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KOREAN AMERICAN SEMICONDUCTOR ASSOCIATION IN SILICON VALLEY

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Nvidia Has A Demand Problem

May 27, 2025 ValueAnalyst

Summary

- Nvidia Corporation's Q1 FY 2026 earnings are highly anticipated, but the company's demand outlook is troubling. An illustrative example shows why the common rhetoric of ever-growing AI investments is short-sighted.


Daniel Grizelj

Nvidia Has A Demand Problem

Nvidia bulls often point out that the Nvidia's top customers, Microsoft (MSFT), Meta Platforms (META), Amazon (AMZN), and Alphabet (GOOG), which together comprised nearly 40% of Nvidia's datacenter revenue in recent periods, continue to signal strong capital spending, but I believe that this common rhetoric represents a superficial understanding of Nvidia's demand dynamics.

Let's take Microsoft as an example: On April 30, Microsoft CFO Amy Hood said:

We expect capex to grow, it will grow at a lower rate than FY25.

This comment alone tells me that Nvidia's revenue growth will likely continue to slowdown as its major customers reel back capital spending growth. More importantly, however, Microsoft or other hyperscalers did not commit that a constant or a growing portion of their capital expenditures will go to Nvidia. Instead, Nvidia will likely receive a declining portion of capital expenditures because many hyperscalers such as Microsoft are committed to their internal chip development programs in order to reduce reliance on Nvidia and/or increase their negotiating power, which means declining revenue growth rate, pricing power, and profit margins for Nvidia.

Notably, the improvement that is rumored for Microsoft's second-generation chip, the Maia 200, is nothing short of impressive: Whereas Maia 100 was two years behind Nvidia's H100 in achieving general availability and also materially worse with its 64 GB of HBM2E capacity (vs H100's 80 GB HBM3), Maia 200 is rumored to boast 192 GB of HBM3, hop to TSMC's (TSM) 3nm process, and arrive in calendar 2026 to narrow the gap with Nvidia, even if absolute compute supremacy still tilts towards Nvidia.

I believe that the high progress rate is likely to be true for other hyperscalers as well, such as Amazon with its Tranium chip and Alphabet with its Tensor Processing Units because it makes sense: Why continue to pay a supplier tens of billions of dollars every year at high margins instead of hiring expert teams and investing into multi-year programs that could save your company billions of dollars during contract negotiations with Nvidia?

What I'll Be Watching

If my investment thesis for my Sell rating plays out, Nvidia will continue to see declining revenue growth and profit margins. As a reminder, the following is the forecast that I shared in my most recent article:

Nvidia	Q4 2025	Q1 2026	Q2 2026	Q3 2026	Q4 2026	Q1 2027	Q2 2027	Q3 2027	Q4 2027
Growth	78%	65%	55%	45%	35%	25%	15%	5%	0%
Revenue	$39B	$43B	$47B	$51B	$53B	$55B	$54B	$54B	$53B
GP margin	73%	71%	70%	69%	68%	67%	66%	65%	65%
Gross Prof.	$29B	$31B	$33B	$35B	$36B	$37B	$36B	$35B	$33B
OpEx	$5B	$5B	$5B	$5B	$5B	$6B	$6B	$6B	$6B
Op. Inc.	$24B	$26B	$28B	$30B	$31B	$31B	$30B	$29B	$27B
Tax rate	12%	17%	17%	17%	17%	17%	17%	17%	17%
Net Inc.	$22B	$21B	$23B	$25B	$26B	$26B	$25B	$24B	$24B

Author's Analysis

The above forecast that I published after Nvidia's last earnings release was already a material downward revision in both revenue growth rate and profit margin compared to my forecast that I had shared before the last earnings release, and I suspect that my revised forecast is still optimistic: While my revenue estimate of $43B, representing a 65% growth rate from the same quarter of previous fiscal year, is in line with management guidance, my net income forecast of $21B for fiscal Q1 2026, already revised down from $23B in my previous forecast, is still $3B or 14% higher than the consensus estimate of $18B for this quarter. That is telling, but there's more.

Illustrative Example

The following table illustrates that Nvidia's revenue growth may stall or even turn negative even if hyperscalers continue to grow their capital expenditures:

Customer	Q1 2025	Q2 2025	Q3 2025	Q4 2025
Microsoft	$21.4B	$23B	$25B	$27B
Meta	$13.7B	$15B	$17B	$20B
Amazon	$25.0B	$27B	$29B	$32B
Google	$17.2B	$19B	$21B	$23B
Total capex	$77.3B	$84B	$92B	$102B
Nvidia's share	50%	45%	40%	35%

Nvidia's take	$38.9B	$37.8B	$36.8B	$35.7B

The above table simply shows that even if Nvidia's four largest customers continue to grow their capital expenditures, Nvidia's revenue could decline in the coming periods, if Nvidia loses any market share to its competitors such as Advanced Micro Devices (AMD) or Microsoft's Maia or other hyperscalers' internal programs progress at a rapid pace as I discussed above.

Bullish Risk To My Bear Thesis

Seeing the significant customer concentration risk from hyperscalers, Nvidia's CEO, Jensen Huang, started highlighting the role of government entities as the next group of growth drivers on Nvidia's earnings calls about a year ago. Since then, a number of governments, including Taiwan, Japan, Saudi Arabia, the UAE, and the U.S. have indeed made announcements to that effect.

If governments ramp up their purchases so fast that they more than offset the potential decline in Nvidia's revenue growth rate in my forecast, then Nvidia stock could continue upward. I expect governments to fail to pick up the tab.

TSMC Capex Intensity and Intel's Pursuit

May 13, 2025 The Value Edge

$165 billion dollars is an enormous sum of money. Herein lies the second component of TSMC's future outperformance. The capex intensity of leading-edge chip manufacturing is extraordinarily high. This makes it difficult to catch up to the market leader and even harder to leapfrog them. In 2025 alone, TSMC expects to spend between $38b-$42b with 70% directed toward leading edge processes and the remaining 30% split between specialty technologies and advanced packaging. This dwarfs Intel's $18b in planned capex, even as Intel is aiming to leapfrog TSMC in process technology this year.

The comparisons between Intel's 18A process node and TSMC's N2 have been plenty. It is Intel's first real shot to overtake TSMC in several years, chiefly because the company is attempting to incorporate two new technologies together for the first time ever. Both TSMC and Intel plan to adopt GAA, or Gate-All-Around, transistor design for these next nodes. On top of that, Intel plans to switch to its PowerVia technology for a Backside Power Delivery Network ("BPDN").

Feature	Intel 18A	TSMC N2
EUV Lithography	Low-NA (High-NA in testing)	Low-NA only
Backside Power Delivery	Yes (PowerVia)	No (planned for N2P/A16)
GAA Transistor	Yes (RibbonFET)	Yes (Nanosheet GAA)
Advanced Packaging	EMIB, Foveros	CoWoS, SoIC
High-NA EUV Adoption	Testing with 18A; full use in 14A	Not planned until A14 (1.4nm) or later

Backside power delivery involves moving key power delivery components from the front side of the die to the backside, freeing up space for more logic transistors on the front. It's an important step because we've reached the limits of how large we can make silicon dies, which has given rise to 3D stacking approaches like high-bandwidth memory ("HBM").

Switching to a BPDN frees up space on the front end of the chip, allowing for better performance without relying on higher transistor density. This is exactly what we're seeing from initial industry reports comparing the two processes. Intel is set to release 18A in mid-2025 while TSMC will move N2 to high-volume manufacturing in late-2025.

Despite speculation about Intel overtaking TSMC, though, customer commitments clearly favor TSMC. Apple (AAPL), Advanced Micro Devices (AMD), and Nvidia (NVDA) all plan to utilize capacity at the Arizona fab. This speaks to TSMC's foundation of customer trust and reliability, whereas Intel is grappling with a 'wait and see' mentality from customers. Should the company's initial Panther Lake chips come out and surprise the industry, Intel certainly could gain ground. But it's an uphill battle.

Should Intel truly leapfrog TSMC with 18A, it is not the end of the world. As previously mentioned, TSMC is investing over twice as much on capex this year as Intel. The sheer volume that TSMC can produce ensures its relevance in the next generation. Even if Intel leapfrogs TSMC, it will only gain share, not market dominance.

Further, TSMC remains a better investment fundamentally due to its stronger foundry business model. TSMC's 'forever node' strategy, in which it continues producing chips on older nodes with fully depreciated machinery, gives it a very profitable cash generating machine to continue reinvesting in the leading edge. Intel does not have this luxury. It is far more reliant on leading edge success than TSMC is. This allows TSMC to invest in R&D and capex with profits instead of debt. The difference in these two companies' capital structure is striking: TSMC has under $30b in debt and over $80b in cash while Intel has over $50b in debt and under $25m in cash.

TSMC's leading edge monopoly may be disrupted, but it won't be dethroned as the market share leader any time soon.

Micron May Be At A Cyclical Peak

May 13, 2025 Hunting Alpha

Summary

- Despite a superior high bandwidth memory product, Micron may still lag its peers in commercial success due to slower product upgrade timelines.
- Micron is poised to benefit from increased DRAM demand from new iPhone models.
- Despite a slight P/B multiple correction, Micron's stock still trades at a higher than usual premium vs competitors, reducing the margin of safety for buys.
- MU vs SPX 500 shows bulls defending a monthly support level. So there are fewer reasons to be bearish as well.
- It may be best to wait for a cyclical turn in the NAND Flash market, especially given Micron's weaker market positioning vs competitors. Micron is not heavily impacted by tariffs.

Thesis

Taking stock of the marginal drivers and corrected valuations, I find reasons to be incrementally less bearish on Micron, although I still don't see enough positives to become bullish:

- Despite a superior product, Micron may be lagging in commercial success in the high bandwidth market
- Micron is well positioned to benefit from DRAM demand from new iPhone models
- Micron's valuations don't leave much margin for safety
- The technical charts show bulls defending a monthly support
- It may be best to wait for a cyclical turn in the NAND Flash market
- Tariffs are not a big concern for Micron

If you are new to Micron and the semiconductor market and hence unfamiliar with DRAM, NAND Flash, SSDs and HBM, please read my initiating coverage on Micron, where I have provided a layman's explanation of all this jargon.

Despite a superior product, Micron may be lagging in commercial success in the high bandwidth market

The key growth driver in the semiconductor memory market are HBM chips used in accelerated computing applications, such as NVIDIA's (NVDA) Blackwell chips. I have talked about HBM being a growth driver for Micron in each of my past 5 articles on the stock; it is that important of a driver for Micron's future prospects. But recently, it is becoming more apparent that Micron may actually lag behind its competitors SK hynix and Samsung in commercial scale up of HBM. To understand this, first it is useful to go back a couple of years and look at some historical context:

Many years ago, Micron had made a strategic bet on packaging technologies via something called hybrid memory cubes [HMC] but the memory market's growth drivers moved more toward high bandwidth memory (HBM). This led to Micron having a low volume ramp in older generations of HBM technologies:

Micron had, in the past, invested in HMC technology. And that, of course, gave us tremendous amount of packaging expertise, the market moved to HBM. And Micron had HBM2 product, but at limited levels. And we chose to leapfrog to HBM3E with industry-leading specifications.

- CEO Sanjay Mehrotra in the 2023 UBS Global Technology Conference

From a product specs perspective, Micron decided to leapfrog the competition via its HBM3e product with better specs than the competition (primarily SK hynix (OTCPK:HXSCF) but also Samsung Electronics (OTCPK:SSNLF) as it is currently a laggard in the HBM market):

Micron's industry-leading HBM3E delivers a 30% power reduction compared to the competition. And our HBM3E 12-high has a remarkable 20% power advantage over competing 8-high products while providing a 50% higher memory capacity.

- CEO Sanjay Mehrotra in the Q2 FY25 earnings call

"12-high" refers to the number of DRAM dies (layers) that are stacked vertically on top of each other within the HBM chip package. It helps increase the memory capacity of the chip.

But the better product specs do not necessarily translate to a superior market share, which is why Micron has been trailing its competitors in the HBM market; something they expect to change in CY25:

we expect our share of HBM to intercept our share of the overall DRAM market sometime in calendar year '25. So that gives you some sense of sort of where we have to go. As you know, we have not had as large a share. So we're starting from a trailing position.

- Executive VP of Global Operations Manish Bhatia in the Q1 FY24 earnings call, Author's bolded highlight

For context, when management says they are aiming to get their HBM share to match their overall DRAM market share; they mean 20-25%:

4Q24 Global DRAM Manufacturers' Branded Memory Revenue Rankings (Unit: Million USD)

Ranking	Company	Revenue			Market Share	
		4Q24	3Q24	QoQ	4Q24	3Q24
1	Samsung	11,250	10,700	5.1%	39.3%	41.1%
2	SK hynix	10,458	8,945	16.9%	36.6%	34.4%
3	Micron	6,400	5,775	10.8%	22.4%	22.2%
4	Nanya	203	252	-19.3%	0.7%	1.0%
5	Winbond	119	154	-22.4%	0.4%	0.6%
6	PSMC	11	18	-37.9%	0.0%	0.1%
	Others	156	174	-10.0%	0.5%	0.7%
	Total	28,598	26,017	9.9%	100.0%	100.0%

Notes:
1. 3Q24 USD:KRW = 1:1,355; USD:TWD = 1:32.3
2. 4Q24 USD:KRW = 1:1,399; USD:TWD = 1:32.3
Source: TrendForce, Feb. 2025

TRENDFORCE

Q4 CY24 Global DRAM Market Shares (TrenceForce)

Now, this CY25 is a big year for the overall HBM market, which demand expected to double after nearly tripling in 2024. This is driven mostly by the introduction of new GPUs:

With the iteration of key GPU products from NVIDIA and AMD and the evolution of HBM specifications, the market is gradually transitioning from HBM3 to HBM3e. Meanwhile, next-generation HBM technology is also gaining increasing attention.

- TrendForce News

And so far, it looks like Micron is rapidly gaining share, outgrowing the overall market at >50% QoQ growth rates and with faster-than-expected scale ups that is expected to continue especially in H2 CY25:

High-bandwidth memory revenue grew more than 50% sequentially to a new milestone of over $1 billion of quarterly revenue. Our HBM shipments were ahead of our plans, demonstrating strong execution of our ongoing ramp… We have begun volume production of HBM3E 12-high and are focused on ramping capacity and yield. We anticipate HBM3E 12-high will comprise the vast majority of our HBM shipments in the second half of calendar 2025.

- CEO Sanjay Mehrotra in the Q2 FY25 earnings call

So the evidence suggests that Micron has a good position to capitalize on the current generation of HBM products. But what makes me a bit cautious is the fact that it may be lagging its peers in ramping up for the 4th generation of HBM scale up:

Company	HBM4 production ramp
Samsung	2025
SK Hynix	2025-26
Micron	2026

HBM4 Production Ramp Timelines(TranceForece. Author's Analysis)

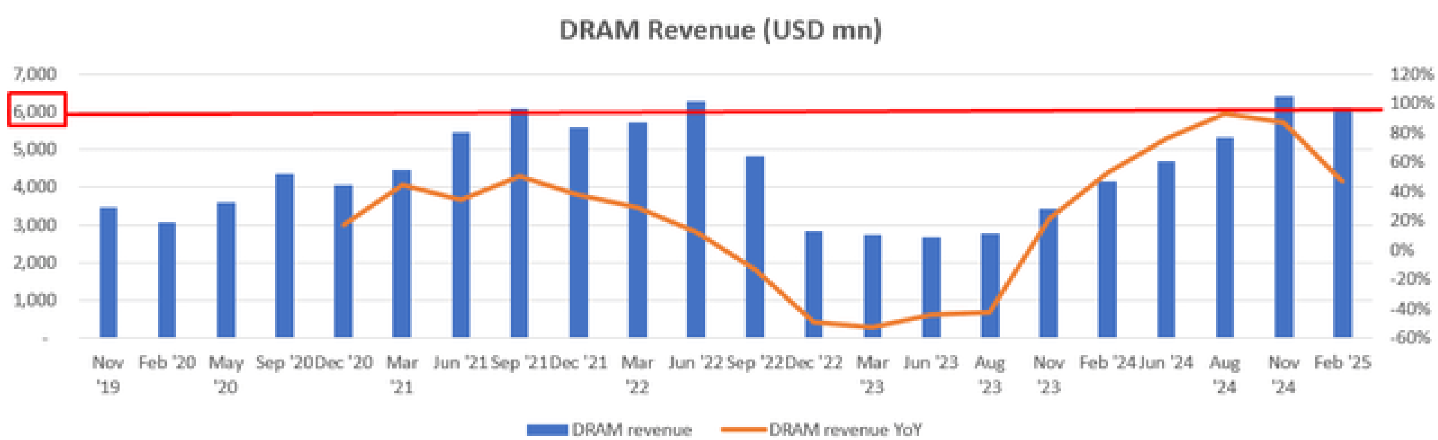
Micron is well positioned to benefit from DRAM demand from new iPhone models

Apple (AAPL) is set to launch new iPhone 17 models in September this year. According to industry surveys, this is expected to feature an upgraded 12GB of DRAM across multiple series - Pro Max, Pro and ultra-thin. This 8GB to 12GB memory upgrade comes at a 50% higher price point to Apple, making for an attractive demand driver for the key suppliers - Micron and SK hynix. And from a percentage growth contribution perspective, due to a lower scale of HBM revenues currently (as discussed in the prior section), Micron is likely to grow faster:

Overall, Micron may have stronger growth potential than SK hynix due to its smaller AI [high bandwidth] shipment base

