ASIA TECHNOLOGY

BT substrates industry update: Structural changes in S/D conditions; raise ZDT/Kinsus/NYPCB/Unimicron TPs to NT$1,025/1,515/2,700/1,270

Chao Wang
+886(2)2730-4195 | kuan-chao.wang@gs.com
Goldman Sachs (Asia) L.L.C., Taipei Branch

Allen Chang
+852-2978-2930
allen.k.chang@gs.com
Goldman Sachs (Asia) L.L.C.

Al Wang
+886(2)2730-4081 | al.wang@gs.com
Goldman Sachs (Asia) L.L.C., Taipei Branch

Better-than-expected BT substrate pricing outlook with more favorable supply/demand balance

We update our BT substrate industry model (last updated in 2021 - see here) to factor in: (1) **Solid memory substrate demand (41% 2026-28E CAGR; accounting for 68%/74% of total BT substrate TAM in 2026/27E)**; and (2) **a slower capacity growth rate vs. the previous upcycle in 2020-22 (6% 2026-28E CAGR vs. 9% 2020-22 CAGR)** as key Asian BT substrate suppliers continue to transfer capacity from BT substrates to ABF substrates over the coming quarters/years. **Our model now suggests the BT substrate industry supply/demand gap will widen to 11%/14% in 2027/28E from 1% in 2026E, while overall BT substrate TAM will expand at a 32% 2026-28E CAGR**. While BT substrate pricing rose by 10% on average in 2026, we expect BT substrate suppliers ZDT/Kinsus/NYPCB/Unimicron to see BT pricing increase by 26%/41%/38%/32% in 2027E and an additional 15%/26%/28%/27% in 2028E. Consequently, these companies' BT substrate profits should grow at a 46%/73%/75%/35% CAGR in 2026-28E.

Optical transceiver mSAP demand ramp-up expands TAM for BT substrate players

We are seeing increasing adoption of mSAP technology in optical transceivers to produce connectivity PCBs. This trend continues to increase demand for substrate-related equipment, tightening supply across the broader BT & mSAP industry. Our industry checks suggest that mSAP is the most supply-constrained component in the 1.6T optical transceiver supply chain, and we expect this shortage will continue to drive mSAP product pricing up by at least 10%-20% over the next 12 months (following a 20%-30% increase YTD). Moreover, we project optical transceiver mSAP TAM will increase from US$2.0bn in 2026 to US$7.1bn in 2028, suggesting substantial revenue upside for existing suppliers and incentivizing substrate suppliers to shift capacity toward mSAP to capitalize on this solid revenue/profit outlook (GMs currently average 40%-45%, and could reach 50%+ following pricing hikes and yield improvements). We believe ZDT will become a market share leader in this segment, underpinning a more favorable revenue/profit outlook over the coming years.

Stock ideas – ZDT/Kinsus/NYPCB to be the key beneficiaries of BT pricing hikes

Goldman Sachs does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. For Reg AC certification and other important disclosures, see the Disclosure Appendix, or go to www.gs.com/research/hedge.html. Analysts employed by non-US affiliates are not registered/qualified as research analysts with FINRA in the U.S.

Table of Contents

BT substrate supply/demand gap at 11%/14% in 2027/28E on the back of solid memory demand	4
BT demand analysis: BT demand (32% 2026-28E CAGR) continues to be driven by increasing memory BT demand (41% 2026-28E CAGR)	5
BT supply analysis: Major suppliers starting to reduce capacity, leading to slower capacity growth vs. previous upcycle	11
Optical module mSAP is seeing a widening S/D gap, prompting a shift of BT capacity to meet strong demand	16
We see ZDT, Kinsus and NYPCB as key beneficiaries of improved BT pricing/profitability trends	17
Raising earnings estimates on better BT substrate pricing	19
Investment thesis, PT methodology and risks	23
Disclosure Appendix	26

and mSAP demand expansion

While most investors have focused primarily on ABF substrate opportunities over the past 6+ months, we believe BT substrate products will also benefit from a multi-year pricing uptrend. Incorporating our revised BT substrate TAM growth and a more constructive outlook for the mSAP industry, we raise our TPs for ZDT/Kinsus/NYPCB to NT$1,025/1,515/2,700 (from NT$925/1,125/2,500), supported by 1%-8%/7%-14% upward revisions to our 2027/28E earnings forecasts. For Unimicron, as the company is gradually phasing capacity out of the BT substrate segment, we adjust our TP more modestly from NT$1,220 to NT$1,270 on the back of 2% 2027-28E earnings hike.

Maintain Buy on ZDT/Kinsus/NYPCB (on CL), and Neutral on Unimicron.

BT substrate supply/demand gap at 11%/14% in 2027/28E on the back of solid memory demand

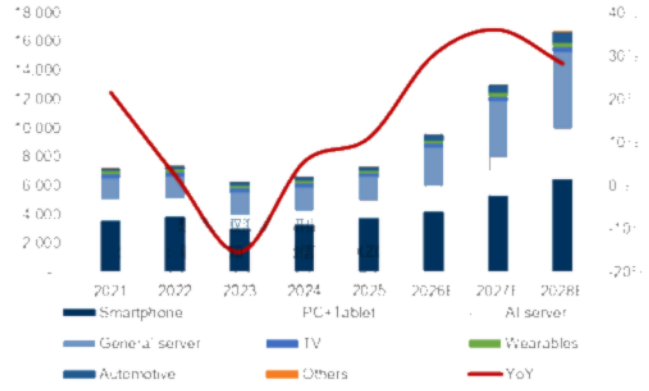
We introduce our 2026-28E BT substrate TAM forecast, expanding at a 32% 2026-28E CAGR to reach US$16.8bn in 2028E (up from US$7.4bn in 2025; Exhibit 1). This growth is primarily driven by solid memory demand in general servers (general servers will account for 32% of total BT TAM in 2028E, up from 21% in 2025; Exhibit 2), with increasing memory capacity/BT content per server. We expect the memory BT substrate TAM to outpace the broader BT substrate TAM with a 41% 2026-28E CAGR, accounting for 77% of total BT substrate TAM in 2028E (was 56% in 2025).

On the other hand, we expect the capacity growth rate to decelerate vs. the previous upcycle in 2020-22 (6% 2026-28E CAGR vs. 9% 2020-22 CAGR), as key Asian substrate suppliers are placing greater focus on their ABF substrate business, and are hence scaling back their BT substrate capacity (including Unimicron, which held 8% market share in 2025).

As such, we now expect the overall BT substrate supply/demand gap to reach 1%/11%/14% in 2H26/2027/2028 (Exhibit 3), while major BT suppliers have started to reduce capacity from 2026, potentially leading to a supply shortage in 2H26. We expect BT capacity utilization rates (UTR) to trend up amid a supply-constrained environment (surpassing 100% from 2027E per GSe), providing a better BT pricing environment going forward. The BT substrate supply tightness since the start of the year has directly led to a 10% YTD increase in overall BT substrate pricing, and we believe pricing momentum for BT substrates will remain robust in 2H26-2028E.

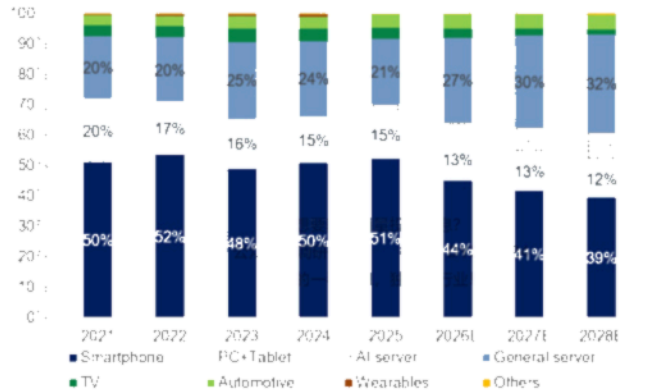
Accordingly, we forecast overall BT substrate prices will further increase by 15%-20%/10%-15% in 2027/28E, benefiting BT substrates' profitability/pricing for Taiwanese players (GMs ranged from 15%-27% in 2Q26 and are projected to increase to 18%-34%/19%-36%+ in 2027/28E; Exhibit 4).

Exhibit 1: BT market demand by end application
US$mn



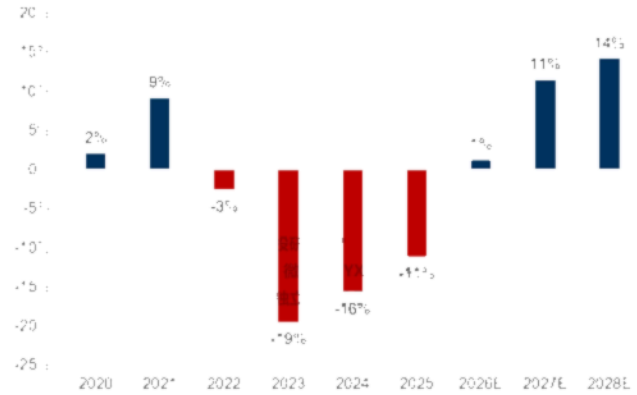
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 2: BT market demand by end application - we continue to see increasing contribution from both general servers and AI servers



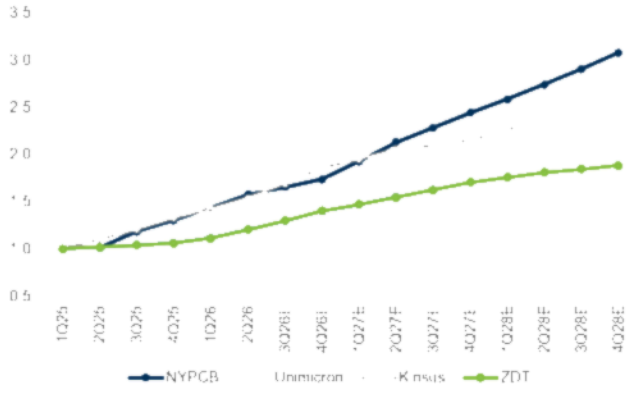
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 3: We expect the BT substrate S/D gap to continue expanding over coming years
Supply shortage ratio



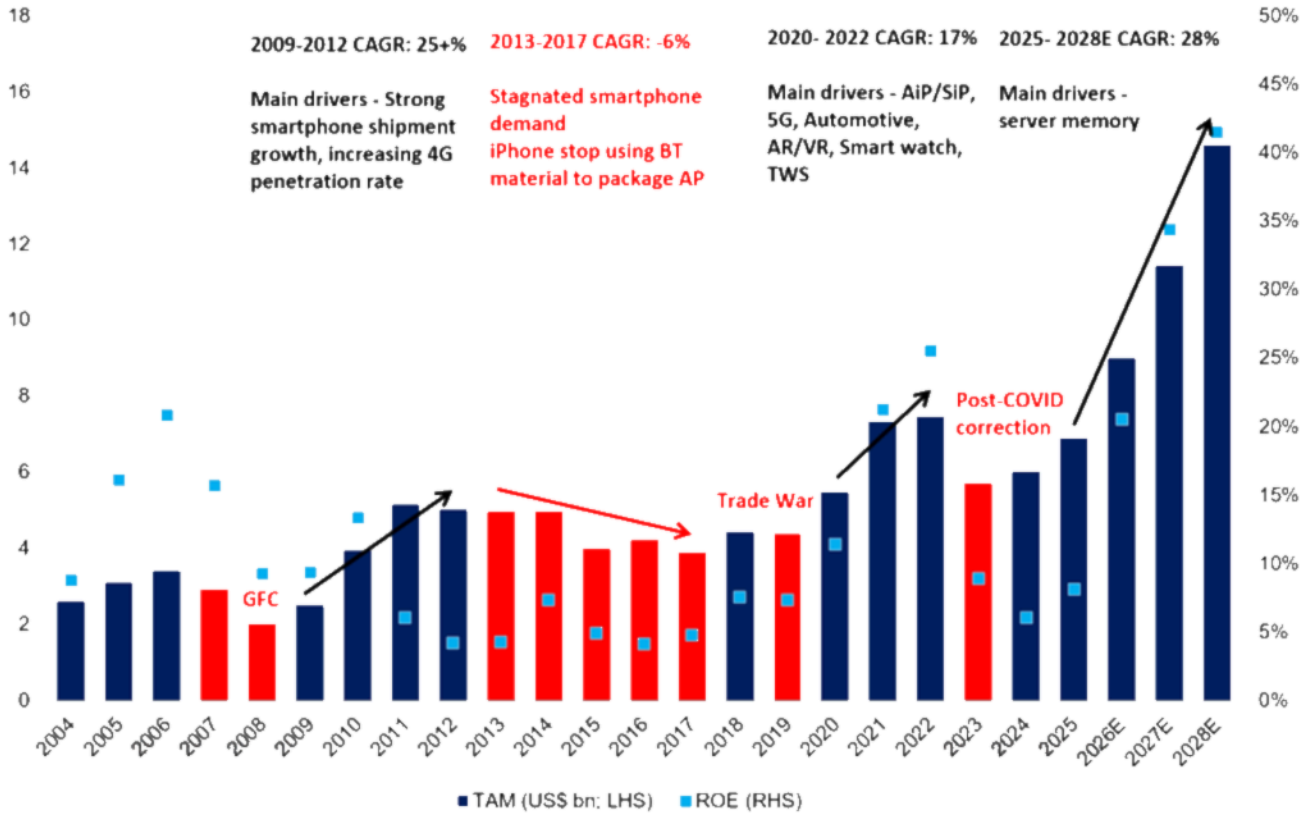
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 4: BT pricing remains favorable going forward
Rebase 1Q25 as 1



