Q3 2021 Earnings Call

Company Participants

- Dan Durn, Senior Vice President, Chief Financial Officer
- Gary E. Dickerson, President and Chief Executive Officer
- Gino Addiego, Senior Vice President, Semiconductor Global Operations and Corporate Quality
- Mike Sullivan, Corporate Vice President

Other Participants

- Atif Malik
- C.J. Muse
- Harlan Sur
- Joe Quatrochi
- John Pitzer
- Krish Sankar
- Stacy Rasgon
- Tim Arcuri
- Timothy Arcuri
- Toshiya Hari
- 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.

Mike Sullivan {BIO 16341622 <GO>}

Good afternoon, everyone, and thank you for joining Applied's Third Quarter of Fiscal 2021 Earnings Call. 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-Q 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 quarterly earnings materials, which are available on the IR page of our website at appliedmaterials.com.

Before we begin, I have some calendar announcements. On the 8 of September at 9 a.m. Pacific Time, we plan to host the third event in our master class series, this time focusing on the ICAPS markets and also on heterogeneous design and advanced packaging. Then on the 18 of October also at 9 a.m. Pacific Time, we plan to hold our fourth master class. We'll focus on process control and process optimization, including AIx platform technologies, like e-beam and AI. We hope you'll join us.

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

Gary E. Dickerson {BIO 2135669 <GO>}

Thank you, Mike. In our third quarter of 202, Applied Materials again delivered record performance, capitalizing on strong broad-based demand for our semiconductor products and services, while navigating a challenging supply environment. Over the past 18 months, the pandemic has accelerated the digital transformation of the economy and adoption of advanced technology, creating a permanent structural shift for the industry.

At the same time, COVID-19 has disrupted global supply chains and logistics, a transitory challenge we'll continue navigating over the coming quarters. Across the company, I want to thank our teams for doing an incredible job to successfully overcome these near-term disruptions, provide outstanding support to customers and keep our R&D roadmap on track.

In today's call, I'll focus on three main topics. First, I'll provide our perspective on the market, starting with our near-term outlook and then recapping our longer-term thesis. Second, I'll summarize the three pillars of Applied's growth strategy. And third, I'll explain how Applied is outperforming our markets today and is well positioned to play an even bigger, broader and more valuable role in the future.

I'll begin with our near-term outlook. Overall, there is no significant changes to our view of the market. Demand is strong and sustainable with customers making strategic investments to address long-term secular trends. In 2021, foundry logic is the fastest-growing wafer fab equipment market. And we believe it will represent more than 55% of total customer investment for the year. This spending is split relatively evenly between leading edge, the three most advanced nodes in foundry and logic, and technologies for IoT, communications, automotive, power electronics and sensor applications or what we call ICAPS.

We expect DRAM spending to be the second fastest growing WFE market this year. And we see a positive setup for sustained investment in capacity and new technology. Supply-side inventories remain below normal levels, and long-term demand drivers are strong, fueled by memory-intensive AI computing. On an absolute basis, we expect NAND investments to be similar to DRAM for the year. We believe NAND inventories are at normal levels, both on the supply side and demand side.

Looking further ahead, I strongly believe there has never been a more exciting time for semiconductor companies. We are only at the beginning of decade-long trends that will underpin secular industry growth. As I've said before, digital transformation is built on silicon, and broadens the drivers for semiconductor innovation. Demand for semiconductors is no longer about one or two killer applications but rather an expansive structural shift in the economy towards digitization and automation.

Smart and connected devices at the edge not only consume more silicon, they are driving exponential growth in machine generated data. To make sense and create value from the vast volumes of data available, new AI computing approaches are needed, fueling further demand for current and next-generation semiconductors.

While global consumption of silicon is accelerating, adoption rates of new technology vary considerably by region. As we showed in our investor meeting, we estimate that by 2025, China will have only reached the same levels of silicon spend per capita the U.S. saw in 2015. And India trails China by another 8 to 10 years. Since the impact of digital transformation is so wide reaching, national governments are increasingly recognizing the strategic importance of semiconductors.

As government incentives become available in the U.S., Asia and Europe, they can provide multi-year support as the industry moves from lean and just-in-time supply chains to more resilient, flexible and secure approaches including regionally distributed capacity.

However, putting the right manufacturing infrastructure in place is only one piece of the puzzle. Investment in innovation infrastructure to lead in the development and commercialization of next-generation technologies is even more critical to winning the future. Early access to superior semiconductor technologies or what I refer to as winning the PPACt race will determine the countries and companies that thrive and those that won't.

At Applied, we have a strong point of view that the industry's future will not be like the past, and we've aligned our strategy and investments accordingly. Our strategy has three pillars. First and foremost, we are focused on being the PPACt-enablement company to provide the foundation for customers' power, performance, area, cost and time-to-market roadmaps. We have the broadest and most enabling portfolio of process technologies that we can co-optimize and combine in unique and highly enabling ways.

Second, we're shifting more of our business to subscriptions, as we believe this model provides significant benefits to customers and for us. We have already converted a meaningful portion of our installed base business to recurring revenues. And we are

starting to monetize new products and services using subscription approaches. And third, we continue to optimize our portfolio of businesses that serve adjacent markets, including display to drive profitable growth and higher free cash flows. This strategy is yielding results, and 2021 is shaping up to be a strong year of outperformance for Applied.