- TF International Securities analyst Ming-Chi Kuo

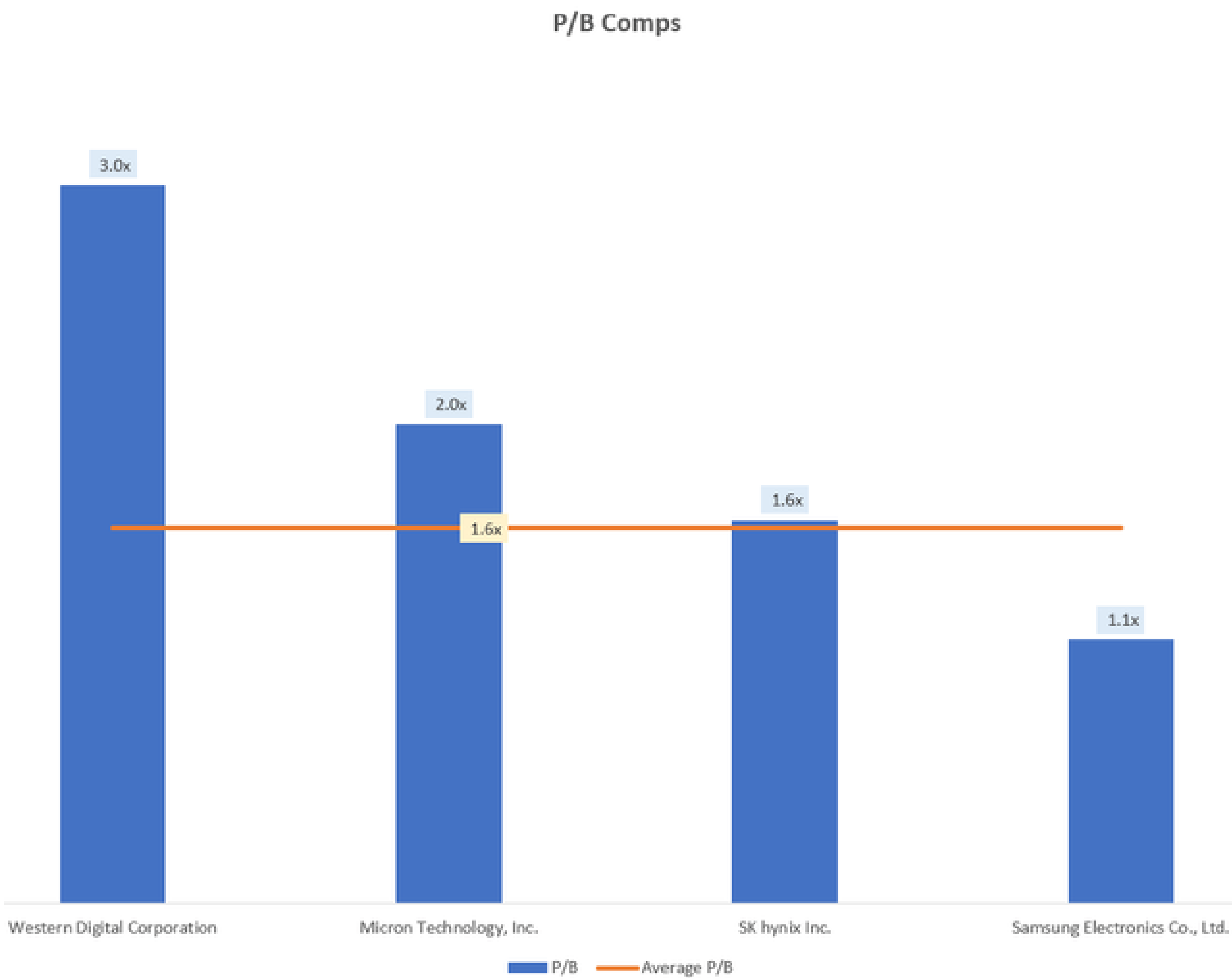
I expect this to translate into a sustained higher quarterly run-rate of DRAM revenues; above $6bn/quarter:



DRAM Revenues (USD mn) (Company Filings, Author's Analysis)

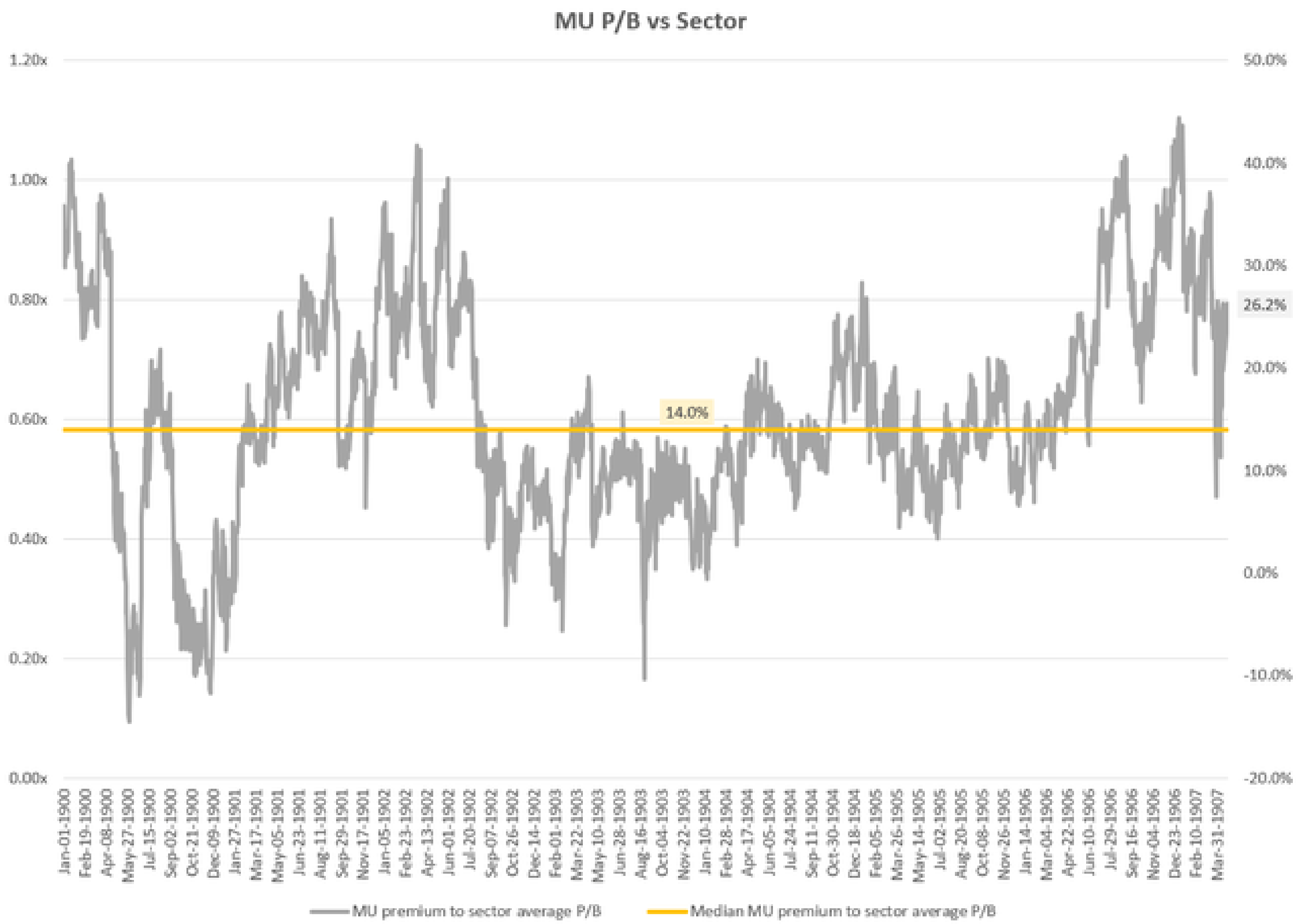
Micron's valuations don't leave much margin for safety

At 2.0x P/B, MU stock is trading at a 26.2% premium vs 1.6x average of its comps:



Micron P/B Comps (Capital IQ, Author's Analysis)

Although lower than the earlier 30% premium, it is still a bit higher than the typical 14.0% premium MU stock has typically commanded vs its competitors:



MU P/B vs Sector (Capital IQ, Authot's Analysis)

Hence, I think MU stock does not offer much margin of safety for buys in this context.

The technical charts show bulls defending a monthly support

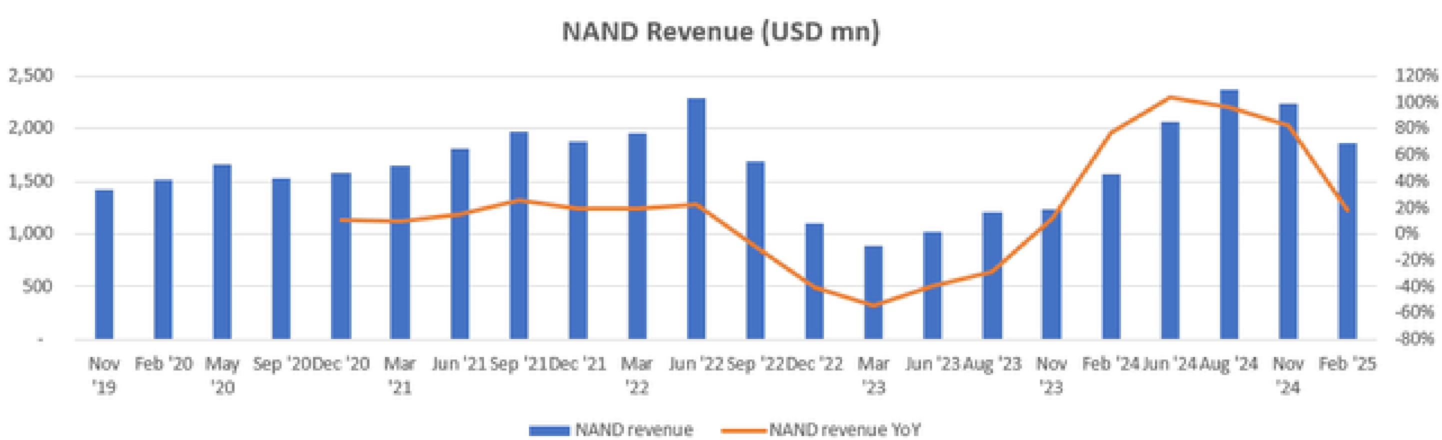
If this is your first time reading a Hunting Alpha article using Technical Analysis, you may want to read this post, which explains how and why I read the charts the way I do. All my charts reflect total shareholder return as they are adjusted for dividends/distributions.

MU vs SPX 500 Technical Analysis (TreadingView, Anthor's Analysis)

Relative to the S&P 500, MU stock is seeing some buyers' defending a key monthly support level. So I think there are fewer reasons to continue being bearish now. I expect some more sideways consolidation to follow before any chances of incremental upside and hence outperformance.

It may be best to wait for a cyclical turn in the NAND Flash market

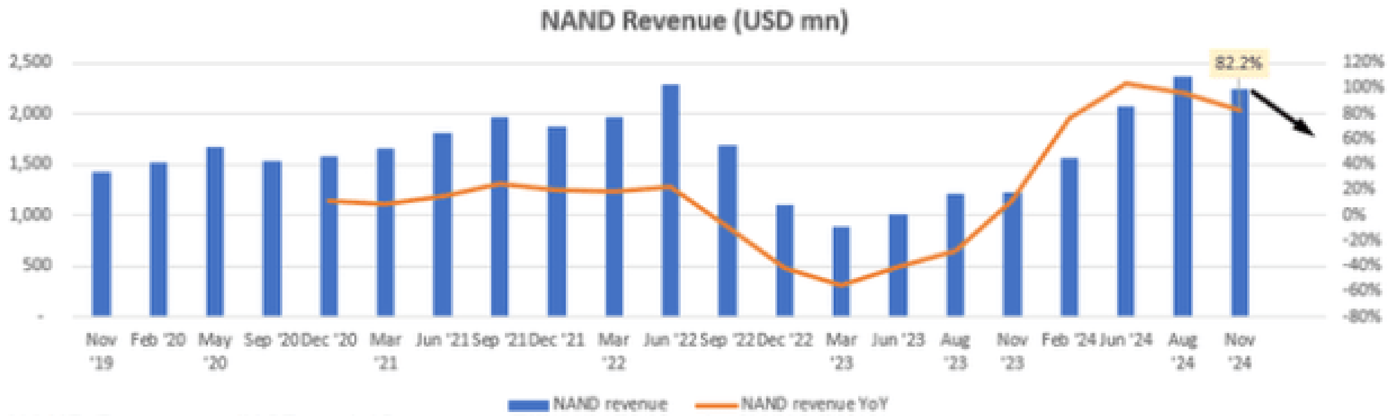
For turning bullish at the opportune time, I think one another thing to monitor closely is Micron's position in the NAND market (23% of overall revenues), which seems to be at a cyclical peak:



NAND Revenue (US mn) (Company Filings, Author's Analysis)

This is not surprising, as I had anticipated this in my last article on Micron:

Overall, I expect these effects to lead to a cyclical peak in the company's NAND revenues:



NAND Revenues (USD mn) (Company Filings, Author's Analysis)

It looks like the NAND market condition was expected to continue seeing a volume and pricing slowdown in Q1 CY25 (Jan-Mar). But H2 CY25 is due to post a recovery:

Looking ahead to 1Q25, the traditional slow season effect remains unavoidable despite suppliers actively reducing production. Server and other key end-market inventory restocking has slowed, and with both order volumes and contract prices declining sharply. NAND Flash industry revenue is expected to drop by up to 20% QoQ. However, as production cuts take effect and prices stabilize, the NAND Flash market is expected to recover in the second half of 2025.

- DRAMeXchange News

For Micron, this means Q3 FY25 (Mar–May) may still see a subdued NAND market environment, which is a headwind as its market position is 4th and its market share falling (400bps decline from 14.2% to 13.8% over Sep'24 to Dec'24):

4Q24 Global NAND Flash Brand Revenue Rankings (Unit: Million USD)

Company	Revenue		Market Share	
	4Q24	QoQ (%)	4Q24	3Q24
Samsung	5,600.0	-9.7%	33.9%	35.2%
SK Group (SK hynix + Solidigm)	3,391.9	-6.6%	20.5%	20.6%
Kioxia	2,657.6	-0.2%	16.1%	15.1%
Micron	2,275.0	-9.3%	13.8%	14.2%
WDC	1,876.0	-0.4%	11.4%	10.7%
Others	721.1	-0.5%	4.4%	4.1%
Total	16,521.6	-6.2%	100.0%	100.0%

Notes:
1. 3Q24 Exchange Rates – USD: JPY= 1:149.1; USD: KRW= 1:1,355.5
2. 4Q24 Exchange Rates – USD: JPY= 1:152.4; USD: KRW= 1:1,398.7

Source: TrendForce, March 2025

To become bullish on Micron, I would ideally want to wait for a cyclical trough in the NAND market as well.

Tariffs are not a big concern for Micron

On the topical theme of tariffs, the US and China recently reduced tariffs on each other from 145%/125% to 30%/10% (US tariff on China/China tariff on the US). This development of more free trade has led to some market buoyancy. But I think Micron is unlikely to see any outsized (vs the overall market) benefit from these changes. This is because management has shared with us that Micron's imports from tariff-charged countries are not much, and any tariff impacts are expected to be charged onto the customer:

On tariffs, Micron serves as the U.S. importer of record for a very limited volume of products that would be subject to newly announced tariffs on Canada, Mexico and China. Where tariffs do have an impact, we intend to pass those costs along to our customers.

- CEO Sanjay Mehrotra Q2 FY25 Earnings Call

So on the margins side, I don't expect any major changes from tariffs. And on the volumes side, I believe it is unlikely that end customers such as Apple would be so demand-elastic to any higher charges passed onto them.

Takeaway & Positioning

My earlier bearish view on Micron has played out well. As I had expected, Micron's NAND market is showing signs of a cyclical peak in revenues. But on the other hand, industry surveys suggest that more iPhone series are expected to feature 12GB DRAM memory upgrades. I expect this to lead to a sustained period of higher quarterly revenues for Micron in that business. And whilst I acknowledge management's bullish updates on faster-than-expected ramp up of HBM shipments, I am still a bit reserved in my optimism since Micron may be lagging behind its competitors in the next generation of HBM product launches. On tariffs, Micron's import exposures from tariff-sensitive countries is low. And any increase in input costs is likely to be passed onto customers without a meaningful hit on volumes. Hence, although the recent de-escalation in the US-China tariff war is a buoyant force for the stock market as a whole, I do not expect Micron to be an outsized beneficiary of these changes.

On the valuations side, whilst MU stock has seen a bit of a P/B multiple correction, it still trades at a higher than usual premium vs its memory market competitors. This reduces the margin of safety for buys. However, the relative technical charts vs SPX 500 are seeing good support at a key monthly level. So I think it does not make sense to remain bearish either.

Axcelis: Strong Value In Semiconductors Before Growth Returns

May 12, 2025 Paul Franke

Summary

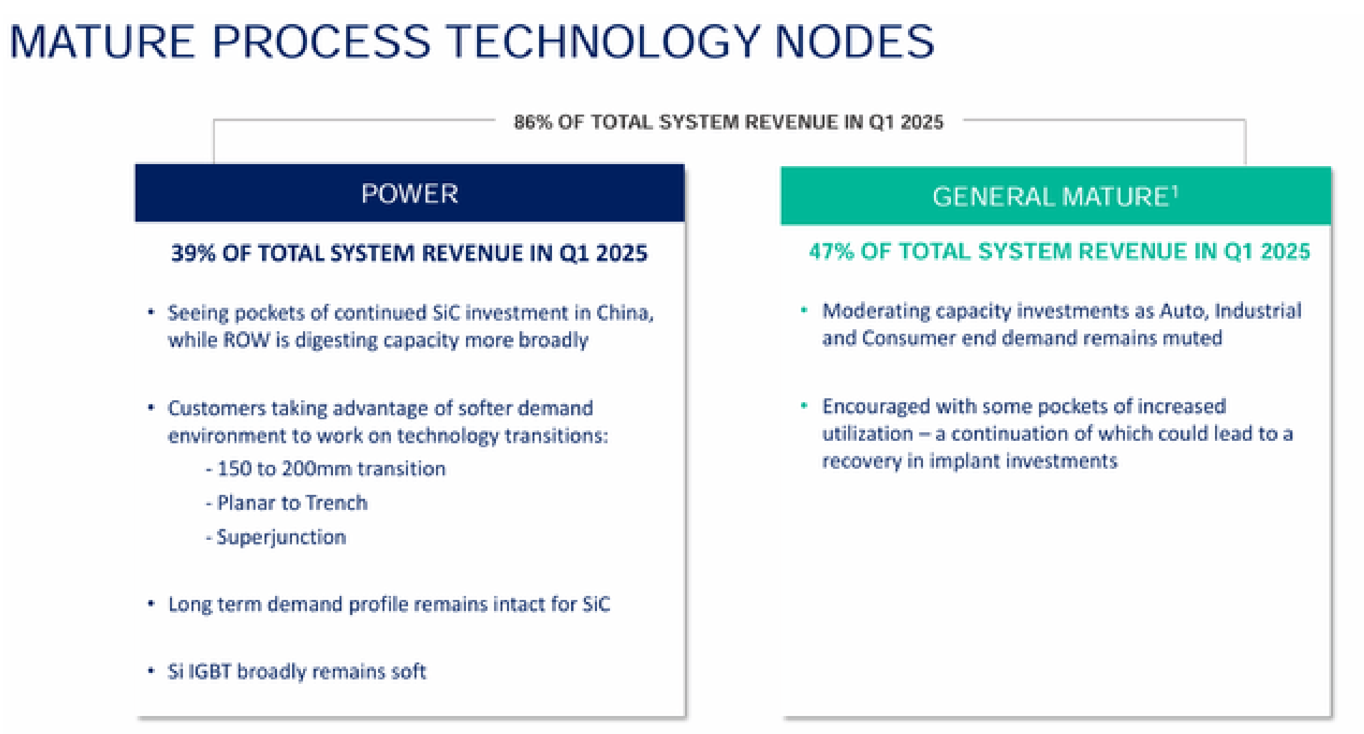
- Semiconductor fabrication equipment is crucial for future tech growth, including EVs and AI datacenters, which require increased production of specialized chips.
- Axcelis Technologies, despite a temporary dip in orders, is vital for global semiconductor production with its innovative ion implant systems.
- Axcelis shares have dropped from extremely overvalued in 2023 to undervalued territory in 2025, opening an attractive investment proposition, especially after Q1 earnings beat estimates.

