Advanced Energy Industries Inc

Duksan Jang (00:08):

My name is Duksan Jang. I'm part of the Bank of America US semiconductors and semis equipment research team. I'm very delighted to have Paul Oldham, executive vice president and CFO of Advanced Energy join us today. AE is a leading supplier of power conversion systems for the semiconductor industrial auto as well as the medical, not automotive, my bad, but data center and telecom networking markets. Paul, welcome.

Paul Oldham (00:37):

Thank you, Duksan. Thank you very much also for joining us everyone.

Duksan Jang (00:41):

Did you have anything to say with regards to the forward-looking statements?

Paul Oldham (00:44):

Yeah, maybe before we begin, just a reminder that our comments today may include forward-looking statements, and of course those are subject to a number of risks. You can find those risks documented in our SEC filings. Also, just a reminder, we did have our earnings call at, I guess, the beginning of May. And we will not be making any adjustments or confirmation of any of our guidance at this time.

Duksan Jang (01:09):

Awesome. I guess we can get started with some quick overview of the company. For those unfamiliar, could you walk us through the story of AE, your role in power conversion systems, as well as some of the top growth drivers?

Paul Oldham (01:23):

Excellent. So AE is approximately $1.7 billion leader in precision power conversion systems. We started over 40 years ago with a couple of engineers because they saw a need in this market, particularly in the semiconductor industry. And to this day, we're a leader in providing process power for semiconductor equipment. What we basically do is we take power that comes from the wall or the grid and we convert it to stable, clean, repeatable power that can be used across a number of highly critical or precision types of applications.

(01:59):

As I mentioned, we started in the semiconductor industry. We are still an integral part of the manufacturing process for semiconductors in etch and deposition processes. We are the leader in that market, but we've also been able to expand, take this capability and expand into a broader set of industrial, medical, telecom, networking, and data center markets as well. So today our TAM is approximately $10.5 billion. And we focus primarily in these markets on the precision end into critical applications that are designed in. Once we're designed into applications, we tend to stay in those applications. We have about 70% of our business that's sole-sourced. So as we work our customers'

design engineering teams and they design us in, we're in applications that have a very long life cycle from a revenue perspective.

Duksan Jang (02:49):

Understood. I guess you briefly touched upon your last earnings, but could you just help us go through what went well in that quarter, maybe what went a little bit worse than expected?

Paul Oldham (03:01):

Yeah. Frankly, the first quarter was quite challenging for us. I think it was our lowest quarter since 2020. And we actually came to a point where all of our markets, each of those markets I described were actually at a trough level. So it was quite difficult. Having said that, when you look across the various markets, and semiconductor performed largely as expected, actually a little bit better, industrial and medical was worse. Frankly, the impact of the inventory digestion following the supply chain crisis in the last year or two had a bigger impact than we thought. That also impacted the telecom and networking markets.

(03:36):

And then finally data center was pretty close. We had some timing of a customer order that moved out there, but we're starting already to begin to see recovery in those markets led by data center computing. And so we expect our second quarter results to be up meaningfully from what we reported in the first quarter.

Duksan Jang (03:55):

Sure. On that last point, just because a lot of the semiconductor companies that we cover who are exposed to the same end markets, they've been pointing out a recovery starting the second half. So what's helping you kind of outgrow those peers and have that visibility?

Paul Oldham (04:12):

Yeah. Actually, I think our strategy to extend beyond semiconductor, just semiconductor capital equipment into industrial medical data center and telecom and networking have helped us to bring more balance to the company. For example, in 2023, the semiconductor WFE market was down about 20%. Most of our peers who are primarily just semiconductor companies were down 30% to 40%. We were only down about 10%. Why? Because we performed relatively well in semi, our products didn't go through the normal inventory cycle we might typically see, and we had broad exposure to things that did well like trailing edge logic.

