Semiconductors - Asia-Pacific

# Intel read through: Limited competition and supply disruption to TSMC ecosystem

**Industry Overview**

24 July 2026

Equity
Asia-Pacific
Semiconductors

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## Front-end capacity further skewed to data center CPUs

We profile the takeaways on Intel's server CPU forecast and comment on manufacturing progress (see our US analyst Vivek Arya's note ). Intel is aggressively adding supply from late 3Q26 to meet strong double digits YoY growth for server CPU with business visibility extended into '28 (vs. '27 prior) by shifting the capacity from its client business.

## Lifting capex commitment in '26-27 for strong tool pull in

To accelerate its front-end capacity expansion on Intel 3 and 18A for its CPU strength and advanced packaging readiness amid growing customer financial commitment, its capex is raised to US$20bn+ for 2026 (vs. ~US$18bn prior) and would grow significantly higher YoY in '27, with tool spending mix higher to +40% YoY in '26 (vs. +25% YoY prior). It is locking in tool purchase orders and securing memory/substrate supply.

## Front/back-end technology roadmap advancement on track

Intel's 18A node saw meaningful output for its Panther Lake and Wildcat Lake client CPUs in 2Q26 with yield improvement ahead of expectations and should see Clearwater Forecast server CPUs ramp. In addition, its derivative 18A-P began risk production in 2Q26 while its 14A PDK 0.9 is on track to be ready for its customers in October and set to risk ramp in 2H27 and mass production in 2028. On the back-end packaging roadmap, the technology achieved targeted yield and reliability metrics and it is seeing a growing order backlog for its EMIB-T technology suitable for advanced AI chipsets.

## Implications for the Asia manufacturing supply chain

Intel's progress on capacity and technology ramp is consistent with our view of limited competition risk. We estimate its capex hike of US$2-3bn+ if all on equipment buys will allow it to expand 5-7k WPM front-end capacity at max with ~US$400mn/k WPM capex required, lifting its Intel 3 and 18A total capacity to 60k WPM prioritized to its own CPUs (vs. TSMC's 400k WPM scale for comparable nodes). On EMIB-T progress, our supply chain feedback suggests Intel faces both yield issues on substrate and the process flow and need to improve the yield to 98%+ by 1H27 to be a qualified CoWoS alternative.

## Stocks: prefer TSMC, ASE, Chroma, All Ring

While the market sentiment is muted due to deleveraging and concern on AI investment sustainability, the outlook from the companies across hyperscalers and supply chain reported so far is even more positive on the demand and the related spending outlook. Continued EPS upgrades, combined with undemanding valuations, support a preference for semiconductor names with higher earnings quality (TSMC, ASE, MediaTek) and equipment suppliers (Chroma, All Ring), where share prices have lagged despite ongoing expansion by their foundry and OSAT partners.

CPU: Central Processing Unit

PDK: Process Design Kit

EMIB: Embedded Multi-die Interconnect Bridge

WPM: Wafer per month

CoWoS: Chip-on-Wafer-on-Substrate

OSAT: Outsourced Semiconductor Assembly and Test

# Focus charts

**Exhibit 1: TSMC/ Intel/Samsung's technology roadmap**

TSMC targets to roll out a new node for HPC with biennial cadence, supporting major leaps in performance

| Company | End Market / Segment | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 |
|---|---|---|---|---|---|---|---|---|
| TSMC | Data Center | N4P & N4X | | N3X & N2 | N2P & A16 | N2X | | A12 |
| | High-end consumer/mobile | N3 | N3E | N3P & N2 | N2P | | N2U & A14 | A13 |
| | Automotive | | N5A | | N3A | | | |
| | Mainstream | | N4P | N4C | N3C | | N2U | |
| Intel Foundry | Data center and high-end client | 3 | 3 | 3 & 18A | | 18A-P | | 14A & 14A-E |
| | Mature | 16 | 16-E | | Intel/UMC 12 | | | |
| Samsung Foundry | Data Center | SF4P | SF4X | | | | SF2X | SF2Z |
| | High-end consumer/mobile | SF4P | SF3 | SF2 | SF2P | SF2P+ | | SF1.4 |
| | Automotive | SF5A | | SF4A | | SF2A | | |
| | Mainstream | | | SF4U | | | | |

