

# Regional Industry Focus

## Regional Technology

Refer to important disclosures at the end of this report

DBS Group Research . Equity

22 Oct 2024

### Beyond the 'semi' recovery

- Semiconductor upcycle still young at 10 months, vs. average of 30 months, with further growth expected
- Uneven recovery path – leading-edge tech, AI-proxy names ahead; trailing edge still at nascent recovery stage with ample room for growth
- Though upstream still in favour, time is ripe to focus on undervalued downstream consumer electronics
- Downstream picks: [AAC Tech](#), [BYDE](#), [Lenovo](#), [Xiaomi](#), [Venture](#), [Frencken](#)

**Current semiconductor upcycle not peaked yet.** Previous upcycles typically lasted about 30 months while the current uptrend is only into its 10th consecutive month of y/y growth in semiconductor shipments. Historical data suggests the current upcycle is not yet at its peak. Gartner forecasts an 18.8% y/y gain in 2024, followed by further growth of 13.8% and 7.5% in 2025 and 2026, respectively.

**Recovery Pulse Check: Who is ahead?** While the semiconductor industry is recovering well, with the latest August shipment data reaching new highs, +20.6% y/y, the recovery along the whole technology value chain has been uneven so far. The outperformers are those exposed to leading-edge technologies, such as advance chips and AI-proxy names with exposure to hyperscalers. The current laggards, such as those with higher exposure to the industrial and automotive space, in particular the microcontroller (MCU) segment, could probably take another year to see a full recovery.

**Downstream focus, outperformers still key.** Looking ahead into 2025, we continue to expect further upsides for equipment makers and those with exposure to the AI and hyperscaler space. Our picks are [ASML](#), [Lam Research](#), [TSMC](#), and [Micron](#). We also believe the time is ripe to focus on the undervalued downstream players poised to capitalise on the AI wave and the gradual recovery of end demand, especially in the mobile space. Downstream proxies we like include HK-listed plays [AAC Tech](#), [BYD Electronics](#), [Lenovo](#), and [Xiaomi](#). Among the SGX-listed names, we like [Venture](#) and [Frencken](#).

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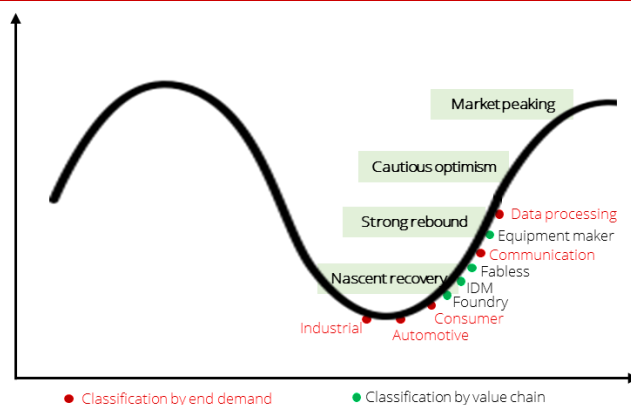
#### STOCKS

	Price	Mkt Cap USDmn	12-mth Target		Performance (%)		Rating
			3 mth	12 mth	3 mth	12 mth	
<b>China/Hong Kong (HKD)</b>							
<a href="#">AAC Technologies</a>	31.90	4,919	43.00	3.6	131.2	BUY	
<a href="#">BYD Electronic</a>	34.50	10,002	45.00	2.4	-3.2	BUY	
<a href="#">Lenovo Group</a>	11.54	18,420	13.60	13.4	40.2	BUY	
<a href="#">Xiaomi Corp</a>	24.25	77,873	31.00	46.8	82.3	BUY	
<b>Singapore (SGD)</b>							
<a href="#">Frencken Group</a>	1.25	407	1.77	-17.2	17.9	BUY	
<a href="#">Venture Corp</a>	13.80	3,043	16.40	-6.9	19.1	BUY	
<b>Global (USD)</b>							
<a href="#">ASML (EUR)</a>	668.00	289,798	950.00	-19.5	22.1	BUY	
<a href="#">Lam Research</a>	72.84	94,409	105.50	-20.6	21.3	BUY	
<a href="#">TSMC (TWD)</a>	1085.00	879,997	1541.00	11.9	95.1	BUY	
<a href="#">Micron</a>	111.15	123,237	167.10	-2.7	65.4	BUY	

Source: DBS, Bloomberg

Closing price as of 18 Oct 2024 (SG, Global); 21 Oct (CH/HK)

#### Semiconductor recovery cycle



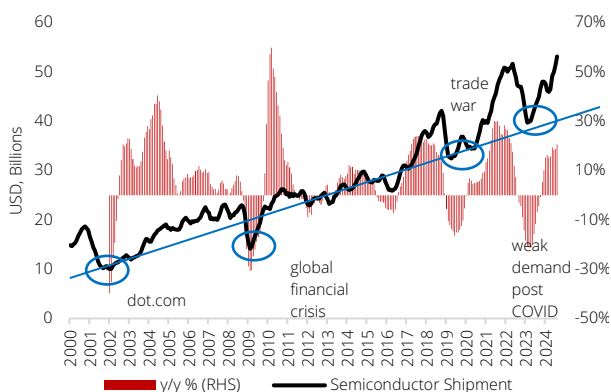
Note: Classification based on the average fundamental performance of players in each segment

Source: DBS

## Semiconductor outlook: More upside ahead

**Semiconductor rebound has more runway.** Semiconductor shipment data continued its uptrend, surpassing the previous high recorded in May 2022 to reach USD53.1bn as at August 2024, +20.6% y/y. We believe there is still more room for upside, driven by AI chips, memory pricing, and recovery in PCs, smartphones, and consumer devices.

### Semiconductor shipments – uptrend intact

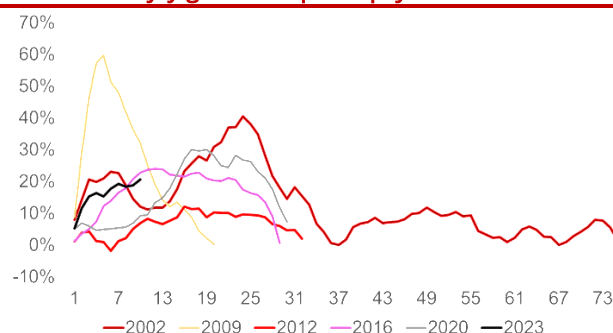


Source: SIA, CEIC, DBS

**Current upcycle has not peaked yet...** Previous upcycles typically lasted about 30 months, while the current uptrend is only into its 10th consecutive month of y/y growth. Historical data suggests the current upcycle is not yet at its peak. A positive y/y gain denotes an uptrend while negative returns equate to a downcycle.

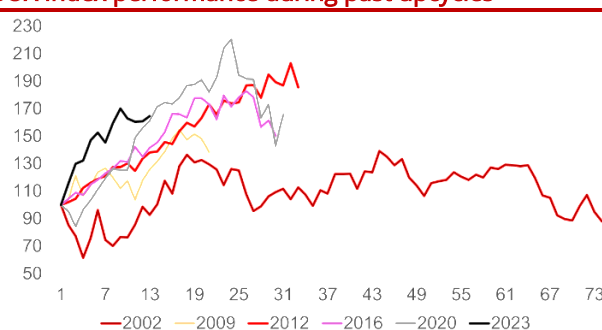
**...With further upside to prices.** We think there could be more upside to the SOX Index, notwithstanding a strong +65% return since the onset of the current upcycle. While recognising that each upcycle is different, the duration as well as the price performance are relatively modest compared to the peaks recorded in previous cycles.