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 5: Global BT market revenue will be driven by strong memory demand for general servers
LHS: US$bn



Source: Company data, Goldman Sachs Global Investment Research

BT demand analysis: BT demand (32% 2026-28E CAGR) continues to be driven by increa
BT demand (41% 2026-28E CAGR)

The BT substrate demand outlook is solid thanks to strong memory dem
general servers, supported by: (1) Rising general server CPU demand dr

人在草木间

AI; and (2) upcoming launches of new general server CPU platforms, which will drive upgrade demand. We expect the BT substrate market to deliver a 32% 2026-28E CAGR, reaching US$16.8bn by 2028E (vs. US$7.4bn in 2025). We expect the memory BT substrate market to deliver a 41% 2026-28E CAGR to reach US12.9bn by 2028E (vs. US$4.1bn in 2025), accounting for 77% of total BT demand by 2028E (vs. 56% in 2025).

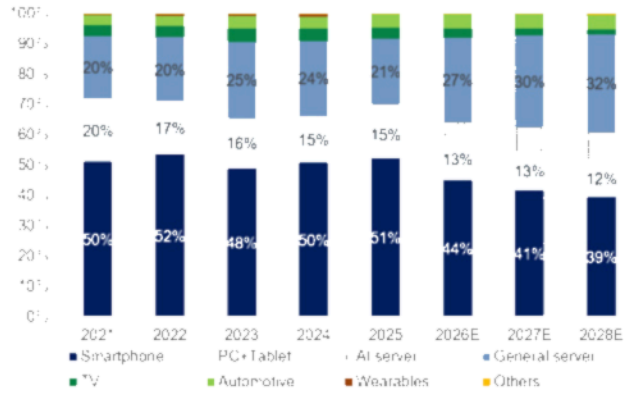
In terms of key end applications (Exhibit 6), we expect smartphone BT substrate TAM to grow at a 24% 2026-28E CAGR, accounting for 39% of total BT substrate TAM in 2028E (down from 51% in 2025; Exhibit 7). We expect general server BT substrate TAM to grow at a faster 42% 2026-28E CAGR, accounting for 32% of total BT substrate TAM in 2028E (up from 21% in 2025). Meanwhile, we expect AI server BT substrate TAM to see the faster growth among all applications at a 73% 2026-28E CAGR, reaching 9% of total BT substrate TAM in 2028E (up from 2% in 2025).

Exhibit 6: BT market demand by end application
US$mn



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 7: BT market demand by end application - we continue to see increasing contribution from both general servers and AI servers



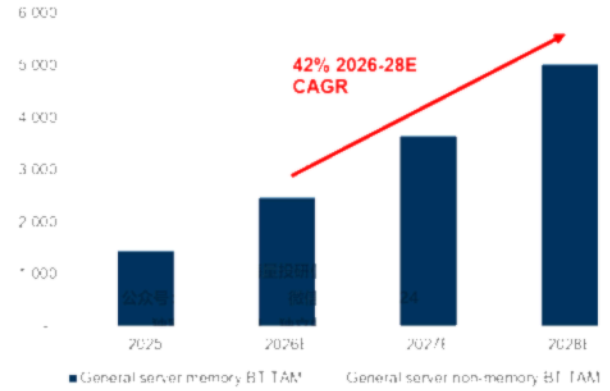
Source: Company data, Goldman Sachs Global Investment Research

Solid growth in general server BT substrate TAM will support mid- to long-term BT market growth

We expect general server BT substrate TAM to deliver a 42% 2026-28E CAGR and reach US$5.3bn in 2028E (up from US$1.6bn in 2025; Exhibit 8), which will account for 32% of total BT substrate TAM in 2028E (up from 21% in 2025). We expect general server memory BT substrate TAM to grow slightly faster at a 43% 2026-28E CAGR and reach US$5.0bn in 2028E (up from US$1.4bn in 2025), accounting for 39% of total memory BT substrate TAM in 2028E (up from 20% in 2025). This is driven by solid general server shipments (we expect general server shipments to register an 8% 2026-28E CAGR; see here; Exhibit 9) alongside increasing memory capacity/BT content per general server (Exhibit 10).

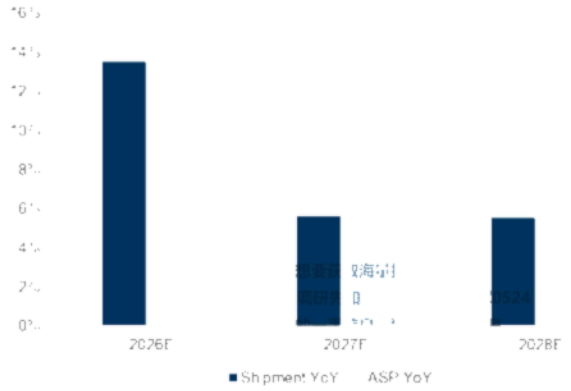
Our US analyst, James Schneider, expects Intel/AMD general server CPU shipment to grow at a 28%/36% 2026-28E CAGR, reaching a combined 59mn units in 2028E (vs. 26mn units in 2025). This supports our constructive view that general servers are the key driver of the current BT substrate upcycle, given the strong correlation between memory BT substrate TAM growth and general server CPU shipment growth.

Exhibit 8: General server BT TAM is growing faster than overall BT TAM at a 42% 2026-28E CAGR



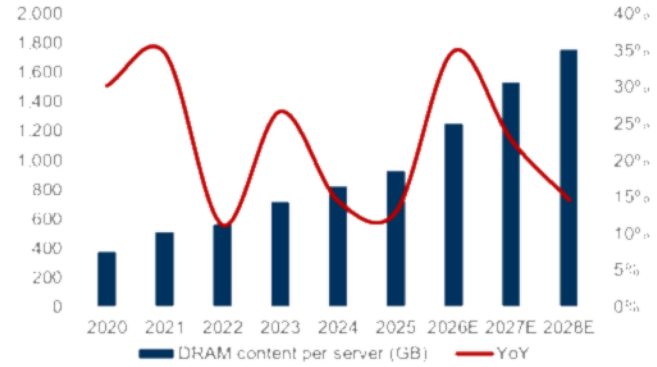
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 9: General server shipment vs. ASP YoY in 2026-28E



Source: Goldman Sachs Global Investment Research

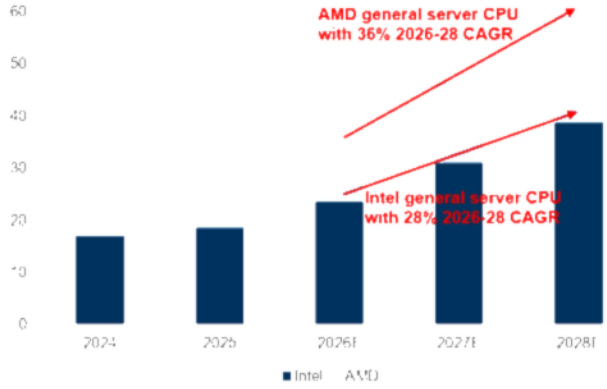
Exhibit 10: DRAM content per server will continue to increase



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 11: CPU shipment estimates for both Intel and AMD are accelerating

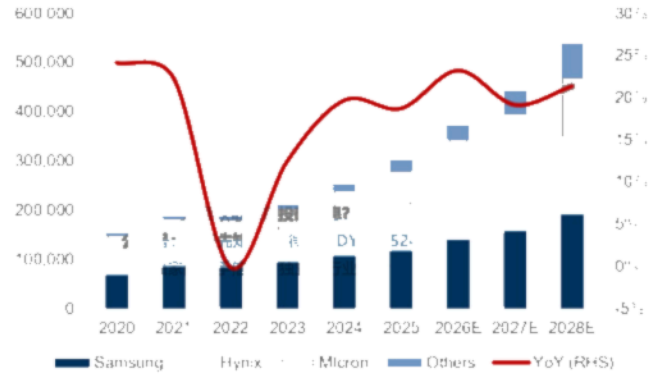
mn units



Source: Company data, Goldman Sachs Global Investment Research

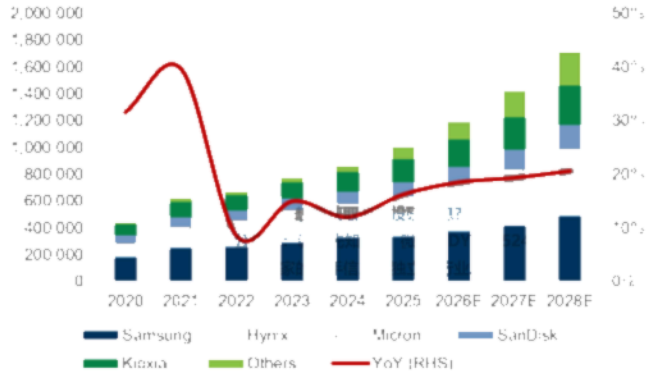
The strong growth in memory BT substrate TAM is largely driven by memory shipments (Exhibit 12, Exhibit 13); additionally, rising demand for agentic AI continues to drive stronger volume demand for general server CPUs. Furthermore, we expect to see the next round of general server CPU upgrades throughout 2026-28 following the launch of next-generation general server CPUs (Venice server CPU was released in 2H26 while Oak Stream server CPU will be released in 2027). A key upgrade is that AMD's Venice supports higher DRAM capacity, implying a 30%+ increase in DRAM memory BT substrate content per server.

Exhibit 12: We believe DRAM shipments will continue to grow over coming years which will bode well for BT market growth
Units: mn chips (1Gb equiv.)



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 13: We also believe NAND shipments will continue to grow over coming years
Units: mn chips (1Gb equiv.)