(04:51):

And our other businesses, industrial, medical, telecom, and networking, and data center were about flat. Frankly, it was a record year for us in industrial and medical, and that helped us. And it was a very strong year in telecom and networking. So we're seeing the benefits of being exposed to a broader set of markets we saw it last year. And frankly, we're seeing that this year. So for example, what's driving the growth Q1 to Q2 is a robust rebound in the data center market. We expect that's going to continue to accelerate in the second half. In addition, as we go through the year, we think medical will begin to improve modestly. And at some point late in the year, maybe we see a little bit of improvement in industrial or in the industrial side of the business.

Now, when we look at semi, we're probably more like everybody else. We said that 2024 would be a transition year, that overall the business would be about flat with 2023, and it would be more second

half weighted. So that's what we're seeing. We're basically on track to what we did or what we said we'd do in Q1. We think the second half will be up modestly, driven probably the same factors you're probably hearing from other people. So it's really the combinations of these different markets I think is giving us a little bit more headroom for growth in the near term and probably in the long term as well.

Duksan Jang (06:07):

On semi's market specifically, I guess you just said that this year is looking to be flattish from last year, but over the long term you've kind of outlined this market to grow beyond WFE. So what's going to help you outgrow in the future?

Paul Oldham (06:22):

Yeah, I think there's a number of factors. First, if you look historically, we've grown significantly faster than WFE. I think a lot of that's because we're a market leader, we've grown share, and frankly, the etch and dep applications have higher capital intensity probably than broader WFE. Now, in fairness, I'm excluding the impact of litho and EUV because I think that's sort of its own trend. It's becoming a bigger influence on WFE, but it's not an area where we would play. So think about WFE excluding EUV.

(06:56):

As we look forward, we think the same trends apply. We have some very exciting new products that we think really reinforce our position where we're a leader and give us an opportunity to grow in areas where we don't have a lot of share today, particularly in areas of NAND around dielectric etch, potentially if we have new design wins there. We've introduced new products in an area called remote plasma source, which is an area, again, we have quite low share, but have some pretty compelling new products we think we can grow share as well.

(07:26):

And finally, we continue to increase our addressable part of the semiconductor market. As we've added new products, there's opportunities for us to be an auxiliary power. We've grown our high voltage part of the market driven by ion implant and e-beam inspection, and we have new sensing solutions that give us a bigger footprint around the chamber, for example, around the chuck that measure various attributes of what's happening on the chuck and in the chamber.

Duksan Jang (07:53):

Where are we in your semis equipment cycle today? Because a lot of your customers have already started reporting better numbers, some outlook for recovery. So how should we think about growth for you guys?

Paul Oldham (08:06):

Yeah, I think when we think about that, we track a lot what our customers are saying. We're not experts in what WFE is going to do. I think they're closer to it and their customers are closer to it. And frankly, even they don't know. I think that's a hallmark of semi is it's very hard to predict it exactly. But our operating view aligns very much with their view because, again, as you start to look towards the balance of this year, you start to see some improvement in this transition year that's led by I'd say DRAM, which is already recovering somewhat and we're benefiting from that through design wins into high bandwidth memory or HBM. The legacy node logic is maybe a little bit softer. It's had a particularly strong year in 2023 that might offset some of that growth. But we think we'll start to see some of the early

investments in some of the next generation technologies of two nanometer for gate-all-around or high-k metal gate. All of these are drivers of our business that will participate well in.

(09:10):

I think if there's a strong NAND recovery, we participate in that because we have a strong position in dielectric etch, which I'm sorry, in conductor etch, which creates the transistors on all of these wafers as well as deposition where we're the leader in deposition. Where we're not quite as strong is in the dielectric etch part of that, the part of the market that's used to drill the holes through these multiple layers and to do deep trenching. So as the NAND memory ultimately starts to recover, we may not grow quite as fast as that part of the market. But what we're excited about is our new products there, we think give us an opportunity to get design wins as the new much higher layer count and more sophisticated trenching and other features are introduced to the market.

Duksan Jang (09:54):

I did want to touch upon the last point that you just mentioned, conductor versus dielectric etch. I think your competitor has said that they expect to gain share next year as a result of NAND coming back, and obviously you also have content in NAND, but wouldn't that be sort of a headwind for you to outgrow WFE again in the coming years?