### Duration and y/y growth of past upcycles



Source: SIA, CEIC, DBS

### SOX Index performance during past upcycles



Source: DBS, Bloomberg

**This time should be no different,** as we expect share prices of equipment makers and memory segments to do well in the current upcycle. This implies a potential upside to share prices as the cycle unfolds from hereon. Also, we would think that they are in the best position to benefit from the uptick in investors' interest and inflows, should attention shift from the leading AI/DC segment.

### Historical sector price performances in past upcycles

	# mths	AI/DC	Analog	Consumer	Equip	Foundry	MCU	Memory	Index
Jul-02 to Sep-08	74	149%	3%	21%	-12%	-2%	-69%	-76%	-12%
Nov-09 to Jun-11	21	33%	46%	37%	28%	32%	41%	10%	38%
Nov-12 to Jun-15	33	68%	74%	17%	99%	43%	101%	247%	85%
Aug-16 to Dec-18	30	57%	35%	35%	39%	33%	41%	131%	51%
Feb-20 to Jul-22	31	132%	52%	70%	85%	64%	62%	17%	66%
<b>Average of past 3 cycles</b>		<b>86%</b>	<b>54%</b>	<b>41%</b>	<b>74%</b>	<b>47%</b>	<b>68%</b>	<b>132%</b>	<b>67%</b>
<b>Nov-23 to Now</b>	<b>13</b>	<b>121%</b>	<b>45%</b>	<b>55%</b>	<b>47%</b>	<b>48%</b>	<b>9%</b>	<b>58%</b>	<b>65%</b>

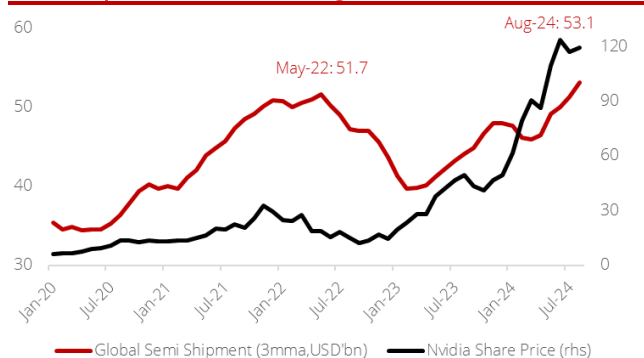
Note: Sector performance proxied by median share prices of semiconductor stocks under coverage

Source: DBS, Bloomberg

## Recovery as the second leg, after AI surge

AI only one part of the equation...Yet, we think there is more to what the semiconductor industry can offer investors, beyond the ongoing AI boom. While the latest AI developments have gripped headlines over the course of 2024, a wider semiconductor recovery was also taking place in the background. Even as we remain sanguine on the prospects of AI (see: [Nothing artificial about AI](#)), we think it is about time that markets start to appreciate the non-AI and recovery sides of the story.

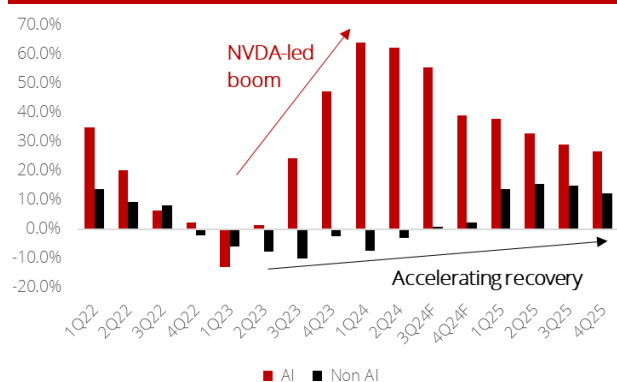
### Semi shipments at all-time high, see NVDA



Source: DBS, SIA, CEIC. Latest shipment data up till Jul-24

...With the lead over non-AI narrowing. The edge that AI players possess – i.e., the ability to deliver higher revenue growth – is starting to wane. While the consensus continues to ascribe faster revenue growth for AI players, the revenue growth gap has narrowed considerably, 1) owing to a higher base effect for the AI segment and 2) as recovery in the non-AI segment accelerates from hereon.

### Aggregate AI vs. non-AI revenue growth (y/y)



Source: DBS, Visible Alpha. AI beneficiaries – AMD, MU, NVDA, MRVL, AVGO, TSMC; Non-AI – Rest of 15 global semiconductor stocks under our coverage

Time for a recovery play...We see scope for a pickup in investors' confidence and interest towards the recovery, should the latest concluded quarter (3Q24F) register the first y/y growth after seven straight quarters of y/y decline. We also see now a window for investors to position ahead, with non-AI y/y revenue growth expected to accelerate to 10%+ from 1Q25 onwards.

...Even for AI-players. There may be a growing expectation for AI companies to deliver more. Merely meeting lofty AI expectations might no longer be enough. Investors would also the companies' ability to ride the wider recovery – more so for companies with relatively lower exposure to the AI/DC segment. This could set a higher bar for key AI beneficiaries ahead, where their AI and non-AI segmental contributions are seen as equally important to growth. Amongst the AI beneficiaries, we believe our top picks **Micron (MU)** and **TSMC** are well positioned to capture both the AI upside and recovery in conventional segments.

### NTM/STM revenue y/y growth forecast (%)

Company	Next 12 months	Second 12 months	% of NTM revenue
AMD – non-AI	-8.5	10.4	44%
AI/DC	81.1	30.9	56%
MU – non-AI	84.8	10.8	65%
AI/DC	79.2	29.3	35%
NVDA – non-AI	10.4	14.2	11%
AI/DC	66.4	38.4	89%
MRVL – non-AI	-20.6	23.7	27%
AI/DC	60.2	25.9	73%
AVGO – non-AI	23.0	8.8	68%
AI/DC	31.4	20.3	32%
TSMC – non-AI	14.7	14.9	52%
AI/DC	25.3	26.4	48%

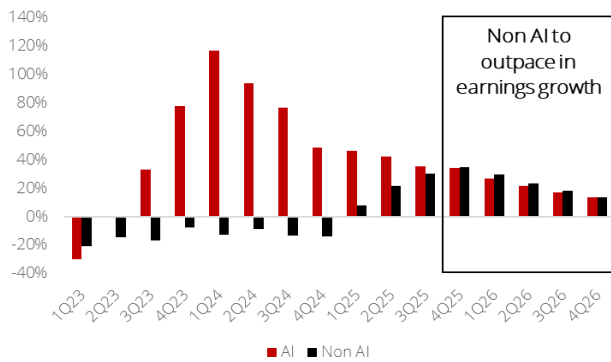
Source: Visible Alpha, DBS

NTM: Next twelve months; STM: Second twelve months

Note: AI/DC revenue proxied by the following line items – data centre (AMD, NVDA, MRVL), networking (AVGO), high-performance computing (TSMC), computer and networking business unit (MU)

Non-AI earnings catching up as well. A similar trend can also be said for the earnings growth of the non-AI segment. More importantly, we have noted brief periods where non-AI earnings growth is expected to outpace its AI counterpart (e.g., from 3Q25 to 2Q26). The robust earnings growth expectation reinforces our view that investors should not dismiss the potential of this recovery story.