Source: Company data, Goldman Sachs Global Investment Research

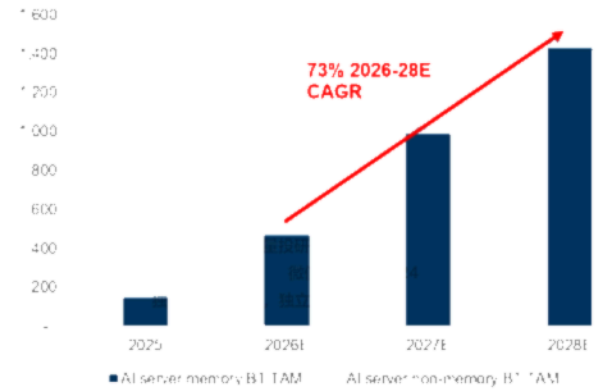
Strong AI server shipment growth in 2026-28E will also support BT TAM expansion

We expect AI server BT substrate TAM to deliver a 73% 2026-28E CAGR and reach US$1,476mn in 2028E (up from US$160mn in 2025; Exhibit 14), accounting for 9% of total BT substrate TAM in 2028E (up from 2% in 2025). We expect AI server memory BT substrate TAM to grow slightly faster at a 75% 2026-28E CAGR and reach US$1,428mn in 2028E (up from US$145mn in 2025), accounting for 9% of total memory BT substrate TAM in 2028E (up from 2% in 2025). This is driven by solid growth in AI server shipments, as we expect AI servers (8-GPU equivalent) and AI server racks (72-GPU equivalent) to register 17%/71% 2026-28E CAGRs (see here) with increasing memory capacity per server/per server rack.

We expect GPU/CPU attach rates to move from 2x to 1.1-1.4x over time as agentic AI applications become mainstream, implying that each GPU deployment will require more server CPUs (see our US analyst Jim Schneider's Intel initiation). Given that memory BT content in AI servers is primarily tied to server CPU count, if the GPU/CPU attach rate narrows from 2.0x to 1.1-1.4x, we estimate 1%/1%-2% upside to memory BT substrate TAM in 2027/28E.

For AI server racks (72-GPU equivalent), BT content per rack continues to expand mainly due to increasing demand for more memory capacity, resulting in a 50% 2026-28E CAGR in BT content per AI server rack (Exhibit 15). A key upgrade is that Nvidia's VR200 will support higher DRAM capacity, implying a 100% increase in DRAM memory BT substrate content compared to GB200/GB300. We also note Nvidia is releasing a standalone Vera CPU rack designed for agentic AI, implying further demand upside for AI CPU shipments and memory BT substrates, as each Vera CPU rack incorporates 8x more DRAM memory BT substrate content compared to VR200.

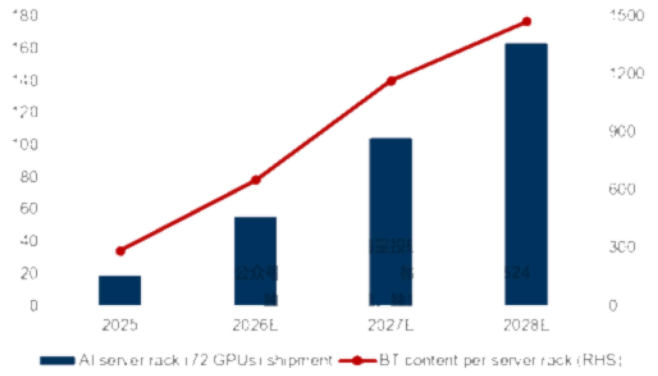
Exhibit 14: AI server BT TAM is growing faster than overall BT TAM at a 73% 2026-28E CAGR



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 15: BT content for AI server rack continues to increase as memory capacity continues to expand

k units



Source: Company data, Goldman Sachs Global Investment Research

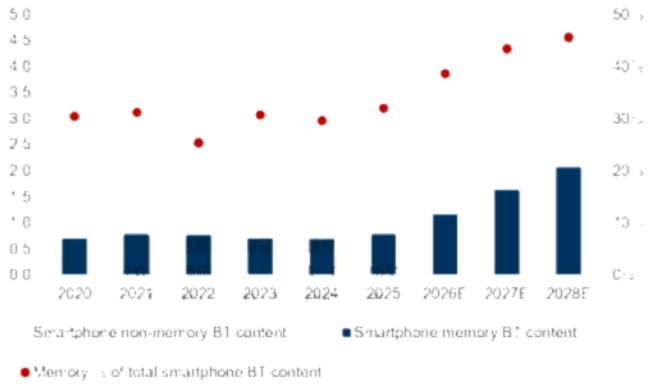
Smartphones remain critical to BT demand with growth going forward tracking slower than the overall BT industry

We expect overall smartphone BT substrate TAM to grow at a 24% 2026-28E CAGR (tracking slower than the overall BT industry CAGR of 32%) to reach US$6.5bn in 2028E (up from US$3.8bn in 2025), accounting for 39% of total 2028E BT TAM (down from 51% in 2025). We expect smartphone memory BT substrate TAM to grow at a faster 36% 2026-28E CAGR to reach US$2.4bn in 2028E (up from US$1.0bn in 2025), accounting for 19% of total memory BT TAM in 2028E (down from 24% in 2025).

As mentioned in our previous update on the BT substrate industry (see here), we believe the previous upcycle (in 2020-22) was mainly driven by the proliferation of SiP/AiP designs that increased BT substrate content per device, especially for smartphones. While smartphones remain critical to overall BT demand, accounting for 51% of total 2025 BT substrate TAM, we expect their contribution to moderate going forward (reaching 39% of 2028E BT TAM). This is driven by softer smartphone shipment volumes (we now forecast smartphone shipments at -10%/+2%/+2% YoY in 2026-28E; see here) and the fact that BT substrate content per smartphone will be mainly driven by higher memory BT substrate pricing (Exhibit 16) rather than other meaningful content value gains (memory will account for 46% of smartphone BT ASP in 2028E, up from 32% in 2025).

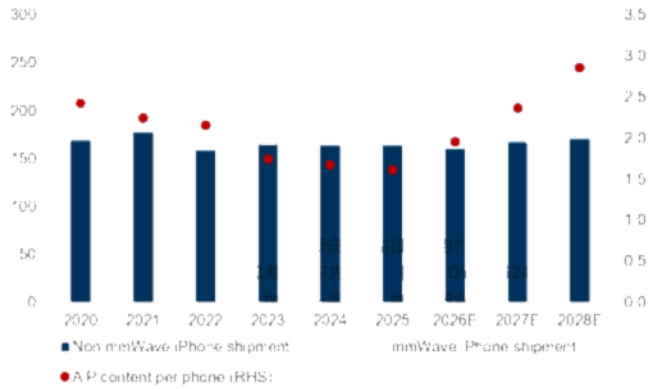
We expect 25%/26%/28% of overall smartphone shipments to be equipped with mmWave connectivity in 2026/27/28E (Exhibit 17), resulting in an 18% 2026-28E CAGR for smartphone AiP BT TAM to reach US$1,128mn in 2028 (up from US$713mn in 2025). For iPhones, mmWave connectivity is only available for models sold in the US (representing 35%-40% of total iPhone shipments per GSe). In the Android camp, Samsung's flagship smartphones that support mmWave connectivity are also only for the US market.

Exhibit 16: Memory will account for a higher % of total smartphone BT content going forward
LHS: USD



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 17: Smartphone mmWave penetration remains saturated going forward
LHS: mn units; RHS: US$

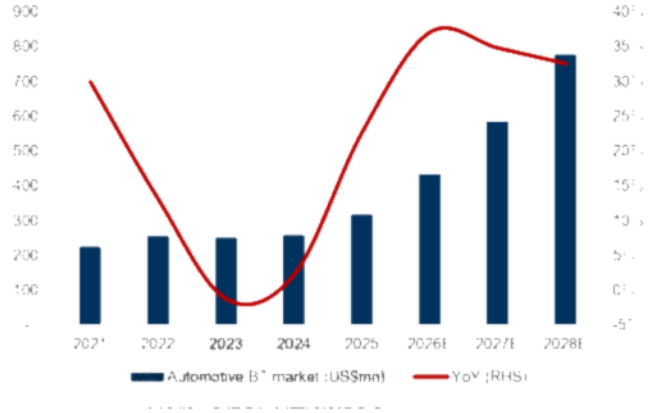


Source: Goldman Sachs Global Investment Research

Automotive BT consumption to steadily increase in coming years

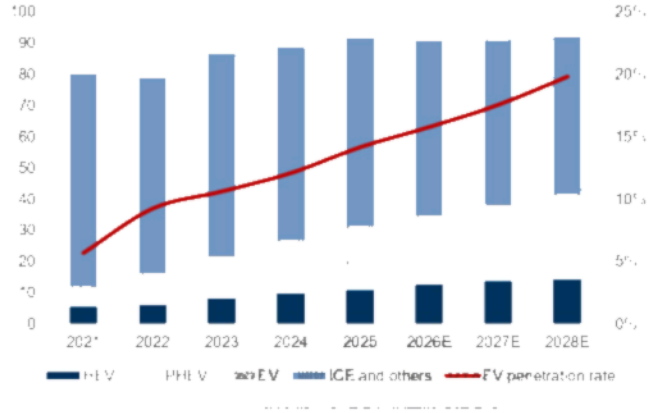
We expect automotive BT TAM to grow at a 34% 2026-28E CAGR and reach US$777mn in 2028E (up from US$317mn in 2025), which will account for 5% of total 2028E BT TAM (up from 4% in 2025). This stronger-than-industry growth is mainly driven by rising EV penetration going forward (EV penetration rate will increase from 14% in 2025 to 20% in 2028E per our Japanese auto team; Exhibit 19) and the corresponding increase in electronics content per car, which requires more BT substrates. Furthermore, we believe rising autonomous driving penetration will result in an increase in electronic components/BT consumption per car.

Exhibit 18: We believe the automotive BT market will continue to increase in coming years



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 19: We expect the EV penetration rate to grow steadily in coming years
LHS: mn units



Source: Company data, Goldman Sachs Global Investment Research

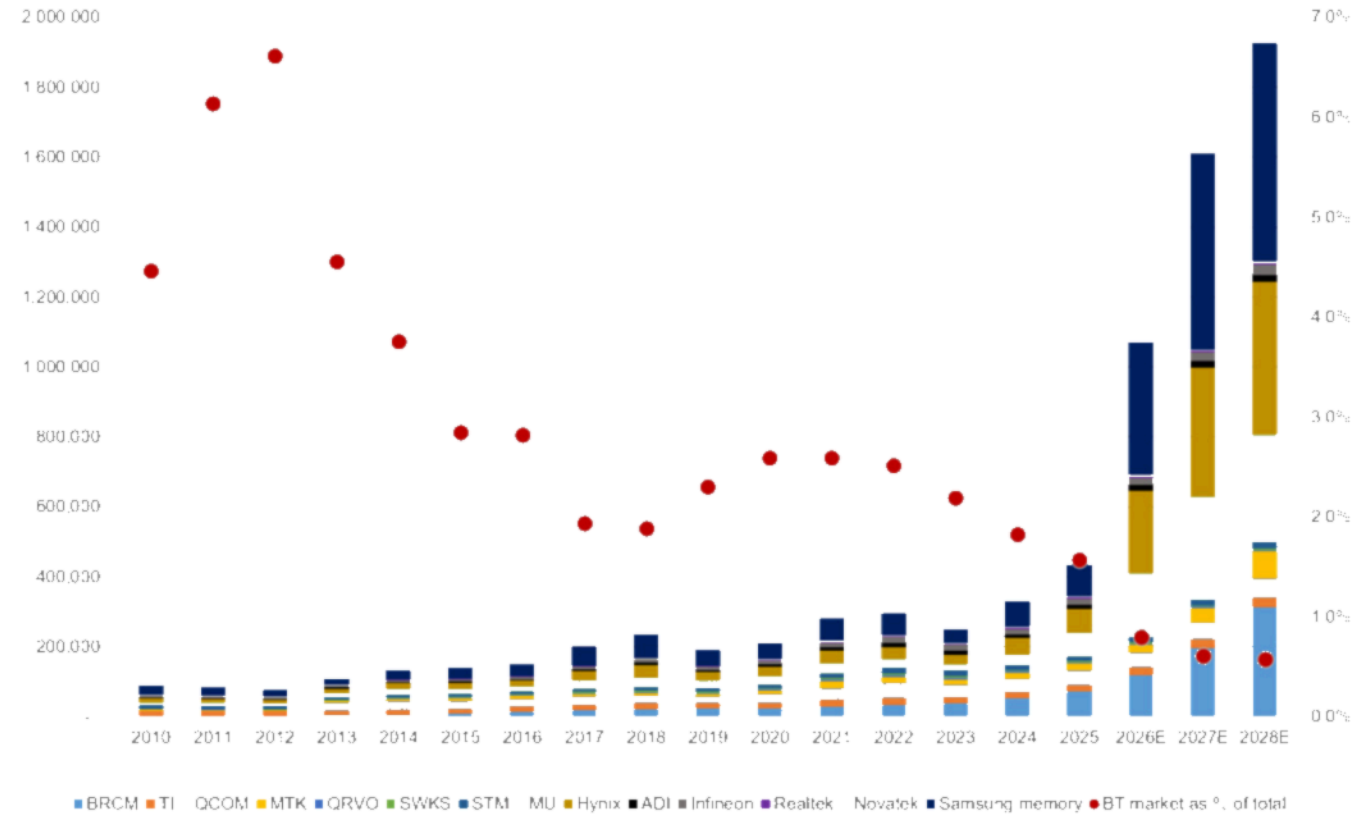
BT market revenue to grow at a 28% 2026-28E CAGR with sustainable memory demand

We project BT substrate market revenue to grow at a 28% CAGR in 2026-28E and reach US$14.6bn in 2028E (up from US$6.9bn in 2025). Despite this solid growth, total BT market revenue will account for less than 1% of customers' overall revenue in 2026-28E (down from 2%-3% in the previous upcycle in 2020-22), as customers' overall growth is tracking faster at a 34% 2026-28E CAGR. We believe this lower ratio of BT market

revenue to customers' revenue is positive for BT suppliers, as it implies room for further BT substrate price increases.