Starting with our unit process tools, we are seeing very strong demand for our leadership products. For example, taking the midpoint of our fourth quarter guidance, both our epi and thermal businesses are on track to grow more than 70% this fiscal year, while CMP will grow more than 60%, and implant more than 50%. We're also seeing outperformance in our growth areas, especially process diagnostics and control, where we expect to grow more than 60% in calendar 2021.

On top of this, we have strong momentum with our co-optimized and integrated solutions. By revenue, about 70% of the semiconductor products we sell today have already been co-optimized at some level. Co-optimization allows us to see and solve higher value problems for customers, speed up technology transition to high-volume manufacturing, and make our solutions stickier.

Beyond co-optimization, our integrated material solutions, called IMS, combine multiple processes with customized metrology and sensors in a single system typically under vacuum. Our latest IMS product that lowers interconnect resistance by 50% in advanced foundry logic, directly addresses a multi-billion dollar opportunity over the next five years.

With IMS, we can target the most complex and valuable challenges in the new PPACt playbook, and we have an exciting pipeline of new solutions for both foundry logic and memory. Another area where we're seeing strong and sustainable growth is our ICAPS business that serves a broad spectrum of customers and applications in IoT, communications, automotive, power and sensors. Within ICAPS, demand for 28-nanometer and larger nodes is especially robust. Revenue from products serving these applications is expected to double this year.

By acting early and forming a dedicated ICAPS team in 2019, we've been able to increase our focus on these customers and accelerate our share of this market. We're developing new products specifically designed for ICAPS markets, including integrated and co-optimized solutions. As a result, we're deepening our partnership and collaborations with these customers.

For example, we recently signed a five-year contract with a leading ICAPS customer, designed to provide more assured supply for them and more predictable revenues for Applied. Today, we are demonstrating strong momentum in our leadership and growth businesses, IMS and ICAPS.

And as I look ahead, I'm confident our opportunities are even better. It's clear that advances in materials engineering are foundational to the industry's PPACt roadmap. The PPACt playbook has five key elements: new architectures including workload specific A6 and new memories; 3D structures including gate-all-around transistors; varied power rail and 3D DRAM; new materials for gate, contact and interconnects; new geometric shrink

and advanced packaging. We believe that the relative contribution of these five elements to PPACt at future nodes is evolving in ways that create opportunities for Applied to play an even larger and more valuable role.

Let's take advanced packaging as an example. We identified this inflection early and began investing in differentiated technology years ago. Today, we enjoy a clear leadership position in the advanced packaging equipment with more than 60% share of our served market. We will generate more than $800 million of revenue from our equipment business this year. And through a combination of organic R&D and strategic partnerships, we're also developing highly-enabling future technologies. We are very excited about our opportunities and pipeline, and we'll share more details with you at our upcoming packaging master class.

Finally, when we talk to customers about PPACt, they consistently highlight the importance of T, time-to-market. Time-to-market acceleration is a critical component of our PPACt-enablement strategy. We've developed a proprietary suite of solutions to accelerate every stage of the product life cycle, from R&D to technology transfer, and high-volume manufacturing.

Our actionable insight accelerator or AIx platform that we officially launched in May brings together process tools, sensors, metrology, data analytics and machine learning. We have strong momentum and are adding new installations at multiple leading customers. For example, AppliedPRO is our process recipe optimizer within AIx, and used to accelerate R&D qualification of individual chambers and tools, as well as enable larger process windows and higher chip yields. Over the next 12 months, we expect to double the number of AppliedPRO customer engagements from around 25 this year to more than 50.

Before I hand the call over to Dan, I'll quickly summarize. We see strong and sustainable demand for our semiconductor business, underpinned by a wide range of positive macro and technology drivers. While COVID-related supply chain disruptions persist, our teams are doing a great job working through these challenges. We believe Applied Materials will outperform our markets again this year, thanks to our strong portfolio of differentiated unit process tools for both leading edge and ICAPS markets, combined with accelerating adoption of our IMS and advanced packaging products.

As we look ahead, we're confident that the strength of longer-term secular trends will drive semiconductor and wafer fab equipment markets structurally higher. And we believe Applied is in the best position to accelerate our customers' PPACt roadmaps and grow significantly faster than our markets.

Dan, over to you.

Dan Durn {BIO 17483115 <GO>}

Thanks, Gary. Today, I'll begin by summarizing Applied's overall performance in Q3. Then I'll discuss our semi systems results, including new details about our foundry logic

business. I'll also give you a number of metrics surrounding the large recurring revenue portion of Applied's global services segment. Then I'll add my perspective on the demand trends in our markets and provide our guidance for Q4.

Beginning with our Q3 performance, Applied generated the strongest revenue in company history with each of the segments exceeding guidance. We increased gross margin to 48%, which is the highest in 14 years despite the ongoing cost headwinds related to COVID. We also delivered the company's highest ever operating profit, operating margin and earnings per share. Our results included record operating cash flow and record free cash flow of $1.5 billion. In fact, we've generated nearly $5 billion in cumulative free cash flow over the past four quarters.