**Aggregate AI vs. non-AI earnings growth (y/y)**



Source: DBS, Visible Alpha

**Seeking non-AI opportunities.** With or without AI, we think investors’ focus would still be on companies’ potential to deliver revenue/earnings growth in the coming quarter(s). Most companies across the value chain are expected to register positive revenue/net profit growth over the next eight quarters, which highlights the durability and inclusivity of the upcoming recovery.

**Average y/y growth over the next 8 quarters**

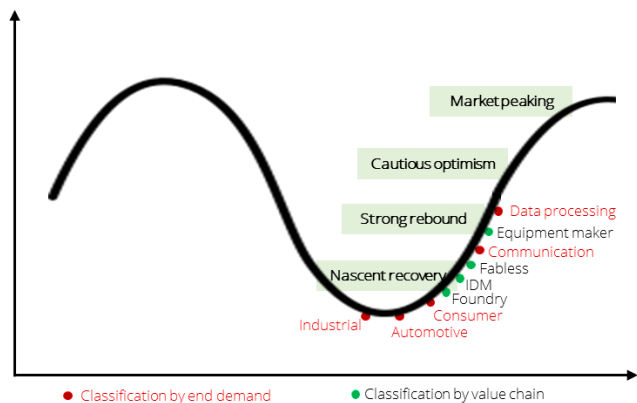
Company	Sector	Revenue	Net profit
Teradyne	Equipment	18.4%	39.6%
ASML	Equipment	16.3%	24.6%
Tokyo Electron	Equipment	16.6%	23.0%
Lam Research	Equipment	16.0%	19.3%
KLA Corp	Equipment	13.0%	17.5%
Analog Devices	Analog	9.2%	16.6%
GlobalFoundries	Foundry	8.0%	20.7%
<b>Aggregate</b>	<b>N.A.</b>	<b>8.5%</b>	<b>15.2%</b>
Texas Instrument	Analog	9.2%	14.4%
Applied Materials	Equipment	8.9%	9.8%
Qualcomm	Consumer	8.6%	11.0%
Infineon	MCU	6.6%	12.0%
STMicro	MCU	1.0%	17.0%
Renesas	MCU	3.2%	9.1%
Intel	Consumer	4.1%	-13.2%
ONsemi	MCU	2.8%	7.4%

Source: Visible Alpha, DBS

## Recovery Pulse Check: Who is ahead?

**Uneven recovery.** While the semiconductor industry is recovering well, with shipment data reaching new highs and Gartner forecasting an 18.8% y/y gain in 2024, followed by further growth of 13.8% and 7.5% in 2025 and 2026, respectively, the recovery has been uneven so far.

### Semiconductor recovery cycle

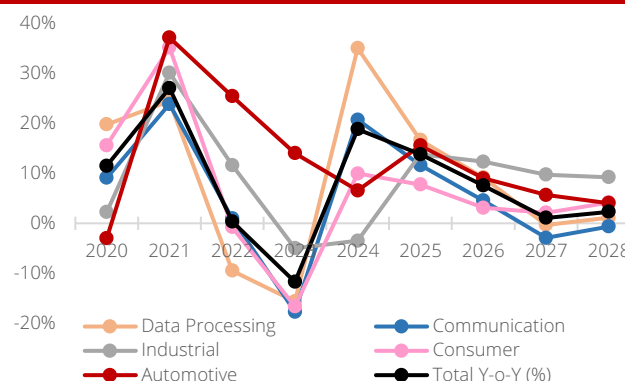


Note: Classification based on the average fundamental performance of players in each segment  
Source: DBS

Category	Recovery pace
<b>Value chain</b>	
Equipment maker	Tends to outperform in upcycle; exposure to leading-edge chips (e.g., high-bandwidth memory) ahead of others such as MCUs, logic, analog
Foundry	Leading-edge nodes (5nm and below) outperformed mature nodes
IDM	Exposure to leading-edge chips (e.g., high-bandwidth memory) ahead of others such as MCUs, logic, analog
Fabless	AI-proxy leading but the lead over non-AI is narrowing
<b>End demand</b>	
Data processing	Exposure to AI-data centre, edge computing outperformed
Communication	Mobile and server communications
Consumer	Mobile outpaces PC recovery. Other devices on recovery path with improving macro outlook
Automotive	Slow recovery in demand, keen competition
Industrial	Slow recovery in demand, inventory destocking

Source: DBS

### End-market y/y growth (%)



Source: Gartner, DBS

### Delving deeper into end markets

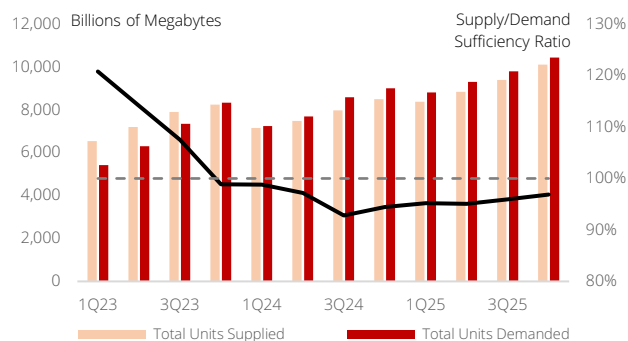
We take a step further to identify the areas of recovery and/or decline for the various non-AI players through consensus revenue forecasts over the next 12 months (NTM). We believe this is especially instructive for companies that have exposure to diversified end markets that could vary in their recovery phases.

**More legs for equipment makers in 2025.** We think our positive call on equipment makers – in our [2024 outlook](#) – would still be valid in the coming year. Equipment makers are expected to lead revenue and earnings growth in the coming quarter(s). The recovery, which has begun in 2024 for most equipment makers, is expected to extend into the coming year, with the market expecting key players such as ASML, Lam Research and Tokyo Electron to register a stronger year ahead.

Two key areas of growth were noted across different equipment makers under our coverage. First, robust recovery of memory is expected to extend into the coming quarter(s), more so in the high-performance/bandwidth memory segment. Second, they continue to see robust demand for ‘leading edge’ technologies (i.e., AI, logic chips), which further underscores their importance in the entire semiconductor value chain – as more advanced chips require better equipment and testing capabilities.