BT market revenue as a percentage of total customers' revenue peaked during the 2020-22 upcycle (at 2.5%-2.6%), when demand was primarily driven by smartphones (smartphones accounted for ~50% of total BT substrate demand during that cycle). As customers' revenue has shifted away from consumer electronics toward AI-related applications, substrate spending has become increasingly directed toward ABF substrates for GPUs/CPUs/ASICs, while BT substrate spending is more focused on lower-end BT substrates for memory applications.

Exhibit 20: While we see strong end market revenue growth, we believe BT will remain less than 1% of customers' revenue in coming years
LHS: US$mn



Source: Company data, Goldman Sachs Global Investment Research

BT supply analysis: Major suppliers starting to reduce capacity, leading to slower capacity growth vs. previous upcycle

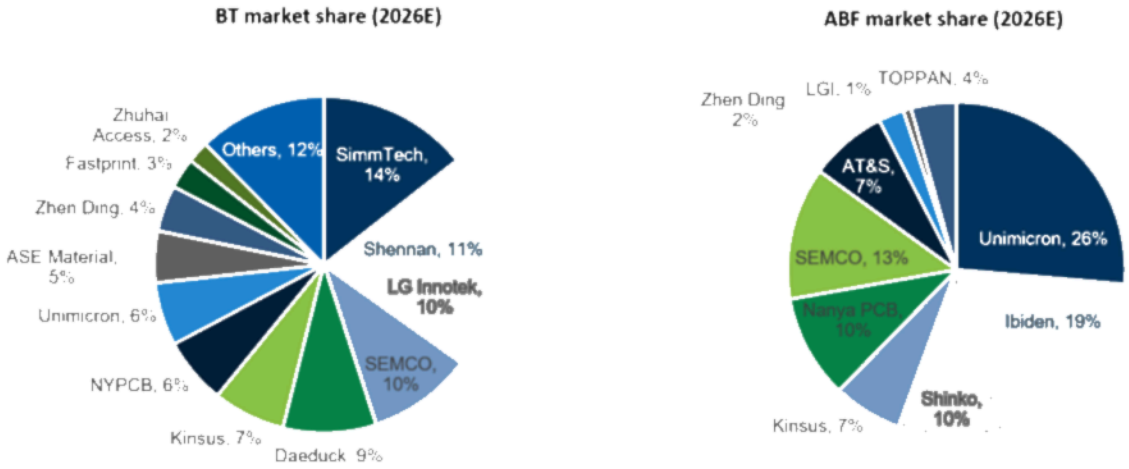
We believe overall BT industry supply growth in this upcycle will remain modest, as key Asian BT substrate suppliers are decreasing capacity, which will partially offset capacity additions from smaller players. **Thus, we expect supply to grow at a 6% 2026-28E CAGR, compared to the 9% CAGR during the 2020-22 upcycle**. This is mainly due to Unimicron transferring BT substrate capacity to high-end large-body-size ABF substrates (see here), while SEMCO is focusing more on expanding its ABF substrate capacity (see here) with its BT substrate business mainly focusing on memory and

smartphone AP (application processor).

We expect BT capacity for Taiwanese suppliers to contract at a -1% 2026-28E CAGR, mainly due to Unimicron's capacity reductions. We expect BT capacity for Korean suppliers to grow at a 3% 2026-28E CAGR, while mainland Chinese suppliers expand at an 11% 2026-28E CAGR. Overall, we expect Taiwanese/Korean/mainland Chinese BT suppliers to account for 27%/41%/16% of total revenue share in 2028E respectively (was 23%/45%/12% in 2025).

The BT substrate supply market remains fragmented, with the top 5 suppliers accounting for 53% of total industry revenue in 2025. Over the next few years, we expect a slight change in the competitive landscape as major suppliers reduce capacity against a backdrop of robust demand expanding at a 32% 2026-28E CAGR, as outlined above.

Exhibit 21: BT market is far more fragmented than ABF



Forecasts for Not Covered names are based on BBG consensus.

Source: Bloomberg, Goldman Sachs Global Investment Research

We believe market players will increase BT substrate capacity by only 4%/3%/9% in 2026/27/28E. Taiwanese players, such as NYPCB and Kinsus, mentioned they will primarily seek de-bottlenecking instead of investing in new equipment. However, ZDT mentioned it will expand BT capacity at its Qinhuangdao plants 1 & 2 starting in 2H26, and the company expects this expansion to increase its existing BT substrate capacity by 20%.

As for major mainland Chinese players, Shennan (002916.SZ; Buy; covered by Ting Song) will continue to expand its IC substrate business; the company expects Phase 2 of its Guangzhou factory to start production in 4Q26 (see here). Fastprint (002436.SZ; Not Covered), which will hold 3% of total market share in 2026 based on BBG consensus, has announced in June an investment of Rmb1.2bn for further BT capacity expansion; this translates to an additional 25k square meter monthly capacity in the coming years (vs. its current 50k square meter monthly capacity).

Furthermore, we see Korean suppliers taking a more proactive stance toward future BT capacity additions. In June, LG Innotek (011070.KS; Neutral; covered by Guini Lee) announced plans to invest US$1bn to further expand its substrate capacity in Vietnam, mainly for RF-SiP, BT and ABF substrates. For SimmTech (222800.KQ; Not Covered), the company plans to invest KRW105bn to expand BT substrate capacity specifically for

DRAM memory. Daeduck (353200.KS; Not Covered) announced in May an investment of KRW213bn to construct a new facility for memory BT substrates, followed by an announcement in July to invest KRW497bn to further expand its IC substrate capacity (including both ABF and BT substrates).

Exhibit 22: Korean substrate players have announced plans to invest in BT capacity in coming years

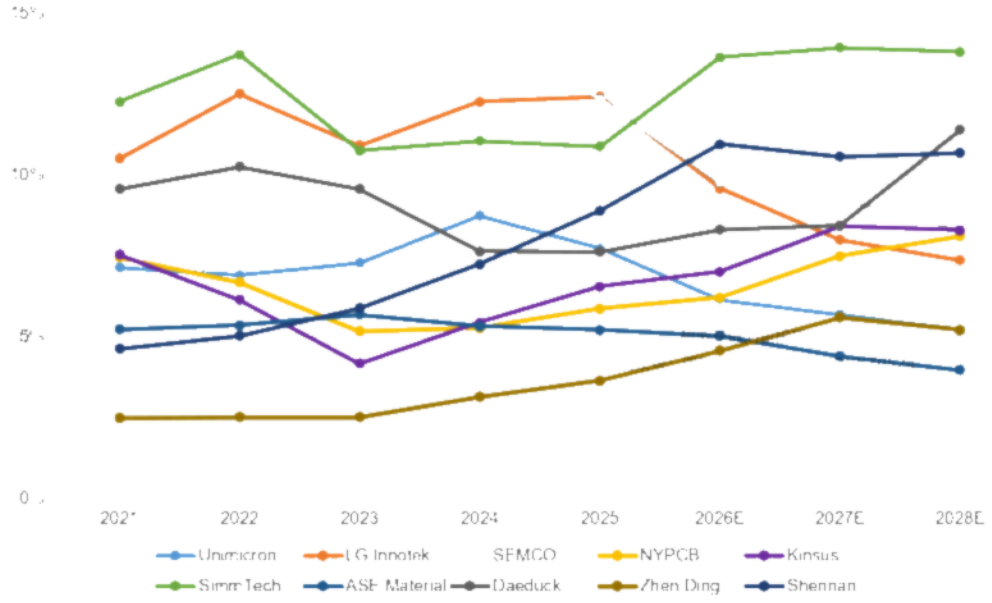
	LG Innotek	SimmTech	Daeduck
Total investment	US$1bn	KRW105bn	KRW213bn/KRW497bn
Location of new plant	Vietnam	Cheongju	Siheung
Production timeline	Pilot run: 3Q27 Mass production: 2028	Pilot run: 2028 Mass production: 2028-29	Pilot run: 3Q27 Mass production: 2028
Application	RF-SiP, FCCSP (BT substrate), FCBGA (ABF substrate)	BT substrate for LPDDR5x	BT substrate for memory/ IC substrate
% of 2028 market capacity	7-8%	13-14%	11-12%

Forecasts for Not Covered names are based on BBG consensus.

Source: Bloomberg, Company data, Goldman Sachs Global Investment Research

We view both SEMCO and LG Innotek as the largest global BT suppliers (both at 12% market share in 2025), followed by SimmTech (11%). Kinsus and NYPCB held 7% and 6% of total revenue share respectively, while Unimicron held 8% in 2025. Together, Korean and Taiwanese players accounted for 67% of global BT market share in 2025. Furthermore, we estimate that 90%+ of BT substrate demand comes from smartphones, wearables, memory, and computing markets, with Korea and Taiwan serving as the major production sites for these products. On the other hand, mainland Chinese players in total accounted for 14% of the market in 2025, which we project will slightly grow to 16% by 2028E.

Exhibit 23: BT market remains fragmented with no single supplier having a market share higher than 15%



Forecasts for Not Covered names are based on BBG consensus.

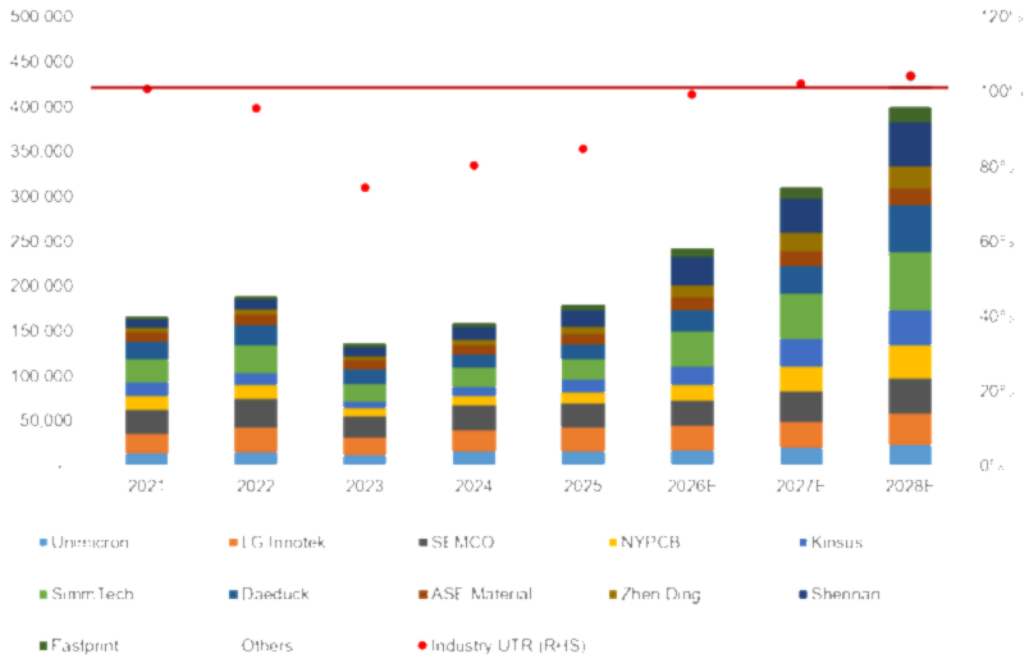
Source: Bloomberg, Company data, Goldman Sachs Global Investment Research

Solid BT pricing environment as demand continues to outpace supply

We have seen BT substrate demand improve since the start of 2026 alongside a firmer pricing outlook, and we expect demand growth to consistently outpace supply in 2026-28E (demand CAGR of 15% vs. supply CAGR of 6%). We believe industry utilization rates (UTR) will continue to trend up over the coming years (reaching 100%+ after 2027E) due to slow supply growth going forward.