**Source:** BofA Global Research

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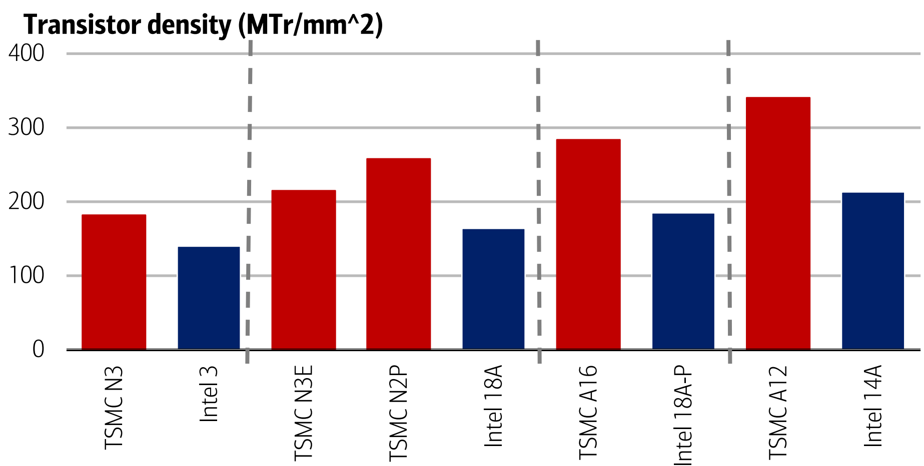
**Exhibit 2: TSMC & Intel's transistor density comparison**

Transistor density gap could be even widened to ~50%/~60% for TSMC's upcoming A16/A12 nodes when comparing with Intel 18A-P/14A




**Source:** BofA Global Research

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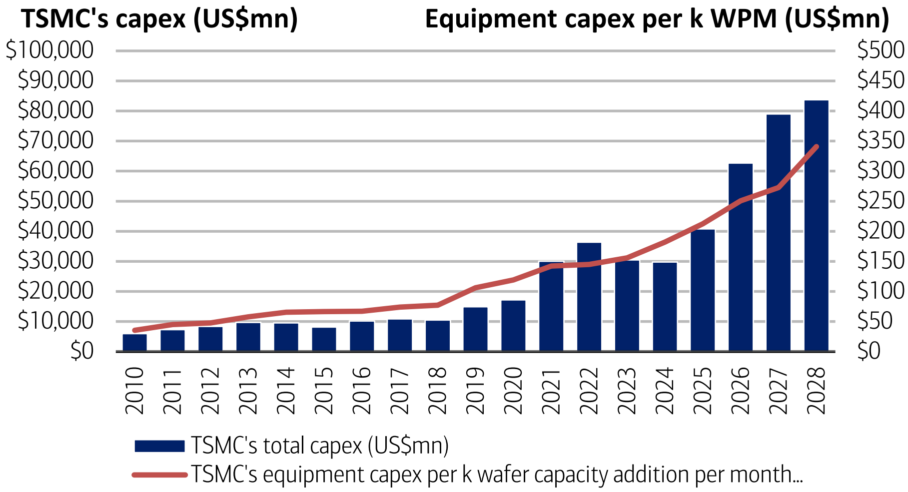
**Exhibit 3: TSMC's total Capex vs. equipment spending per k WPM capacity addition**
TSMC spend 1-2x more on 1k WPM expansion due to its shift to advanced nodes in recent years




**Source:** Company Data, BofA Global Research estimates

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**Exhibit 4: Stocks mentioned**
Prices and ratings for stocks mentioned in the report

| BofA Ticker | Bloomberg ticker | Company name | Price | Rating |
|---|---|---|---|---|
| XNQNF | 6187 TT | All Ring | NT$ 1025 | C-1-7 |
| ASX | ASX US | ASE -ADR | US$ 39.46 | C-1-7 |
| XSRIF | 3711 TT | ASE Technology | NT$ 618 | C-1-7 |
| CRMJF | 2360 TT | Chroma ATE | NT$ 2095 | C-1-7 |
| MDTKF | 2454 TT | MediaTek | NT$ 3780 | C-1-7 |
| TSM | TSM US | Taiwan Semi Mfg Co | US$ 415.58 | B-1-7 |
| TSMWF | 2330 TT | Taiwan Semi Mfg Co | NT$ 2355 | B-1-7 |

**Source:** BofA Global Research

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## Price objective basis & risk

### All Ring (XNQNF)

Our PO of NT$1,500 is based on 36x 2027 P/E, positioned at the upper half of its historical trading range of 8-41x. We believe P/E based valuation is appropriate given All Ring's robust top-line visibility, stable profitability profile, and structural earnings improvement on decent exposure to AI-driven advanced packaging upcycle. The valuation multiple is underpinned by
1) 34%/42% CAGR in sales and earnings over 2026-28E and 2) sustained ROE in the 30-40% range

Downside risks are:
1) slowdown in advanced packaging capacity expansion and 2) mis-execution on equipment development

### ASE Technology Holding (XSRIF / ASX)

We value ASE Technology Holding at NT$750 per share (US$48 for ADR), based on 20x 2H27-1H28E P/E, above its historical range of 5-26x, in view of its solidified industry position in AI era. We use P/E ratio to value ASE as the company has been able to maintain healthy profitability through the cycles in the past 20 years due to consolidating industry landscape supporting a more benign supply/demand and keeping pricing and margins less cyclical.