Semiconductor fabrication equipment is the baseline and foundation of future technology growth today. Before we can build new electronic gadgets, propel the electric vehicle [EV] revolution, or expand artificial intelligence [AI] datacenters, we will need the equipment to manufacture a rapidly expanding number of specialized chips.

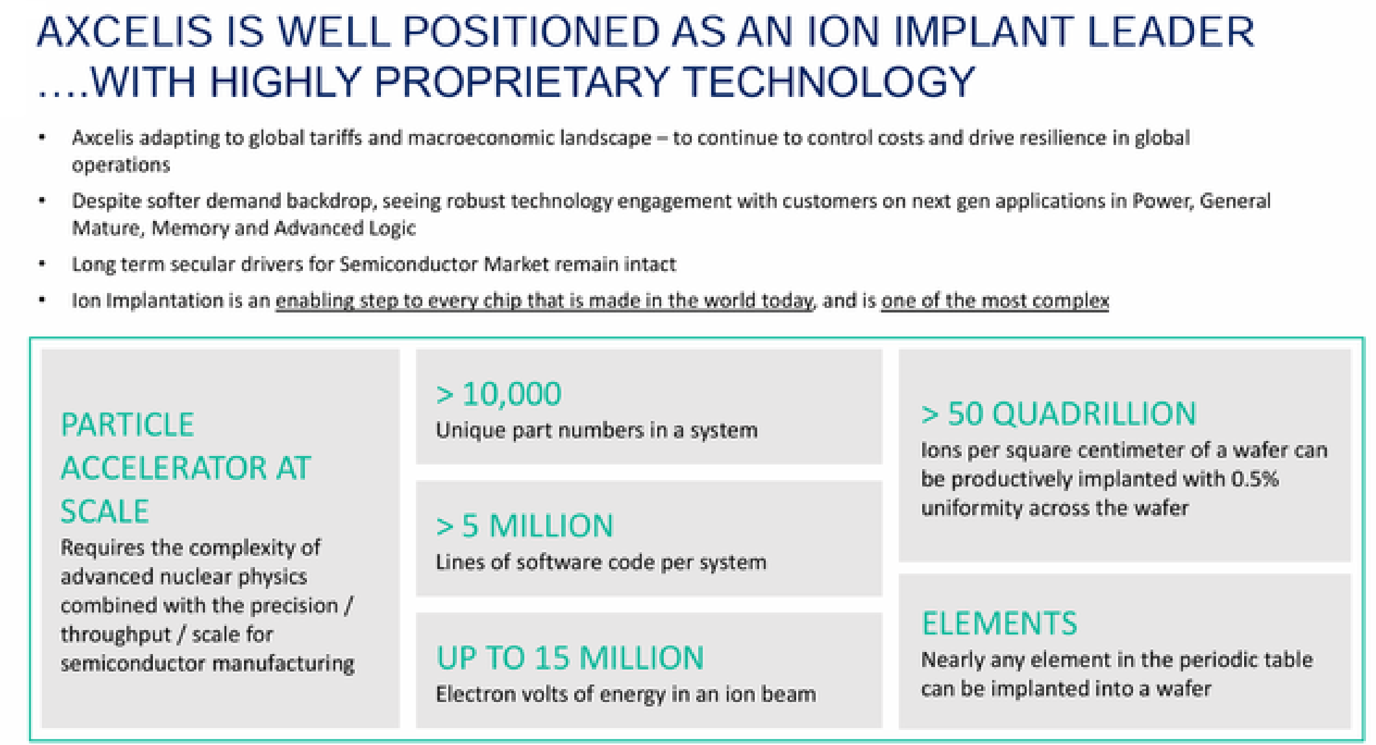
Further, if President Trump pushes the construction of U.S. fab plants over the next few years, new orders for foundry equipment will be a must and no-brainer requirement, if you ask me. So, the outlook for foundry equipment makers remains particularly bright, even if EV sales slow for a year or two, or the AI boom sees growth rates trickle lower in 2025-26.

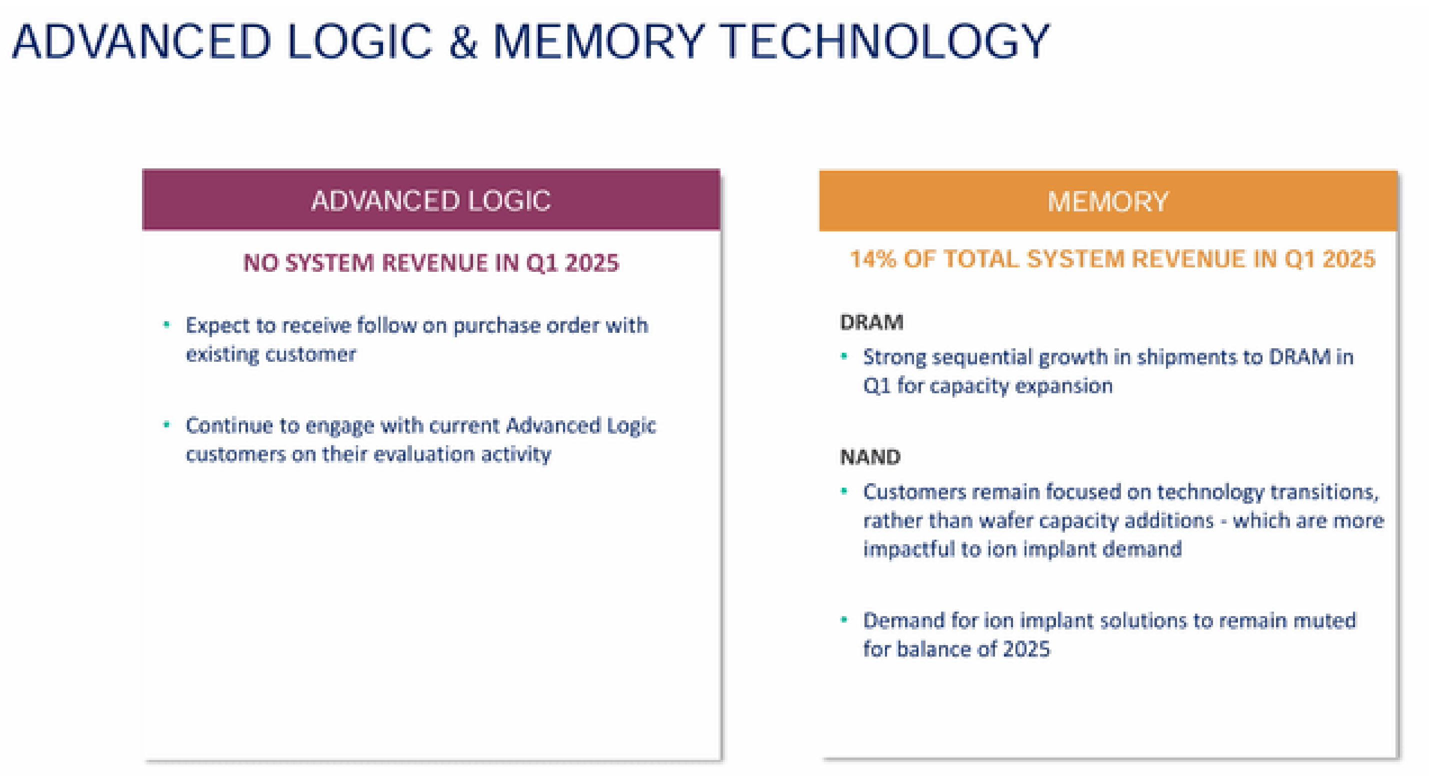
One name that has experienced a temporary dip in orders during 2024 and early 2025 is Axcelis Technologies, Inc. (NASDAQ:ACLS). The company designs and manufactures innovative ion implant systems vital for semiconductor production, according to its website. Silicon carbide power chips for electric vehicles had been a driver of rising equipment sales into 2024, when new-age automobile sales began to slump below growth expectations worldwide.

Axcelis Technologies – Q1 2025 Earnings Presentation



Axcelis Technologies – Q1 2025 Earnings Presentation





Axcelis Tehnologies – Q1 2025 Earnings Presentation

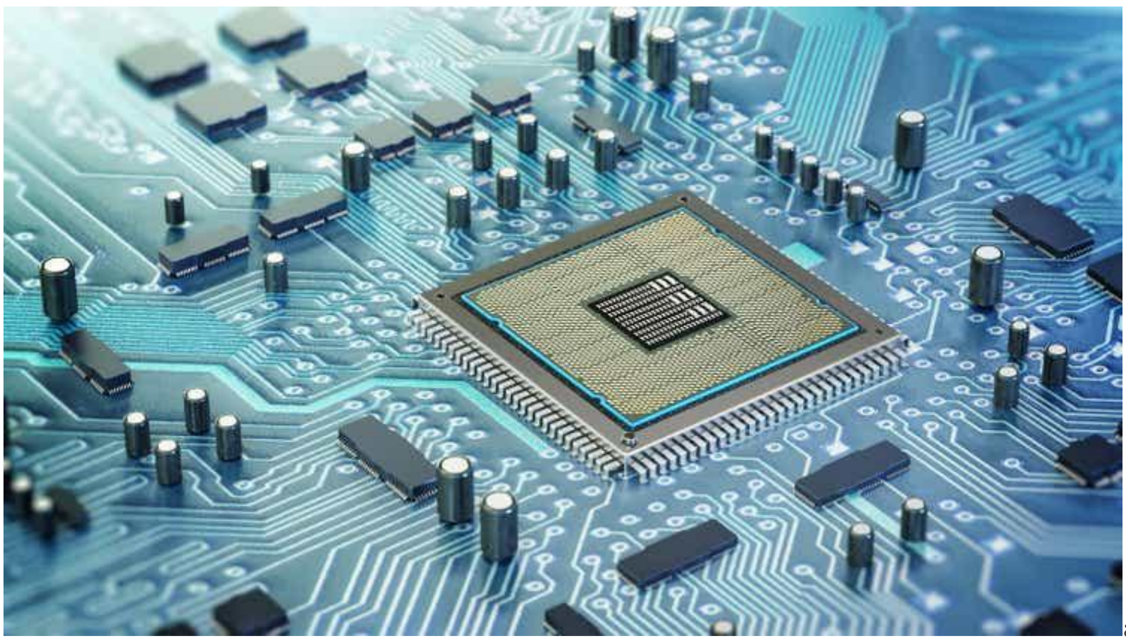
So, if you believe semiconductor industry expansion is all but certain, as I do, Axcelis should be on your radar. The good news is a monster drop in its share price and valuation (from extremely overvalued to extremely undervalued territory) has played out since 2023.

Amkor: An Undervaluation Opportunity With Future Upside, Driven By Semiconductor Market

May 8, 2025 Albert Anthony

Summary

- I gave a buy rating to Amkor Technology, whose key role in manufacturing packaging for semiconductors makes many modern tech and AI functions possible.
- Global supply chain capabilities and a planned expansion in Arizona should help drive future scale for this firm.
- I found the stock being undervalued vs its sector, with a 3-year price target expecting upside potential.
- The tariff and trade war risk looms and poses an air of uncertainty for the manufacturing sector.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A Firm Helping Make Modern Tech Possible, Despite Talk of Tariffs And Trade Wars

It's been a while since I wrote about the information technology sector, a sector I worked in for a long time as an IT analyst, so today I am giving some attention to a company that helps make many of today's technology possible and that is Amkor Technology (NASDAQ:AMKR), who just had their Q1 earnings results published on Apr. 28th.

Within the information tech sector, this firm is focused on the niche of semiconductors, and according to its Seeking Alpha profile it "provides outsourced semiconductor packaging and test services in the United States, Japan, Europe, and the Asia Pacific."

While the word packaging may associate with boxes for shipping, when it comes to semiconductor packaging it has to do with helping make them function properly, and here is some of what Amkor makes, which is part of their Memory and Storage portfolio:

Amkor-product sample (company website)

I gave greater weight to what, I thought, could drive future upside, such as a macro environment depending on semiconductors to make modern tech and AI work at all, as well as the company's planned expansion in Arizona. Its balance sheet is attractive, with a low D/E and favorable remarks from credit agency Fitch.

It could use some help with profit margins and operating cashflow, and I think the negative EPS consensus will have a negative impact in the short term, however my price targets call for upside over a 3-year period, so now is an undervaluation buying opportunity in my opinion.

Sector and Macro Factors Can Drive Future Growth For Amkor

First off, I think we can touch on some points about the sector and macro environment this firm finds itself in.

According to a YouTube video from Samsung Electronics' official channel, there has been an increased demand for advanced semiconductors due to the growth in AI and autonomous vehicles:

Semiconductor demand (Samsung Electronics)

This is just the type of natural market driver that could be favorable for Amkor, I believe.

Further, back in January it was reported in Globe Newswire that research firm Transparency Market Research forecasted the following about the advanced semiconductor packaging market, which Amkor is in:

Projected to grow at a CAGR of 5.2% from 2023 to 2031, the market is expected to reach US$ 40.3 Bn by the end of 2031. This growth is fueled by rising demand for efficient, compact, and high-performance semiconductor solutions across diverse applications.

The dependency of semiconductors on adequate packaging was also summed up nicely back in 2023 by global consultancy McKinsey:

Semiconductor wafers are the basis of the integrated circuits so crucial to most of today’s technology. The wafers’ packaging—whether metal, plastic, ceramic, or glass—connects them to their environment and protects them from chemical contamination and damage from light, heat, and impacts.

Because of semiconductors' reliance on packaging, I think relevant macro data that could impact Amkor is market CAGR for semiconductors. From data site Statista, we can learn the following:

Looking ahead, the revenue in the Semiconductors market is expected to exhibit a steady growth rate, with a compound annual growth rate/CAGR of 8.71% between 2025 and 2029.

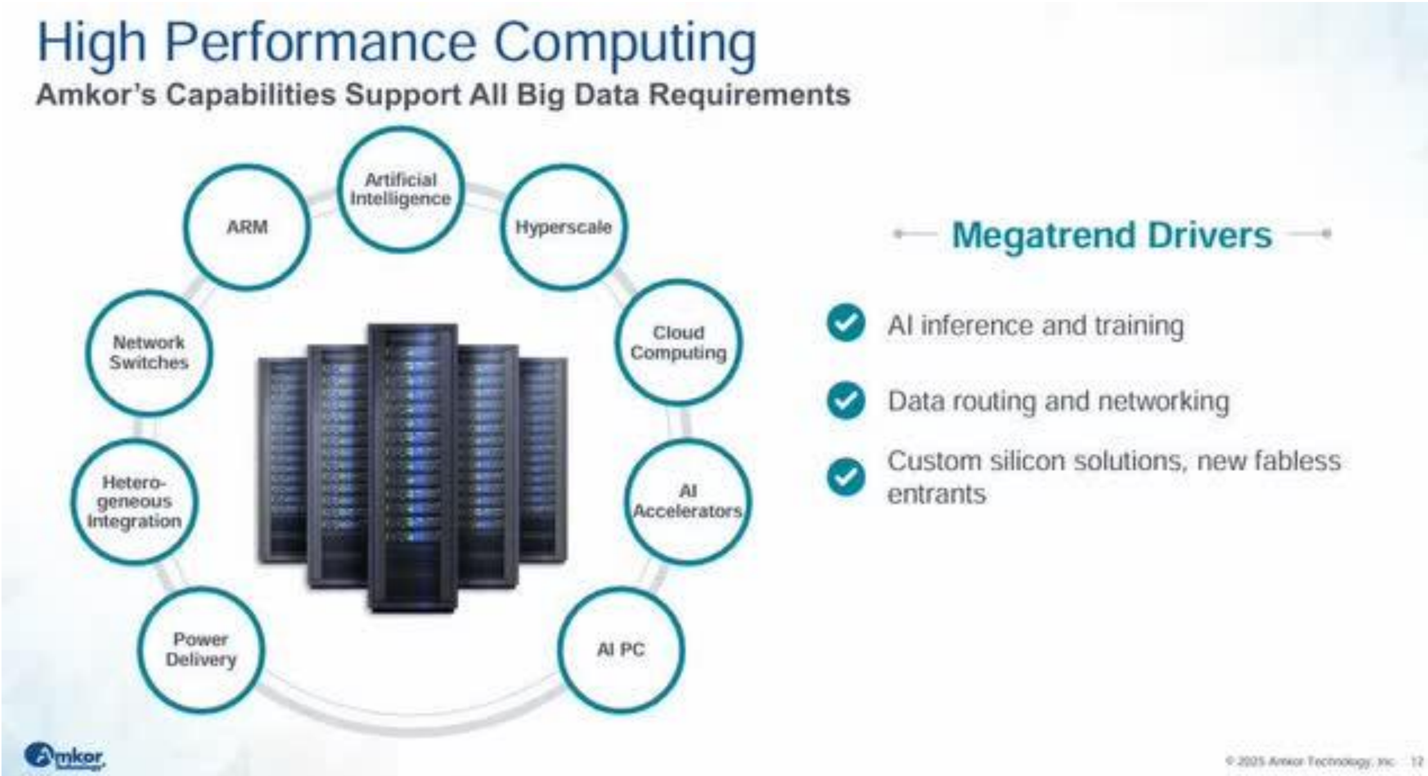
These multiple data points I presented above point to a macro environment that, I believe, should continue to be favorable for Amkor and what it produces, in my opinion, so I am leaning on the bullish side in this category.

From an investor standpoint, I also picked three other stocks in the sector of semiconductor materials/equipment, which I think would make great comparables in some parts of this article: MKS Instruments (MKSI), Onto Innovation (ONTO), and Entegris (ENTG).

Banking On Company Growth via AI Demand, New Manufacturing Facilities, And Positive Revenue Guidance

Next, let's consider what company-specific factors could drive the top line growth going forward.

Though it is not the only segment it serves, this firm can play a key role in the growth of AI, and has already penetrated this space, according to its May 2025 investor presentation:



Amkor – hi performance computing (company investor presentation May 2025)

In fact, Q1 results show that the Computing segment saw "revenue up 21% YoY," which I think shows the existing demand already there, and it was one of the firm's best revenue growers.

Compared to Q1 revenue of $1.3B, as shown on income statement results, the firm's future guidance for Q2 is $1.37B - $1.47B, so in line with or slightly better than Q1, indicating management's confidence is sales looking ahead.

Also, this type of business relies on efficient global supply chains, so what I think can continue to be a positive factor and help drive future growth is Amkor's global footprint and supply chain ecosystem beyond just the US:

Amkor – geo footprint (company investor presentation)

Because of the ongoing topic of tariffs and trade conflicts between countries, however, it should also be mentioned that Amkor has had plans to expand manufacturing within its home base of Arizona (US) as well.

Just last December, local media KTAR 92.3FM reported the company received federal dollars to invest in manufacturing in the US:

The award of $407 million will directly support the company's investment of around $2 billion in creating an advanced packaging and test facility in Peoria.

Amkor Technology Arizona's future facility is expected to create more than 4,000 jobs in Arizona, according to the U.S. Department of Commerce.

Thus, I think these factors combined could pose upside potential for the firm: new manufacturing expansion in the US, an existing global supply chain footprint in place, and penetration of the AI market with proven revenue growth in that segment.