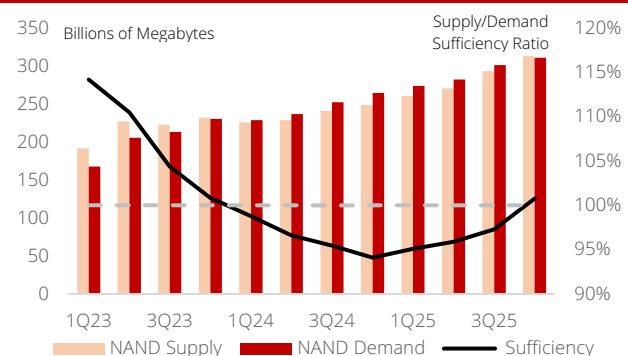
**The memory division** was one of the first segments to recover, after the steep drop in 2023. The demand-supply dynamics for both DRAM and NAND started to improve in 4Q23, with the sufficiency level dipping below the equilibrium level for both DRAM and NAND, indicating demand has surpassed supply. The under-supply situation is expected to continue into 2026 for DRAM and 4Q25 for NAND.

### DRAM Supply-and-Demand Sufficiency, worldwide



Source: Gartner, DBS

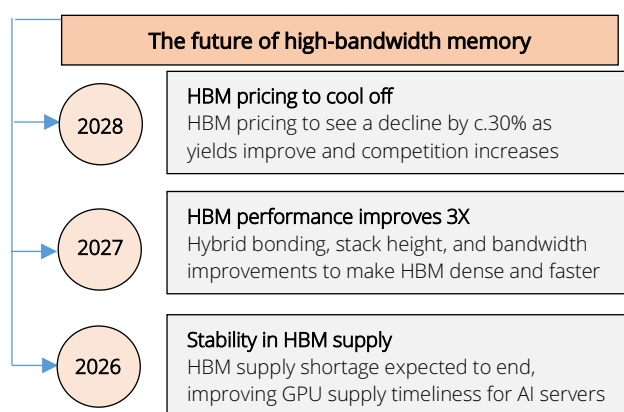
### NAND Supply-and-Demand Sufficiency, worldwide



Source: Gartner, DBS

Demand for high-bandwidth memory (HBM), however, remains strong, riding on the AI wave. HBM will remain in short supply, with an improvement only expected in 2026. Overall, HBM DRAM accounts for about 14% of total DRAM currently, and this should increase to 34% by 2028, according to Gartner.

### Expect stability in HBM supply in 2026



Source: Gartner, DBS

While the **MCU segment** appears less appealing against a backdrop of strong overall recovery, it is expected to gain traction as the recovery continues.

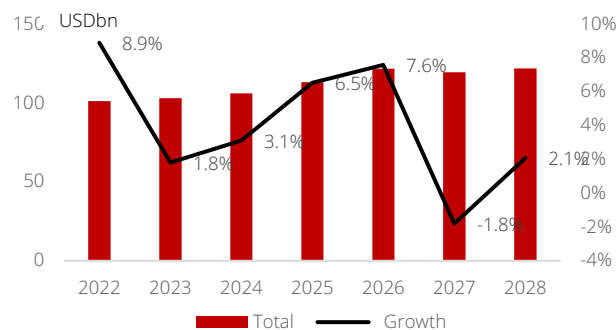
### Analog and MCU – NTM revenue growth (% y/y)

Stock	Segment	Industrials		Auto		NTM Rev Growth (%)
		NTM Rev Growth (%)	% Revenue (last Q)	NTM Rev Growth (%)	% Revenue (last Q)	
TXN	Analog	3.1	35.8%	(3.8)	34.4%	3.9
ADI	Analog	4.6	45.8%	(4.0)	29.0%	2.7
ON	MCU	(9.4)	13.5%	(9.9)	26.1%	(7.7)
INF	MCU	2.5	33.1%	4.1	57.1%	3.3
STM	MCU	(36.6)	20.0%	(6.5)	46.0%	(14.7)
RENE	MCU	(10.5)	46.3%	3.2	53.1%	(0.7)
<b>Average</b>		<b>(7.7)</b>	<b>32.4%</b>	<b>(2.8)</b>	<b>40.9%</b>	<b>(2.2)</b>

Source: Visible Alpha, DBS

Furthermore, the ongoing adoption of the “China+1” strategy acts as another catalyst. Wafer fab equipment revenue is expected to register a 3.1% y/y gain in 2024, and stronger 6.5% growth in 2025 with another 7.6% in 2026.

### Wafer fab equipment revenue



Source: Gartner, DBS

**Tale of two foundries.** The comparison between the two foundries of TSMC and GlobalFoundries (GFS) offer a case in point here. Despite seemingly similar business models, the evident gap between TSMC and GFS can be distilled to 1) the former’s focus on the leading-edge space and 2) the latter’s relatively higher exposure to the laggard sectors. Beyond the focus on end markets, this comparison again underscores the growing share and importance of leading-edge technologies over time.

### TSMC and GFS – NTM revenue growth (y/y, %)

End-market	TSMC		Global Foundries	
	NTM rev growth	% of NTM rev	NTM rev growth	% of NTM rev
HPC/DC*	34.3	48.1	2.7	8.3
Smartphone	14.9	34.2	7.7	45.3
IOT	18.5	5.9	-9.9	18.0
Automotives	14.4	4.7	6.4	17.3
Others	9.7	3.6	-0.6	10.5
<b>Overall</b>	<b>28.3</b>		<b>3.1</b>	

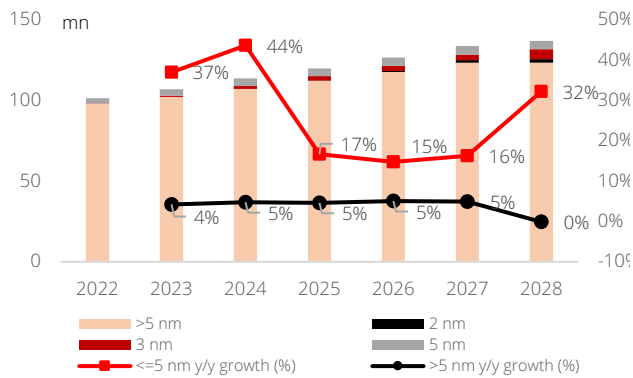
Source: Visible Alpha, DBS

\*TSMC: High-performance computing, GFS: Communication infrastructure

Regional Technology

**Cutting-edge foundries poised to surpass traditional players.** The semiconductor fab capacity for 4/5nm and below advanced nodes is expected to grow by three times by 2028 as compared to 2023. Gartner forecasts that more than 30% of data centres will require high-performance computing chips for generative AI (GenAI) applications by 2026, and more than 70% of smartphone application processors will have integrated GenAI functionality by 2027.

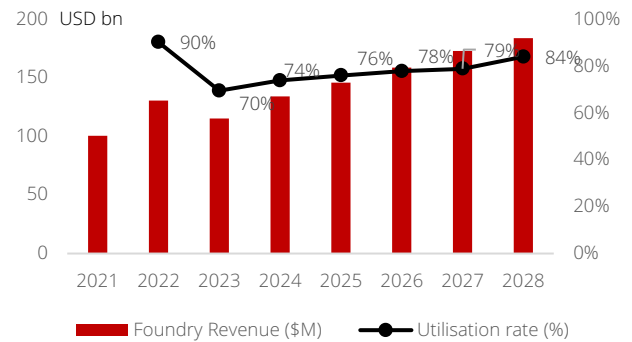
**Foundry capacity\* by technology node**



\*Based on 8-inch equivalent wafers  
Source: Gartner, DBS

AI, coupled with the nascent recovery in the mobile and PC markets, is expected to drive the overall foundry revenue, foundry capacity, shipments, and utilisation rates higher, contributing to growth in semiconductor revenue worldwide.