Memory predominantly requires wire bonding chip scale package (WBCSP) technology, and this production capacity is not interchangeable with flip-chip chip-scale package (FCCSP) technology (where smartphone APs represent the biggest demand driver). As such, we believe memory BT substrate supply will remain tight through at least 1H28, as new dedicated memory capacity will only come online in 2028. Overall BT pricing has already risen by 10% YTD, partially driven by higher material costs (including substrate CCL, copper foil, gold, etc., which account for 60% of total BT substrate BOM; Exhibit 26). Going forward, we believe the slow increase in BT substrate supply, especially WBCSP capacity, will be the key price hike driver rather than simply reflecting the material cost increase. Furthermore, BT substrates typically account for less than 5% of total memory BOM, providing ample room for further BT price hikes amid the rising memory pricing trend.

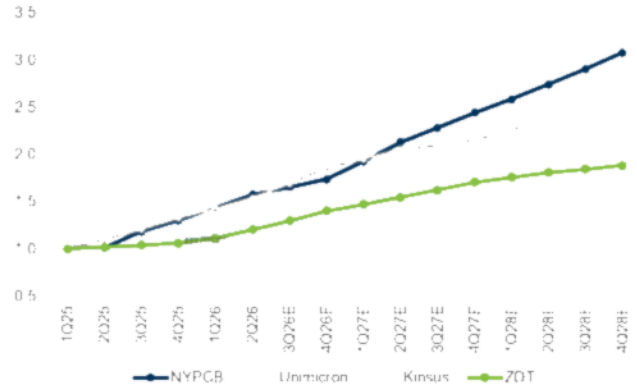
Exhibit 24: We expect to see BT market size exceed NT$467bn in 2028E with 100%+ industry UTR
NT$mn



Forecasts for Not Covered names are based on BBG consensus.

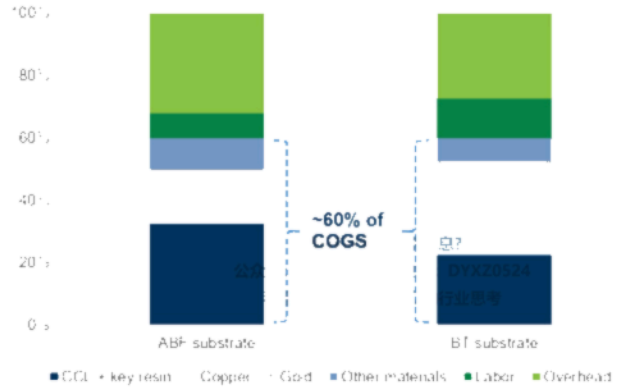
Source: Bloomberg, Company data, Goldman Sachs Global Investment Research

Exhibit 25: BT ASP environment remains favorable with strong demand growth in coming quarters
Rebase 1Q25 ASP at 1



Source: Company data, Goldman Sachs Global Investment Research

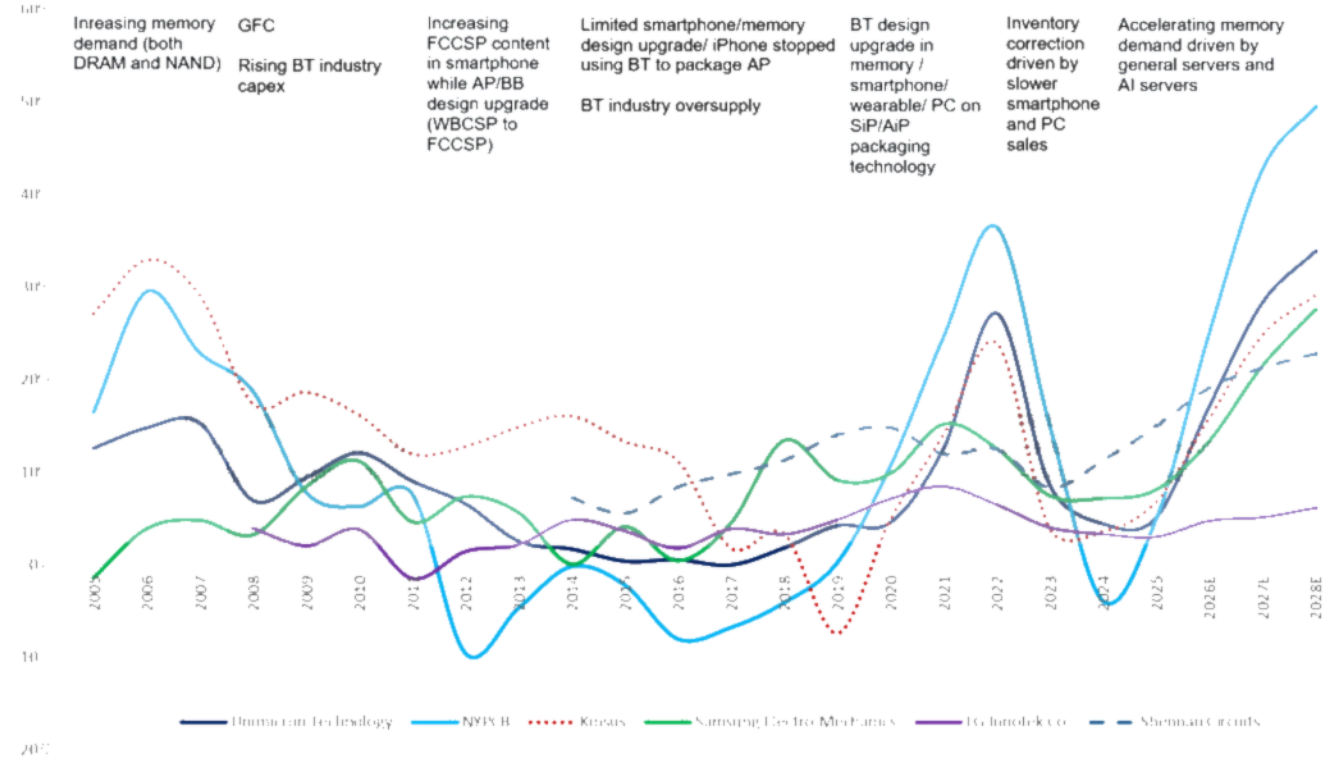
Exhibit 26: We believe key material costs will continue to increase



Source: Goldman Sachs Global Investment Research

With favorable BT substrate supply/demand conditions, we believe the profitability of key BT vendors will see a structural increase in the coming years. Similar to current dynamics in the ABF market, the BT substrate industry's profitability profile has navigated three upcycles and three downcycles over the past 20 years (Exhibit 27). Overall margin profiles for key BT vendors have begun improving since the start of 2026, supported by increasing memory demand amid a supply-constrained environment, especially following several years of slow capex investment. We believe this profitability enhancement will continue in 2H26-2028, supported by sustained industry demand uptrend.

Exhibit 27: We believe BT players' OPM will grow sharply with growing memory BT demand resulting from agentic AI



Source: Company data, Goldman Sachs Global Investment Research

Optical module mSAP is seeing a widening S/D gap, prompting a shift of BT capacity to meet strong demand

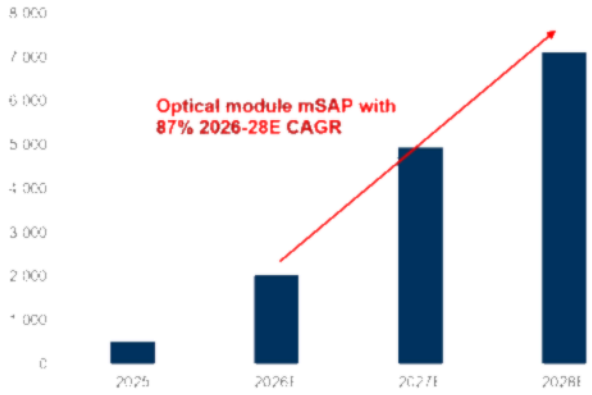
We introduce our 2026-28E 800G+ optical module mSAP TAM forecast, expanding at an 87% 2026-28E CAGR to reach US$7.1bn by 2028E (up from US$0.5bn in 2025; Exhibit 28). This is based on our 800G+ optical module shipment estimates of a 48% 2026-28E CAGR (see here). The connectivity PCB within the 800G+ optical module requires mSAP technology, where several PCB makers have exposure to and are able to leverage their extensive mSAP experience from smartphone substrate-like PCB (SLP) production.

On the other hand, major PCB and substrate suppliers are placing greater focus on this emerging business and pursuing proactive capacity expansion plans, especially ZDT and Compeq (the latter aims to ramp optical module mSAP capacity to reach monthly revenue of ~NT$3bn by end 2027 vs. less than NT$100mn as of 2Q26; see here). Although Unimicron was a front-runner in the 800G+ optical module mSAP business in 2025 (29% market share in 2025 per GSe), the company is placing greater focus on its ABF substrate business, and hence leaving room for emerging peers to capture market share through aggressive expansion plans and technology leadership.

We believe ZDT will become the market share leader in the optical module mSAP industry, as we expect the company to expand mSAP capacity by 5x over the next two years, positioning it well to gain share in a supply-constrained environment (our industry checks indicate mSAP is the most supply-constrained component in the 1.6T optical transceiver supply chain). Furthermore, the company currently holds an industry-leading yield of 90%+ for its optical module mSAP products.

Overall, **we expect the 800G+ optical module mSAP supply/demand gap to reach 5%/25%/38% in 2026/27/28E** (Exhibit 29). Although major mSAP suppliers continue to have proactive expansion plans, this appears insufficient to keep pace with strong demand. The 800G+ optical module mSAP tightness since the start of 2026 has directly led to a 20%-30% pricing increase YTD, and we believe the pricing outlook for 800G+ optical module mSAP will remain solid in 2027/28E.