At the investor meeting in April, we made a long-term commitment to return 80% to 100% of free cash flow to shareholders. And in Q3, the buyback window was available to us for the full quarter. We repurchased $1.5 billion of Applied stock during the quarter, and returned 111% of free cash flow to shareholders including dividends. We ended the quarter with around $6.5 billion remaining in our share buyback authorization. Given the secular growth trends in our end markets and our view of the intrinsic value of the company, we expect to continue to be active in the market for our shares.

Finally, last quarter, I mentioned that Moody's upgraded Applied's credit rating to A2. I'm pleased that earlier this month, Standard & Poor's also upgraded our rating form A minus to A. Now I'll provide some insights into the strong performance of our semi systems business, which generated its highest-ever revenue in Q3. Our demand is broad-based across foundry logic and memory. And within foundry logic, across a wide variety of nodes, we're increasing our technology leadership in many areas. And that's being reflected in our operating margin, which crossed 40% for the first time. About half of our foundry logic revenue is being generated by our ICAPS business, which focuses on all but the three most leading nodes. Our ICAPS business has a large global presence, and serves a very large number of customers throughout North America, Europe and Asia.

Many of the ICAPS applications have long product cycles, which generates lasting opportunities for us, both in equipment and services. We have high share, and the margins are accretive to the company. We look forward to giving you more insights into the ICAPS markets and our strategies at the master class next month.

Turning to Applied global services. We're building a solutions-based recurring revenue business that delivers predictable free cash flow across market cycles. Our segment reporting gives you good insights into the business, and I'll continue to help you with key performance indicators that demonstrate the unique qualities of Applied services business and the progress of our strategies.

From our segment reporting, you know that AGS delivered record revenue of $1.29 billion in Q3, up 24% year-over-year. 87% of AGS revenue was recurring services, parts and software. The remaining amount was primarily legacy 200-millimeter equipment. So Applied generated $1.1 billion in recurring revenue this quarter. This is by far the highest

among our process peers, and demonstrates our progress in generating lifetime value from the industry's largest install base.

Today, our semi install base is just over 40,000 systems, and we have over 160,000 chambers in the field. At the Investor meeting, we shared our goal to increase revenue per system by 20% between 2020 and 2024. As of Q3, we're already halfway to achieving our goal.

Now I'll put some metrics to our strategies for adding customer value to further grow our recurring revenue. Connecting the installed base to our AIx servers, enables us to perform data-enabled services for our customers. Today, we have just over 4,300 connected tools, which is up over 30% from our 2020 baseline. We're also growing the number of secure remote connections, which allows us to connect our best experts to the install base to perform remote analytics, diagnostics and optimization from anywhere in the world. The number of remote connected tools now exceeds 3,200, which is up over 36% from our 2020 baseline.

Another key focus is transitioning our recurring revenue to subscriptions in the form of long-term service agreements. Today, we're generating 60% of our recurring revenue from subscriptions. And our goal is to reach around 70% by 2024. We also have a subscription renewal rate of around 90%. Another sign of customer value is the tenure of the agreements. Across the entire base of subscription of agreements, we've increased the tenure from 1.9 years at the end of 2020 to 2.2 years today. In fact, of our subscriptions booked in Q3, 77% were multi-year agreements. We track all of these KPIs very closely. I hope they give you a good sense of the size and growth of our recurring revenue, and the strong customer pull we're generating by focusing on customer time-to-market, as well as cost output and yield.

Finally, another key metric we disclose is AGS segment operating margin, which provides a good indicator of the value our services bring to customers. In Q3, it crossed 30% for the first time in 15 years. Next, I'll add my perspective on the demand environment. While Q3 was a record quarter, we see further growth ahead. In fact, our overall backlog is close to $10 billion with record levels in both semi systems and AGS, and strength across all of our geographies. I still expect equipment spending to be higher in the second half of calendar 2021 for both foundry logic and DRAM. I expect WFE to be up in 2022. And I expect all of our reporting segments to be higher.

Now I'll share Q4 business outlook. We expect to increase company revenue to approximately $6.325 billion, plus or minus $250 million or up around 35% year-on-year. We've widened the revenue range of this quarter because of near-term risks within our supply chain. We expect non-GAAP EPS to be around $1.94, plus or minus $0.07 or up around 55% year-on-year. Within this outlook, we project semiconductor systems revenue of about $4.60 billion, up around 50% year-over-year, and AGS revenue of about $1.30 billion, up nearly 18% year-over-year. We expect display revenue to be around $400 million.

Applied's non-GAAP gross margin should be flat sequentially at 48% or up around 230 basis points year-over-year. We plan to increase non-GAAP OpEx to $960 million, which is around 15.2% of revenue and below our longer-term target of 16%. Our guidance assumes a slightly higher non-GAAP tax rate of around 12.5%.

In summary, I'm pleased that Applied delivered another record quarter of financial performance in Q3. With strong margins and free cash flow, the demand environment continues to be continues to be strong. And I'd like to join Gary in thanking all of our teams and partners for their hard work in a robust but challenging environment.

Now Mike, let's begin the Q&A.