Paul Oldham (10:18):

Yeah, I think independent that one factor, it would be a headwind. I think conversely we declined a lot less when NAND went down so much. I think that's just a natural part of mix in the market. When we think of share, we don't think of that as strategic share. That's just tactical share based on what's happens in the mix of the market. So it's possible that in that particular market we would grow less.

(10:39):

Again, we have a strong position in conductor etch, which I think is stronger than our competitors, and in deposition that's stronger than our competitors, which should partially compensate for that. If NAND recovers, we're going to benefit from that for sure. And like I said, I think the exciting opportunity for us is to look at the design win opportunities as we move into the next sort of level of layer count and new materials and things that go with that.

Duksan Jang (11:05):

Could we talk a little bit more about the competitive dynamics? What gives you any advantages over your competitors? How are you differentiated?

Paul Oldham (11:19):

Yeah, it's a good question. I think in semiconductor it's clearly all about technology. You have to have leading technology to win in these markets. At every step over the last four years, we've been the leader, the innovator in introducing compelling solutions as that market has continued to involve. And frankly, we think we're at another one of those inflection points as you move into two nanometer and these other features that are smaller. It's getting harder with the existing technologies to meet the needs there.

(11:47):

We've just introduced two new significant platforms that we think gives us a strong lead there. The first is a new RF generator platform, which frankly has two times the response time of anything that's been in the market in the past and has eight level pulsing. What these two features do is they increase the

process window significantly for our customers, which makes it easier to design to these very sophisticated and more difficult feature sets. So this product we think is, again, another step forward, significant step forward in the technology that's available in the market.

(12:20):

On the other side of the equation, on the bias side are where the power supply is used to direct the ions onto the wafer. Again, we've introduced an extremely capable new product based on new technology. That product we believe allows the customer to be 50% more energy efficient. In other words, they can put 50% less power into the wafer to get the same result or at the same amount of power, they can get a much better result. Again, that will serve us across a number of applications, but it also gives us an opportunity, we believe, to penetrate new designs for these much higher layer count NAND opportunities. It's a different way of operating, gives us more power right where you need it, and an ability to lose less power overall. That means you have better yield and you have better throughput. That's what our customers ultimately care about.

(13:12):

So is this investment the technology that lets us win. If you look more broadly in our other markets in industrial and medical, we have the largest platform of standardized products in those markets. We have the largest footprint we believe across the market. We've invested in additional resources for quick turn customizations. We are currently the leading power supply vendor in the three largest distributors, Arrow, Avnet, and Mouser. So we feel really good about the position that we have there. And frankly, most cases we're competing against companies much smaller than us. So as we expand our reach and get in front of more customers, we have a disproportionate share opportunity to win, we believe, because we bring scale, history, quality, and a broad product set to the portfolio.

(14:02):

In data center, frankly, we have the highest power efficiency products on the market, we have the highest power density products on the market and we're known for our high reliability. That's helping us win right now in some of these AI-related investments. And in the telecom and networking market, we have a very tailored set of products that work well in the base station, the remote radio head, and in a broad set of networking applications. So it all comes back to the technology, having the right technology that can win in the markets. We invest significantly in R&D. We continue to do that to the downturn and we frankly have a very good slate of new products and a new product pipeline coming up.

Duksan Jang (14:45):

Before we get into some of these other end markets, you've been increasingly talking about the eVoS and the eVerest pipelines. Could you just give us a quick description of what they do? How are they differentiated both against your competitors but also against your prior generation products?

Paul Oldham (15:02):

Yeah, it's a good question. This is basically what I was just talking about in semi. The eVerest product is a next generation platform of an RF generator. It's the workhorse for plasma processes. And this generator essentially creates the catalyzing energy that separates the ions from the electrons in the gases that are in the chamber. As I was mentioning, this new product has twice the response time, two x the response time of any other product on the market, and it has the highest level of pulsing of the energy, which again gives the customer an extreme amount of process control and can improve yield. So that's the first one.

(15:42):

I think there's a second aspect to this product that's pretty revolutionary for us, and that is our first truly modular design product. What that means is we can do customizations or tailoring to this product four to five times faster than we've been able to historically do. That means as customers are doing process development, we can respond to their needs very quickly. It also means we can field more applications at the same time on the same resource. So we're seeing a lot of demand for this product at the qualification phase. Our engineering team is very busy, but they're able to process much more than they've historically done. So we think this is pretty exciting.