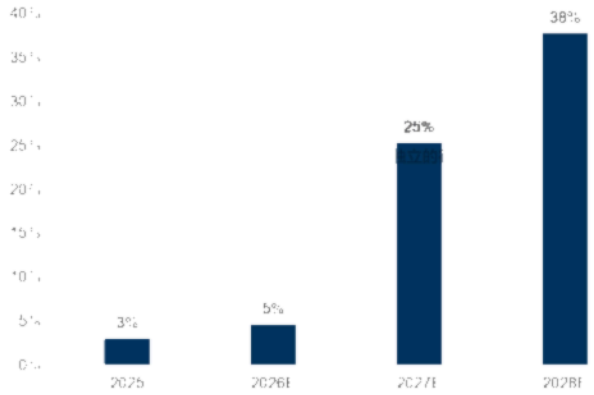
Exhibit 28: We expect optical module mSAP to register 87% 2026-28E CAGR



Source: Company data, Goldman Sachs Global Investment Research

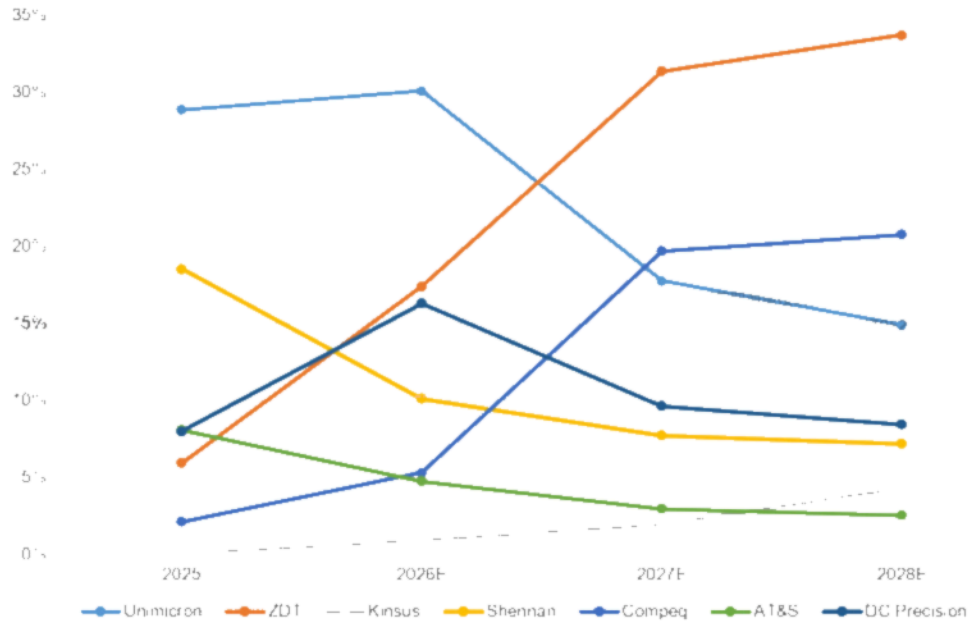
Exhibit 29: We expect the optical module mSAP S/D gap to continue expanding in coming years

Supply shortage ratio



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 30: We expect ZDT to hold a leading market share of 31%/34% in 2027/28E



Forecasts for Not Covered names are based on BBG consensus.

Source: Bloomberg, Company data, Goldman Sachs Global Investment Research

We see ZDT, Kinsus and NYPCB as key beneficiaries of improved BT pricing/profitability trends

We revise up ZDT's 2026-29E EPS estimates by 8%-10% to reflect the favorable BT demand outlook as well as the company's 20% BT substrate capacity expansion starting from 2H26. We also raise Kinsus and NYPCB's 2027-29E EPS estimates by 6%-14%/1%-7% to factor in improved BT profitability trends. We reiterate Buy ratings on ZDT with a new TP of NT$1,025 (from NT$925), Kinsus with a new TP of NT$1,515 (from NT$1,125), and NYPCB with a new TP of NT$2,700 (from NT$2,500).

Exhibit 31: Comparison of key suppliers' BT substrate revenue and profitability

	ZDT			Kinsus			NYPCB			Unimicron		
NT$mn	2026E	2027E	2028E	2026E	2027E	2028E	2026E	2027E	2028E	2026E	2027E	2028E
Total revenue	227,975	372,589	587,634	54,655	100,580	171,681	61,253	127,394	215,270	190,560	308,240	435,891
YoY	25%	63%	58%	39%	84%	71%	52%	108%	69%	45%	62%	41%
BT revenue	13,090	20,383	24,275	20,103	30,710	38,616	17,832	27,344	37,780	17,629	20,713	24,221
YoY	68%	56%	19%	43%	53%	26%	42%	53%	38%	7%	17%	17%
BT revenue mix	**6%**	**5%**	4%	**37%**	**31%**	**22%**	29%	21%	18%	**9%**	7%	6%
BT gross profit	3,578	6,126	7,589	4,056	9,342	12,087	4,409	9,253	13,524	2,568	3,785	4,662
BT GM	27%	30%	31%	20%	30%	31%	**25%**	**34%**	**36%**	15%	18%	19%

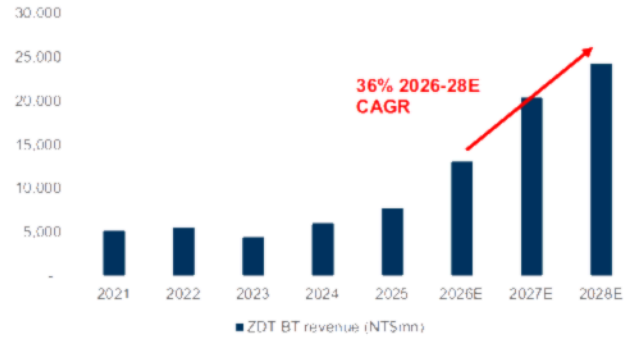
Source: Goldman Sachs Global Investment Research

ZDT - continues to expand BT capacity starting in 2H26

We expect BT substrates to account for 6%/5%/4% of ZDT's total revenue in 2026/27/28E, delivering 68%/56%/19% YoY BT revenue growth. In terms of application mix, we expect smartphones to represent 50% of ZDT's 2026E BT revenue, followed by memory at a 30% share. Despite this higher smartphone weighting, ZDT stands out from peers as the company plans to further expand BT capacity starting in 2H26, targeting a

20% expansion on top of its current BT capacity; this should enable the company to see solid YoY growth in its BT substrate business going forward. We expect ZDT to realize 22%/26%/15% pricing increases for its BT substrates while GM for its BT substrate business reaches 27%/30%/31%. Furthermore, we expect optical module mSAP contribution to increase for ZDT, accounting for 5%/11%/10% of ZDT's total revenue in 2026/27/28E and delivering 10x+/267%/41% YoY growth in 2026/27/28E.

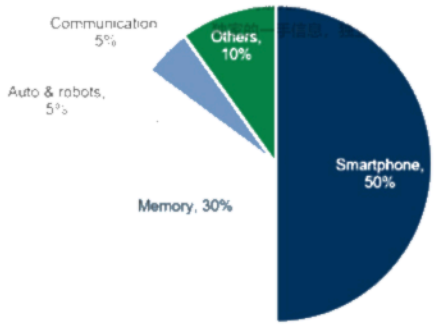
Exhibit 32: We expect ZDT's BT revenue will grow strongly in coming years with further expansion in 2H26



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 33: ZDT's BT revenue is mainly driven by smartphones

BT revenue by application (2026E)

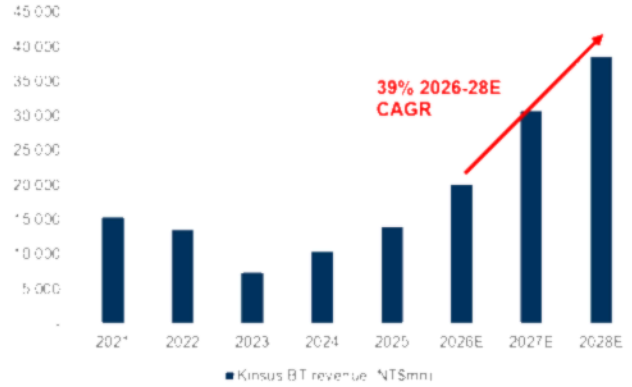


Source: Goldman Sachs Global Investment Research

Kinsus - highest BT revenue mix among Taiwanese peers

We expect BT substrates to account for 37%/31%/22% of Kinsus's total revenue in 2026/27/28E, delivering 43%/53%/26% YoY BT revenue growth. In terms of application mix, we expect Kinsus to generate 50% of its 2026E BT revenue from memory, followed by smartphone-related products at a 29% share. Kinsus stands out from its Taiwanese peers with the highest BT revenue mix, and is positioned to benefit more from overall BT price increases going forward. We expect Kinsus to realize 40%/41%/26% increases in its BT substrate pricing, while GM for its BT substrate business reaches 20%/30%/31% in 2026/27/28E.

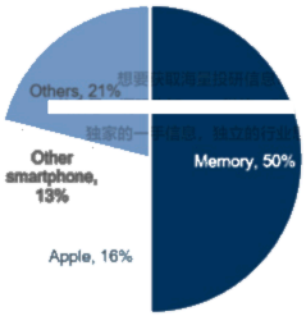
Exhibit 34: We expect Kinsus's BT revenue will grow strongly in coming years



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 35: 50% of Kinsus's BT revenue to come from memory

BT revenue by application (2026E)

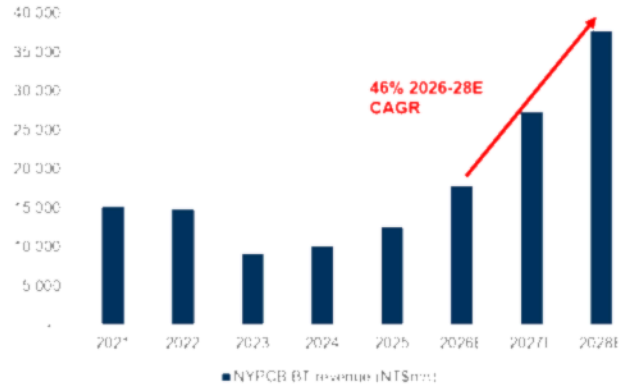


Source: Goldman Sachs Global Investment Research

NYPCB - highest memory BT substrate exposure among Taiwanese peers

We expect BT substrates to account for 29%/21%/18% of NYPCB's total revenue in 2026/27/28E, delivering 42%/53%/38% YoY BT revenue growth. In terms of application mix, we expect NYPCB to generate 70% of its 2026E BT revenue from memory, followed by smartphone-related products at an 18% share. NYPCB stands out from its Taiwanese peers with the highest % of BT revenue derived from memory, and we believe memory BT substrates will see larger price hikes compared to other BT substrates due to tighter supply/demand conditions. As a result, we expect NYPCB to see the largest BT price increases among peers with its BT pricing rising 39%/38%/28% in 2026/27/28E, while GM for its BT substrate business reaches 25%/34%/36%.

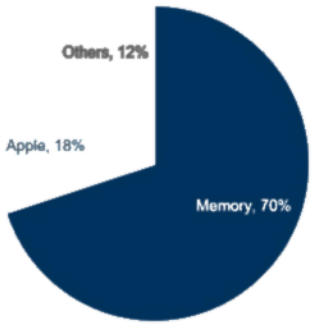
Exhibit 36: We expect NYPCB's BT revenue will grow strongly in coming years



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 37: We expect NYPCB to benefit from strong memory BT demand

BT revenue by application (2026E)



Source: Goldman Sachs Global Investment Research

Raising earnings estimates on better BT substrate pricing

Earnings revisions

ZDT

We revise up our 2026E net income estimate by 8% to factor in 3Q26 revenue and better BT and ABF pricing assumptions. We also raise our 2027/28/29E net income estimates by 8%/10%/9% to factor in better-than-expected pricing for BT substrates and an increased optical module mSAP contribution. We revise up our 2026/27/28/29E GPM forecasts by 0.5/0.9/0.9/0.6ppt due to improved BT substrate profitability and higher contribution from the high-margin optical module mSAP business.