**Foundry revenue vs. utilisation rate**



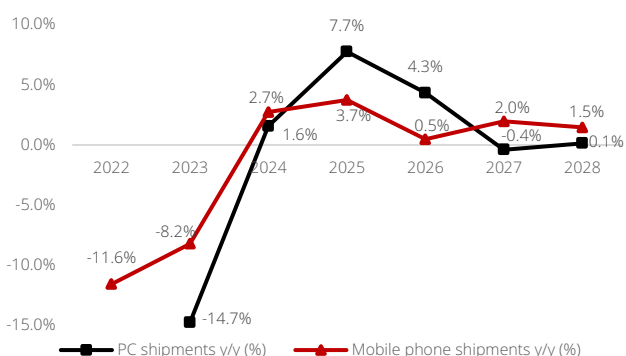
Source: Gartner, DBS

**Auto and industrials as laggards**, with recovery likely to be delayed another year. The current lacklustre consensus forecast for the microcontroller (MCU) and analog sectors is largely attributable to the weak demand in automotive and industrials – the end-markets they are more exposed to. Revenue is likely to stabilise or decline marginally over the next 12 months, with a more meaningful recovery likely to take place thereafter.

## Downstream consumer electronics – AI's evolution into a daily assistant to propel growth

**Shipments recover for PC and mobile segments.** For the broader market, the overall shipments for consumer electronics such as PCs and smartphones are expected to rebound in 2024, with a stronger growth rate of 7.7% for PC and 3.7% for mobile in 2025. Besides the recovery in end-market demand on the back of the gradual recovery of the global economies, another driver is the rising adoption of AI devices.

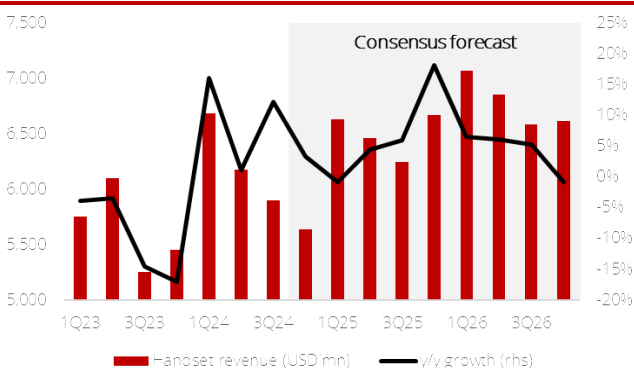
### PC and mobile phone shipments growth



Source: Gartner, DBS

**Watch for corporate developments in consumers.** We think investors would place more focus on the stocks' corporate developments, with recovery relegated to the backseat. For Qualcomm (QCOM), all eyes will be on their latest AI-PC monetisation efforts, on top of further mobile recovery. Intel's turnaround story would also be keenly watched by investors, alongside committed product launches in a bid to catch up to their competition – AMD for PC, TSMC for foundry services, and NVDA for AI and data centre.

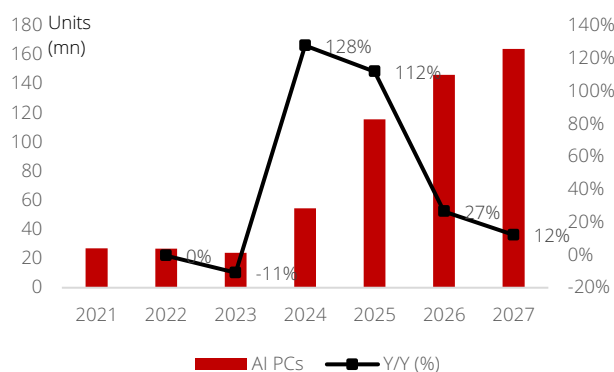
### QCOM – improving outlook for handset revenue



Source: DBS, Bloomberg

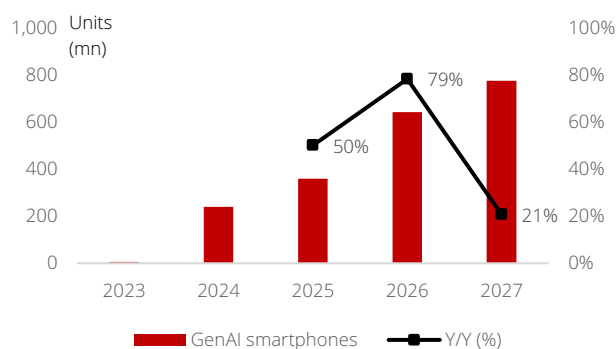
**Steep jump in shipments for AI PCs and smartphones.** We expect the AI PCs and GenAI smartphones installed base in the market to rapidly increase, as AI capabilities gradually become a “must have” instead of “good to have”. Shipments of AI PC are expected to surge >100% in 2024 and 2025. The jump in GenAI smartphones is even stronger, mainly due to the launch of same by vendors such as Apple, Google, and Samsung.

### AI PC unit shipments, worldwide



Source: Gartner, DBS

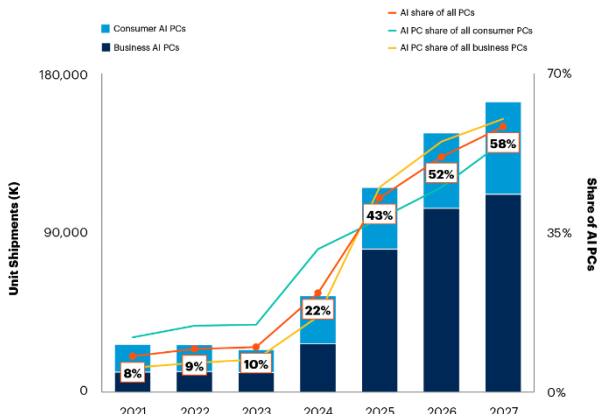
### GenAI smartphones unit shipments, worldwide



Source: Gartner, DBS

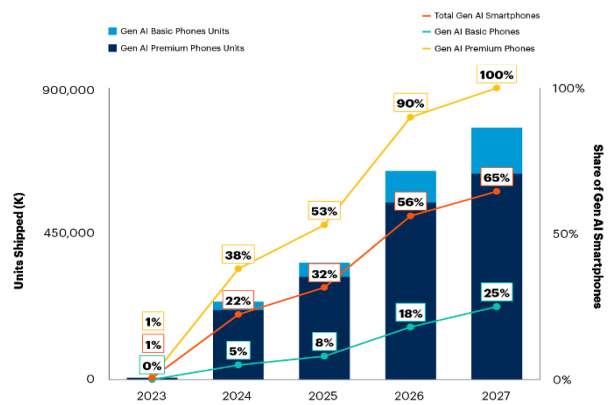
The integration of AI into PCs is largely through applications such as Microsoft 365 Copilot, which will be cloud-based. However, AI applications are more suitable for higher end PCs such as arm-based PCs. Hence, this could lead to the upgrading of PCs to integrate AI capabilities. AI's share of all PCs is expected to account for 22% in 2024, and to almost double in 2025 to 43%, according to Gartner. By 2027, 58% of PCs are expected to be AI-enabled, with the ability to improve functions such as noise canceling, track PC usage, provide enhanced image processing, and automate tasks in specific verticals. The penetration rate is expected to jump to 85% of the total PC market by 2028.