(16:21):

On the eVoS side, this is the new bias product I talked about. It's the product that directs the ions onto the wafer. We use a novel technology there, frankly, that we think is in-house for us. It uses a high voltage power supply, not just RF as part of some of our techniques to use less power and have more directed energy right where you want it on the wafer. And so as a result of that, we think we get much better power efficiency that's positive for our customers. We think we get better direction of what's happening, which means less damage to the wafer, less damage to the chamber, and better yield and better throughput.

Duksan Jang (17:00):

Understood. We can move on to the industrial and medical portion of the business.

Paul Oldham (17:04):

Sure.

Duksan Jang (17:05):

You've said that it's a largely fragmented market. You have the largest share at the three largest distributors, but what's really helping you grow beyond the industry and gain share here?

Paul Oldham (17:17):

Yeah, you're right. This is a large fragmented market. Unlike semi, which is very concentrated, we have already a large share in semi, while we're number two in the industrial and medical market, we have sort of mid to high single digit share. And we're not very far from number one. So what it tells you is it's very fragmented. There's lots of applications, there's lots of vendors. Everybody's sort of carved out what they're particularly good at or customers they've built relationships or designs that they've won.

(17:48):

So when we look at this market, winning in the market at the design phase is lots of singles. So what that means is you need lots of at-bats. For us, we do that by having a very capable set of standard platforms to build off. And this year has been a great year for new products. We introduced a brand new low power platform. We just introduced our Evergreen platform, which is a very capable high power platform. And then you build derivatives off of those to meet individual customers' needs. We've significantly increased our derivatives team. It's largely based in the Philippines and we're able to turn those derivatives very quickly.

(18:28):

So if you look at our design funnel today, it's about 50% larger than it was a year ago. That says we're getting more at-bats. And when we look at our capabilities, we think we are continuing to get a good at-bat percentage on those. So that's the first thing was we've got to get more at-bats and we got to have products that can meet those other needs. To get more at-bats, we've done a couple other things. As I

mentioned, we've continued to develop our distribution channel. We weren't always number one out of these distributors. That's really happened in the last year as we moved up sort of our share position in the polling.

(19:01):

Secondly, we've focused our sales force to be more concentrated in this particular market so that we get attention that we need. And the third thing was we've invested in our digital footprint, so it's easy for customers to find what products we offer, do some simple configuration themselves and even order a product. So if you're a design engineer working on a bench and you need a product with a certain set of specs, today you can go onto our website, you can find it and you can order it and it'll be there in a week. What that does is we think it extends, again, the opportunity to get at-bats, to get on a design engineer's workbench. It's not necessarily to drive a lot of revenue through ordering direct from us. It's designed to increase our customer acquisition.

(19:41):

Once we're in front of customers, our value proposition's compelling because we bring the scale of a much larger company. We bring that quality, we bring the factory redundancy, we bring the ability to tailor these products quite quickly. So that's our focus, is getting more at-bats and we think we're doing that.

Duksan Jang (19:59):

Sure. On the inventory digestion portion of this market, I mean you've been getting hit along with some of the other peers unfortunately, but you are seeing a recovery in the second half. Is this typically what you've been seeing in the last cycles as well, and do you see this cycle sort of behave differently than other cycles?

Paul Oldham (20:23):

Yeah. This cycle in industrial and medical is quite unusual. Normally, we like the industrial, medical markets because it's hundreds of specific applications across hundreds or thousands of customers. So while things may be up or down a little bit in aggregate, they kind of behave in a much more tame way. And in fact, we would expect an industrial and medical kind of peak to trough cycles more tied to the economy, more 10% or 15%, or conversely. What we're seeing is something much more dramatic than that across all of these applications and industries. The one common denominator that we find when we look across those is that this group as a whole was the last one to get parts coming out of the supply chain crisis. These people have been waiting for parts for the better part of a year, a year and a half. And in this latter part, middle to latter part of last year, we were able to catch up on those delinquencies. We were able to bring the lead times back down from 40 weeks plus down to eight to 10, maybe 12 weeks.