Low Profit Margins, And Negative EPS Consensus, Could Add Some Downside

Moving on, let's talk about the bottom line now and what could impact earnings, since headline EPS numbers often get the attention of investors and analysts, potentially moving the share price.

A straightforward metric I consider is the margin, and since this is manufacturing we should look at gross as well as net margins, compared to peers rather than an entirely different sector, for context.

From Seeking Alpha data, we can see Amkor's gross margin was 14%, far lower than the sector average, and although its net margin is somewhat higher than the sector, it is a mere 5%, so I have to question whether this business has too high of a cost structure.

Compared to the 3 peers I found earlier, peer data shows that Amkor is the worst performer in both gross and net margins:

	AMKR	MKSI	ONTO	ENTG
Gross Profit Margin	14.17%	47.63%	52.19%	45.87%
EBIT Margin	6.33%	14.45%	18.95%	16.98%
EBITDA Margin	15.95%	24.15%	25.26%	28.65%
Net Income Margin	5.04%	5.30%	20.43%	9.03%

Amkor-margins vs peers (Seeking Alpha)

It is evident from Q1 results that operating expenses /OpEx (numbers in thousands$) consumes a lot of the gross profit. Consider that total opex climbed to nearly 80% of gross profit in Q1:

	For the Three Months Ended March 31,	
	2025	2024
Net sales	$ 1,321,575	$ 1,365,511
Cost of sales	1,163,992	1,163,868
Gross profit	157,583	201,643
Selling, general and administrative	80,408	90,346
Research and development	45,652	38,171
Total operating expenses	126,060	128,517
Operating income	31,523	73,126

Amkor-opEx vs gross profit (q1 results)

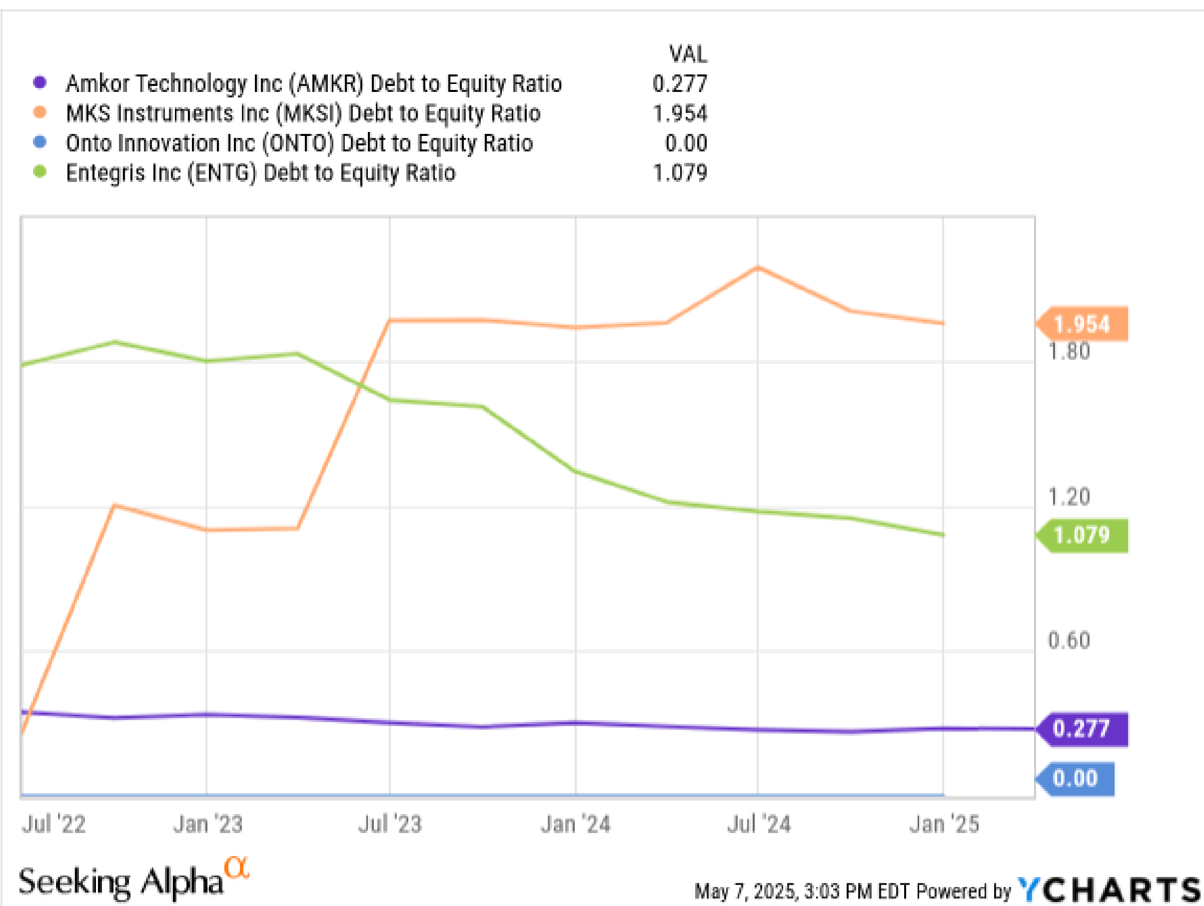
Besides my own concern about weak margins, it seems the analyst consensus is also negative in the short term. Consider that the EPS growth consensus is negative for 2025, while there have been 7 downward revisions so far and 0 upward.

All of the above factors combined makes me lean on the cautious side when it comes to earnings growth potential, rather than bullish. As an analyst, I also have to try and guess what investors, and other analysts may do on this stock, since both of which can impact the share price, and so I think anything negatively impacting earnings can pose a downside risk.

Balance Sheet Risk Is Modest, Considering Low D/E and Declining Debt

Here, let's move on from sales and profits and think about the balance sheet, and what kind of risk we can think about there.

A notable bright spot to mention is Amkor's debt/equity ratio of just 0.27, on the lower end of this peer group I created:



Data by YCharts

My opinion is that it presents a case for a company with low leverage risk within its sector.

Since a manufacturing business can have a lot of overhead cost and capital expense, firms in this sector who can manage with lower debt certainly get my attention. Consider that Amkor's long-term debt has declined by nearly 15% when comparing the quarter ending March 2025 vs Dec. 2023, according to the balance sheet:

	Mar 2025	Dec 2024	Sep 2024	Jun 2024	Mar 2024	Dec 2023
Long-Term Debt	912.9	923.4	894.0	949.3	1,038.3	1,071.8

Amkor-LT debt (Seeking Alpha)

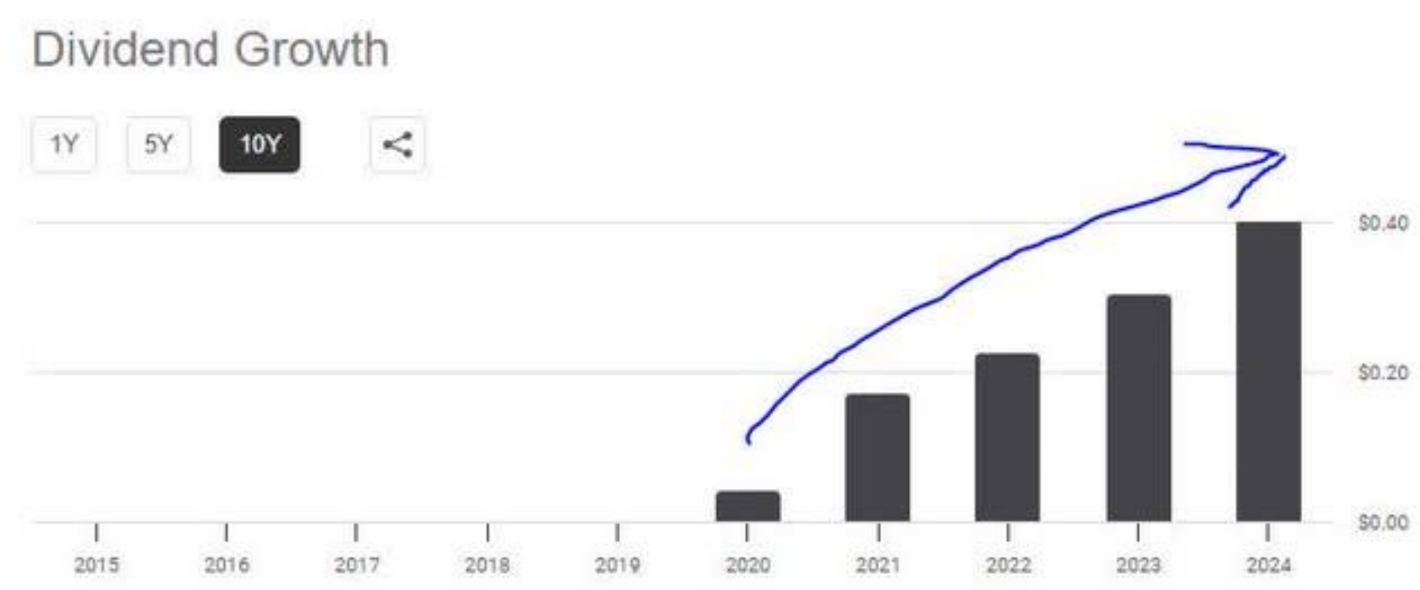
Further, to add another perspective, the most recent credit rating note I found from a major agency like Fitch was from last July, which gives some taste of how Fitch sees this firm. In its July note, Fitch affirmed its BB+ rating which is slightly below investment-grade, Fitch expects the firm's "financial profile to remain conservative," and also noted that "compared with Seagate Technology plc and Western Digital Corp, Amkor's financial structure is considerably more conservative."

Considering the above evidence and data points, I would add some more to the bullish column in terms of future balance sheet risk, since I believe a firm with solid credit ratings and low D/E is in a strong position to take on new debt financing in the future if needed to grow, under more favorable financing terms.

Although Dividend Growth Has Been Proven in 3 Years, Future Cashflow Growth Will Play a Huge Factor

As this stock is a dividend payer, and I primarily cover dividend stocks, I dedicate a section in each article to cover at least one dividend topic.

While it seems dividend data only goes back to 2020, the company in a short-term was able to prove itself with a 3-year dividend CAGR of +21%, well above its sector average, and peer group average, which I think will get the attention of dividend investors who are looking for proven growth so far.



Amkor-div growth (Seeking Alpha)

For those wondering how it has been able to sustain and grow its dividends, considering its low profit margins impacting earnings, since dividends are paid from cashflow we can see from the cash flow statement that the company has used cashflow tricks like issuing debt and making use of depreciation as well. The nature of this business is that has nearly $11B of property/plant/equipment, so let's not forget the role depreciation can play.

However, from a more future-looking view, dividend growth may be dampened as fwd operating cash flow growth is expected to be negative.

For this reason, I am slightly more cautious when it comes to the category of dividend growth, especially when also considering the EPS estimate for this year is also negative.

Challenges To My Outlook: Tariffs

In this section, I decided to pick one factor that could challenge my bullish call and I would say it could be tariffs, since tariffs and global trade can be such a big impact on the manufacturing sector.

Consider from the Investing.com article earlier, the following points made:

Despite Amkor Technology having minimal direct exposure to tariffs, the broader implications of tariffs on key products like iPhones and regulatory measures affecting companies such as NVIDIA (NVDA) could introduce significant uncertainty.

So, as we saw in April media headlines, the tariff and trade question seems to be volatile and ever-changing, and for this reason, it remains a major question mark for this sector going forward.

MKS Instruments signals Q2 semiconductor revenue of $415M amid improving demand

May 8, 2025 SA Transcript Insight Editor

Earning Call Insights: MKS Instruments Q1, 2025

Management View

CEO John Lee highlighted that the company exceeded expectations for Q1 2025 with revenue of $936 million and gross margins of 47.4%, which both reached the high end of guidance. Net earnings per diluted share of $1.71 also outperformed guidance. Semiconductor revenue improved sequentially, particularly due to demand for NAND-related products. Electronics and packaging also delivered strong results, supported by flexible PCB drilling equipment and chemistry equipment sales.

The CEO noted that geopolitical trade policies introduced uncertainty into the industry but emphasized that the company is actively working with suppliers and customers to mitigate adverse impacts. The company anticipates some near-term margin pressures due to these policies.

CFO Ram Mayampurath reported that Q1 operating income was $189 million, with operating margins of 20.2%. Adjusted EBITDA reached $236 million. Free cash flow was $123 million, representing over 100% of net earnings. He reaffirmed the company’s commitment to deleveraging and highlighted plans for further debt prepayments in Q2.

Outlook

Management provided Q2 2025 revenue guidance of $925 million, plus or minus $40 million. Semiconductor revenue is expected to reach $415 million, plus or minus $15 million. Electronics and packaging revenue is projected at $240 million, plus or minus $10 million, while specialty industrial revenue is forecasted at $270 million, plus or minus $15 million.

Gross margin is guided at 46.5%, plus or minus 100 basis points, reflecting near-term cost pressures from tariffs. The company expects net earnings per diluted share of $1.56, plus or minus $0.28.

The CEO expressed confidence in capturing growth opportunities as the industry recovers, supported by increasing demand in key markets like advanced packaging and semiconductors.

Financial Results

Q1 2025 semiconductor revenue was $413 million, reflecting a 3% sequential increase and 18% growth year-over-year. This was driven by improved demand for products like RF power solutions and reactive gases for advanced wet cleaning.

Electronics and packaging revenue reached $253 million, supported by strong sales in chemistry equipment and flexible PCB drilling equipment. Year-over-year growth in this segment was 22%, with chemistry sales up 8% excluding FX impacts.

Specialty industrial revenue was $270 million, slightly above guidance. However, challenges remain in the automotive and general industrial markets.

Gross margin for Q1 was 47.4%, and operating expenses were $254 million. The company closed the quarter with $1.3 billion in liquidity, including $655 million in cash.

Q&A

Steve Barger, KeyBanc Capital Markets: Asked about the momentum of NAND system upgrades. CEO Lee responded that upgrades are progressing as customer inventories normalize, but the scale will depend on customer-specific plans.

Shane Brett, Morgan Stanley: Inquired about tariff impact mitigation. CFO Mayampurath explained that the company leverages global, multi-site manufacturing capabilities and is working closely with suppliers and customers to minimize disruptions. The CEO clarified that the full 100 basis points of potential gross margin impact from tariffs is not fully incorporated into guidance.

Krish Sankar, TD Cowen: Questioned the role of AI-driven demand in electronics and packaging. CEO Lee highlighted that AI is driving growth in advanced multi-layer boards and high-density interconnects, validating investments in chemistry and equipment for advanced packaging applications.

Sentiment Analysis

Analysts expressed concerns over geopolitical uncertainties and their potential impact on margins and demand. They also sought clarity on the sustainability of recent demand improvements.

Management maintained a cautiously optimistic tone, emphasizing the strength of its product portfolio and long-term outlook despite near-term challenges. Confidence was expressed in navigating trade-related uncertainties and capturing growth opportunities.

Compared to the previous quarter, management showed increased confidence in the semiconductor market recovery and electronics segment growth, but acknowledged the fluidity of trade policy impacts.

Quarter-over-Quarter Comparison

Semiconductor revenue grew sequentially, reflecting improved NAND demand compared to the previous quarter. Electronics and packaging revenue remained stable, with strong chemistry equipment sales offsetting seasonal declines.

Guidance for Q2 2025 indicates a slight sequential decline in overall revenue, attributed to normalizing demand in flexible PCB drilling equipment after a strong Q1.

Management's tone shifted slightly more cautious regarding geopolitical and tariff-related uncertainties, while maintaining optimism about long-term growth prospects amid improving market conditions.

Risks and Concerns

Trade policy and tariff-related cost pressures remain a key concern, with potential gross margin impacts of up to 100 basis points.

Automotive and general industrial market weaknesses continue to pose challenges, particularly within the specialty industrial segment.

Analysts raised questions about the durability of semiconductor market recovery and the impact of AI-driven demand on future revenue streams.

Final Takeaway

MKS Instruments demonstrated strong financial and operational performance in Q1 2025, supported by sequential growth in semiconductor revenue and robust demand in electronics and packaging. While geopolitical trade policy uncertainties present short-term challenges, the company remains well-positioned to capitalize on recovery trends in key markets such as advanced packaging and semiconductor manufacturing. Management's guidance for Q2 reflects relative stability with slight sequential adjustments, highlighting confidence in navigating a dynamic environment while maintaining its focus on growth and profitability.

Rambus: A Safer Semiconductor Pick Amid The Tariff Madness

May 7, 2025 Joseph Mwangi

Summary

- American semiconductor manufacturers face over $1 billion in annual losses due to new tariffs, impacting Applied Materials, KLA, and Lam Research significantly.
- Rambus is less exposed to tariff risks, reporting strong Q1 2025 results with 41.4% Y/Y revenue growth and robust DDR5 chip sales.
- Rambus's diversified revenue streams and resilient business model, including stable patent licensing, mitigate risks and support continued growth despite potential tariff impacts.

Michael Vi

Last month, Reuters released an alarming report that American semiconductor manufacturers could face annual losses exceeding $1 billion courtesy of the latest tariffs by U.S. President Donald Trump, with Applied Materials (AMAT), KLA (KLAC), and Lam Research (LRCX) expected to stomach the lion's share. That would constitute a serious setback for an industry that was starting to recover from a long slump. According to the latest FactSet earnings report, the Information Technology sector is reporting 17.5% earnings growth for the first quarter, the third highest among the market's 11 sectors, led by Semiconductors & Semiconductor Equipment (29%), Communication Equipment (12%) and Software (11%) industries. The final tariff rates are yet to be announced, but this snafu is already having a dire effect on the semiconductor industry: a TrendForce report reveals that many downstream brands front-loaded shipments in the first quarter, implying that sales are likely to be depressed in the coming quarters.

Thankfully, not all semiconductor stocks are heavily exposed to the tariff risk, with memory interface chipmaker Rambus (NASDAQ:RMBS) one of the safer ones. Rambus specializes in memory interface chips, chipsets, and silicon IP that address data-intensive applications, including AI and advanced data centers. Last week, Rambus returned an impressive first quarter scorecard, beating both top- and bottom-line expectations. The company reported Q1 2025 revenue of $166.7M, good for 41.4% Y/Y growth and $3.87M above the Wall Street consensus, while Q1 GAAP EPS of $0.56 beat by $0.06. Rambus' business model is quite resilient to turbulence thanks to well-diversified revenue streams consisting of chips, IP, and patents. The patent licensing business, in particular, provides stability and good revenue visibility thanks to the long-term nature of the company's agreements. Memory interface chips provide the bulk of the company's revenue, and robust growth by the segment is largely responsible for the impressive top-line growth. The chips business delivered record revenue at $76 million, up 52% year-over-year, driven by strong growth of the company's core DDR5 (5th generation Double Data Rate) RCD (Registering Clock Driver) products. CEO Luc Seraphin revealed that memory density per server has been increasing, driven by AI and advanced workloads.