Mike Sullivan {BIO 16341622 <GO>}

Thanks, Dan. To help us reach as many people as we can, please ask just one question on today's call. If you have a second question, please just re-queue, and we'll do our best to come back to you later in the session.

Operator, let's please begin.

Questions And Answers

Operator

(Question And Answer)

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

Q - C.J. Muse

Yes, good afternoon. Thank you for taking the question. Was hoping to dig a little bit deeper into your ICAP business. You talked about foundry-logic being 55%-plus of the mix this year in ICAP, perhaps half of that. And so, I guess -- did I hear that correctly? And as you think about the spending there, can you walk a little bit in more detail around leadership versus growth penetration for you? And how we should think about the sustainability of spending there into 2022, as well as the positive mix shift to gross margins? And then, finally as part of that, is there a subscription angle that's a greater part of the story there given lagging edge, or no? Thanks so much.

A - Dan Durn {BIO 17483115 <GO>}

Hi, C.J. This is Dan. I'll start and Gary can jump in with some perspectives after I'm done. So, as we think about ICAPS market and the setup around foundry-logic. I think the contours you drill, create the right perspective. Greater than 55% of WFE this year is foundry-logic. When we look into foundry-logic and look at leading-edge versus ICAPS nodes, you're seeing balance in those two markets. We had a balance in those two

markets in 2020. We've got balance again in 2021. So, we're really encouraged by the strength we're seeing across the entire node profile and geometries within foundry logic.

We think we're incredibly well positioned on the leading edge to drive key enabling technologies as the new playbook rolls out. We're equally well suited in the ICAPS nodes to drive those roadmaps going forward. Innovation is back across the entire node profile as our customers pursue unique opportunities in IoT, communications, auto, power, sensors there's very unique technologies and capabilities that need to be driven as intelligence finds its way to the edge. Those roadmaps are vibrant. We've got key enabling technologies that's driving really good market positions for us, at attractive margin. So, we think we're really well set up to perform extremely well as both of these sides of foundry logic profile going forward in a very balanced way. So, we like how well we're positioned.

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

Yes. C.J., this is Gary. Thanks for the question. So, I think, ICAPS, maybe some people would think as trailing technology nodes. But if you really think about the digitization of everything and this big inflection, people are talking about the future having a half trillion or trillion connected devices at the edge. And certainly, as we talk to system companies that are deploying those eyes and ears and sensors in all of those different applications that are transforming every industry, there needs to be a tremendous amount of innovation and power, performance, cost, in both the chips and the packages. So, -- and we will cover this some more in the September 8th Masterclass, but I would think about edge innovation.

Certainly, in the cloud, you need high performance to extract the actionable insights, but that latency, power, cost, all of those things on the edge, that innovation is really important. And I think relative to the sustainability, certainly, you can see the explosion of data, especially machine-generated data. This market is very, very strong and we think, if you -- as you go to a 0.5 trillion connected devices at the edge in the future, it's going to stay very strong.

And as Dan talked about, we made a strategic change in our organization in 2019, pulling together key parts of our company 200-millimeter, 300-millimeter unit processed innovation. We have some dynamite technologists focused on these markets. And again, we'll share more of that at our September 8th, Masterclass.

A - Mike Sullivan {BIO 16341622 <GO>}

Okay. Thank you, C.J. Operator, can we have the next question, please?

Operator

Thank you. Our next question comes from the line of Stacy Rasgon from Bernstein Research. Your line is now open.

Q - Stacy Rasgon {BIO 16423886 <GO>}

Hi, guys. Thanks for taking my question. I had a question on memory. First on DRAM. So, obviously grew, pretty nicely, sequentially in the quarter. And it sounds like you're still pretty positive though on the trajectory and it's still below prior peak levels. And given the strength of your positioning and everything you've talked about. Is there maybe, any reason to believe that like whenever we hit DRAM peak, like whenever that is. Is there any reason to believe that, that level wherever it is that shouldn't be higher potentially significantly higher than where we saw the prior peak, which was several years ago?

And I think on the other piece of memory NAND, you talked about foundry-logic and DRAM, you didn't really mention NAND at all. I know last quarter, your views on NAND were a little more muted than the rest of it. Have your views on the trajectory of that market into the back half on downtick at all versus where you were three months ago? Because one of your competitors are down ticked a little bit.

A - Dan Durn {BIO 17483115 <GO>}

Yes. Thanks, Stacy. Let me take a crack at those questions. And if I leave anything out, please follow up to make sure I hit all of the points that you put on the table. So first, I think our view around WFE this year, there's very little change. We said it's now over $80 billion, we think it's a mid-30% grower plus/minus. And embedded within that, we see strength across all device types. Here, fastest-growing foundry-logic second-half weighted. Next fastest-growing, DRAM second half waited, still see strong demand and pull from customers there, so we feel good about that. Last quarter we put a question mark on the profile of NAND is it flat, is it down a bit? You know, we needed a bit more time to tell. I think we're still on that category. I think there's question mark, is it flattish, is a down a bit? So, very little has changed in terms of the shape of the profile throughout the year.

