if you look at a trillion connected devices at the edge by 2030, the explosion of data and really the transformation of many industries, health care, education, you see retail transportation, all of these areas are growing very fast, in the companies that are growing quickly from a market cap standpoint are companies that are data centric companies, so again I think that's really what we're seeing, is this explosion of data and this market is a very big market. Applied has a very strong position, we put together in the last year, a team of great leaders across the company for 300 millimeter and smaller wafer sizes. I personally am meeting many of the CEOs and R&D leaders in this ecosystem and we have really, really strong momentum.

One example is one particular large customer, where we won 2\3rd of available opportunities in a market that is very, very sticky over a long period of time. So I think you're correct and that maybe it's surprising that the market is growing like that, but we think this is really the early innings of these particular markets, IoT, communication, auto power and sensors from a growth perspective and you know Applied has a really great position inside that market.

A - Dan Durn {BIO 17483115 <GO>}

And Chris coming back to the first part of your question, where you talked about growth and how much of it is share gained versus capital intensity, I think it's important to take a step back and set a context around how the company has evolved over time, if we were to go back a handful of years, we were strong in foundry over 20% and around mid teens in all 3 other device types. Today, we're balanced across all of the device types, so the company has made steady progress on that front over the last handful of years since Gary took over the company. Your specific question referenced the time period in 2018, we were high teens, a little over 19% from an overall WFE share standpoint that year. In 2019, we were probably a little over 20% in 2019, so we feel really good about the progress we've made and significantly outperforming the peers and the market in 2019, so you definitely see some share accretion playing out in the current environment. The second thing I would say our thesis around increasing capital intensity, you see it in foundry, logic, you see it in NAND, you see it in DRAM, that thesis of increasing capital intensity over time is firmly intact. We know our customers are investing a lot of money in WFE and so their profitability, WFE as a percent of their profitability, has come down since 2012. WFE as a percent of EBITDA in memory and foundry, logic is down 25% over the last half a dozen years and so they're spending a lot, but they are making a lot of money and so, the health of our customers is as good as it's ever been.

And then from a capital intensity standpoint, what we see is WFE as a percent of overall semiconductor industry revenue, bottomed around 2013 at 9%. Of course, we're taking the one data point around the 809 downturn of 6% off the table. In 2013. It was about 9% and Gary referenced in his prepared comments. we've been in a tight band centered around 11.05% for the last 5 years, so it's a clear indication this industry is exploring increased capital intensity, the macro demand drivers driving the overall semiconductor industry are firmly intact. Semiconductors are going to go structurally larger as the data economy kicks in and by implication, our industry and Applied Materials are going structurally larger, so we think the opportunities in front of us has never looked as good as they do today and we're really excited about what we see.

Q - Krish Sankar {BIO 16151788 <GO>}

Thanks, Gary. Thanks, Dan.

Operator

Thank you our next question comes from the line of Harlan Sur from J.P. Morgan. Your line is now open.

Q - Harlan Sur {BIO 6539622 <GO>}

Good afternoon and great job on the quarterly execution. You know, one way to combat the slowing of traditional Moore's Law on the manufacturing front, but still drive Moore's Law like performance improvements at the chip level as to the use of these packs, whether that's chiplet strategy, multi-chip [ph]distacking, you guys have a pretty strong position in these markets, how is this segment expected to do this year and roughly how big is your advanced packaging segment relative to the size of your overall semi-business.

A - Dan Durn {BIO 17483115 <GO>}

Yeah, thanks for the question. Harlan. So you're right, we talked about this new playbook going beyond the classic 2D shrinking and Moore's Law and packaging is one of those 5 drivers for the new playbook and it really, really, really is very important. The one example is if you take GPO in a new package and this is a product that was released over the last couple of years, you'll get 50% lower power and 3x increase in speed just from the package, so definitely really important as part of the new playbook. From an Applied perspective, we had record revenues and packaging in 2019 and we have really strong momentum into 2020.