Unlike memory chipmakers like Micron Technology (MU), SK Hynix (OTCPK:HXSCF), and Samsung (OTCPK:SSNLF), Rambus' DDR5 products are not directly tied to DRAM pricing cycles. DRAM prices are notoriously volatile, with market research firm Omdia earlier predicting that DRAM prices will drop ~10% in the first half of 2024, and another 5% in the second half. Rambus reported seeing broad-based momentum at the module and system level, including the company's industry-leading server PMICs (Power Management Integrated Circuits) and MRDIMM 12800 chipset.

Rambus posted Royalties revenue of $74.0 million during the quarter, good for 55.8% Y/Y growth, while Contract and Other revenue was $16.4 million, representing -18%Y/Y contraction. This segment predominantly consists of Silicon IP, with the company reporting a portion of Silicon IP revenue is Contract and Other revenue, while the rest is reported under Royalty revenue as well as in licensing billings. SIP is lumpy in nature, with the company receiving revenue when people license its IP. Rambus typically sells its IP 12–18 months before its customers start rolling out their chips into the market, meaning the rather low revenue for the latest quarter largely represents part of the HBM4 wave that kicked off last year.

Rambus reported that AI continues to drive design win momentum for its Silicon IP segment, with robust demand for its interconnect IP, including HBM4 and PCIe 7 controllers and security IP. The company expects the ongoing evolution of AI data centers will continue to drive demand across its chips and IP with advanced applications. Last year, Rambus achieved a significant milestone after unveiling the industry's first complete chipsets for cutting-edge DDR5 MRDIMMs and RDIMMs, further enhancing its leadership in core DDR5 products. Rambus is now at a vantage point regarding the rollout of the DDR5 generation of products, and expects to successfully maintain its 40-50% market share regardless of the rollout of the different platforms.

Regarding the impact of tariffs on future revenues, here's what Rambus's management said during the earnings call:

We see a lack or less visibility in terms of our SIP (Silicon IP) revenue because we don't know what the indirect impact of the tariffs are going to be on the design starts of our customers, but we still expect to grow our revenue on Silicon IP. And with respect to our product business, our -- we build our products in Asia. The front-end is in Taiwan. The back-end is in Taiwan and Korea and we ship to our customers in Asia. So from that standpoint, there is no direct impact of tariffs. What we're looking at with our customers and suppliers are the indirect impact on the product space.

It appears that Silicon IP is currently the company's only segment that's likely to be directly impacted by the tariffs, due to the potential decline in design starts by its customers. Thankfully, this is the company's smallest segment, accounting for ~10% of total revenues last term (although that could change given the lumpy nature of the segment, revenue-wise). Even better, the company reported seeing zero pull-ins from customers so far.

Rambus' management provided solid Q2 2025 guidance as follows:

- Revenue between $167 million and $173 million, representing 23.9% Y/Y growth at the mid-point.
- Royalty revenue in the range of $67 million to $73 million, good for 23.4% growth, with licensing billings falling in the range of $64 million to $70 million.
- Q2 non-GAAP operating income projected to range between $73 million and $83 million.
- Non-GAAP EPS guidance of $0.57 to $0.64.
- Improved gross margins in the second quarter thanks to manufacturing cost reductions as well as a favorable product mix.

First launched by SK Hynix in October 2020, DDR5 has been gradually taking market share from DDR4 thanks to faster data processing speeds coupled with improved energy efficiency compared to DDR4. DDR5 is a big upgrade on DDR4 on both data and clock rates, with double the data transfer rates at up to, or more than, 7,200 megabits per second (Mbps). The transition is being fueled by the need for increased memory capacity and higher transfer speeds, making DDR5 ideal for next-generation devices. The rapid growth is being driven by rising demand for high-performance computing in gaming, artificial intelligence (AI) workloads, and cloud computing. Additionally, the proliferation of 5G networks and IoT devices is driving demand for advanced memory solutions that come with higher bandwidth and reliability. Further, industries such as automotive, robotics, and healthcare are increasingly deploying specialized DDR5 chips for enhanced system responsiveness in real-time data processing. The value proposition of DDR5 has also been improving relative to its older sibling: Nanya Technologies has predicted that DDR5 chips will achieve higher cost efficiency than 10nm-process DDR4 by the first quarter of the current year, with bit prices increasing as much as 50%.

Overall, Markets And Markets has forecast the DDR5 Chip market will grow from $5.67 billion in 2024 to $25.84 billion by 2033, good for 18.3% CAGR from 2026 to 2033.

Final Takeaway

Rambus delivered robust first-quarter results, primarily driven by record DDR5 memory interface chip sales. This could be the result of the DDR5 rollout that kicked off 4–5 years ago, hitting high gear thanks in large part to the advent of AI data centers. The company expects this rapid growth clip to continue in the coming quarters, supported by the ramp-up of companion chips in the latter half of the year. Meanwhile, Rambus' favorable supply chain dynamics lower the significant tariff risk facing semiconductor manufacturers.

EV Company News For The Month Of April 2025

May 7, 2025 Trending Investing

Summary

- Global electric car sales March 2025 up 25% YoY to 25% share. China sales up 39% to 52% share. Europe up 22% to 26% share. USA up 18% to 9.66%.
- EV market news - EU, China will look into setting minimum prices on electric vehicles. Shanghai allows more old cars to qualify for trade-in subsidies.
- EV company news - BYD Q1 2025 sales ~1 million, up 58% YoY, Q1 net income doubles YoY. Tesla Q1 global sales slump 13%, Q1 net income drops 71%.
- Mini cancels plans to send 2 EVs to U.S. from China due to tariffs. Leapmotor delivers 41,039 cars in April (up 173% YoY).
- XPENG delivers 129,053 units YTD (end April), up 313% YoY. NIO delivers 23,900 cars in April, up 53% YoY. GWM March NEV sales up 66% YoY.

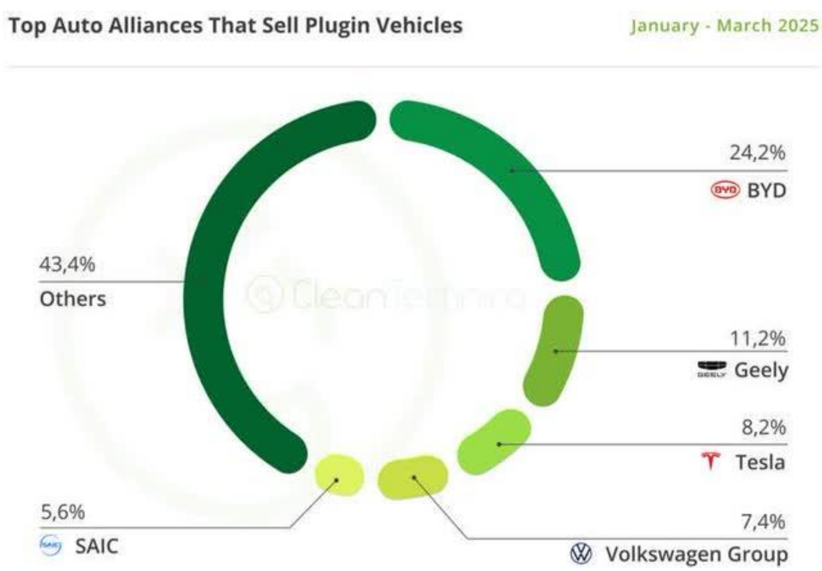

ridham Supriyanto/istok editorial via Getty images

Plugin electric car sales as of end March 2025

- Global plugin electric car sales were over 1.6 million in March 2025, up 25% on March 2024 sales. Global plugin electric car market share in March was 25% and 21% YTD (for 2025).
- China plugin electric car sales were almost 1 million in March 2025, up 39% on March 2024 sales. Plugin electric car market share in China for March was 52%, and 48% YTD (for 2025).

- Europe plugin electric car sales were 365,000 in March 2025 (2nd best month ever), up 22% YoY, reaching 26% market share and 25% YTD (for 2025). Norway reached 93.2% share, Sweden 60.7%, Germany 27.1%, France 24.4%, and UK 28.9% in March 2025.
- USA plugin electric car sales were 153,132 (as reported by Argonne National Laboratory) in March 2025, up 18.3% on March 2024 sales. Plugin electric car market share in USA for March was 9.66%.
- Note: Globally, 100% battery electric cars represented 66% market share YTD (as of end March 2025) of all plugin electric cars sold. The above sales include light commercial vehicles.
- Note: An acknowledgement to CleanTechnica for their work compiling most of the electric car sales data quoted above and in the article below.

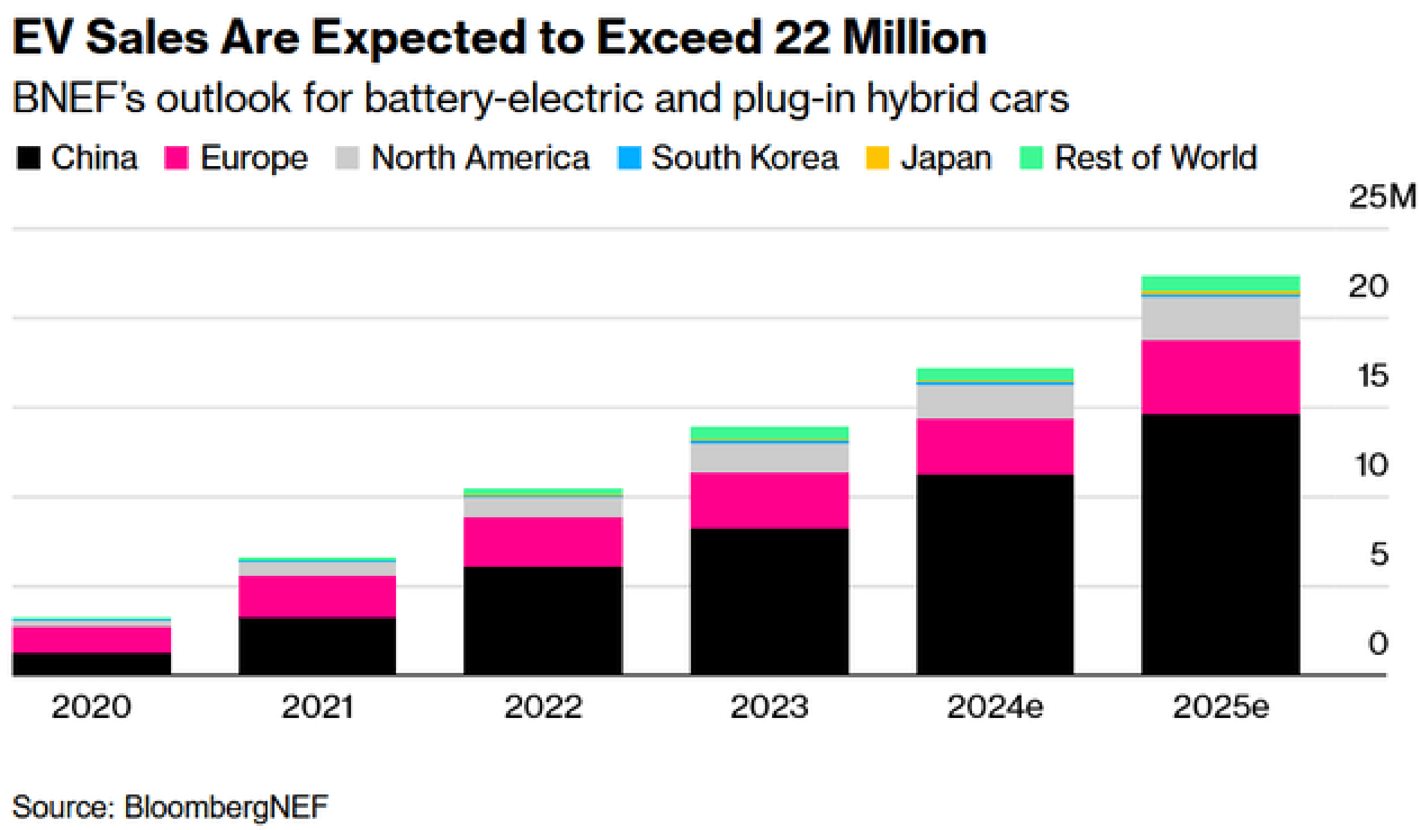
Top selling global plugin electric car groups YTD (as of end March 2025) (source)



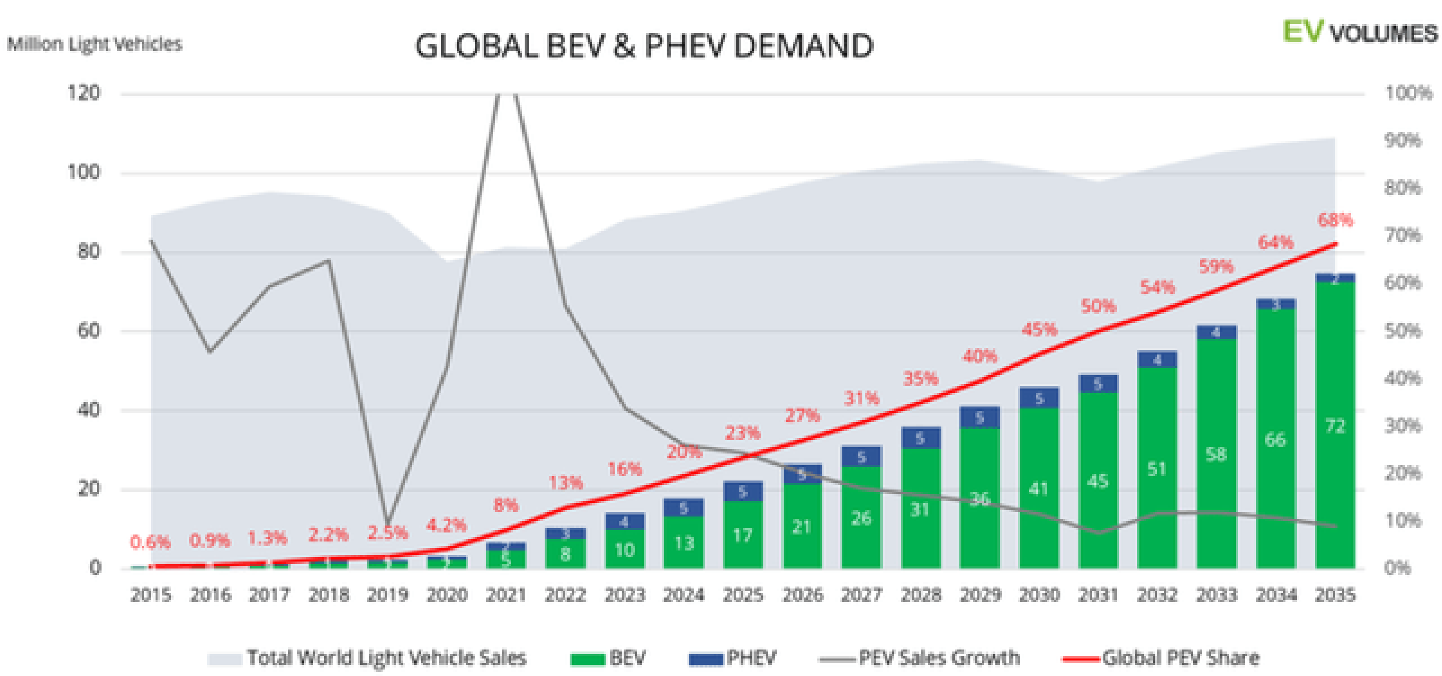
CleanTechnica

Global EV sales forecasts in the years ahead

BloombergNEF are bullish on 2025 global plugin EV sales forecasting ~22 million sales and 30% YoY growth (source)



EV Volumes forecasts global plugin electric car sales to reach 45% share & 46m sales in 2030 (source)(forecast as of early 2024)



EV-Volumes

The IEA state: "Global electric light-duty vehicle sales are set to reach 40% in 2030 and almost 55% in 2035 based on current policy settings."

On January 28, 2025 Reuters reported:

EV car sales to top 20 million in 2025, research firm says. Chinese brands are set to account for nearly two-thirds of all EV deliveries worldwide... research firm Rho Motion forecast on Tuesday.

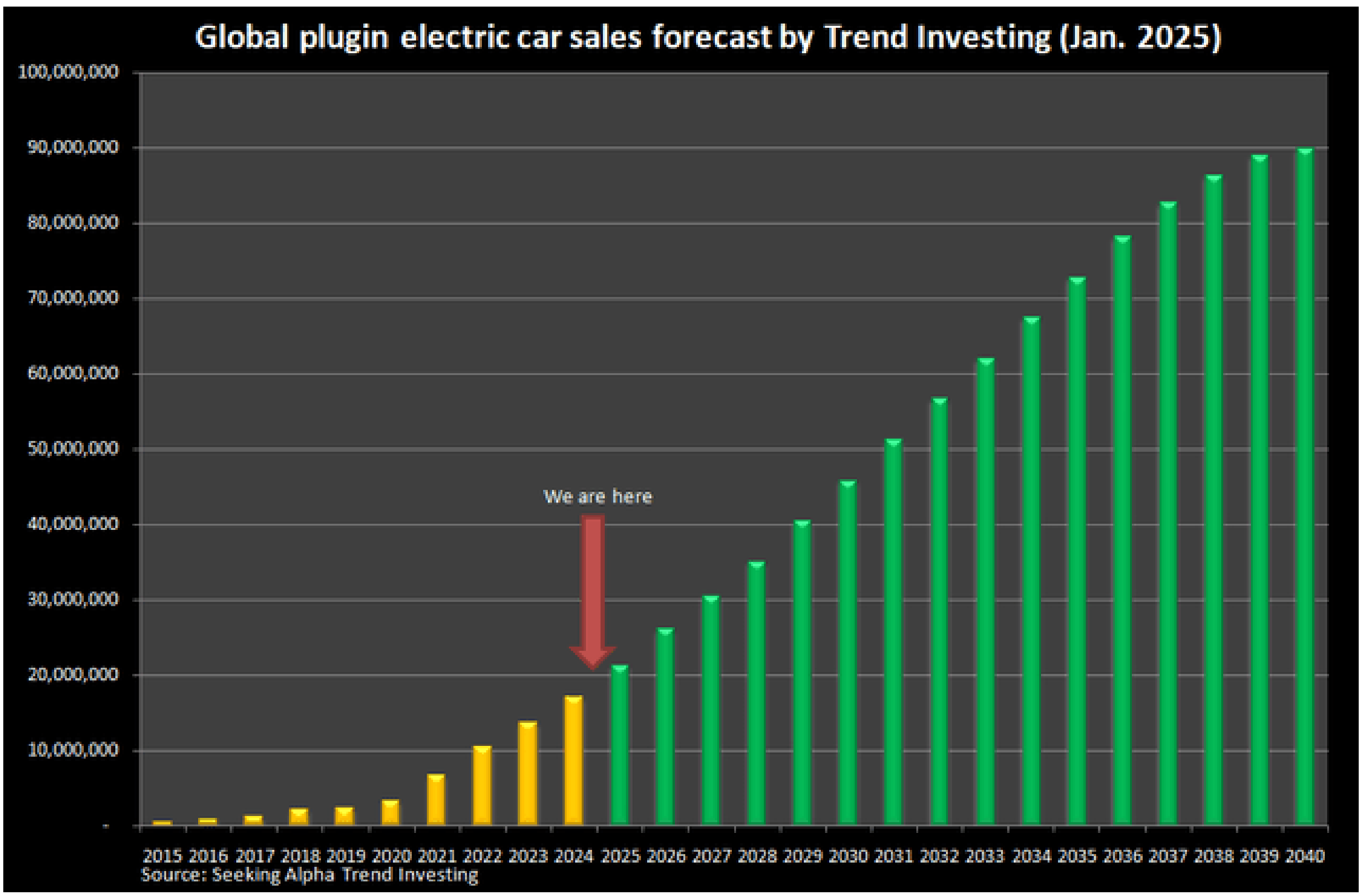
Seeking Alpha's Trend Investing global electric plugin car sales forecast

Sales (million)	Market share	
2025	21.3	24%
2030	46	51%
2035	73	81%

Trend Investing comment

We are still only at the extremely early stage of the EV boom - We have still only electrified < 6% of the global fleet of 1.475 billion, with a staggering ~94% still to go.