Downside risks to our PO are 1) share loss and/or ASP erosion owing to Chinese players' cannibalization and/or ASE's worsening execution, 2) weakening end demand due to uncontrollable matters, such as macro halt and/or geopolitical tensions, 3) regulatory issues that could hinder ASE from generating synergies and benefit its competitors.

**Chroma ATE (CRMJF)**

Our price objective of NT$3,050 on Chroma is based on 38x 2027E P/E, which is at the top of the company's historical trading range of 12-39x. In our view, the valuation multiple is underpinned by
1) +70% earnings CAGR in 2025-27E supported by +75% sales CAGR growth and GMs/OpMs expanding, 2) ROE expansion to around 35% in 2025-27E, 3) net cash of around NT$21/share, and 4) free cash flow generation of around NT$15/share per annum across 2025-27E.

Downside risks to our price objective are:
1) weaker market demand, especially the cloud AI investment moderation, leading to slower infrastructure builds especially in China and dragging the company's revenue growth for its power testing equipment business and operating leverage
2) a more conservative investment cycle from the hyperscalers on further data center deployment due to growing capex could dampen the demand for GPU and ASIC, negatively impacting the testing equipment demand for related chipsets.
3) failure to execute on the customized equipment requested by its customers or delay of technology roadmap could lead to an order shift to its competitors.

**MediaTek (MDTKF)**

Our PO of NT$5,100 is based on 23x 2H27-1H28 P/E. as we are constructive on its broadening ASIC pipeline to drive earnings upgrade cycle and re-rating as it locks in more supply.

Upside risks to our PO are: (1) better than expected smartphone demand, especially in China, (2) a better pricing in mobile communication segment thanks to alleviated competition and rising exposure to high-end/flagship market, and (3) an even more superior investment return on non-op side to uplift its net cash position. (4) Unexpected collaboration with global technology leaders leads to higher than expected margins/profits

Downside risks to our PO are: (1) weaker-than-expected end-market situation in consumer-related smartphone/TV space, (2) macro challenges including inflation/policy-related pressures, (3) rising competition from existing players and/or newcomers in smartphone/TV SoC (system on chip) space, and (4) ASP/margin pressure caused by each or all of the above and/or rising foundry costs. (4) Bidding process for Meta Inference ASIC is slower than expected.

**Taiwan Semiconductor Manufacturing Co. (TSMWF / TSM)**

Our PO for TSMC is NT$3,100 per share (US$590 per ADR), based on 20x 2027E P/E. TSMC's valuation has traded in the range of 10-26x PE from 2017. 20x is in the mid to high end of the historical range, above the average P/E of 18x. We think a PE above the average is justified given TSMC's enhanced industry position and mid-40% 5-year CAGR in AI should underpin a rerating

Downside risks to our price objective are: (1) greater-than-expected slowdown in global smartphone/consumer electronics demand, (2) Intel's potential insourcing strategy and ambitions in foundry service, (3) execution risks on advanced nodes, and (4) higher than expected tariffs.