(21:21):

And when you put that kind of a macro change across this environment, I think it's just caused a lot more disruption from a supply shortages for a long time, and now maybe excesses. Customers were very reluctant not to take product that they'd had on order for 40 weeks, and they ordered more because they knew it was a hard to get it. So now we're in that period of inventory de-stocking or digestion. It's more pronounced than we thought it would be. Frankly, we expected some of it, but we saw from our Q end results that it's more pronounced than we thought. We're also seeing this in the channel. And I think you can see this same phenomena being talked about by our channel partners. You see it across the industry in multiple different markets. So we think this is more of a supply digestion than it is a fundamental shift in the market.

(22:09):

The markets are okay. They're off a little bit, but they're fundamentally okay. It's a supply adjustment. We think this is going to take four to five quarters to work its way through. If it's started in late Q3 and Q4 where we first started to see kind of the intake rates start to slow a bit, then that would put us in the later part of this year. In addition, within this market, the medical part is already starting to recover a bit. They got parts a couple quarters before everybody else in this market, and that would put that at about a four to five quarter digestion period for them as well. And that's why based on the early orders we're seeing, we think second half in medical is actually up a little bit versus the first half, whereas industrial medical, it's more weighted towards the end of the second half.

Duksan Jang (22:56):

Then in a sense, when that digestion period ends, you said five to six quarters, should we expect the magnitude of the recovery to go beyond the prior run rate of say 110 to 120 million dollars a quarter?

Paul Oldham (23:10):

Yeah, I think when we were posting records last year that were kind of we had three quarters in the 120s. Right? Which was up dramatically from the prior year. I think that was benefited from the catching up, the shipping down of this backlog. And so probably 2022 was too low, 2023 was too high because we're catching up, and the early part of 2024 is too low. The real mean is probably somewhere in the middle of those points, like, I think happens in sometimes these cyclical markets.

(23:38):

So we would expect that as inventories normalize, our business levels kind of revert back towards the mean, which could be a fairly sizable pickup. But probably the right answer in the trend line is probably in the middle between where we are today and the peak levels that we saw before. Now overall, we think this is a growing market. We think we're growing share for the reasons we talked about before, so we would still expect long-term growth faster than the market kind of on a through cycle basis. And for us that would be that sort of mid to high single digits plus growth kind of through cycles.

Duksan Jang (24:14):

Understood. In data center computing, you are expecting the big recovery the next quarter. I think there was a customer push out from Q1 to Q2.

Paul Oldham (24:24):

Yes.

Duksan Jang (24:24):

Besides that, what else should we be looking at for growth drivers in the next couple quarters?

Paul Oldham (24:30):

Yeah, I think the big driver in data center computing is we're starting to see in our business the impact of the investment in AI. This sort of started to become a thing middle of last year with ChatGPT, and we saw a lot of investments start to go into AI related servers. Obviously, Nvidia has done extremely well. But that initial investment into AI has largely been concentrated on the physical plan, building out of the site and the power and the other requirements needed in the site and on the procurement of the GPUs. That's what we believe.

(25:03):

What we're seeing now is that these customers, and it's a broad set of customers across both hyperscale and enterprise accounts, are now starting to fill in the requirements in the rack, which is where the power supply sits. So I think we're sort of at that part of this investment cycle where it's coming our way. We've seen that pretty dramatically. Like I said, we expect our second quarter results in data center to be up over 50% from the trough levels in Q1 and the second half to be higher than the second quarter. So it's going to build strength in the second half of the year driven by this largely because of AI investment.

(25:42):

Now, having said that, if you look at more recent comments in the last week by people like Dell and HP, there also seems to be maybe a little bit of recovery on standard servers as well. It's a little harder for us to see that in the broad scheme of things, but that would be another positive vector for the industry is if standard servers start to recover a bit as well.

Duksan Jang (26:07):

And also I think over the last couple of days, especially with Nvidia talking about a hundred thousand GPU cluster servers coming to life as soon as next year, are you also seeing that type of magnitude of increase in your business?