Trend Investing's global plugin electric car sales forecast to 2040 (green bars)



Seeking Alpha Trending Invsting

EV company news

BYD Co. [SHE: 002594][HK:1211](OTCPK:BYDDY), Yangwang, Denza (OTCPK:OTCPK:BYDDF)

- *BYD is currently ranked the number 1 globally with 24.2% market share YTD (as of end March 2025). BYD is ranked number 1 in China with 28.8% market share YTD (as of end March 2025).*
- *On April 1 Seeking Alpha reported: "BYD's Q1 sales accelerates to nearly one million...sales rose 58% versus the same period of last year."*
- *On April 7 CNEVPOST reported: "BYD enters Switzerland as it continues European expansion."*
- *On April 11 Reuters reported: "Exclusive: China delays approval for Geely, BYD investment plans in Latin America, sources say."*
- *On April 21 Seeking Alpha reported: "Aramco, BYD sign pact to explore new EV technologies."*
- *On April 23 CNEVPOST reported: "BYD Denza unveils Denza Z concept sports car."*
- *On April 25 CNEVPOST reported: "BYD sees Q1 net income double year-on-year."*
- *On April 28 CNEVPOST reported: "BYD enters Croatia with 4 models."*
- *On April 29 CNEVPOST reported: "BYD breaks ground on NEV plant in Cambodia, production expected to start in Q4."*
- *On April 30 CNEVPOST reported: "BYD enters Benin, expands footprint in Africa to 16 countries."*
- *On May 1 Seeking Alpha announced:*
  BYD announces April production-sales results; Pure EV tops hybrid sales...sales volume for the month of April grew 47% Y/Y...New energy vehicle sales for April were 380,089, of which 372,615 were passenger vehicles.
  Geely Automobile Holdings Ltd. (OTCPK:GELYY, HK:0175), Volvo Cars, Polestar (PSNY), Kandi Technologies Group (NASDAQ:KNDI), Proton, Lotus, Zeekr (ZK) (also owns Lynk), Farizon. (Note: Volvo Group is a separate company that makes e-trucks & e-buses)
  Geely-Volvo is currently ranked number 2 in the global electric car manufacturer's sales ranking with 11.2% global market share YTD (as of end March 2025). Geely-Volvo is the number 2 ranked in China with 13.3% market share YTD (as of end March 2025). Geely-Volvo is 5th ranked in Europe with 7.8% market share YTD (as of end March 2025).
- *On April 10 Geely announced:*
  Geely Auto and Renault Group announce the sale of the Geely EX5 in Brazil...Geely's vision for the global market is realized in the EX5, also as the key component of its global NEV strategy.
- *On April 11 Reuters reported: "Exclusive: China delays approval for Geely, BYD investment plans in Latin America, sources say."*
- *On April 11 Bloomberg reported: "Polestar shuts stores in China, exits EV sales Joint Venture..."*
- *On April 15 Car News China reported: "2025 Geely Panda Mini electric city car launched in China for 6,850 US."*

Tesla Inc. (NASDAQ:TSLA)

- *Tesla is currently ranked the number 3 globally with 8.2% global market YTD (as of end March 2025). Tesla is number 5 in China with 5.6% market share YTD (as of end March 2025). Tesla is no longer ranked in the top 5 in Europe (as of end March 2025). Tesla is the number 1 electric car seller in the U.S with 43% of sales in Q1, 2025.*
- *In April Tesla announced: "Tesla opening in Kingdom of Saudi Arabia."*
- *On April 3 The Guardian reported:*
  Tesla quarterly sales slump 13% amid backlash against Elon Musk. Drop is likely combination of ageing lineup, increased competition and backlash to Musk's politics...Tesla reported deliveries of 336,681 vehicles globally in the January-March quarter...down from sales of 387,000 in the same period a year ago.
  Note: The Model Y refresh was another reason for the slow sales quarter.
- *On April 11 Bloomberg reported:*

Tesla stops taking orders in China for models imported from the US...for Model S sedans and Model X sport utility vehicles — both of which are imported from the US — after the countries raised tariffs on one another in an escalating trade war.

- *On April 16 Seeking Alpha reported: "Trump tariffs threaten Tesla's Cybercab and Semi electric truck production plans - report."*
- *On April 23 CNEVPOST reported:*
  Tesla reports weaker-than-expected Q1 earnings as deliveries slump.
  Tesla's net income in the first quarter was $409 million, down 70.58 percent from the same period last year. Global deliveries in the first quarter were the lowest since the second quarter of 2022.
  Note: You can view Tesla's 2025 Q1 Quarterly Update. One upside was that energy & storage grew revenue grew an impressive 67% YoY. Energy storage deployment for Q1 reached 10.4GWh, up 154% YoY. Quarter-end cash, cash equivalents and investments was $37.0B. Tesla stated: "We remain on track for pilot launch of Robotaxi in Austin by June and builds of Optimus on our Fremont pilot production line in 2025, with wider deployment of bots doing useful work across our factories."

Volkswagen Group [Xetra:VOW](OTCPK:VWAGY) (OTCPK:VLKAF)/ Audi / Lamborghini/ Porsche (OTCPK:POAHF)/ Skoda/ Bentley

- *'Volkswagen Group' is currently ranked the number 4 top-selling global electric car manufacturer with 7.4% market share YTD (as of end March 2025), and 1st in Europe with 26.5% market share YTD (as of end March 2025).*
- *On April 22 Volkswagen announced:*
  "In China, for China": Five intelligent, fully connected vehicles and a new AI-based ADAS system celebrate their debut at Volkswagen Group Night in Shanghai.
- *On April 24 BMWBlog reported: "The AUDI E5 Sportback battles BMW EVs in China."*
- *On April 30 Volkswagen announced:*
  Volkswagen Group with mixed start to FY 2025; strong product momentum and focus on cost discipline...every fifth car sold in Western Europe is now fully electric with unit sales in Q1 more than doubling. At the same time, this market success of our electric cars puts pressure on our result...Net cash flow in Q1 2025 negative...Order backlog in Western Europe increases to almost 1 million vehicles in the first three months, with orders for fully electric vehicles rising particularly sharply (+64%) and accounting for more than 20% of the total order book.

SAIC Motor Corporation Limited [SAIC] [CH:600104] (SAIC includes Roewe, MG, Baojun, Maxus), Wuling Automobile JV (SAIC 51%, GM 44%, Guangxi 5.9%)

- *SGMW (SAIC-GM-Wuling Automobile) is number 5 globally with 5.6% market share YTD (as of end March 2025). SAIC/GM/Wulin JV [SGMW] plus SAIC is 3rd in China with 6.5% share YTD (as of end March 2025).*
- *On April 30 Market Screener reported: "SAIC Motor's 2024 profit drops 88%, operating income slips 15%."*
- *On April 30 Market Screener reported: "SAIC Motor's Q1 profit rises 11%, operating income slips 1%; shares up 4%."*

BMW (OTCPK:BMWYY), Mini, Rolls-Royce

- *BMW Group is currently ranked the number 6 global electric car manufacturer with 3.8% global market share YTD (as of end March 2025). BMW Group is ranked 2nd in Europe with 11.0% market share YTD (as of end March 2025).*
- *On April 15 Automotive News reported: "Tariffs, soft demand derail Mini plans to send 2 EVs to U.S. from China."*
- *On April 23 BMWBlog reported:*

BMW to collaborate with DeepSeek to enhance in-car AI…will begin integrating artificial intelligence technology from Chinese startup DeepSeek into its vehicle models sold in China later this year.

- *On April 30 Automotive News reported:*
  BMW tells U.S. dealers it will 'postpone' EV production, hold prices on most imports built through June. BMW, in an April 29 memo, told U.S. retailers that it will "postpone" electric vehicle production in May.

Chongqing Changan Automobile [SHE:000625] ("Changan") + Avatr Technology (backed by Changan, CATL, Huawei) + Deepal. Note: Changan is having advanced stage merger talks with Dongfeng Motor Group Company Limited [HKSE:0489] (OTCPK:DNFGF)

- *Changan is currently ranked the number 7 in the global electric car manufacturer's sales with 3.5% global market share YTD (as of end March 2025). Changan is currently ranked 4th in China with 6.5% share YTD (as of end March 2025).*
- *On April 24 Car News China reported:*
  Deepal S09 begins presales at 2025 Shanghai Auto Show, starting at 33,100 USD…Positioned as a "family large six-seater smart flagship SUV… Inside, the S09 aims to be a "family smart third space," equipped with Huawei's HarmonySpace 5 cockpit system…The S09 utilises Deepal's new generation Super Range Extension 2.0 technology. This system comprises a 1.5T range extender and an LFP (lithium iron phosphate) battery pack.

Deepal S09 EREV SUV

- *On April 28 iChongqing reported:*
  Auto Shanghai 2025: Automakers are expanding beyond cars… Automakers spotlight flying cars and robots…At Changan's booth, a humanoid robot drew a crowd with its handshakes and greetings, even getting visitors to dance along. According to Zhu Huarong, Chairman of Changan Automobile, the company plans to begin mass production of humanoid robots by 2028. Over the next decade, Changan will invest 200 billion yuan into new automotive technologies and expand its R&D team by over 10,000 personnel.

Hyundai-Kia Group - Hyundai (OTC:HYMTF), Kia

- *Hyundai-Kia Group is currently ranked the number 8 in the global electric car manufacturer's sales with 3.3% global market share YTD (as of end March 2025). Hyundai-Kia Group is ranked 4th in Europe with 8.1% market share YTD (as of end March 2025).*
- *On April 1 Hyundai announced:*
  Hyundai Motor America Reports Record-Breaking March 2025 and Q1 Sales…Best-ever Q1 total sales records; electrified up 38%; HEV jump 68%; EV increased 3%.
- *On April 23 Hyundai announced:*
  Hyundai Motor Group opens new battery and electrification research center at Indian Institute of Technology Delhi…to advance future mobility technologies focused on electrification and battery systems, reflecting the Group's commitment to driving innovation tailored to the needs of Indian customers.
- *On April 25 Kia announced:*
  2025 First Quarter business results…Global retail sales of electrified models increased by 10.7% to 174,000 units, driven by strong demand for HEV models.

Mercedes-Benz Group [GER:MBG] (OTCPK:MBGAF) (OTCPK:MBGYY) (Smart - 50% JV between Mercedes-Benz Group & Geely) (NB: Daimler was renamed to Mercedes-Benz Group)

- *On April 30 Mercedes-Benz announced:*

Mercedes-Benz Group delivers solid Q1 results in a dynamic market environment...Electrification: Mercedes-Benz Cars electrified vehicles (xEV) accounted for 19% of global sales, with European market at 37% and strong PHEV sales (+8%); Van BEV sales increase by 59%.

XPENG Inc. (Xiaopeng Motors) (XPEV) [HK:9868]

- *On April 15 CNEVPOST reported: "Xpeng to start using in-house developed autonomous driving chip in its EVs in Q2, report says."*
- *On April 17 XPENG announced:*
  XPENG, futuristic leader of the Milan Design Week 2025...Italian preview for the XPENG P7+ electric sedan, the first car defined by Artificial Intelligence and XPENG AEROTH X2, the flying electric car.

NIO Inc. (NIO) (NIO's brands include ONVO & FIREFLY)

- *On April 30 Car News China reported:*
  Nio's Firefly begins deliveries in China with goal to capture 10% of premium compact EV segment. Nio's third brand, Firefly, officially began delivering its first model on April 29, 2025. The compact electric vehicle, unveiled on April 19, has a starting price of 119,800 yuan (16,500 USD).
- *On May 1 NIO announced:*
- *April 2025 Delivery Update.*
  firefly started deliveries in late April 2025
  23,900 vehicles were delivered in April 2025, increasing by 53.0% year-over-year
  65,994 vehicles were delivered year-to-date in 2025, increasing by 44.5% year-over-year...

Ford (NYSE:F)

- *On April 1 Ford announced:*
  Ford pickups have best start in over 20 years; Q1 U.S. retail sales grow, led by F-Series, electrified vehicles and Bronco...Ford electrified vehicle sales...totaling a record 73,623 in the first quarter - up 26%.

General Motors (GM)(includes Chevrolet, Cadillac, GMC, Buick)

- *On April 7 CNBC reported: "GM reveals Corvette EV concept car as it reconfirms commitment to Europe."*
- *On April 29 GM announced:*
  GM releases 2025 first-quarter results...reported first-quarter 2025 revenue of $44.0 billion, net income attributable to stockholders of $2.8 billion, and EBIT-adjusted of $3.5 billion.
- *On May 2 Reuters reported: "GM cuts 2025 profit forecast, expects up to $5 billion tariff impact."*

Honda [TYO:7267] (HMC) (OTCPK:HNDAF), AFEELA (Sony Honda Mobility JV)

- *On March 20 Honda announced: "Honda and Acura EV owners to gain access to Tesla Supercharger Network in June with approved adapters."*

Rivian Automotive (RIVN)

- *On April 30 TechCrunch reported: "Rivian's reportedly sitting on a stockpile of tariff-free batteries."*

Lucid Group (LCID)

- *On April 11 Seeking Alpha reported: "Lucid wins bankruptcy auction to acquire Nikola's Arizona factory and other assets."*
- *On April 15 Seeking Alpha reported:*

Lucid Group plans to enter the midsize electric SUV market in 2026... Lucid Group (LCID) also plans to launch the less-expensive Touring variant of the Gravity SUV later this year, starting at $79,900...In terms of tariff disruption, Lucid Group thinks it can mitigate the negative impact through prior agreements with battery cell and graphite suppliers. "We have those agreements already. The plants are being built right now, so it's not something that we can switch on today, but it's in the near future."

Toyota (NYSE:TM)/ Lexus

- *On April 15 CNEVPOST reported: "Lexus secures land for wholly-owned EV plant in Shanghai for $185 million."*
- *On April 23 Car News China reported: "All-new Lexus ES EV makes global debut at 2025 Shanghai Auto Show."*
- *On April 29 Car News China reported: "Toyota bZ3X SUV hits 10,000 deliveries in China—12,000 more buyers waiting in line."*

Mazda (OTCPK:MZDAY)

- *On April 23 Mazda announced:*
  Mazda unveils MAZDA EZ-60 new electric SUV at Auto Shanghai 2025 - The second EV developed in collaboration with Changan Automobile, expanding its EV lineup in Chinese market.
- *On May 4 Car News Chine reported:*
  Mazda bets on Chinese JV for 300K annual sales, 90% NEVs by 2027...The company has outlined concrete targets, including a 10 billion yuan (1.37 billion USD) investment, 10 billion yuan in annual export value, doubled production output, and annual sales of 300,000 vehicles by 2027, with electric and hybrid models comprising 90% of that total.

Figure 2: National and regional internal combustion engine vehicle phase-out targets

Source: BloombergNEF.

Note: Great Britain is now 100% EVs by Government sets out path to zero emission vehicles by 2035, noting they also have an 80% EVs target by 2030.

Conclusion

March 2025 global plugin electric car sales were over 1.6 million up 25% YoY and reached 25% global market share; 52% share in China, 26% in Europe, and 9.66% in USA.

Highlights for the month were:

- 2025 Shanghai Auto Show dominated by EVs. A trend this year is several automakers expanding into flying cars and humanoid robots.
- India says ‘No’ to BYD while wooing rival Tesla to invest.
- Amazon's Zoox expands fleet testing to the Los Angeles area.
- Robotaxi race: Waymo is off to a strong start in Austin and gaining traction in other markets.
- EU, China will look into setting minimum prices on electric vehicles.
- Shanghai allows more old cars to qualify for trade-in subsidies to spur consumption.
- Jeff Bezos backed startup Slate Auto is looking to disrupt the market with a $25,000 two seated electric pickup truck.
- China bans EV battery fires and explosions with groundbreaking safety standard starting July 2026.
- Trump retains auto parts 25% tariffs, but allows carmakers to claim an offset worth up to 3.75% of the value of a US-made vehicle for one year.
- World’s largest all-electric ferry launches in Tasmania.
- BYD's Q1 sales accelerates to nearly one million, sales rose 58% YoY. BYD Q1 2025 net income doubles YoY. China delays approval for Geely, BYD investment plans in Latin America, sources say.
- Geely - Polestar shuts stores in China, exits EV sales Joint Venture. 2025 Geely Panda Mini electric city car launched in China for 6,850 US.
- Tesla's Q1 2025 global EV sales slump 13% YoY, Q1 net income drops 70.58% YoY. Tesla Q1 energy storage deployment reached 10.4GWh, up 154% YoY. Tesla stops taking orders in China for models X & S imported from the U.S due to trade war tariffs.
- Volkswagen Group with mixed start to FY 2025; strong product momentum and focus on cost discipline, strong EV order book numbers.
- BMW - Tariffs, soft demand derail Mini plans to send 2 EVs to U.S. from China. BMW to collaborate with DeepSeek to enhance in-car AI for its China cars.
- Chery unleashes 16 new models at Shanghai Auto Show.
- Changan plans to begin mass production of humanoid robots by 2028.
- Li Auto delivered 33,939 vehicles in April 2025, up 31.6% YoY.
- Leapmotor delivers 41,039 cars in April (up 173% YoY), 2nd highest ever. Sales were boosted by the new all-electric B10 (RMB 99,800 ($13,730)).
- XPeng's strong sales figures for the first four months, amounting to 129,053 units delivered and reflecting a 313% yearly increase.
- Xiaomi delivered over 28,000 units in April...40 week wait for model SU7.
- Nio delivers 23,900 cars in April, up 53% YoY. First FIREFLY deliveries.
- GWM achieves new sales record as new energy and overseas sales surge. March NEV sales up 66% YoY.
- Ford EV sales totaling a record 73,623 in the first quarter - up 26%.
- GM cuts 2025 profit forecast, expects up to $5 billion tariff impact.
- Lucid Group plans to enter the midsize electric SUV market in 2026.
- BAIC Group unveils seven new models and showcases intelligent innovation at Auto Shanghai 2025.
- Huawei partners with SAIC to launch most affordable Huawei EV brand, named “Shangjie”. Huawei-backed Aito to officially launch M8 SUV on Apr 16, pre-orders already exceed 100,000.
- Lexus secures land for wholly-owned EV plant in Shanghai for $185 million.
- Mazda unveils MAZDA EZ-60 new electric SUV at Auto Shanghai 2025. Mazda bets on Chinese JV for 300K annual sales, 90% from NEVs by 2027.
- Tata Motors April EV sales were 5,318, down 16% YoY.