Taking a step back and taking a look at our DRAM progress. This is a business that we've had strong momentum in now for several years. And as we take a look at the roadmap, we talked about increasing our opportunity node-over-node and that seems to be playing out in the market. Right now, you're adopting logic lectures within the DRAM market and this place to a traditional source of strength for us. And so, we're playing a key enabling role for our customers and you see that playing out in the most recent results. And we would expect that strength to continue through the back half of the year.

As we look into 2022, we do see the overall WFE market up year-over-year. We see continued strength in all three device types foundry-logic, DRAM, NAND. And so, we like how well we're positioned against that opportunity and the way we see it. Right now, we're planning for all three of our reporting segments to be up year-over-year. So, the concept of peak is a really interesting one in this context. If we take a step back and look at the secular trends shaping this industry. We know Industries are going through a digital transformation, increasingly going to drive adoption of semiconductors. And I'd say the demand for semiconductors five years from now is going to be greater than it is today and certainly greater than it was five years ago. So, all of that is playing out nicely.

What I would also say in the DRAM market, that your node-over-node shrinks are producing less bit[ph] growth than they have historically. So, you're seeing capital

intensity rise in that market. You're seeing capital intensity rise in all device types frankly. But when I look at the investments our customers are making in this environment and I compare it on a historical basis as a percent of profitability to what we've seen historically, you go back about a decade and where the customers are spending more from a WFE standpoint. But WFE as a percent of EBITDA is down 40% over the last decade. So, the monetization of these investments is greater today than it's ever been. So, we really like the long-term secular drivers around our industry. And while every year may not be a peak, the trendline is definitely up and we do think it leads to higher highs and higher lows if this industry continues to drive its roadmap and deliver the power performance roadmap. We think we're incredibly well set up to perform really well, as those trends play out.

Q - Stacy Rasgon {BIO 16423886 <GO>}

Got it. That's helpful, thank you.

A - Mike Sullivan {BIO 16341622 <GO>}

Thanks, Stacy.

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>}

Yes. Good afternoon guys, thanks for let me ask the question. Gary, sort of, notwithstanding the comments you made in your prepared comments about how world governments have finally figured out how strategically important semi production is and we're going through a period of regionalization of the semi-production. If you look over the last two quarters, you've grown revenue over $1 billion. And the biggest chunk of that by far has been China. And so, I'm wondering if you can help us just better understand the makeup of spend in China today. And to the extent that we're all expecting this regionalization of supply. When and how do you think that takes place?

A - Dan Durn {BIO 17483115 <GO>}

Yes. Thanks, John. Let me take a crack at it. So, what we would say is, we take a look at the business we do in China. We've got three reporting segments, the numbers we report are both semi systems to domestic. China market participants, as well as the international market participants that are building facilities there. All of the services that go into supporting those facilities, as well as the display equipment that we ship into the market. And so, there's a lot of moving pieces that produce revenue in China in any given quarter.

As I take a step back and look at what's going on this year and we compare it to maybe the $10 billion of domestic China spend in WFE last year. What I would say is, is that, you're seeing meaningful spend across all three device types foundry-logic, DRAM, NAND. I would say the waiting this year is towards ICAPS market in China. And from a growth perspective, I would say, it's probably growing a little bit above the overall

industry average. So, we feel really good about how well we're set up against this opportunity with long-standing relationships, key-enabling technology, but we've got a broad and diverse business that serves this market across three reporting segments. And so, we feel good about how we're positioned and continue to drive strong performance as the market evolves.

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

John, on the other part of your question about, when do those investments happen from a regional perspective? There's no question. I'm involved in a number of different discussions. There's tremendous pull across many different regions US, Europe, Asia. And what I would say is that certainly, it's important from a supply chain continuity to have more regional capacity. I think that's a big area of focus. But personally, I think even more important is having not just physical infrastructure or manufacturing infrastructure but innovation infrastructure. And if you think about the infrastructure that's going to enable this multi-trillion-dollar digital inflection, it really gets back to, as I talked about earlier, edge innovation, cloud Innovation, everything in between for power, performance, costs ahead of others.

So, as I -- we certainly see an opportunity and that is moving forward relative to physical infrastructure and regionalizing capacity, also certainly for Applied, the United States, and many governments. Having those foundational technology puzzle pieces for innovation to win this PPACt race of the future is incredibly important. And certainly, Applied is in a position where we're going to continue to invest on top of what we've already done in the United States, with The Maydan Technology Center in Silicon Valley, The META Center in New York, but this is the race of our lifetimes and this innovation infrastructure I think is another key aspect of what needs to happen to win the future.

A - Gino Addiego {BIO 7150035 <GO>}

(Multiple Speakers) And then very quickly, John -- very quickly John, just from a timing perspective, and impact of the markets. We're not counting in anything from government spend in 2022. Our view is, as you start to see it in '23 and '24. If it happens faster than that, then it's upside to the perspective we have from a market standpoint. But '23, '24 is what we're currently seeing as the right timing about -- around that spend to regionalize capacity.

Q - John Pitzer {BIO 1541792 <GO>}

Perfect. Thank you, guys.

A - Dan Durn {BIO 17483115 <GO>}

Hi, thanks, John.