Paul Oldham (26:22):

Yeah. So the feature of these AI data centers is they consume way more power. And an AI server rack, for example, will consume three to five times the power that a standard server rack would. So we are seeing that. We're seeing that in unit count of these orders that we're getting today.

(26:40):

Now, we don't know what the offset is on the standard server side because a lot of the actual money has still been going to the AI racks, but as they move to these even bigger power-hungry GPUs, that factor is only going to increase. So in some cases you could see that the power in the rack could be eight to 10 times higher than a standard server. So I think that trend works in our favor. We have the highest level of power efficiency in the market. We have the highest level of power density. That means we can put more content in smaller space than others. And we have very high reliability. So when you're spending this much money on a server, you don't want it to go down. And so we think that all those factors kind of benefit us and come our way.

(27:23):

Now, we're not going to have a hundred percent share in this market obviously, but we've tailored where we're investing in our product development around capability and technology. And I think these trends we're seeing again work in our favor.

Duksan Jang (27:36):

Got it. In the last couple of minutes we have, I did want to touch on gross margins.

Paul Oldham (27:40):

Sure.

Duksan Jang (27:41):

A big part of your story as of late, you've had some headwinds last year, but some of that has already normalized by the first half. You're still expecting another 250 to 300 basis points in the second half, and then over 40% over the long term. So what would be some of the remaining puts and takes into gross margins?

Paul Oldham (28:01):

Yeah. Look, we've had a 40% margin goal for a while. And frankly it's been frustrating that we've not made more progress to that. Now, part of that was supply chain where we had to pay a lot more for parts. And as that's gotten better, we've now moved into these cyclical trough periods which has an impact on your fixed costs. So we haven't seen a lot of improvement in gross margin, frankly, that we would like to see.

(28:22):

Having said that, as we go forward, we think a lot of those negative trends are washed through. And as we make real improvements in gross margin, we actually see that benefit. There's three things that benefit gross margin as we look forward. The first is there's still a little bit of material cost improvement we can make. We think that's 50 basis points plus as we go forward. We have an extensive program to optimize our factory footprint. We're consolidating our factories, many small factories into our few large scaled factories. We think that will generate 100 basis points of gross margin improvement as we execute Q4 this year and another 100 basis points by the middle of next year as we complete those factory transitions and ultimately the closures that go with those. That's real cost that's coming out of the system as a result of those actions. And we're looking for ways to accelerate or think a bit bigger about that even as we work today.

(29:14):

The last factor is we're at a trough revenue level. And as revenues improve, we'll get the benefit of higher revenues against our fixed cost base. And that's about 100 basis points per $50 million of revenue. So to your point, if we're able to get back to round $400 million by the end of the year, that's 100 basis points from improvement in the factory, 100 basis points plus from volume, and another 50 plus basis points from material costs. Looking into next year as markets actually recover, if we were able to get to mid 400 million range, that would put us another 100 basis points from volume and the second 100 basis points from factory. That gets us to 40%.

Duksan Jang (29:54):

Understood. The last 10 seconds I have, your capital allocation strategy. You've also announced a possible offer to acquire XP Power. If that deal does not go through, what would be your next strategy in mind?

Paul Oldham (30:10):

Yeah. So look, we have a good funnel of acquisition opportunities. We like XP Power a lot. Frankly, we've had a hard time getting the board to engage, which is why we've taken this more public approach to announce a possible offer because it gives us a chance to work directly with shareholders. There's a prescription for how this process works in the UK where this is listed, but it's a limited time window. And they call it put up or shut up. So by the end of this window, either shareholders are accept where we're at, we come agreement, or we have to go into a cooling off period and we're kind of done. I think of it kind of more like fish or cut bait. It gives us a chance to pursue this. That makes sense. We have an opportunity to get it done. If it doesn't, it gives us a chance to move on. And like I said, we have a funnel of opportunities and we'll move on to the next opportunity.

Duksan Jang (30:54):
Sounds good. Well, thanks, Paul.

Paul Oldham (30:58):
Great. Thank you everybody for joining us today.