Exhibit 38: ZDT earnings revisions

ZD Tech P&L (NT$ mn)	2026E New	2026E Old	Diff.	2027E New	2027E Old	Diff.	2028E New	2028E Old	Diff.	2029E New	2029E Old	Diff.
Sales	227,975	222,195	3%	372,589	354,197	5%	587,634	556,513	6%	787,166	739,278	6%
Gross Profit	56,384	53,746	5%	102,934	94,694	9%	184,748	170,067	9%	266,597	246,021	8%
EBIT	24,815	22,921	8%	61,432	55,267	11%	123,072	111,676	10%	188,847	173,010	9%
Net Income	15,847	14,711	8%	37,446	34,549	8%	73,732	67,148	10%	112,959	103,908	9%
EPS (NT$)	**14.56**	**13.52**	**8%**	**34.35**	**31.70**	**8%**	**67.64**	**61.60**	**10%**	**103.63**	**95.33**	**9%**
Ratio analysis												
Gross margin	24.7%	24.2%	0.5pp	27.6%	26.7%	0.9pp	31.4%	30.6%	0.9pp	33.9%	33.3%	0.6pp
EBIT margin	10.9%	10.3%	0.6pp	16.5%	15.6%	0.9pp	20.9%	20.1%	0.9pp	24.0%	23.4%	0.6pp
Net margin	7.0%	6.6%	0.3pp	10.1%	9.8%	0.3pp	12.5%	12.1%	0.5pp	14.4%	14.1%	0.3pp

Source: Goldman Sachs Global Investment Research

Kinsus

We revise up our 2026/27/28/29E net income estimate by 5%/6%/14%/13% to factor

in more favorable BT pricing going forward and an increased contribution from optical module mSAP. We revise up our 2026/27/28/29E GM forecasts by 0.8/0.3/0.7/0.9ppt and OPM forecasts by 0.8/0.4/1.2/1.1ppt due to better BT pricing.

Exhibit 39: Kinsus earnings revisions

Kinsus P&L (NT$ mn)	2026E New	2026E Old	Diff.	2027E New	2027E Old	Diff.	2028E New	2028E Old	Diff.	2029E New	2029E Old	Diff.
Sales	54,655	54,805	0%	100,580	96,231	5%	171,681	158,178	9%	272,513	250,634	9%
Gross Profit	15,273	14,898	3%	36,100	34,233	5%	68,495	61,932	11%	114,717	103,203	11%
EBIT	8,656	8,263	5%	24,969	23,523	6%	50,044	44,172	13%	84,766	75,156	13%
Net Income	6,232	5,953	5%	19,013	17,874	6%	39,530	34,776	14%	68,058	60,183	13%
EPS (NT$)	**12.33**	**11.79**	5%	**37.34**	**35.10**	6%	**77.63**	**68.29**	14%	**133.65**	**118.18**	13%
Ratio analysis												
Gross margin	27.9%	27.2%	0.8ppt	35.9%	35.6%	0.3ppt	39.9%	39.2%	0.7ppt	42.1%	41.2%	0.9ppt
EBIT margin	15.8%	15.1%	0.8ppt	24.8%	24.4%	0.4ppt	29.1%	27.9%	1.2ppt	31.1%	30.0%	1.1ppt
Net margin	11.4%	10.9%	0.5ppt	18.9%	18.6%	0.3ppt	23.0%	22.0%	1.0ppt	25.0%	24.0%	1.0ppt

Source: Goldman Sachs Global Investment Research

NYPCB

We revise up our 2027/28/29E net income estimates by 1%/7%/2% to factor in a better-than-expected BT GM outlook in the coming years, reflecting increased tightness across the BT substrate industry. We revise down our 2026E revenue estimate by 4% factoring in 3Q26 actual revenue, and lower our GM assumption by 0.9ppt to account for a slower-than-expected initial ABF substrate yield ramp for high-end products at the Kunshan plant, resulting in a 6% downward revision for our 2026E net income estimate.

Exhibit 40: NYPCB earnings revisions

NYPCB P&L (NT$ mn)	2026E New	2026E Old	Diff.	2027E New	2027E Old	Diff.	2028E New	2028E Old	Diff.	2029E New	2029E Old	Diff.
Sales	61,253	63,497	-4%	127,394	128,352	-1%	215,270	208,110	3%	339,085	336,653	1%
Gross Profit	17,153	18,325	-6%	57,463	56,726	1%	111,300	103,767	7%	193,047	189,175	2%
EBIT	15,344	16,445	-7%	54,417	53,725	1%	106,580	99,563	7%	185,077	181,906	2%
Net Income	12,503	13,362	-6%	43,079	42,537	1%	83,133	77,659	7%	145,249	142,836	2%
EPS (NT$)	**19.35**	**20.68**	-6%	**66.67**	**65.83**	1%	**128.66**	**120.18**	7%	**224.79**	**221.05**	2%
Ratio analysis												
Gross margin	28.0%	28.9%	-0.9pp	45.1%	44.2%	0.9pp	51.7%	49.9%	1.8pp	56.9%	56.2%	0.7pp
EBIT margin	25.0%	25.9%	-0.8pp	42.7%	41.9%	0.9pp	49.5%	47.8%	1.7pp	54.6%	54.0%	0.5pp
Net margin	20.4%	21.0%	-0.6pp	33.8%	33.1%	0.7pp	38.6%	37.3%	1.3pp	42.8%	42.4%	0.4pp

Source: Goldman Sachs Global Investment Research

Unimicron

We revise up our 2027/28/29E net income estimates by 2%/2%/1% after raising our BT substrate pricing assumptions. We revise down our 2029E GM estimate by 0.4ppt, reflecting higher contribution from the lower-margin BT substrate business. We revise up our 2026E GM estimate by 0.2ppt after factoring in actual 3Q26 revenue with slight changes in our product mix assumptions.

Exhibit 41: Unimicron earnings revisions

Unimicron P&L (NT$ mn)	2026E New	2026E Old	Diff.	2027E New	2027E Old	Diff.	2028E New	2028E Old	Diff.	2029E New	2029E Old	Diff.
Sales	190,560	191,248	0%	308,240	302,344	2%	435,891	427,254	2%	590,587	576,393	2%
Gross Profit	49,296	49,178	0%	109,713	107,715	2%	178,473	175,122	2%	260,729	256,552	2%
EBIT	32,647	32,266	1%	87,324	85,753	2%	147,803	145,060	2%	220,292	217,087	1%
Net Income	36,223	35,624	2%	67,727	66,492	2%	113,695	111,562	2%	173,141	170,614	1%
EPS (NT$)	**23.37**	**22.98**	2%	**44.49**	**43.68**	2%	**73.25**	**71.88**	2%	**113.73**	**112.07**	1%
Ratio analysis												
Gross margin	25.9%	25.7%	0.2pp	35.6%	35.6%	0.0pp	40.9%	41.0%	0.0pp	44.1%	44.5%	-0.4pp
EBIT margin	17.1%	16.9%	0.3pp	28.3%	28.4%	0.0pp	33.9%	34.0%	0.0pp	37.3%	37.7%	-0.4pp
Net margin	19.0%	18.6%	0.4pp	22.0%	22.0%	0.0pp	26.1%	26.1%	0.0pp	29.3%	29.6%	-0.3pp

Source: Goldman Sachs Global Investment Research

Valuation

ZDT

Factoring in our earnings revisions, we raise our 12m TP to NT$1,025 (from NT$925), still based on our SOTP-based valuation methodology of: (1) 3.5x blended P/B for ABF & BT substrate, which is 1 STDV above early upcycle industry average; (2) 20x P/E for high-growth AI server/switch related PCB (in line with industry average); and (3) 8x P/E for low-growth consumer electronics PCB (in line with industry downcycle average valuation). We maintain our Buy rating on ZDT.

Exhibit 42: ZDT P&L summary

NT$mn	1Q26	2Q26	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	1Q28E	2Q28E	3Q28E	4Q28E	2025	2026E	2027E	2028E	2029E
Revenue	40,728	48,431	64,324	74,492	72,587	82,511	101,729	115,762	107,568	127,860	162,600	189,606	182,522	227,975	372,589	587,634	787,166
Gross profit	8,812	11,186	16,700	19,686	17,504	21,297	29,949	34,184	29,849	38,225	53,477	63,198	36,136	56,384	102,934	184,748	266,597
Operating expense	(6,308)	(7,425)	(8,748)	(9,088)	(8,652)	(9,386)	(11,080)	(12,385)	(11,403)	(14,251)	(16,914)	(19,107)	(22,205)	(31,569)	(41,503)	(61,676)	(77,751)
Operating income	2,503	3,761	7,952	10,598	8,852	11,912	18,869	21,799	18,445	23,974	36,562	44,091	13,932	24,815	61,432	123,072	188,847
Pretax income	2,400	4,931	8,452	11,598	9,252	12,262	18,919	22,299	18,495	24,024	36,612	44,391	14,063	27,382	62,732	123,522	189,497
Taxes expense	(353)	(1,204)	(1,268)	(1,740)	(1,573)	(2,084)	(2,838)	(3,345)	(3,144)	(4,084)	(5,492)	(6,659)	(3,458)	(4,565)	(9,840)	(19,379)	(30,144)
Net income	1,426	2,392	5,071	6,959	5,505	7,210	11,351	13,379	11,005	14,126	21,967	26,634	6,791	15,847	37,446	73,732	112,959
EPS, NT$	**1.33**	**2.19**	**4.65**	**6.38**	**5.05**	**6.61**	**10.41**	**12.27**	**10.10**	**12.96**	**20.15**	**24.43**	**6.91**	**14.56**	**34.35**	**67.64**	**103.63**
Ratio analysis and assumption																	
As % of sales																	
Gross margin	21.6%	23.1%	26.0%	26.4%	24.1%	25.8%	29.4%	29.5%	27.7%	29.9%	32.9%	33.3%	19.8%	24.7%	27.6%	31.4%	33.9%
Operating expense ratio	15.5%	15.3%	13.6%	12.2%	11.9%	11.4%	10.9%	10.7%	10.6%	11.1%	10.4%	10.1%	12.2%	13.8%	11.1%	10.5%	9.9%
Operating margin	6.1%	7.8%	12.4%	14.2%	12.2%	14.4%	18.5%	18.8%	17.1%	18.7%	22.5%	23.3%	7.6%	10.9%	16.5%	20.9%	24.0%
Net margin	3.5%	4.9%	7.9%	9.3%	7.6%	8.7%	11.2%	11.6%	10.2%	11.0%	13.5%	14.0%	3.7%	7.0%	10.1%	12.5%	14.4%
QoQ growth (%)																	
Revenue	-28.4%	18.9%	32.8%	15.8%	-2.6%	13.7%	23.3%	13.8%	-7.1%	18.9%	27.2%	16.6%	-	-	-	-	-
Gross profit	-31.3%	26.9%	49.3%	17.9%	-11.1%	21.7%	40.6%	14.1%	-12.7%	28.1%	39.9%	18.2%	-	-	-	-	-
Operating income	-57.7%	50.2%	111.4%	33.3%	-16.5%	34.6%	58.4%	15.5%	-15.4%	30.0%	52.5%	20.6%	-	-	-	-	-
Net income	-54.9%	67.8%	112.1%	37.2%	-20.9%	31.0%	57.4%	17.9%	-17.7%	28.4%	55.5%	21.2%	-	-	-	-	-
YoY growth (%)																	
Revenue	1.6%	26.8%	35.8%	31.0%	78.2%	70.4%	58.2%	55.4%	48.2%	55.0%	59.8%	63.8%	6%	25%	63%	58%	34%
Gross profit	49.7%	59.6%	60.4%	53.4%	98.6%	90.4%	79.3%	73.6%	70.5%	79.5%	78.6%	84.9%	11%	56%	83%	79%	44%
Operating income	137.1%	55.1%	75.5%	79.0%	253.6%	216.7%	137.3%	105.7%	108.4%	101.3%	93.8%	102.3%	20%	78%	148%	100%	53%
Net income	125.4%	295.3%	112.0%	120.1%	286.1%	201.5%	123.8%	92.3%	99.9%	95.9%	93.5%	99.1%	-26%	133%	136%	97%	53%

Source: Company data, Goldman Sachs Global Investment Research

Kinsus

Factoring in our earnings revisions, we raise our 12m TP to NT$1,515 (from NT$1,125), based on a higher 2028E P/E of 19.5x (was 16.5x, now at +2.0x STDV higher than Kinsus's past upcycle average P/E of 14.2x, reflecting better BT pricing as well as increased contribution from optical module mSAP). We maintain our Buy rating on Kinsus.