**AI PC unit shipments, worldwide – penetration rate**



Source: Gartner

**GenAI smartphone unit shipments, worldwide – penetration rate**



Source: Gartner

The integration of AI capabilities into smartphones has been more advanced and mature compared to the PC market. GenAI smartphones are devices that feature a system-on-a-chip (SoC) capable of running on-device GenAI models more quickly and efficiently, leveraging a neural processing unit (NPU). The smartphone market should experience stronger premium and basic phone replacement cycles in the next two years. The penetration rate of GenAI smartphones is expected to hit 22% in 2024 and surge to 65% by 2027. For the premium segment, all smartphones are expected to be equipped with AI capabilities by 2027.

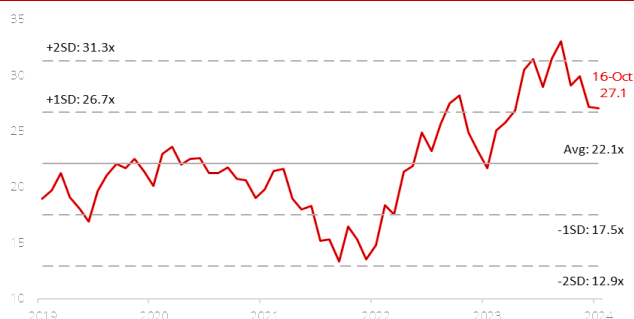
### Our preference along the technology value chain

**Continue to bet on the outperformers.** Looking ahead into 2025, we continue to expect further upsides for the current outperformers in the leading-edge technology space, such as exposure to the AI and hyperscaler space. We continue to prefer equipment makers and those with exposure to AI. For the equipment makers under our coverage, the average earnings growth for the next eight quarters is about 19% y/y. Based on our semiconductor recovery cycle chart (page 5), these players have not yet reached the peak of the recovery cycle, hence there is more room for growth. Our picks in the equipment maker space are **ASML** and **Lam Research**. Our preferences in the other leading-edge technology space are **TSMC** and **Micron**.

**Time is ripe to focus on undervalued downstream.** Another segment that we like is the consumer downstream space. While upstream AI beneficiaries have generally seen strong price performance and earnings contributions, we believe the time is ripe to focus on the undervalued downstream players poised to capitalise on the AI wave. This is fuelled by the gradual recovery of end demand, especially in the mobile space, with the implementation of Apple Intelligence likely driving demand for AI-powered phones. Downstream proxies we like include HK-listed plays **AAC Tech**, **BYD Electronics**, **Lenovo**, and **Xiaomi**. Among the SGX-listed names, we like **Venture** and **Frencken**.

In terms of valuations, PE for the PHLX Semiconductor Index (SOX) has eased from the +2SD level of above 30x to 26x currently. We view this as a healthy correction, and maintain our positive view on the semiconductor industry.

#### SOX 12-month forward PE (x)

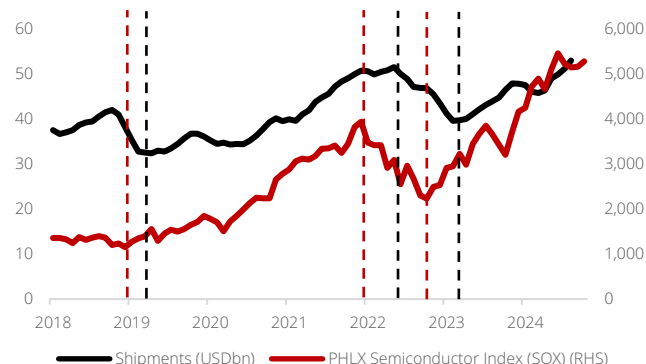


Source: Bloomberg, DBS

**Share price moves ahead of industry.** The gap between AI and non-AI in terms of earnings growth is projected to narrow from 2H25/2026 onwards. The current laggards such as those with higher exposure to the industrial and automotive spaces, in particular the microcontroller (MCU) segment, could probably take another year to see a full recovery.

Based on the historical trend, the stock market tends to move ahead of fundamentals. The gap between the industry and the stock market is usually less than a year, about six months.

#### SOX vs. global semiconductor shipments



Source: SIA, CEIC, Refinitiv, DBS

#### Stock Picks:

**Foundries: We prefer exposure to leading-edge technology.** Chips are increasingly being fabricated at finer process nodes due to the rising demand for AI computing power, both at the edge and in the cloud. As one of the most advanced wafer foundries globally, TSMC is well positioned for sustainable, rapid growth. Despite the US tech ban, the share prices of Chinese foundries like Huahong and SMIC have outperformed over the past month, buoyed by significantly improved sentiment driven by economic fiscal stimulus. We expect their valuations to continue improving in 4Q24. We expect sentiment on China's semiconductor sector to keep improving in 4Q24, driven by expectations of additional support measures for semiconductor localisation. We have raised our TP for SMIC to HKD37.0, based on a higher P/B multiple of 1.7x, reflecting the upcycle valuation.

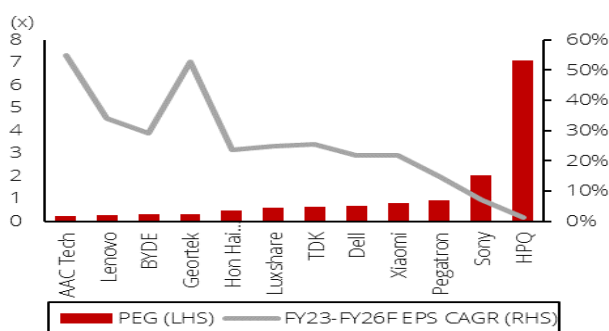
#### TSMC (BUY, TP: TWD1,541)

TSMC is a leader in the advanced nodes space. Orders for its most advanced node chips (3nm) have improved significantly, with contribution increasing to 20% in 2Q24 from 15% in 2Q23, driven by the growing demand in AI applications like SoC AI smartphone. We expect TSMC's yield rate to continue improving upon surging demand for generative AI in the cloud and at the edge. The gross margin recovery is expected to be sustainable. TSMC's plan to increase its CoWoS packaging capacity from 15,000 wafers/month in 2023 to an anticipated 34,000 by 2024 and 45,000 by 2025, position TSMC well to become the key GPU factory in the AI server boom. Its development of 2nm technology is progressing well and is on track for volume production in 2025. We expect TSMC's earnings growth to

accelerate upon the volume growth and gross margin expansion in 2024 and 2025, respectively. TSMC reported a 31.9% y/y rise in revenue for September 2024, continuing the 33% surge in August, boosted by AI load.

**Downstream:** The increasing AI penetration will strengthen the replacement cycles in both mobile and PC. We expect the demand to be felt along the hardware supply chain and benefit every part of the chain, from component suppliers to hardware vendors. Valuations for HK-listed downstream plays are attractive, below the downstream players' average PEG ratio of around 1.52.