Operator

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

Q - Vivek Arya {BIO 6781604 <GO>}

Thanks for taking my question. You mentioned that you expected or you expect WFE to grow next year. I'm curious, how much additional capacity are you planning to bring online next year? And as part of that, how does it impact your margin structure? Because when I look at your gross and EBIT margins, they're pretty close or in some cases have even exceeded your fiscal '24 targets. If you could give us some insight into how much additional capacity you're planning to bring online and then where do margins go from here? Thank you.

A - Dan Durn {BIO 17483115 <GO>}

Yes, thanks Vivek. So, if you noticed, we've been investing at a nice rate as a company now for multiple quarters. You saw us begin to take that up, invest in our infrastructure. We took a point of view on where we saw this industry going -- was going. And we made sure that we had capacity in place to serve our customers and make them successful. So, we'll continue to do that along the way. We won't be point specific about how much capacity that we're bringing online, as you can imagine, for competitive reasons. But we'll invest ahead of that materializing and continue to do what we've been doing now for several years, as this industry continues to go structurally larger and we put a capacity statement in place to support it.

From a margin standpoint, what I would say is, the company is performing really well in this environment. You see it in the current results, we told you it wasn't a one quarter phenomenon, we see follow-through at these levels. And this is despite the near-term headwinds we see from a COVID environment. And so, as those headwinds begin to dissipate, I think you see an upward bias off of these levels on a like-for-like basis from a margin standpoint. Then it also says, the long-term model that we put out at our analyst day, talked about 48.5%. I think we're making good progress against that, it's a good way to think about the company. But no matter what our gross margin is, I would say, we'll never be satisfied with it. We'll be constantly looking for ways to increase the baseline level of productivity at the company, and do even better than we're doing today. So, we feel good about how we're set up, will continue to make investments to support the business, and will continue to drive results.

Q - Vivek Arya {BIO 6781604 <GO>}

Thank you, Dan.

A - Dan Durn {BIO 17483115 <GO>}

Thanks, Vivek.

Operator

Thank you. Our next question comes from the line of Toshiya Hari from Goldman Sachs. Your line is now open.

Q - Toshiya Hari {BIO 6770302 <GO>}

Good afternoon. Thanks so much for taking the question. Gary, I wanted to ask about your leadership products. You gave some growth rates in your prepared remarks. I think for ePi and thermal you said above 70% growth this year, above 60% for CMP, and above 50% for implant. All three outperforming. What I believe is your full-year implied guide for semi systems.

I guess my first question is, what are some of the key drivers there? And my second part is, how should we think about sustainability into fiscal '22 based on what's in your backlog today and based on the conversations you're having with your customers? And asked the question because it obviously has important implications for mix and gross margins. Thank you.

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

Yes, Toshiya, thanks for the question. So, when I -- I'm in constant conversations with R&D leaders, many hours actually, in each of the last two weeks and also CEOs for our leading customers. And what I would say, when you think about the PPACt roadmap, power, performance, and cost, and time getting there ahead of others, that's what determines who wins and losses in the industry. And when you think about the relative -- the key drivers for that. We've talked about five drivers, new chip architectures, new materials, new structures, new ways to shrink, and new ways to connect chips together. So, if you look at what our customers are saying -- on -- even I think earlier today, but in many different forms people are talking about new materials in the periodic table of elements and packaging technologies, and new structures like gate all around or designed technology co-optimization with technologies like buried power rails, or contact over active gate. And in some of those cases with no smaller pitch, you can drive significant area savings.

So, when I look at the roadmap, and you see this today in our leadership businesses -- and we also talked about in our investor meeting, a new innovation where we can enable 50% reduction in wiring with integrated material solution where we're combining many technologies under vacuum ALD, PVD, CVD, copper reflow, surface prep technologies to drive a 50% reduction in wiring, across many different levels. That is enormous when you think about power and performance, and that one integrated system is worth billions of dollars that's what we've communicated.

So, Toshiya, I think that the opportunity for Applied has never been better. When you think about really the relative contribution of power, performance, and cost going forward, whether it's in the leading edge, where you're processing all of that data and the cloud, the edge innovation that we've -- I talked about earlier today, new memory technologies where -- it's really in the sweet spot for Applied for materials innovation, structure innovation. We have a very strong position in advanced packaging, we're driving innovations not only with our breaths[ph] in our unit processes but also in combinations with partners with new integrated material solutions. We're going to share more of that in our Masterclass on September 8th. So, I think the strength that you're seeing -- if I lookout for the next few years and I look at the relative contribution to PPACt, I just think we've never been in a better position. And our leadership areas and the strategies and investments that we've been driving or are paying off now, they'll pay off even a bigger way going forward.

Q - Toshiya Hari {BIO 6770302 <GO>}

Very helpful. Thank you.

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, thank you for taking my question. I have a question for Gary on the display industry. When should we expect an inflection on the display side? And how long we're going to go through this LCD to OLED conversion phase, and when should the new capacity come on for display?