We have the most comprehensive portfolio solutions to support the packaging road maps for our customers and as you talked about heterogeneous integration approaches, in 2019 we won over 50% of the applications we competed for and we have this broad portfolio with CVD, PVD, CMP, plating, and etch, where we have highly differentiated new products. We have very deep engagements with leading customers and there is a lot of focus on innovating with new packaging architectures, Applied has very deep engagement with a really across the whole ecosystem, that those engagements are really driven by two things; one, we have the broadest portfolio of current and new products that haven't been announced yet, that are enabling from a packaging perspective. We also have the most advanced packaging lab, where we could run entire end-to-end process and co-develop new packaging technology with leading customers and partners, so again, overall very strong momentum with record business in '19 and I think this area, we haven't quantified it in terms of $1 amount, but it's sizable and I would say relative to growth opportunities, as one of the elements of the new playbook, it's under-appreciated and the opportunities are bigger than what people would think relative to our growth potential here.

Q - Harlan Sur {BIO 6539622 <GO>}

Yeah, thanks for the insights there and then you guys have talked about memory spending recovery with NAND leading the way this year, but with DRAM pricing steadily rising especially in mobile and servers and looking to be sustainable and you've also got the new gaming console platforms launching in the second half that are driving pretty strong bit demand growth for graphics DRAM. Are you guys, starting to get some visibility on our return to spending by some of your DRAM customers in the second half of this year?

A - Dan Durn {BIO 17483115 <GO>}

Yeah, thanks Harlan, I will take that. I think what we see, we talked about the magnitude of the growth we see in WFE year-over-year into 2020. Our view on that is, it's broad based. I think that you'll see a good profile from foundry, logic. I think you see a good profile from memory and I think you will see balance across device types within the memory. The growth profile into 2020 is going to be across those different device types and yes, so we will start seeing DRAM this year.

Q - Harlan Sur {BIO 6539622 <GO>}

Great, thank you.

A - Gary E. Dickerson {BIO 2135669 <GO>}

Thanks Harlan. Operator, we saw the number of people in the queue, I'd like to have us please move to one question per person. Thank you very much.

Operator

Thank you. Our next question comes from the line of Pierre Ferragu from New Street Research. Your line is now open.

Q - Pierre Ferragu {BIO 15753665 <GO>}

Hi, thanks guys for taking my question. On foundry, logic, so you have a record quarter $1.9 billion, I was curious to know how much of that comes from [technical issue] 10 nanometer (inaudible) and how much of your revenues are already coming from new (inaudible).

A - Michael Sullivan {BIO 16341622 <GO>}

Hi Pierre. This is Mike. Unfortunately, I couldn't hear your. I think you are maybe on a cellphone. So, we can tell you are talking about foundry and the mix of getting to a number like $1.9, but we unfortunately couldn't hear the rest of the details of your question, so we're not sure how to respond. Could you try one more time. Please?

Q - Pierre Ferragu {BIO 15753665 <GO>}

Oh yes, can you hear me better now?

A - Michael Sullivan {BIO 16341622 <GO>}

That is a little better. Let's try again.

Q - Pierre Ferragu {BIO 15753665 <GO>}

Okay. Sorry for that. So I was wondering how much of the revenues from like EUV nodes [technical issue] is being added at the moment of 7 nanometer foundry [technical issue] 10 nanometer (inaudible) and how much [technical issue] EUV nodes ramping today?

A - Michael Sullivan {BIO 16341622 <GO>}

Yes. So thanks, Pierre. Let me take a stab at that and see if Gary wants to add anything. So what I would say is we won't share internal forecast of how foundry, logic breaks out across nodes, but I think, let me provide some color and context around the $1.9 billion. I think we would say that we're seeing strong adoption at 7 nanometers as they build out the node, strong adoption node over node as 5 nanometers gets deployed from a capacity standpoint and the logic equivalents of that and while we talk about a more balanced market in foundry logic, I think what you would see in the near-term environment that it's going to be significantly more weighted in the near term to these leading-edge technologies and so we really like the way the business is performing node over node.