### Downstream players' PEG comparison



Source: Visible Alpha, DBS

### Smartphone and PC vendors

#### Lenovo (BUY, TP: HKD13.6)

As a leader in the PC market, Lenovo is strategically positioned to benefit from the expected surge in AI PC adoption in 2025. The company is expanding its AI PC lineup with new ThinkPad and ThinkBook models scheduled for launch in late 2024, followed by Yoga and IdeaPad series through early 2025. Lenovo's focus on AI integration should help solidify its position in the evolving PC market. We maintain a BUY on the stock based on strong earnings growth of 56.4%/40.6% in FY25/26F, driven by (1) the commercial PC replacement cycle supported by the specification upgrade, riding on the standardisation of AI PC specs and increasing Copilot+ adoption; and (2) boost in operating margins on its expanding service business.

#### Xiaomi (BUY, TP: HKD31.0)

With the launch of its AI flagship smartphone, Xiaomi is poised to stand out among Android competitors. The upcoming XM15, powered by Snapdragon's latest AI-optimised SoC, is set to capture growing AI smartphone demand in FY25. Xiaomi is expected to continue increasing its premium phone mix, enhancing its competitive edge in the high-end smartphone segment. We maintain our BUY rating on solid projected earnings growth of 11.6%/32.3% in FY25/26F, driven by the gross margin boost through premiumisation and by increasing ASP.

### Component suppliers

#### BYDE (BUY, TP: HKD45.0)

The growing adoption of AI smartphones is driving demand for sophisticated chassis components that improve thermal management and accommodate larger batteries. Following the acquisition of Jabil's mobile business, BYDE has strengthened its position as a critical supplier to Apple, covering approximately 40% of iPhone Pro and Pro Max shipments. This positioning allows BYDE to capitalise on specification upgrades that could boost ASP and gross margins, leading to solid earnings growth of 15% and 41% in FY24F and FY25F, respectively. We maintain our BUY rating on BYDE with a TP of HKD45.0.

#### AAC Tech (BUY, TP: HKD43.0)

As AI becomes more integral to smartphone functionality, voice-driven interactions are set to increase, boosting demand for microphones with higher signal-to-noise ratios. AAC Tech, a major supplier for both Apple and Android brands, is positioned to benefit from the shift to advanced acoustic components. We foresee growth in gross margins supported by higher ASPs and an enhanced product mix, leading to earnings growth of 183% and 23% in FY24F and FY25F, respectively. Our BUY rating on AAC Tech is maintained.

#### Venture (BUY; TP: SGD16.40)

As a leading global provider of technology services, products, and solutions, Venture is best known for its superior and differentiating capabilities in engineering, manufacturing, and R&D, as well as for providing high-mix, high-value, and complex manufacturing. With its diversified product mix and blue-chip customer base, Venture is in a sweet spot to capture new opportunities in emerging technology domains. With the gradual recovery of its various end markets, we expect the group to report a stronger 2H24 vs. 1H24. Furthermore, Venture's strong cash position with zero debt could also enable the group to support a repeat of the 75Scts DPS, which works out to an attractive yield of about 5%-6%.

#### Frencken (BUY; TP: SGD1.77)

With a diversified exposure to various end markets including semiconductor, medical, analytical & life sciences, industrial automation, and automotive, Frencken is in a good position to ride on the overall recovery path. The outlook for Frencken is improving. The group is working on various programmes to support the ongoing knowledge transfer to cater to key customers' product transfers from Europe to Asia and support the customers' expansion roadmap with additional capacities in Europe and Asia. We continue to expect margin recovery to be sustainable. Net margin has been on an uptrend since hitting a trough in 1Q23.

**Equipment makers.** The recovery in revenue and earnings, which has begun in 2024 for most equipment makers, is expected to extend into the coming year.

**ASML (BUY; TP: EUR950)**

ASML dominates the semiconductor lithography market with a 100% share in EUV, and a substantial share in the DUV market. Its leading technology sets a very high barrier for market entrants. This implies very high bargaining power for the company. With the rising demand for high-end chips on the back of AI, the AI-related segment is strong though the non-AI recovery lags, but these segments appear to be emerging from their downturns. We expect ASML to see a stronger recovery momentum next year. The recent dip in share price following a weaker-than-expected guidance presents a good buying opportunity. Overall, we expect the recovery to be intact, albeit slower.

**Lam Research (BUY; TP: USD105.5)**

LRCX has more than 30% of revenue exposed to the memory segment, which should continue to do well, with both NAND and DRAM in under-supply environments.

LRCX's sizable installed base in memory positions the group to outgrow overall wafer fab equipment (WFE) spending. Though the recovery pace for the foundry/logic segment is slower than the memory division, this should improve going forward, with the gradual recovery of the broader market.

**The memory division** is another segment that should continue to do well. The under-supply situation is expected to continue into 2026 for DRAM and 4Q25 for NAND.

**Micron (BUY, TP: USD167.1)**

Micron has significant DRAM and NAND production exposure on leading-edge nodes, with next-gen products set for volume production in 2025. The company is strategically positioned to capitalise on multi-year growth in AI and data center markets, supported by strong yield performance in HBM and an increased mix of high-capacity DIMMs (dual in-line memory modules) and LP5 (Low Power DDR5) DRAM for data centers. Inventory levels are expected to improve through FY25, particularly in the second half, as demand stabilises and production ramps.