Entegris, Inc. (ENTG) Q1 2025 Earnings Call Summary

May 7,2025 KSV

Q1 2025 Financial Highlights

- Revenue: $771 million, at the high end of guidance. Excluding divestitures, sales were down 5% year-over-year and 4% sequentially.
- Gross Margin: 45.6% (GAAP and non-GAAP), exceeding guidance due to improved plant utilization and the divestiture of the PIM business.
- Adjusted EBITDA: $223 million, representing 29% of revenue, above the guidance range.
- Non-GAAP EPS: $0.68, surpassing the guidance range of $0.64 to $0.71.
- Free Cash Flow: $81 million.
- Debt Reduction: Paid down $419 million in debt during the quarter, reducing the term loan balance to approximately $955 million

Segment Performance

- Materials Solutions (MS): $350 million in sales, down 4% sequentially. Excluding divestitures, sales were down just 1% sequentially. The segment benefited from early-stage recovery in the memory market.
- Advanced Materials Handling (AMH): $163 million in sales, down 4% sequentially, primarily due to lower sales of fluid handling products.
- Microcontamination Control (MC): $268 million in sales, down 7% sequentially, with revenue lower across all major product lines

Strategic Developments

1. Manufacturing Expansion

- Kaohsiung, Taiwan Facility: This new facility has commenced production, with initial revenues generated in Q2 2024. Entegris anticipates approximately $40 million in revenue from this site for the full year 2024. The facility is expected to support significant growth in the coming years.
- Colorado, USA Facility: Construction is progressing rapidly, with initial sales anticipated in the second half of 2025. Entegris has secured up to $77 million in funding from the U.S. Department of Commerce under the CHIPS and Science Act to support this facility.

2. Operational Streamlining

Division Consolidation: Entegris has combined its Advanced Materials Handling (AMH) and Microcontamination Control (MC) divisions. This move aims to streamline operations, develop greater product synergies, and optimize go-to-market strategies. The company expects to generate annualized cost savings of $10 million to $15 million from this consolidation, which will be reinvested into R&D and new operational capabilities.

3. Product Innovation

Molybdenum Deposition Materials: Entegris is well-positioned to capitalize on the anticipated adoption of molybdenum in the semiconductor industry. The company has secured several key positions for molybdenum deposition materials, which are expected to drive future growth, particularly with transitions in NAND and logic technologies

2025 Business Outlook

1. Industry Trends

- Wafer Starts: Entegris anticipates wafer starts to grow in the low single digits, driven by advanced logic and AI applications, while mainstream and memory segments show limited visibility.
- Capital Expenditures (CapEx): Overall CapEx is expected to be flat, with elevated spending in advanced foundry and packaging, offset by slower new fab construction.

2. Financial Projections

- Revenue: For Q2 2025, Entegris expects revenue between $790 million and $810 million. For the full year, the company anticipates approximately $3.35 billion in revenue.
- Non-GAAP EPS: Projected to range from $0.68 to $0.73 for Q2 2025, with full-year expectations exceeding $3.25.
- Adjusted EBITDA Margin: Expected to be approximately 28% for Q2 2025 and around 29% for the full year

3. Growth Drivers

- Advanced Packaging: Entegris' advanced packaging revenues are approaching $100 million, with significant growth expected in 2025. The company provides solutions for process challenges, focusing on carriers for wafers and fluid management solutions.
- Dielectric Services: Opportunities in Material Solutions, with dielectric services expected to grow by threefold in 2025
- CMP Products: Continued momentum is expected in chemical mechanical planarization (CMP) products, with new opportunities in molybdenum deposition and etch in 3D NAND technologies

Key Risks and Concerns in 2025 Outlook

1. Uncertain Semiconductor Demand Recovery

- Cautious Industry Outlook: While there are signs of improvement, particularly in advanced logic and AI-driven demand, Entegris notes that the overall market recovery is uneven—especially for mainstream nodes and memory.
- Customer Inventory Management: Customers are still working through excess inventory, which continues to suppress new orders, particularly in consumables and materials.
- "The pace of recovery is slower than expected in some sub-segments, and visibility remains limited."

2. Delayed or Reduced Capital Spending by Customers

- Flat CapEx Environment: Semiconductor manufacturers are taking a conservative approach to spending in 2025, which could delay or reduce Entegris' revenue from capital equipment-related products.
- Shift in Investment: While advanced packaging and logic receive funding, new fab construction is tapering off, potentially stalling growth in certain product lines.

3. Integration Risks from Divestitures and Restructuring

- Operational Complexity: The company is undergoing significant changes—including the consolidation of AMH and MC divisions—which could create short-term inefficiencies or disruptions.
- Reinvestment Execution: The expected $10–$15 million in savings from restructuring must be successfully redirected into high-return investments like R&D and capacity expansion to maintain competitiveness.

4. Geopolitical and Regulatory Risks

- U.S.-China Trade Tensions: As a global supplier, Entegris faces continued uncertainty around export controls, tariffs, and regulatory hurdles, particularly in China.

- CHIPS Act Compliance: Receiving U.S. government funding (e.g., $77M for the Colorado fab) also brings regulatory oversight and milestones, failure of which could lead to funding issues or reputational risk.

5. Execution Risk on Capacity Expansions

- New Facilities: The success of new plants in Taiwan and Colorado is critical to long-term growth, but they carry risks:
- Ramp delays
- Cost overruns
- Customer qualification setbacks

6. Competitive Pressure and Technological Shifts

- Material Innovation Needs: Entegris is banking on transitions like molybdenum adoption and 3D NAND scaling. If these don't materialize industry-wide or if competitors move faster, Entegris could lose market share.
- Customer Consolidation: Fewer, larger semiconductor customers are increasingly demanding cost reductions, pressuring margins and negotiating leverage.

SWOT Analysis & Risk Mitigation Brief

1. SWOT Analysis

Strengths

- Diversified product portfolio across contamination control, advanced materials, and wafer handling.
- Global manufacturing presence with key facilities in Taiwan and the U.S.
- Strong financial foundation after $1.3B debt reduction from divestitures.
- High degree of customer integration—custom solutions embedded in fab processes.

Opportunities

- Rising demand from AI and high-performance computing (HPC) applications.
- Long-term upside from CHIPS Act and U.S. semiconductor reshoring.
- Rapid growth in Advanced Packaging (AP), expected to exceed $100M in annual revenue.
- Material innovation—early mover in molybdenum and advanced dielectric products.

Weaknesses

- Revenue heavily concentrated in a few large semiconductor clients.
- Short-term integration complexity from combining AMH and MC divisions.
- Limited visibility and slower recovery in mainstream and memory markets.

Threats

- Ongoing geopolitical risks, particularly U.S.-China trade tensions.
- Delayed or reduced semiconductor CapEx spending.
- Exposure to global supply chain disruptions.
- Intensifying pricing pressure and innovation race from competitors.

2. Risk Mitigation Strategies

Strategic Reinvestment

- Redirecting $10–$15M in annualized savings from division consolidation into R&D and operational efficiency.

Geographic Diversification

- Capacity expansion in Kaohsiung (Taiwan) and Colorado (USA) to serve regional markets and ensure supply continuity.

Customer Alignment

- Deepening co-development efforts with major semiconductor manufacturers.
- Securing early design wins in emerging material categories (e.g., molybdenum for next-gen nodes).

Balance Sheet Management

- Lower debt improves capital flexibility and resilience against demand cycles.
- Potential to invest further in innovation or M&A without excessive leverage.

Operational Redundancy & Digitalization

- Investment in smart manufacturing, automation, and regional redundancy.
- Focus on digital tools to enhance quality, yield, and customer responsiveness.

Entegris, Inc. (ENTG) Q1 2025 Earnings Call Transcript

May 7, 2025 SA Transcripts

Company Participants

- Bill Seymour - Investor Relations
- Bertrand Loy - President, Chief Executive Officer and Chair of the Board of Directors
- Linda LaGorga - Senior Vice President and Chief Financial Officer

Conference Call Participants

- Melissa Weathers - Deutsche Bank
- Charles Shi - Needham
- Atif Malik - Citi
- Timothy Arcuri - UBS
- Christopher Parkinson - Wolfe Research
- John Roberts - Mizuho
- Mike Harrison - Seaport Research Partners

Operator

Good day, everyone. Welcome to the Entegris First Quarter 2025 Earnings Conference Call.

At this time, all participants have been placed in a listen-only mode, and the floor will be open for your questions following the presentation. [Operator Instructions]

I would now like to turn the call over to Bill Seymour.

Bill Seymour

Good morning, everyone.

Earlier today, we announced the financial results for the first quarter of 2025. Before we begin, I would like to remind listeners that our comments today will include some forward-looking statements. These statements involve a number of risks and uncertainties, and actual results could differ materially from those projected in the forward-looking statements.

Additional information regarding these risks and uncertainties is contained in our most recent annual report and subsequent quarterly reports we have filed with the SEC. Please refer to the information on the disclaimer slide in the presentation.

On this call, we will also refer to non-GAAP financial measures as defined by the SEC in Regulation G. You can find reconciliation tables in today's news release as well as on our IR page at our website at entegris.com.

On the call today are Bertrand Loy, our CEO; and Linda LaGorga, our CFO.

With that, I'll hand the call over to Bertrand.

Bertrand Loy

Thank you, Bill, and good morning.

Our first quarter revenue grew 5% year-on-year excluding divestitures, slightly below our guidance range. Gross margin, EBITDA margin and non-GAAP EPS were at the midpoint of guidance.

Taking a closer look at our quarterly performance by division, Materials Solutions sales were up 8% year-on-year excluding divestitures. As expected, CMP slurries and pads delivered strong year-on-year growth, up almost 20%.

Advanced Purity Solutions sales were up 3% year-on-year. This growth was driven by solid demand for our micro contamination control solutions, offset by a sharp contraction in FOUPs and fluid handling revenue.

In the quarter, we also continued to make solid progress on several fronts. At our new Colorado manufacturing site, we are on-track with initial equipment qualifications and our first milestone associated with our CHIPS Act grant now complete. We expect to initiate customer qualifications in the second half of this year.

Our facility in Kaohsiung, Taiwan also continued to make progress in the first quarter, and we expect to complete most of the liquid filter qualifications by the end of this year. These facilities are good examples of our strategy over the past decade to invest in a broad global manufacturing footprint, offering redundant manufacturing sites for our major strategic product lines.

In addition, we have developed well-integrated supply-chain clusters around our largest manufacturing centers. For example, approximately 90% of the raw materials used by our Yonezawa plant in Japan comes from Japanese supplies and our KSP site in Taiwan uses approximately 90% regional suppliers.

Likewise, once up and running, we expect our Colorado facility to rely predominantly on U.S. suppliers with nearly 95% of its needs served from domestic suppliers. You can expect us to continue to build on this strategy and evolve our business model to better serve our global customers, to shorten our lead times and derisk our supply chain.

In a current trade environment, having a comprehensive global manufacturing footprint with regionally integrated supply-chains represents a significant strategic advantage. And at Entegris, all of the necessary building blocks are in place. We now need and will capitalize on our global manufacturing network.

During this uncertain time for the semiconductor industry, we continue to prioritize engagement with our customers to help enable their technology roadmaps. On that note, we are making good progress ahead of commercial volumes of moly deposition materials. We have excellent engagements with all major 3D-NAND players and we are very pleased with the POR wins we have achieved to-date.

Our moly deposition film offers the best film conformality and the best cost of ownership in the industry. In addition to the film material, we are also making great progress in developing novel wet-etch chemistries for moly-etch as an alternative to the current dry-etch process the industry is using. Both opportunities are very promising. It will be first adopted in 3D-NAND manufacturing and in a few years in DRAM and Advanced Logic.

Another recent win I would like to highlight is with IPA purifiers. Customers in Korea recently came to us concerned about trace metal contamination in IPA chemistries that impacted yields in HBM production. Our teams were quick to respond and promptly developed the required solutions.

This is the perfect example of how our customers use Entegris' unique capabilities to solve emerging complex yield and process challenges and how we continue to increase our served market over time. As these wins illustrate, we are very well-positioned to capture incremental content per wafer and continue to outperform the market in the years to come.

Looking forward to the rest of 2025, the environment created by new tariff regimes is the source of significant uncertainty and makes it very difficult to precisely quantify the direct and indirect impact on our customers and on our business. In that context, we are providing a broader than normal revenue guidance for Q2 and will not update our 2025 outlook for now.

That said, in this dynamic environment, you can expect us to remain focused on what we control, proactively adjusting our cost structure and investment levels, focusing on improving free cash flow, putting M&A on pause, staying committed to reducing our debt level. And of course, we will continue to closely collaborate with our customers by supporting their node transitions in second half of the year and by engaging on their long-term technology roadmaps.

Let me now turn the call over to, Linda. Linda?

Linda LaGorga

Good morning, and thank you, Bertrand.

Our sales in the first quarter of $773 million, were up 5% year-over-year excluding the impact of divestitures. On an as reported basis, our sales were flat year-over-year and down 9% sequentially. Foreign exchange negatively impacted revenue by $5 million year-over-year and negatively impacted revenue by $2 million sequentially in Q1.

Gross margin on a GAAP and non-GAAP basis was 46.1% in the first quarter. Gross margin was at the midpoint of our guidance range and was up sequentially driven by strong cost management across our supply-chain.

Operating expenses on a GAAP basis were $234 million in Q1. Operating expenses on a non-GAAP basis in Q1 were $186 million, better than our guidance range. Adjusted EBITDA in Q1 was 28.5% at the midpoint of our guidance. The GAAP tax rate in Q1 was 11.5% and the non-GAAP tax rate was 15%. GAAP diluted EPS was $0.41 per share in the first quarter. Non-GAAP EPS was $0.67 per share at the midpoint of guidance.

Sales for Material Solutions in Q1 were $341 million, up 8% year-on-year excluding the impact of divestitures. Sales were down 5% sequentially in-line with normal seasonality. Adjusted operating margin for MS was 22% for the quarter, up modestly sequentially.

Sales for Advanced Purity Solutions in Q1 were $434 million, up 3% year-on-year and down 11% sequentially. The sequential sales decrease was driven by CapEx products including fluid handling products and FOUPs.

Adjusted operating margin for APS was 25.4% for the quarter. The decline in margin was driven by lower volume. As we navigate this dynamic environment, we are focused on controlling what we can control, including our cost structure. For example, we've elected to retain approximately 75% of the previously announced $15 million of cost savings from the formation of the APS division, instead of fully reinvesting those savings. As always, we remain committed to delivering results in-line with the framework of our Analyst Publish Day target model.

Moving on to cash flow. Free cash flow was $32 million. As we mentioned in our last earnings call, we are committed to improving our free cash flow margin and have made free cash flow a compensable goal for the management team and the rest of the organization starting this year. In 2025, we expect our free cash flow margin to be in the low-double-digits.

Over the next several years, you can expect steady improvement as we aim at returning to levels similar to where we were pre-pandemic. One of our major focus areas is working capital optimization, in particular inventory, where we have the greatest opportunity as we look to improve lead times and optimize stock levels across our entire network.

In addition to working capital improvements, we now expect our capital expenditures to be approximately $300 million in 2025, down from our previous expectation of $325 million. As a reminder, our capital expenditures are weighted more to the first half of the year, driven by strategic investments including Phase I of our Colorado facility. As an aside, I'm pleased to share that we have achieved our first CHIPS Act milestone and expect to receive $9 million in the second quarter.

A quick overview of our capital structure. At the end of the quarter, our gross debt was approximately $4 billion and our net debt was $3.7 billion. Gross leverage was 4.4 times and net leverage was 4 times. Our debt is well-structured and derisked. The blended interest rate on our debt portfolio is approximately 4.9%. Since our term loan is fully-hedged, currently 100% of our debt is fixed and there are no maturities on the debt until 2028 and no maintenance covenants on the debt.

From a capital allocation standpoint, our single priority remains paying down our debt. We will use all levers at our disposal to reduce our gross leverage to below 4 times. Looking forward, I believe we are well-positioned to navigate through the dynamic tariff and economic environment. We expect to see a temporary impact to our topline related to our sales to China. We are actively working with our customers and suppliers to mitigate to the greatest extent possible the direct tariff impact by leveraging our global footprint and regional supply-chain.

Moving on to our Q2 outlook. We are widening our revenue guidance range to reflect our current assessment of the direct tariff impacts. We expect our Q2 sales to range from $735 million to $775 million. Excluding China, our business remains strong.

Let me be clear. The lower sequential sales guidance is driven entirely by the uncertainty of shipments of our U.S. made products into China. We expect a gross margin of approximately 45%, both on a GAAP and non-GAAP basis, GAAP operating expenses of $225 million to $229 million and non-GAAP operating expenses of $179 million to $183 million.

We expect EBITDA margin of approximately 27.5%, net interest expense of approximately $50 million, and we expect our non-GAAP tax rate to be approximately 12% due to the expiration of a tax reserve, GAAP EPS between $0.34 and $0.41 per share and non-GAAP EPS between $0.60 and $0.67 per share. We also expect depreciation of approximately $51 million.

I'll now hand it back over to Bertrand for some closing remarks.

Bertrand Loy

Thank you, Linda.

In closing, the industry environment remains dynamic. In that context, we will remain focused on what we can control, engaging with our customers, managing our cost, delivering strong profitability, improving free cash flow and paying down our debt.

In 2025, we are prioritizing critical investments that enable our customers know transitions and technology roadmaps needs. Looking further out, we continue to have high-confidence in the strong long-term growth outlook for the semiconductor industry and for Entegris.

Our customers' technology roadmaps are calling for new materials and ever greater purity levels to improve device performance and achieve optimal years. Our expertise in material science and material security is increasingly valuable. The R&D investments we are making are translating into key wins in new nodes and are expected to fuel our growth and market outperformance in the years to come.

With that, operator, let's open the line for questions.

Question-And-Answer Session

Operator

Absolutely. The floor is now open for questions. [Operator Instructions] Our first question is coming from Melissa Weathers with Deutsche Bank. Please go ahead. Your line is open.

Melissa Weathers

Thank you so much for letting me ask a question. Good morning, everybody. I guess on the comments that you guys have made on the direct impacts from tariffs and China and your outlook, could you help us understand, so is the main message that excluding those direct impacts, everything else is pretty much going as planned as you talked about last quarter, or just help us if we can get a little bit more context on how you're guiding and how much of that is tariff impact and how much of that is any cyclical weakness? Thank you.

Bertrand Loy

Yes, good morning, Melissa, and good question. And, let me put actually this Q2 guidance in the right context and I may provide a little bit more details than I usually do, but I think the circumstances wants that. So, let's start with a few facts. I mean, entering Q2, our business is strong. The fill rate is steady. Quarter-to-date, our book-to-bill ratio is strong. It's actually approaching 1.2. So, that's good. That's actually very good.