In fact, as we look out into 3 nanometers, we really like the position and we think we can significantly enhance our relative position node over node, so we really like the way the business is performing on the leading edge and what you see in the near-term environment, given the strong ramp around 5 and 7 nanometers is less balance in the market in the near term, but the long-term trend of diversification within foundry, logic is still intact.

A - Gary E. Dickerson {BIO 2135669 <GO>}

Yeah Pierre, the only thing I would add, relative to the leading foundry, logic, is that all of these customers are driving performance, power, area cost, PPAC improvements and that's really all about new materials, new structures to drive power and performance and so for Applied, as Dan said, you know, really from a leading node perspective, it is those EUV nodes like 5 nanometer, where you see that adoption, but still we are achieving record revenue, we have so many opportunities when we're driving these new structures, new materials, new architectures, all of those different areas, so we see record revenue there. We're also seeing growth, not only in transistor, interconnect and patterning with some of our leading products, but we also have growth in areas where we have had lower share. In etch, we have many new critical etch steps that we've won, new self-aligned multi patterning wins and the EUV patterning steps where we really didn't participate in the past, so we look at our etch business in foundry, logic, we are extremely optimistic about the growth that we're seeing as new nodes are adopted. You know, even as EUV is also being adopted as one of the 5 drivers of power performance area and cost. The other thing I talked about is in process control, we have continued strength in ebeam. We also have strong adoption of a new inspection tool and we had record revenues in that market this last quarter, so again, it's really about driving that new playbook along those 5 vectors, power and performance, our leading products we're seeing new steps being adopted and in some areas we have room to grow. The opportunities for us have never been better in our position and has never been better than today. Thanks, Pierre.

Q - Pierre Ferragu {BIO 15753665 <GO>}

Thanks guys.

Operator

Thank you. Our next question comes from the line of Joseph Moore from Morgan Stanley, your line is now open.

Q - Joseph Moore {BIO 17644779 <GO>}

Great, thank you. I wonder if you could address $300 million of kind of deferred revenue that pushes to next quarter. Can you talk about why that's happening is that just sort of issues with your customers getting up and running, is it logistics issues getting tools to them or is it supply constraints that you have getting kind of sub-assemblies to build tool. Just can you kind of tell us what's driving the deferral?

A - Michael Sullivan {BIO 16341622 <GO>}

Thanks, Joe. I think the best way to describe it is the actions China is taking to contain the spread of the virus has led to travel restrictions and logistics of moving things around the country, we see those impacts is being temporary and it re-profiles revenue from Q2 to the back part of our fiscal year and so in the early stages of the China workforce coming back after the Lunar New Year and after the imposed restrictions by the government, we're seeing some early signs that are encouraging of some returned to normalcy, so fluid environment it's too early to draw a conclusion from it, but we like some of the early indications that we see, we're going to continue to monitor the situation closely and update as necessary.

And again as we break out that 300, you rank order it semi-systems display services, it's about getting our people into the factories and being able to service the equipment that certainly puts some restrictions on it. We know Wuhan is an important geography in our display business. Getting our systems into the factories in that region are impacted in the near term and then semi-systems, it's more of the same and so we think that given everything we know it's a prudent approach to the environment we say, we're going to continue to monitor it, there is an opportunity to do better in Q2, we think the customer demand is there, and we do think that we recover in Q3, Q4 and our full-year fiscal year outlook remains intact.

Q - Joseph Moore {BIO 17644779 <GO>}

Thank you.

Operator

Thank you. Our next question comes from the line of Vivek Arya from Bank of America Securities. Your line is now open.