## Stock coverage

Company	Price 17 Oct	12-mth Target Price	12-mth Target Return	Mkt Cap (US\$m)	Rcmd	PER 23 (x)	PE 24F (x)	PE 25F (x)	EPS Gth 24F (%)	EPS Gth 25F (%)	Div Yld 24F (%)	P/BV 23 (x)	ROE 23 (%)
<b>Singapore</b>													
AEM Holdings	1.33	1.34	1%	319	HOLD	-355.3	76.8	10.9	-61.7	286.8	0.3	0.9	-0.2
Aztech	1.00	1.27	27%	609	BUY	8.0	6.8	6.3	16.5	7.8	7.3	2.3	31.8
Frencken	1.22	1.77	45%	415	BUY	16.7	12.4	10.8	34.8	15.2	2.4	1.4	8.1
Grand Venture	0.55	0.70	28%	143	BUY	33.7	19.5	13.8	72.7	40.8	0.5	1.6	4.7
UMS Holdings	1.02	1.08	6%	566	HOLD	11.6	18.5	15.5	-37.0	19.4	4.8	1.9	17.1
Venture Corp	13.75	16.40	19%	3,051	BUY	14.8	13.9	12.9	6.8	7.3	5.5	1.4	9.5
Nanofilm	0.83	0.75	-10%	414	HOLD	168.3	41.4	19.9	306.9	107.4	0.5	1.4	0.8
<b>Average</b>						<b>-14.6</b>	<b>27.0</b>	<b>12.9</b>	<b>48.4</b>	<b>69.2</b>	<b>3.0</b>	<b>1.6</b>	<b>10.3</b>
<b>Thailand</b>													
Delta Electronics Thai	126.00	111.00	-12%	42,132	HOLD	82.6	67.7	65.9	25.4	3.7	0.5	22.5	30.1
Hana Microelectronics	38.25	42.00	10%	1,005	HOLD	19.1	21.9	17.6	-19.2	35.6	2.4	1.2	6.6
KCE Electronics	37.25	45.00	21%	1,252	BUY	26.3	21.3	19.4	23.3	9.8	3.1	3.3	12.7
SVI PCL	7.85	8.90	13%	441	BUY	17.2	12.1	11.8	43.0	1.8	2.6	2.3	13.9
<b>Average</b>						<b>36.3</b>	<b>30.7</b>	<b>28.7</b>	<b>18.1</b>	<b>12.8</b>	<b>2.2</b>	<b>7.3</b>	<b>15.9</b>
<b>Hong Kong / China</b>													
AAC Tech	31.00	43.00	39%	4,597	BUY	44.5	15.7	12.7	185.2	23.6	1.9	1.5	3.4
ASM Pacific	89.25	100.00	12%	5,386	HOLD	34.7	21.3	15.7	61.8	34.8	1.8	2.6	7.6
BYD Electronics	31.65	45.00	42%	8,297	BUY	14.9	13.5	9.5	9.3	38.7	2.2	2.1	14.7
Hua Hong	21.20	27.00	27%	3,925	BUY	18.5	43.4	29.9	-57.3	45.1	0.0	0.7	6.0
Lenovo	10.90	13.60	25%	17,349	BUY	11.3	18.0	11.5	-37.1	56.4	3.4	3.0	30.4
Luxshare	41.96	57.00	36%	36,462	BUY	24.2	17.7	15.0	29.8	17.2	0.5	4.7	21.5
Q Tech	4.60	5.70	24%	504	BUY	23.8	8.7	5.6	175.0	53.8	0.7	0.7	3.2
SMIC	26.00	37.00	42%	12,684	BUY	18.7	31.0	17.5	-39.8	77.5	0.0	0.8	4.6
Sunny Optical	48.65	80.00	64%	6,373	BUY	42.0	15.7	11.6	147.5	33.0	0.5	2.1	5.0
Xiaomi	23.10	31.00	34%	60,126	BUY	30.4	27.3	20.6	39.5	32.3	0.0	3.2	11.4
<b>Average</b>						<b>26.3</b>	<b>21.2</b>	<b>15.0</b>	<b>51.4</b>	<b>41.2</b>	<b>1.1</b>	<b>2.2</b>	<b>10.8</b>
<b>Global</b>													
Company	Price (LCY)	Mkt Cap (US\$)	EPS (US\$)		Earnings Gth (%)		EBITDA Margin (%)		P/E (x)		P/BV (x)		Net Debt/Equity (x)
			FY1	FY2	FY1	FY2	FY1	FY2	FY1	FY2	FY1	FY2	
<b>Foundry</b>													
GLOBALFOUNDRIES	40.40	22,291.8	1.36	1.90	-25.0	40.3	35.5	36.4	29.6	21.3	1.9	1.8	-0.1
TSMC	1035.00	3,434,123.6	5.57	7.17	33.6	29.4	67.8	69.1	23.8	18.5	6.3	5.2	-0.2
<b>IDM</b>													
ANALOG DEVICES	227.34	112,872.8	6.34	7.54	-4.2	17.9	53.8	51.6	35.8	30.1	3.2	3.2	0.2
INFINEON TECH	30.89	43,026.7	1.96	2.13	-25.0	9.1	31.2	32.5	16.8	15.4	2.2	2.0	0.1
INTEL CORP	22.44	95,751.5	0.26	1.11	-36.3	334.6	20.5	29.5	85.0	20.3	0.8	0.8	0.2
MICRON TECH	112.05	124,234.6	8.91	12.88	n.m.	43.6	53.7	59.1	12.6	8.7	2.4	1.9	0.1
ON SEMICONDUCTOR	69.24	29,659.4	4.00	4.68	-21.6	17.6	36.7	38.9	17.3	14.8	3.3	2.8	0.1
RENESAS ELECTRONICS	2111.50	26,737.1	1.33	1.44	0.4	10.5	37.3	38.4	10.7	9.9	1.6	1.5	0.1
SAMSUNG ELECTRON	59700.00	297,852.1	3.88	4.99	134.7	24.9	25.8	28.5	11.5	8.9	1.0	0.9	-0.2
STMICROELECTRONICS	27.44	25,154.2	1.69	2.22	-62.6	29.3	25.9	30.3	16.3	12.4	1.4	1.2	-0.2
TEXAS INSTRUMENT	198.30	181,057.0	5.16	6.29	-27.1	22.3	44.2	49.6	38.5	31.5	10.3	9.5	0.2
<b>Fabless</b>													
ADV MICRO DEVICE	156.25	252,887.8	3.41	5.44	552.2	59.1	33.2	37.3	45.8	28.7	4.3	3.9	-0.1
BROADCOM INC	181.53	847,849.7	4.82	6.15	61.9	31.1	61.4	63.4	37.6	29.5	12.7	9.7	1.0
MARVELL TECHNOLO	79.91	69,218.0	1.44	2.50	n.m.	73.2	30.3	35.7	55.5	32.0	4.9	4.8	0.2
NVIDIA CORP	136.93	3,358,892.9	2.84	4.06	136.5	42.1	66.6	68.1	48.2	33.7	36.0	19.7	-0.4
QUALCOMM INC	171.10	190,605.4	10.08	11.13	57.3	10.7	37.9	38.0	17.0	15.4	7.7	6.4	0.2
<b>Equipment Makers</b>													
APPLIED MATERIAL	183.24	151,063.8	8.53	9.69	3.9	12.2	30.6	31.3	21.5	18.9	8.0	6.9	-0.1
ASML HLDG (EUR)	634.20	270,338.8	20.14	26.54	-8.2	31.3	34.7	37.5	33.5	25.4	15.5	13.8	-0.1
ASML HLDG(USD)	700.60	275,234.4	20.24	27.56	-4.3	35.6	34.8	37.3	34.0	25.0	15.2	14.0	-0.2
KLA CORP	670.25	89,797.3	29.69	33.26	44.1	10.4	44.3	45.0	22.6	20.2	20.5	17.0	0.6
LAM RESEARCH	73.14	94,797.8	3.55	4.42	20.1	23.4	32.3	33.9	20.6	16.6	9.6	7.6	-0.1
TERADYNE INC	127.21	20,757.6	3.02	4.68	10.7	53.3	25.3	29.2	42.1	27.2	7.4	6.4	-0.3
TOKYO ELECTRON	23530.00	75,121.6	7.09	8.79	34.0	23.0	30.3	32.9	22.4	18.1	5.7	4.9	-0.3

Source: DBS, Refinitiv

Update: 17 October 2024

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**STRONG BUY** (>20% total return over the next 3 months, with identifiable share price catalysts within this time frame)

**BUY** (>15% total return over the next 12 months for small caps, >10% for large caps)

**HOLD** (-10% to +15% total return over the next 12 months for small caps, -10% to +10% for large caps)

**FULLY VALUED** (negative total return, i.e., > -10% over the next 12 months)

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\*Share price appreciation + dividends

Completed Date: 22 Oct 2024 06:30:27 (SGT)

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