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

Yes, thanks Atif. Let me jump in on that one. So, we talked for several quarters now about strengthening fundamentals in the overall display market capacity coming out, strengthening panel prices, screen sizes continued to increase, you see 5G OLED penetration in the handset, and then future roadmap foldable displays in the handset. You talked about OLED penetration of larger format displays, itTV, all of those strengthening market fundamentals, I think give us a good sense that, in 2022 you're probably going to enter a more attractive point of the investment cycle. I don't think it's going to be a dramatic step-up off these levels, but you'll certainly start to see better levels of investment. So, I think we're on the cusp of that right now. Too early to tell exactly when it hits in the beginning of '22, in the back half of '22. But we're on the cusp of entering that more attractive point.

I think there's technical solutions that need to be solved in the OLED market to drive it into large format displays and start to replace LCD. So, I think that's a little way out, but we're certainly watching the customers' roadmap, the success with the technology inflection, and then putting capacity behind that inflection. Once that happens, I think you've got an opportunity to take this market structurally larger, and it will be a long-term technical shift in the industry's roadmap on those large format displays. Those solutions will be more capital intensive than LCD technologies today. And from an Applied Materials and display business standpoint, it will be an attractive piece of business for us when it happens. But I still think we're a little way away of that inflection actually hitting the market and customers putting capital behind it.

Q - Atif Malik {BIO 7312618 <GO>}

Thanks, Dan.

A - Dan Durn {BIO 17483115 <GO>}

Thanks, Atif.

Operator

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

Q - Krish Sankar {BIO 16151788 <GO>}

Yes. Hi. Thanks for being my question. Dan, I had a question on inventory. Your sales have grown in the last few quarters on a sequential basis, yet your inventory dollars have stayed roughly slightly on the $4 billion give or take. And with some of your component and subsystem suppliers being constrained to Malaysia and other factors. Are you pulling from Hub Inventory? And are you worried at some point your suppliers' challenge could kind of manifest into curtailing your own revenue potential down the road? Thank you.

A - Dan Durn {BIO 17483115 <GO>}

Yes. Thanks, Krish. So, what I would say is, I think we all know that the supply chain, as the global economy begins to fire back online. There's pockets of non-linearity and some disruption and certainly, our industry is no different on that front. I think, what you see is a disciplined efficient operation of the company in a challenging environment. We feel good about how we're operating. My expectation in the current quarter given what we see going forward is, as you would begin to see that inventory rise in anticipation of what we see on the horizon. But we'll take it one quarter at a time, make smart decisions about how we engage with our supply chain to make sure we're set up to successfully satisfy our customers' needs and make them successful. So, we'll -- as I look back on the last several quarters, really comfortable and pleased with the way the company is operating in the environment, and growing the company in a very disciplined way.

A - Mike Sullivan {BIO 16341622 <GO>}

Thank you, Krish.

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>}

Hi. Good afternoon, and congratulations on the solid results and execution. The team did very well in the $6 billion-plus control segment last year. I think your prior view was that you were going to grow this segment by 50% this year. Now the team is saying, up 60%-plus this calendar year. Clearly sustaining the strong momentum from last year. Obviously, we know there's a strong focus on new process debug and production yield improvements. It's time to market for these new processes is so critical. What areas is the team going to see the strongest growth or potential share gains this year in process control? And how does the growth prospects look for process control into next year?

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

Hi, Harlan, thanks for the question. So, when I think about our PDC business, there are really two aspects. One is, certainly we're seeing tremendous growth within PDC and

that's -- are certainly e-beam leadership. We're extending our e-beam leadership, I'll talk about that. We have the new optical product, the Enlight, where we're expanding traction of that product. But the other aspect that's really important is the synergy with those technologies and our unit and IMS innovation. So, I talked about in the prepared remarks, the Applied Pro process recipe optimization, extending that from 25 different engagements to more than 50 next year. And so basically, what we're doing is, taking our e-beam leadership. We have the highest resolution and we can generate massive data with unique imaging and algorithm, so we can look at fingerprinting across a chip for things like pattern loading or across the wafer and really dialing those recipes in for our unit process and IMS innovations whether it's wiring or gate-all-around or capacitor structures and DRAM or any of those kinds of things, that's worth billions of dollars to us and it's worth a tremendous amount for every one of our customers. So that combination and the synergy is also very powerful. And relative to the revenue growth within PDC, again that's been really great to see.

Our e-beam portfolio of products is extremely strong. We're also deploying new technology and we'll talk more about that at the upcoming Masterclass to extend our leadership from a resolution perspective. Certainly, across all of our products, across EUV types of application, so that's very strong. The optical part is also growing where we have real strength with some leading foundry-logic customers across a broader set of customers. So, I'm very optimistic, your question about sustainability. Very-very optimistic about the sustainability of revenue growth within PDC. And I'm even more excited about the synergy for R&D acceleration in big process windows and higher yield for the rest of the Applied portfolio.

Q - Harlan Sur {BIO 6539622 <GO>}

Thanks, Gary.

Operator

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

Q - Timothy Arcuri {BIO 3824613 <GO>}

Thanks a lot. I just wanted to get both of your view on maybe some of the longer-term puts and takes on the systems business. If we just look at the commentary here into the back half of this calendar year, it seems like we're doing about $45 billion in WFE for the back half of the year, sort of, run rating around $90 billion. And if you just take the cumulative street[ph] consensus for semiconductor revenue, it's in the $290 million to $295 million range. So, WFE intensity seems a bit about 15% here in the back half of the year. And I think you've, sort of, said that you think 14% of the right longer-term number.