Q - Joseph Moore {BIO 17644779 <GO>}

Thanks for taking my question and congratulations on the strong growth and for all the color you gave. Lot of questions were asked on the product side, I wanted to ask about services, were you surprised to see the slowdown in services in the last few quarters? What drove that? and then more importantly let's say you're targeting a 15%, 20% growth for next year, how much does AGS need to grow for that or how much can AGS grow in that kind of product growth environment? Thank you.

A - Michael Sullivan {BIO 16341622 <GO>}

Yes, thanks Vivek. So as we look at services, we talked about the framework of growth in that business in the prepared comments. It's size of the installed base, it's complexity of the leading node technologies and it's the execution against the long-term service agreement opportunity we have, those underlying growth drivers are absolutely intact. This is a business that's growing strong double digits over the last handful of years. Q1 was a record quarter for us and significantly above seasonal, Q2 would have been our first billion dollar quarter and so the team is doing a great job executing. We also know the slowdown in the near term is a function of the memory correction that we're seeing profile throughout 2019, as industry utilization has come down, our transactional component of the business has reflected what's happening to industry, why utilizations, the team is still executing against the long-term service agreement opportunity and grew that business nicely in the mid teens in 2019.

What we like about the setup through the back half of the year and as we look into 2021 with the services business in particular, as the memory recovery begins to take hold and as we look at that building momentum throughout 2021, foundry, logic demand continues to be strong. Those are going to provide a nice tailwind for that business to grow into the back half of the year and into 2021, so underlying demand drivers, intact team is executing well and we like the profile going forward.

A - Gary E. Dickerson {BIO 2135669 <GO>}

Yeah, I just one more data point, I talked about in the prepared remarks, we added 15% increase in the tools under service agreements and that subscription type revenue is very sticky and also gives us a higher entitlement per tool, so that's been a big focus, it's been a tremendous change in the last few years, the significant growth and it's really based on the value that we're providing our customers.

Q - Vivek Arya {BIO 6781604 <GO>}

Okay, thank you.

A - Michael Sullivan {BIO 16341622 <GO>}

Thanks Vivek. And operator, just 2 more quick questions please.

Operator

Thank you. Our next question comes from the line of Timothy Arcuri from UBS. Your line is now open.

Q - Timothy Arcuri {BIO 3824613 <GO>}

Thanks a lot, I guess I wanted to go through some numbers with you guys, so I think you said 19.2% of WFE last year, so if I assume that the second half is flat versus the first half, that would put SSG sort of in that [ph]$11.5 billion to like $12 billion range, so I don't think you would argue with either of those numbers since that's what you guided. So if I use that and then I assume that you don't gain or lose any share this year, that would imply like a $61 billion WFE number, you're sort of saying well as probably be more like 57, so if I just average those two and take 59 and if I try to figure out how much revenue is required to support that much WFE and I listened to what Gary said, which I totally agree about WFE intensity that you usually peaks out at about 12%. So if you take 12%, that would imply that you need over $500 billion worth of semiconductor revenue this year, which would be up like 25% year-over-year. So I definitely get that why MPC is some of the incremental WFE and they don't have much revenue, but how can you build a path to have enough revenue to support this. I guess that's the question, it's just hard to see WFE growing off of this, like its going to take a long time for revenue to kind of grow into these WFE levels. Thanks.

A - Michael Sullivan {BIO 16341622 <GO>}

Yeah. Thanks, Tim. Appreciate the question. So, couple of things, we have insight in what we think our Semi Systems business can do against the backdrop of the environment we see and we're very confident in our ability to significantly outgrow the market and then from a modeling standpoint, here's I guess how I would get at some of the assumptions, we think 2020 is going to be a really good year, we expect to outperform the market.

One of the key variables in the model that you're putting together is what you assume for market share and small changes in market share can make big differences in the model. So, we see continued strength from foundry and logic in our business throughout the year. We've got signs of memory recovery and as we've been saying for a couple of quarters, ultimately it depends on the magnitude and shape of the memory recovery later this year and if we see more momentum than that we're currently planning for, then I do think that we have an opportunity to outperform in Q4 and into our fiscal Q1 and so we don't see this being an isolated pocket of performance were relatively balanced half over half and we feel really good about how we're positioned.