Another important fact, ex-China, our second quarter forecast is also solid. Actually, we expect the ex-China business to be up sequentially in-line with the industry trends that we expect in Q2. Specifically, we expect sequential growth in our consumable product lines consistent with the expected sequential improvement in wafer starts. That's going to be offset slightly by the sequential contraction in our CapEx product lines and that's also consistent with the expected sequential contraction in the industry CapEx. But again, net-net, our ex-China business is solid and is expected to be up sequentially. So, that's good as well.

So, and then to your question, I mean, we certainly have this China tariff situation to deal with. China introduced new tariffs on imports from the U.S. Our products unfortunately do not qualify for the temporary exemptions granted by the Chinese government. And as a result, as of right now, Chinese customers have put inbound shipments from U.S. on hold. So, the impact for us, just for Q2, worst case could be up to $50 million again just for Q2. And, that's the bad news.

Now, the good news, as Linda stated multiple times in her prepared comments, is that we have alternate Entegris manufacturing sites across Asia that our China customers could use. Actually they have started qualifying them and we are ourselves in the process of hiring and training additional staff, ramping up our local supply-chain. So realistically, we expect to be able to mitigate some of that impact in Q2 and that gets you somewhere at the midpoint of that guidance range for Q2.

And of course, we expect to make more progress in Q3, Q4. And at high-level, we expect these initiatives to have substantially mitigated the China tariff headwinds by the end of the year. So, hopefully, Melissa, that provides the context you were looking for when thinking about the overall business trends and going into Q2.

Melissa Weathers

Great. Thank you for all that color. That's really helpful. And, I totally understand you guys pulling your 2025 guide given that uncertainty. Maybe a bigger picture question then. On the moly side, it was good to hear that you're engaged with all of the main memory players on moly. But, given the macro uncertainty and the tariff uncertainty, has there been any change in your customer discussions about their willingness to adopt moly? How has the timing of that moly ramp changed in your mind at all?

Bertrand Loy

Well, it's a great question. I think that despite the uncertainty that we are all experiencing, the good news is that all major node transitions are still on track. It's true for the moly adoption in memory. As a matter of fact, all our discussions with the market leaders in 3D-NAND suggests that actually not all of them, but most of them will be transitioning to moly in the second half of the year.

So, it's good for moly, but that statement also applies to Logic. In Logic, we also expect N2 and 18A to ramp into second half of 2025. And, for all of those node transitions, both in Logic and Memory, we are very well-positioned and we are ready to capitalize on the incremental opportunities in back half of the year. And then of course, as more wafers are produced at those nodes going into 2026, that should have a positive impact on our business in 2026 as well.

Melissa Weathers

Great. Thank you.

Operator

We'll take our next question from Charles Shi with Needham. Please go ahead. Your line is open.

Charles Shi

Hi, good morning, Bertrand, Linda. Maybe I want to go back to the question on China tariff retaliatory tariff impact on the loss of sales for Q2. I recall going back a few quarters, you were expecting maybe China revenue as a percentage of the total to go above 20% from somewhere around the mid-teens given the increased production, semi-production in China. But, how much of the $50 million loss, let's say, in Q2 is recoverable, let's say, in Q3 and Q4? Because do your Chinese customers really have alternative or do you think that there will be some market share loss going forward?

The reason why I'm asking this really is about how much of the loss is irreversible and some how much of that you think is reversible, maybe give it a two or three more quarters? Thank you.

Bertrand Loy

Yes, Charles. Fair question. We believe that this is a temporary impact, as Linda mentioned, and I absolutely believe it is. As we've said many times before, our China business is strong. There are competitors in China for sure, but we believe that we've been competing very effectively. Our brand is strong. We continue to be viewed as valued partners by our customers. And, remember that our solutions really help our customers improve their device performance, improve their yields. This is really at the heart of our value proposition. And, this value proposition is appreciated in China as it is anywhere else in the world.

So, we are in active discussions with our China customers. And, when I say China customers, by the way, we're talking about international companies operating in China as well as domestic Chinese customers, right? And, they have practical experience of some of our other Asia manufacturing centers. They just need to fully qualify certain products coming from those centers and start placing their future demand on those manufacturing centers. So, we know it's going to take a little bit of time, but we believe it's entirely recoverable.

Charles Shi

Got it. Thanks. Maybe a follow-up question. Really I want to go back to the Q1 results. And, I think we focused a lot on the Q2 what the tariff impact could be on the Q2 guidance, but your Q1 results still coming a little bit below, I believe, the low-end of the guidance, which you guided in February. Wonder, what exactly happened? Why it came in a little bit below your expectation? And, I think you mentioned the CapEx products, fluid handling, FOUPs were some of the weakness, but what exactly you're seeing, in terms of customer behavior assuming Q1 that's all pre-tariff, right? Thank you.

Bertrand Loy

Yes, Charles. Yes, so the Q1 performance has nothing to do with tariffs indeed. The topline came in slightly below guidance. And as we've said, it really comes from much softer demand than originally expected for our fluid handling and FOUPs products. You know that these products, I mean demand for these products is linked to new fab construction. We have seen significant slowdown in new fab construction activity in all markets frankly, but that's especially true in China, in Japan, in Korea. And as a result, we've seen a much more significant contraction in the revenue for those products in Q1.

Having said that, remember that we grew in spite of this CapEx headwind. We grew 5% year-on-year. As I mentioned, strong performance from Materials Solutions up 8%, strong performance of APS, I mean, micro contamination had a very solid quarter. It was offset obviously by the decline in the CapEx products that I mentioned.

And then finally, one thing that I just want to be sure you remember Charles when you're looking at our Q1 performance, especially the year-on-year, remember that there were new U.S. export restrictions announced in December and we had quantified that impact to be about $10 million on a quarterly basis. So, we saw that in Q1. And then, we had some adverse impact from foreign exchange as well. And, I think Linda mentioned that year-on-year was about $5 million. So certainly, those last two points don't explain the midst, right? I mean, we're expecting these impacts when sending guidance. But, I think it's useful context when you look at Q1 results on a year-on-year basis. And, I would argue that the overall performance is pretty solid in that context.

Charles Shi

Thanks, Bertrand.

Operator

We'll take our next question from Atif Malik from Citi. Please go ahead. Your line is open.

Atif Malik

Thank you for taking my questions. The first one for, Linda. Linda, can you walk us through, you talked about the revenue impact from China, but on the gross margin, the 100 basis points, sequential decline to the June quarter. Can you help us understand the puts and takes, on the cost side, impact from tariffs?

Linda LaGorga

Yes. Thank you for that question. So let me first, since you framed it, let me frame it overall. We're in a dynamic environment and our guidance is capturing that dynamic environment. To your point on how the tariffs play into gross margin, we do have tariffs on U.S. imports. And, we do import some raw materials and finished goods.

So, we are very confident in the plan we have to mitigate those tariff impacts over time on U.S. imports through select pricing surcharges, different duty programs, focus on regionalized in sourcing to limit that tariff impact. But in the near-term, there's likely to be some modest impact to our Q2 gross margins as we progress our mitigation plans, because there is a bit of a timing lag and this is reflected in our guidance.

So, getting back to a little bit more of a big picture between Q1 and Q2 on the margin, you're correct in saying there's a bit of an impact from tariffs. But as we look across gross margins and look forward, there's going to be puts and takes. So, I want to bring you back to looking forward, there's the volume leverage as we progress throughout the year. We're going to continue to focus on productivity.

We'll continue to have inefficiencies this year in Taiwan and Colorado, but we're going to get most of that behind us by 2026. And we're going to continue to manage our cost structure including gross margin in the context of our Analyst Day. So, while there's slightly lower gross margins in Q2, we still expect that in 2025, our overall gross margins will be up modestly compared to 2024.

Atif Malik

Very helpful. And one for Bertrand. Bertrand, I fully understand, you guys are not commenting on full-year given the macro uncertainty. But just kind of broad strokes, how do you see the CapEx environment going on for second half? Some of the CapEx peers have talked about maybe flattish outlook for CapEx in second half. Some of them are down in second half versus first half. If you can just kind of give your big picture thoughts on the CapEx trend.

Bertrand Loy

Yes. I mean, look, I mean, remember that when we started the year pre-impact from tariffs and the growing uncertainty around that, we probably already had some fairly conservative expectations when it comes to the industry CapEx. I would argue that the current prevailing uncertainty is, in my opinion, going to put some additional pressure on CapEx in the second half of the year.

Having said that, we expect that to be somewhat offset by the steady improvement that we expect to see in wafer starts. So again, all of that is are high level considerations that do not really incorporate any considerations and any changes coming from the uncertainty around the tariff and the indirect impact from tariffs.

Atif Malik

Thanks.

Operator

We'll take our next question from Timothy Arcuri with UBS. Please go ahead. Your line is open.

Timothy Arcuri

Thanks a lot. Bertrand, I also wanted to ask about, how quickly this revenue can come back. I mean, why is this not the match that lights the fire for them to qualify local alternatives? I know that not all of what you sell, there's not a local alternative for, all of what you sell, obviously. But there are local alternatives for some of what you sell. And so do they actually have enough inventory on hand to just outright be able to continue to operate with China not accepting shipments? I mean, this is a pretty big number relative to what your China exposure is. So, yes. Thanks.

Bertrand Loy

Yes, look, it's a fair question, Tim. I think the burdens could be on us to be very proactive and very effective in transitioning the China demand to some of those alternate Asia sites. I think that those Asia manufacturing alternatives have a lot to offer. I mean, think about the big investment we made in Taiwan, recent investments in Japan and Korea. So, we are really offering state of the art manufacturing capabilities, we believe.

We are offering, again, products that are very uniquely enabling device performance and very uniquely enabling the yields of our customers and that has value. And we certainly hope that this is a point of view that our China customers share with us.

And again, all indications are based on the discussions we've been having with them in the last month, all indications are that they are very eager to quantify those alternatives. I mean, the proof will be in the pudding obviously, but, I am optimistic.

Timothy Arcuri

Okay. Got it. And then, just a two part question. So one, what is the clean revenue guide then for June? So, is the clean revenue guide something like $800 million minus this issue? So, is that the baseline that we should then kind of I mean, obviously, we have to assume how quickly this 50 comes back. But is the $800 million, like that's the real sort of demand based guidance for June? That's the first part of the question.

And then the second part is, what is your NAND exposure right now? Do you think any of the weak June quarter is related to NAND? Thanks.

Bertrand Loy

Yes. So in reverse order, the NAND exposure right now for us is about 10% of our revenue roughly. And in terms of breaking down our Q2 guidance between China and non-China, I mean, I think we've provided a lot of details. I'm not going to go into a lot more details than my answer to the first question. But directionally, the way you think about it is not too far off.

Timothy Arcuri

Okay. Thank you.

Operator

We'll take our next question from Chris Parkinson with Wolfe Research. Please go ahead. Your line is open.

Christopher Parkinson

Great. Thank you so much. You hit on a few of these, but just to dig down a little bit deeper. In terms of your second half assumptions of just what you're looking at from the customer level, do you sit on some non-tariff related factors, specifically, moly, no transitions. Is there anything that has actually changed in the last, five to six weeks that would ultimately, further evolve your views on those? And then perhaps just a quick update on the Taiwan ramp as well would be very helpful. Thank you.

Bertrand Loy

Yes. So, in terms of the benefits that we expect to get from the node transitions, as I said, we are very encouraged by our recent discussions with our customers. All of the major node transitions we're expecting in memory and logic seems to be still on time. And that's positive because it provides an opportunity for us to increase our content per wafer and that should actually help us sustain very attractive revenue levels in second half of the year.

Having said that, I mean, you're right that today there's still a lot of unknown around the indirect impact coming from tariffs. I mean, there is a recession which usually could correlate with a slower demand environment for semiconductors, but nobody has been able to really quantify that and I'm certainly not equipped to do that either. So that's something we're going to be obviously keeping an eye on.

And then there was a third part to your question, which I forgot.

Christopher Parkinson

Taiwan.

Bertrand Loy

Taiwan, yes. So Taiwan, yes, we're making actually really good progress in our Kaohsiung facility. Remember that in 2024, we completed a number of product qualifications, high purity containers, deposition materials, and we initiated qualifications for liquid filters.

In 2025, the focus is to complete the remaining qualifications for all major liquid filters. And when it's all said and done, I would say that I would expect the run rate, the revenue run rate exiting 2025 out of Kaohsiung to exceed $120 million. Remember, the last year, the revenue on a full-year basis was something closer to $15 million. So, a lot of progress is expected in 2025.

Christopher Parkinson

That's very helpful. And just in terms of the intermediate term, obviously, once again, I understand the world is changing, but as we sit here today, how are you thinking about the U.S., market just given the rhetoric of the current administration, trade, the potential for increases in foreign investment. Any updated thoughts just holistically on those topics would be helpful and just how that relates to your thoughts on the Colorado Springs opportunity? Thank you.

Bertrand Loy

Yes, that's a fair question. I think this is something that we are keeping a very, very close eye on external market research and our own views is that the new fab construction activity will be significantly down this year in 2025.

It's true, as I mentioned, in China, Japan, but also will be likely true here in North America. So right now, when it comes to our Colorado investment, we are going full speed ahead with our Phase I investment. We have actually hit a number of milestones. So, feeling really good about the progress and we're going to be starting customer qualifications in the second half of this year.

We expect production late this year, early next year. Now when it comes to the timing of Phase two, the phase so the next phase of investment, we're going to be looking at the level of new fab activity in the U.S. We're going to take that into consideration and we will finalize our decisions later this year. So, no decision at this point.

Christopher Parkinson

Very helpful. Thank you so much.

Operator

We'll take our next question from John Roberts with Mizuho. Please go ahead. Your line is open.

John Roberts

Thank you. Sometimes you characterize the business at a high level in terms of mainstream versus advanced applications. I assume advanced is not that affected by China or much less affected, but maybe you could just give us kind of the tone of business in those kind of two big buckets?

Bertrand Loy

Yes, I mean, look, our advanced logic business remained very, very strong. I mean, if you look at our Q1 performance, our revenue in Taiwan was very strong year-on-year as we would expect. And as we capitalized on increased demand linked to AI and advanced logic application. But it's true that we continue to face some headwind from still fairly reduced levels of operations in mainstream fabs and it was true pretty much around the world, including China in Q1?

John Roberts

Yes. And then I think the public comment period ends today for the new semiconductor tariffs. Have the consultants summarized that for you? Or is there anything that kind of maybe sticks out as unexpected in what may have been submitted in terms of public comments?

Bertrand Loy

No. As I said, I think right now there's just a lot of unknown, a lot of uncertainty. I think most of our customers are taking a very prudent approach frankly when they think about the balance of the year. And that's the reason why we didn't feel equipped to update our annual guidance. I think hopefully things will settle down and hopefully in a few months we will be in a better position to update our full-year guidance.

John Roberts

Thank you.

Operator

We'll take our next question from Mike Harrison with Seaport Research Partners. Please go ahead. Your line is open.

Mike Harrison

Hi, good morning. I was hoping we could dig in a little bit on the growth that you're seeing within the micro contamination control portion of the APS segment. I feel like sometimes you have pretty good visibility on your ability to grow in that business. How is visibility today compared to what you think of as normal?

Are you seeing any delays or changes in customer order patterns? Any change in filter usage or anything that suggests that maybe your customers are trying to thrift or extend the life of some of those filters? Any color there would be appreciated.

Bertrand Loy

Yes. It's a good question, Mike. I think you know the answer to the question. I think in advanced logic, there's still this intense focus on defect management, which is really driving the right behaviors when it comes to using the most advanced filters proactively changing them and doing the right level of preventative maintenance. We are seeing that same behavior now in HBM and I mentioned that in my prepared remark highlighting a new IPA purifier opportunity. So, it's great to see that as device complexity increases, we are starting to see a greater focus, a greater interest in the micro-contamination control solutions.

In the case of this HBM opportunity, we were asked to help reduce the level of trace metal contaminations from three parts per trillion to something less than one part per trillion. I think our solutions actually help the customer get 2.5 parts per trillion, which put that in context, is about half a drop of water in 20 Olympic sized swimming pools.

So, those are the types of solutions that we are developing. We are very proud of the value proposition that our products offer. And we're pleased to see this greater level of focus on purity. But you're right that when utilization levels are low as they are right now in mainstream, customers will try to stretch the lifetime of the filters. And that's one of the many reasons why our mainstream business has been sluggish and frankly in the last couple of years now.

Mike Harrison

All right. And then for Linda, I know you don't typically talk about the FX impact. You mentioned, I believe, some top line impacts in the first quarter. But with the big swings that we've seen in the dollar, can you talk a little bit about the impact you might expect to see in the second quarter, in other parts of the P&L and at the EBITDA level? Is that something that's leading to some margin weakness in the second quarter as well?

Linda LaGorga

Yes. Thanks, Mike. First, historically, we have not had a meaningful impact on our business from FX. And again, you're asking about other parts of the P&L, but as I mentioned on the sales side, greater than 75% of our sales are USD.

When you get below sales, into the gross margin, which could flow down into EBITDA, when we do have significant and fast moves, we do see some impact, but it has been manageable. So there could be a little bit of impact in Q2, but that is not the primary reason why I'm projecting what we're projecting for Q2 in our gross margin. As I said, primarily I'd focus on some of the volume deleveraging and then the impact of the direct tariffs from U.S. imports and a bit of a timing lag.

Mike Harrison

Thanks very much.

Operator

We'll take our next question from Aleksey Yefremov with KeyBanc Capital Markets. Please go ahead. Your line is open.

Unidentified Analyst

Thanks and good morning, Bertrand. This is Ryan on for Aleksey. I just wanted to ask one on China first. Did you guys see any evidence of pre-buying, kind of ahead of all the restrictions that have gone in? I understand you mentioned that they're eager to qualify, some of your product from alternative sourcing. But just wondering if there was any pre-buying you saw ahead of all this?

Bertrand Loy

No. We didn't really see much of that. And when it comes to Q2, obviously, as I said, I think right now all of our shipments ex U.S., are on hold. So, there is absolutely no pre buying going on right now. And there was none of that in Q1 either.

Unidentified Analyst

Understood. Okay. Thank you. And then I just wanted to ask on Advanced Packaging. I mean, it seems like growth is kind of accelerating across the space. Was hoping you might be able to remind us what the size of that business is for you today, maybe what growth kind of looked like in 1Q and kind of what your outlook is like? Thank you.

Bertrand Loy

Yes. Good question, Ryan. So Advanced Packaging for us is still a fairly small market, right? But as we have mentioned multiple times, it's growing very fast. It actually did more than double in 2024. We saw actually a doubling in Q1 versus actually more than a doubling in Q1 of this year versus Q1 of last year.

When we think about the full-year 2025, we expect this business year-on-year to grow more than 25%. And the two big drivers for us in '25 are expected to be of high viscosity dispensed solutions. That's an APS product. And then the other one would be HBM slurries for [TZ] (ph) applications. So again, feeling good about the momentum, feeling good about our ability to uncover new areas where we can contribute value, still small but growing very, very fast.

Operator

Thank you. This concludes today's Entegris first quarter 2025 earnings conference call. Please disconnect your line at this time and have a wonderful day.