So, I guess my question is sort of, how do you think about the puts and takes for where the systems business could go on the downside? Because as you say, Dan, we do have subsidy-driven WFE coming on beginning in 2023. So, I guess, I'm just wondering how you think about the puts and takes around all of that? Thanks.

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

Yes, thanks, Tim. So, when you think about run-rate and you think about market share and you think about quarterly run rates. First of all, you're going to see things move from quarter to quarter, so it's hard to extrapolate what happens in any given quarter with a broad trend. The second thing I'd say is, depending on what you assume from a market share standpoint. You can get some pretty big swings in the analysis. So, from my perspective, we got a market that we think is over $80 billion this year, mid-30%, grower. Our systems business in the first two quarters of actual results, one quarter of guide. Those three quarters, our semi-system segment is going to be up over 50% against that market opportunity. We're seeing strength across all three device types and node-over-node momentum, we see our opportunity increasing.

As we look into 2022, we see WFE up. Our confidence interval on that has gone up in the last three months. And so, we feel good about that perspective, then you see regionalization of capacity. And so, hard to always call with precision the profile in any given year. As I take a step back and think about the importance of semiconductors to digital transformation of virtually every segment of the economy. You think about rising capital, intensity? I think there's an upward bias on capital intensity over time, as a result of traditional 2D Moore's Law, traditional 2D shrinks hitting a wall, the new playbook that has multiple elements to it. We're certainly going to play a key enabling role to each element of that new playbook. I see there being an upward bias of capital intensity over time and I don't think it pops out at 14%.

And then you think about regionalization of capacity to create a secure supply of semi's. I think that provides an even further upward bias. And so, -- and we've been on this observation for a while. If you go back a decade and look at two-year rolling averages of WFE, every year it won't be up but each successive two-year window has been up over the prior. And as we look forward over the next decade, we see those secular trends shaping our industry, showing nice signs of strength. You will get a cyclical overlay on top of that trend line. It's going to lead to higher highs, higher lows, but it's hard to call with precision, the timing of when those peaks and valleys hit.

Q - Tim Arcuri {BIO 3824613 <GO>}

Thank you, Dan. Appreciate it.

A - Mike Sullivan {BIO 16341622 <GO>}

Thanks, Tim. And operator, we have time for one more question, please.

Operator

Thank you. Our next question comes from the line of Joe Quatrochi from Wells Fargo. Your line is now open.

Q - Joe Quatrochi {BIO 18961101 <GO>}

Yes. Thanks for taking the question. Congrats on the results as well. Just curious on the WFE. Yes, look, you talked about increasing confidence in the 2022. Can you give us any

sort of update on how we think about it? I think last quarter you talked about over 160 for 2021 plus 2022. I think we're a little bit higher now for 2021?

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

Yes, thanks, Joe. Here's what we see. So, we said over 160 for 2021 and 2022. We see 2021 being over $80 billion and we see up year-over-year. So, we won't be point-specific to update that over 160, but clearly, we've got a lot of confidence that you're pushing higher to those levels, higher than that level if '21 is over $80 billion already and you're up into 2022. So, we feel good about the setup. And certainly, our opportunity given the momentum, we outperformed in '19, we're going to outperform again in 2021. We think we're set up to continue that as we look into 2022. And we're planning for each of our reporting segments as we look into 2022 to be up. So, we feel good about how the company is executing against that opportunity. But it probably won't update in a point-specific way the two years. But I think what I just shaped for you gives you a sense of what we see.

Q - Joe Quatrochi {BIO 18961101 <GO>}

Fair enough. Thank you.

A - Mike Sullivan {BIO 16341622 <GO>}

Okay. Thanks, Joe, and thanks for your question. Dan, would you like to help us close up today's call?

A - Dan Durn {BIO 17483115 <GO>}

Yes. Thanks, Mike, sure. So, as I look at the most recent quarter, one big takeaway from the quarter is just, how much the foundry-logic market has broadened. What used to be a leading node, only spend in the past is now evenly balanced between leading edge and ICAPS markets today. I think that speaks to the momentum we see of edge computing, IoT. When you put intelligence at the edge it sets up a virtuous cycle where the data generated at the edge is going to create more demand for advanced logic and memory in the cloud, it's a nice virtuous cycle.

Another observation, despite the supply chain headwinds the industry is seeing, our teams are working incredibly hard and driving gross margin initiatives and they're delivering some of the best results the company has ever had. I also like the strong free cash flow being generated, really sets us up well to deliver even more cash to shareholders over time. Hopefully, I'll see many of you at the Needham, Deutsche, and Citi conferences in the coming weeks.

And so, with that Mike, let's go ahead and close the call.

A - Mike Sullivan {BIO 16341622 <GO>}

Okay, great. Thanks, Dan. And we'd like to thank everybody for joining us today. A replay of the call is going to be available on our website by 5 p.m. Pacific Time. Thank you for your continued interest in Applied Materials.

Operator

Thank you. This concludes today's conference call. Thanks for participating. You may now disconnect.