A - Gary E. Dickerson {BIO 2135669 <GO>}

And how we are performing this year.

Q - Pierre Ferragu {BIO 15753665 <GO>}

Thank you. Our next question comes from the line of Patrick Ho from Stifel. Your line is now open.

Operator

Thank you very much for squeezing me in. Gary, maybe just to follow up on the share position from Applied, both in terms of the customer spending mix which is influential for you as well as some of the competitive and design wins you've talked about process control being a record revenue year, how do you look at the next couple of years, as I guess, new products continue to be introduced, an additional competitive wins you believe can drive the company on this outperformance?

A - Gary E. Dickerson {BIO 2135669 <GO>}

Yeah thanks, Patrick. So I would say, I've never been more optimistic relative to the market, again you have new demand drivers that are layered on top of mobile, social media, and PC, so the market is going to be bigger than we've seen in the past and you can also see indications over the last few years, the market is structurally larger and less volatile.

We have very good share spread across all of the different segments, the leading foundry, logic, we have momentum as customers are driving improvements in power performance area and cost, and specialty nodes, we have very, very strong positions, whether it's an image sensors or any of the other markets like IoT, communication, auto, and power devices, so we have strength there. We've grown a significant amount in DRAM and NAND relative to market share. Dan talked about this earlier, we've grown several points over the last few years.

So we have very strong balance, and what I would say is again the path forward for the industry is really this new playbook, around new architectures, new structures, new materials, new packages, also where we had record last year and we have strength and new ways to shrink, so we have the product pipeline and we have some very significant products in the pipeline that are targeted at multi-billion dollar types of opportunities, but the other thing I would say that's really important is the combinations of these different technologies with Integrated Materials Solutions driving significant improvements in throughput and drive current or power, the things really that are crucial for the edge in the cloud, we have unique capabilities to combine these technologies, some of them under vacuum, so you're not damaging interfaces electrically, so that's another area. We have engagements across every single customer with Integrated Materials Solutions. We have very good momentum there, besides the current products we have and the products that we have in the pipeline, so again from my perspective, I've never been more optimistic. I spend a huge amount of my personal time with the R&D leaders for the customers through this entire ecosystem, they're struggling to drive the performance, power improvements that are needed and I think Applied is in the best position that we've ever been relative to our ability to drive our opportunities and growth going forward.

Q - Patrick Ho {BIO 5499707 <GO>}

Yeah. Thanks.

A - Michael Sullivan {BIO 16341622 <GO>}

Thanks, for your question. Dan. Would you like to help us close the call.

A - Dan Durn {BIO 17483115 <GO>}

Sure, Mike. First, our sympathies to everybody who has been affected by the Coronavirus situation. I want to personally thank all of our employees who are helping their families in their communities, while also taking really good care of our customers. Applied's outlook for 2020 remains really positive. We expect to deliver strong double-digit growth in our Semi Systems business this year, significantly outperforming our end markets. Looking out into the future. I really like the setup, I really like what I see, continued strong pull foundry, logic, improvement in memory, both of those elements are going to drive and fuel growth in our services business over time. I would like what I see in display increasing into the second half of 2020 and into 2021 and we expect to close the Kokusai transaction in the middle of this year. So I really like the setup in 2020 and 2021, Gary and I hope to see many of you tomorrow at Goldman and next week. I'll be on the East Coast and look forward to seeing many of you as well. Let's close the call Mike.

A - Michael Sullivan {BIO 16341622 <GO>}

Okay, great, thanks. We'd like to thank everybody for joining us today. A replay of our call is going to be available on our website by 5 o'clock Pacific Time and we would like to thank you for your continued interest in Applied Materials.

Operator

Ladies and gentlemen, this concludes today's conference call. Thank you for participating. You may now disconnect.