## Analyst Certification

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| | All Ring | XNQNF | 6187 TT | Haas Liu |
| | AMEC | XRTOF | 688012 CH | Dai Shen |
| | ASE Technology Holding | XSRIF | 3711 TT | Haas Liu |
| | ASE Technology Holding -ADR | ASX | ASX US | Haas Liu |
| | ASMPT | ASMVF | 522 HK | Simon Woo, CFA |
| | Aspeed | XLKMF | 5274 TT | Mike Yang |
| | Chroma ATE | CRMJF | 2360 TT | Haas Liu |
| | eMemory | XYLWF | 3529 TT | Mike Yang |
| | GigaDevice | XGXIF | 603986 CH | Daley Li, CFA |
| | Global Unichip Corp. | GBUHF | 3443 TT | Haas Liu |
| | Grand Process Technology Corp | XZOWF | 3131 TT | Haas Liu |
| | Hanmi Semiconductor | HNSIF | 042700 KS | Simon Woo, CFA |
| | Hon Precision | XXPIF | 7769 TT | Haas Liu |
| | Horizon Robotics | HRZRF | 9660 HK | Daley Li, CFA |
| | Iluvatar CoreX | XSIBF | 9903 HK | Daley Li, CFA |
| | Ingenic | XISCF | 300223 CH | Dai Shen |
| | InnoScience Technology | XSCHF | 2577 HK | Daley Li, CFA |
| | JCET Group Co Ltd | XJIEF | 600584 CH | Dai Shen |
| | King Yuan Electronics Corp. | KYUFF | 2449 TT | Haas Liu |
| | Kinik | KIKCF | 1560 TT | Haas Liu |
| | MediaTek | MDTKF | 2454 TT | Haas Liu |
| | Montage Technology | XRDFF | 688008 CH | Daley Li, CFA |
| | MPI Corporation | XMJCF | 6223 TT | Mike Yang |
| | Nanya Technology | NNYAF | 2408 TT | Simon Woo, CFA |
| | NCE Power | XVFFF | 605111 CH | Daley Li, CFA |
| | OmniVision | XXHQF | 603501 CH | Dai Shen |
| | Phison Electronics | PISNF | 8299 TT | Simon Woo, CFA |
| | Powerchip Semiconductor Manufacturing Co | XCHPF | 6770 TT | Haas Liu |
| | Powertech Technology | PWOGF | 6239 TT | Simon Woo, CFA |
| | Rockchip | XRPXF | 603893 CH | Daley Li, CFA |
| | Samsung C&T | XCDTF | 028260 KS | Simon Woo, CFA |
| | Samsung Elec -G | SSNHZ | SMSN LI | Simon Woo, CFA |
| | Samsung Electronics | SSNLF | 005930 KS | Simon Woo, CFA |
| | Samsung Electronics Preferred | SSNNF | 005935 KS | Simon Woo, CFA |
| | Silergy Corp. | SLEGF | 6415 TT | Mike Yang |
| | Silicon Motion | SIMO | SIMO US | Simon Woo, CFA |
| | SK Square | SKSQF | 402340 KS | Simon Woo, CFA |
| | Taiwan Semiconductor Manufacturing Co. | TSM | TSM US | Haas Liu |
| | Taiwan Semiconductor Manufacturing Co. | TSMWF | 2330 TT | Haas Liu |
| | Vanguard International Semiconductor Co | VGILF | 5347 TT | Haas Liu |
| | Winbond Electronics | WBEKF | 2344 TT | Dai Shen |
| | WinWay Technology | XWCLF | 6515 TT | Mike Yang |
| | WT Microelectronics | XZOPF | 3036 TT | Mike Yang |
| **NEUTRAL** | | | | |
| | ASMedia Technology Inc. | XZSFF | 5269 TT | Mike Yang |
| | Black Sesame Intl Holding | BSIHF | 2533 HK | Daley Li, CFA |
| | Hangzhou Silan Microelectronics | XDFRF | 600460 CH | Daley Li, CFA |
| | Lion Electronics | XDHFF | 605358 CH | Dai Shen |
| | LX Semicon | XLXSF | 108320 KS | Simon Woo, CFA |
| | MetaX | XMEZF | 688802 CH | Daley Li, CFA |
| | Novatek | NVKMF | 3034 TT | Mike Yang |
| | Realtek | RLTKF | 2379 TT | Mike Yang |
| | Shenzhen Goodix | XQPLF | 603160 CH | Daley Li, CFA |
| **UNDERPERFORM** | | | | |
| | Crystal Clear | XPPTF | 300655 CH | Dai Shen |
| | Faraday | FDYTF | 3035 TT | Haas Liu |
| | GlobalWafers | XWLFF | 6488 TT | Mike Yang |
| | Hua Hong Semi | HHUSF | 1347 HK | Dai Shen |
| | M31 Technology | XMTZF | 6643 TT | Mike Yang |
| | Macronix International | MXICF | 2337 TT | Dai Shen |
| | Maxscend | XMXSF | 300782 CH | Daley Li, CFA |
| | Parade | PRDWF | 4966 TT | Mike Yang |

**APR - Semiconductor Coverage Cluster**

| Investment rating | Company | BofA Ticker | Bloomberg symbol | Analyst |
|---|---|---|---|---|
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| | United Microelectronics Corp. | XUMIF | 2303 TT | Haas Liu |
| | United Microelectronics Corp. | UMC | UMC US | Haas Liu |
| | VeriSilicon | XMLZF | 688521 CH | Daley Li, CFA |
| | Win Semiconductors | WSMIF | 3105 TT | Haas Liu |
| | Wonik IPS | XRHQF | 240810 KS | Simon Woo, CFA |
| **RSTR** | | | | |
| | SK Hynix | HXSCF | 000660 KS | Simon Woo, CFA |

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|---|---|---|---|---|---|
| Buy | 243 | 60.60% | Buy | 123 | 50.62% |
| Hold | 87 | 21.70% | Hold | 45 | 51.72% |
| Sell | 71 | 17.71% | Sell | 21 | 29.58% |

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|---|---|---|---|---|---|
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| Hold | 797 | 22.51% | Hold | 496 | 62.23% |
| Sell | 757 | 21.38% | Sell | 391 | 51.65% |

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| Neutral | ≥ 0% | ≤ 30% |
| Underperform | N/A | ≥ 20% |

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