Exhibit 43: Kinsus P&L summary

NT$mn	1Q26	2Q26	3Q26	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	1Q28E	2Q28E	3Q28E	4Q28E	2025E	2026E	2027E	2028E	2029E
Revenue	11,105	12,496	14,540	16,514	18,032	23,595	28,228	30,725	33,791	40,457	45,804	51,630	39,351	54,655	100,580	171,681	272,513
Gross profit	2,349	3,261	4,506	5,156	5,944	8,332	10,265	11,559	12,859	15,851	18,490	21,295	8,314	15,273	36,100	68,495	114,717
Operating expense	(1,459)	(1,582)	(1,694)	(1,883)	(2,070)	(2,548)	(3,133)	(3,380)	(3,621)	(4,378)	(4,914)	(5,539)	(5,645)	(6,617)	(11,131)	(18,451)	(29,950)
Operating income	890	1,679	2,812	3,274	3,874	5,784	7,132	8,179	9,238	11,473	13,577	15,756	2,670	8,656	24,969	50,044	84,766
Pretax income	964	1,785	2,912	3,274	3,924	5,834	7,132	8,164	9,288	11,523	13,577	15,741	3,087	8,935	25,054	50,129	84,951
Taxes expense	(89)	(101)	(495)	(557)	(706)	(1,050)	(1,284)	(1,470)	(1,672)	(2,074)	(2,444)	(2,833)	(370)	(1,241)	(4,510)	(9,023)	(15,291)
Net income	549	1,311	2,006	2,367	2,896	4,363	5,444	6,310	7,322	9,028	10,692	12,488	1,596	6,232	19,013	39,530	68,058
EPS, NT$	1.17	2.57	3.94	4.65	5.69	8.57	10.69	12.39	14.38	17.73	21.00	24.52	3.52	12.33	37.34	77.63	133.65
Ratio analysis and assumption																	
As % of sales																	
Gross margin	21.2%	26.1%	31.0%	31.2%	33.0%	35.3%	36.4%	37.6%	38.1%	39.2%	40.4%	41.2%	21.1%	27.9%	35.9%	39.9%	42.1%
Operating expense ratio	13.1%	12.7%	11.7%	11.4%	11.5%	10.8%	11.1%	11.0%	10.7%	10.8%	10.7%	10.7%	14.3%	12.1%	11.1%	10.7%	11.0%
Operating margin	8.0%	13.4%	19.3%	19.8%	21.5%	24.5%	25.3%	26.6%	27.3%	28.4%	29.6%	30.5%	6.8%	15.8%	24.8%	29.1%	31.1%
Net margin	4.9%	10.5%	13.8%	14.3%	16.1%	18.5%	19.3%	20.5%	21.7%	22.3%	23.3%	24.2%	4.1%	11.4%	18.9%	23.0%	25.0%
QoQ growth (%)	佳沃的一手信息，独家的行业思考												佳沃的一手信息，独家的行业思考				
Revenue	2.7%	12.5%	16.4%	13.6%	9.2%	30.9%	19.6%	8.8%	10.0%	19.7%	13.2%	12.7%	-	-	-	-	-
Gross profit	-1.8%	38.8%	38.2%	14.4%	15.3%	40.2%	23.2%	12.6%	11.2%	23.3%	16.6%	15.2%	-	-	-	-	-
Operating income	-3.3%	88.6%	67.5%	16.4%	18.3%	49.3%	23.3%	14.7%	12.9%	24.2%	18.3%	16.1%	-	-	-	-	-
Net income	-14.5%	138.8%	53.0%	18.0%	22.4%	50.6%	24.8%	15.9%	16.0%	23.3%	18.4%	16.8%	-	-	-	-	-
Revenue	28.8%	30.7%	40.4%	52.7%	62.4%	88.8%	94.1%	86.1%	87.4%	71.5%	62.3%	68.0%	29%	39%	84%	71%	59%
Gross profit	21.0%	61.8%	129.5%	115.4%	153.0%	155.5%	127.8%	124.2%	116.3%	90.2%	80.1%	84.2%	-4%	84%	136%	90%	67%
Operating income	77.7%	170.8%	347.9%	255.6%	335.1%	244.5%	153.6%	149.8%	138.4%	98.4%	90.4%	92.6%	144%	224%	188%	100%	69%
Net income	98.9%	287.6%	491.2%	268.4%	427.5%	232.8%	171.4%	166.6%	152.8%	106.9%	96.4%	97.9%	3164%	291%	205%	108%	72%

Source: Company data, Goldman Sachs Global Investment Research

NYPCB

Factoring in our earnings revisions, we raise our 12m TP to NT$2,700 (from NT$2,500), still based on 21x 2028E P/E (+1.5x STDV above the past upcycle average P/E of 13.3x as we expect a better pricing outlook in the spot price market this time vs. the previous upcycle in 2020-22). We maintain our Buy rating on NYPCB (on CL).

Exhibit 44: NYPCB P&L summary

NT$mn	1Q26	2Q26	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	1Q28E	2Q28E	3Q28E	4Q28E	2025	2026E	2027E	2028E	2029E
Revenue	11,177	13,575	16,378	20,122	23,605	28,615	34,474	40,700	45,020	51,136	57,127	61,988	40,173	61,253	127,394	215,270	339,085
Gross profit	1,771	3,360	4,877	7,146	9,370	12,631	15,964	19,498	22,542	26,096	29,698	32,963	3,647	17,153	57,463	111,300	193,047
Operating expense	(419)	(460)	(428)	(502)	(594)	(682)	(817)	(953)	(1,005)	(1,125)	(1,200)	(1,390)	(1,665)	(1,810)	(3,046)	(4,720)	(7,971)
Operating income	1,352	2,899	4,449	6,643	8,776	11,949	15,147	18,545	21,537	24,971	28,499	31,573	1,982	15,344	54,417	106,580	185,077
Pretax income	1,598	2,976	4,629	6,823	8,776	11,949	15,147	18,545	21,537	24,971	28,499	31,573	2,346	16,026	54,417	106,580	185,797
Taxes expense	(290)	(714)	(1,018)	(1,501)	(1,667)	(2,629)	(3,332)	(3,709)	(4,738)	(5,494)	(6,270)	(6,946)	(399)	(3,523)	(11,338)	(23,448)	(40,548)
Net income	1,309	2,262	3,610	5,322	7,108	9,320	11,815	14,836	16,799	19,478	22,229	24,627	1,947	12,503	43,079	83,133	145,249
EPS, NT$	2.03	3.50	5.59	8.24	11.00	14.42	18.28	22.96	26.00	30.14	34.40	38.11	3.01	19.35	66.67	128.66	224.79
Ratio analysis and assumption																	
As % of sales																	
Gross margin	15.8%	24.7%	29.8%	35.5%	39.7%	44.1%	46.3%	47.9%	50.1%	51.0%	52.0%	53.2%	9.1%	28.0%	45.1%	51.7%	56.9%
Operating expense ratio	3.8%	3.4%	2.6%	2.5%	2.5%	2.4%	2.4%	2.3%	2.2%	2.2%	2.1%	2.2%	4.1%	3.0%	2.4%	2.2%	2.4%
Operating margin	12.1%	21.4%	27.2%	33.0%	37.2%	41.8%	43.9%	45.6%	47.8%	48.8%	49.9%	50.9%	4.9%	25.0%	42.7%	49.5%	54.6%
Net margin	11.7%	16.7%	22.0%	26.5%	30.1%	32.6%	34.3%	36.5%	37.3%	38.1%	38.9%	39.7%	4.8%	20.4%	33.8%	38.6%	42.8%
QoQ growth (%)																	
Revenue	0.1%	21.5%	20.6%	22.9%	17.3%	21.2%	20.5%	18.1%	10.6%	13.6%	11.7%	8.5%	-	-	-	-	-
Gross profit	26.7%	89.7%	45.2%	46.5%	31.1%	34.8%	26.4%	22.1%	15.6%	15.8%	13.8%	11.0%	-	-	-	-	-
Operating income	40.4%	114.4%	53.4%	49.3%	32.1%	36.2%	26.8%	22.4%	16.1%	15.9%	14.1%	10.8%	-	-	-	-	-
Net income	8.9%	72.8%	59.6%	47.4%	33.6%	31.1%	26.8%	25.6%	13.2%	15.9%	14.1%	10.8%	-	-	-	-	-
YoY growth (%)	机构获取信息，投研必备												机构获取信息，投研必备				
Revenue	32.1%	41.7%	49.3%	80.2%	111.2%	110.8%	110.5%	102.3%	90.7%	78.7%	65.7%	52.3%	24%	52%	108%	69%	58%
Gross profit	311.7%	337.0%	364.5%	411.1%	428.9%	276.0%	227.4%	172.9%	140.6%	106.6%	86.0%	69.1%	920%	370%	235%	94%	73%
Operating income	3986.2%	692.0%	617.2%	589.9%	549.0%	312.1%	240.5%	179.2%	145.4%	109.0%	88.1%	70.3%	-257%	674%	255%	96%	74%
Net income	530.8%	NA	398.1%	342.8%	443.2%	312.1%	227.2%	178.8%	136.3%	109.0%	88.1%	66.0%	856%	542%	245%	93%	75%

Source: Company data, Goldman Sachs Global Investment Research

Unimicron

Factoring in our earnings revisions, we raise our 12m TP to NT$1,270 (from NT$1,220), still based on 17.4x 2028E P/E. We believe the company could trade at 2.7x STDV higher than past upcycle average P/E of 10.3x. We maintain our Neutral rating on Unimicron.

Exhibit 45: Unimicron P&L summary

NT$mn	1Q26	2Q26	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	1Q28E	2Q28E	3Q28E	4Q28E	2025	2026E	2027E	2028E	2029E
Revenue	37,446	42,890	51,240	58,984	63,490	71,389	81,223	92,138	96,734	102,139	113,371	123,647	131,241	190,560	308,240	435,891	590,587
Gross profit	6,726	10,638	14,351	17,580	20,266	24,453	29,566	35,428	37,955	41,427	47,092	51,999	18,292	49,296	109,713	178,473	260,729
Operating expense	(3,969)	(3,987)	(4,150)	(4,542)	(4,726)	(5,222)	(5,866)	(6,574)	(6,905)	(7,193)	(7,983)	(8,589)	(11,618)	(16,649)	(22,388)	(30,670)	(40,437)
Operating income	2,757	6,651	10,201	13,039	15,540	19,231	23,700	28,854	31,049	34,235	39,109	43,410	6,674	32,647	87,324	147,803	220,292
Pretax income	6,299	15,576	10,201	13,039	15,540	19,231	23,700	28,854	31,049	34,235	39,109	43,410	8,827	45,114	87,324	147,803	220,292
Taxes expense	(918)	(2,233)	(2,040)	(2,534)	(3,108)	(4,231)	(5,451)	(5,608)	(6,831)	(7,532)	(8,995)	(9,550)	(1,277)	(7,726)	(18,398)	(32,908)	(46,581)
Net income	5,043	13,115	7,861	10,204	12,132	14,700	17,949	22,946	23,919	26,403	29,814	33,560	6,673	36,223	67,727	113,695	173,141
EPS, NT$	3.28	8.45	5.06	6.57	7.97	9.66	11.79	15.07	15.41	17.01	19.21	21.62	4.38	23.37	44.49	73.25	113.73
Ratio analysis and assumption																	
As % of sales																	
Gross margin	18.0%	24.8%	28.0%	29.8%	31.9%	34.3%	36.4%	38.5%	39.2%	40.6%	41.5%	42.1%	13.9%	25.9%	35.6%	40.9%	44.1%
Operating expense ratio	10.6%	9.3%	8.1%	7.7%	7.4%	7.3%	7.2%	7.1%	7.1%	7.0%	7.0%	6.9%	8.9%	8.7%	7.3%	7.0%	6.8%
Operating margin	7.4%	15.5%	19.9%	22.1%	24.5%	26.9%	29.2%	31.3%	32.1%	33.5%	34.5%	35.1%	5.1%	17.1%	28.3%	33.9%	37.3%
Net margin	13.5%	30.6%	15.3%	17.3%	19.1%	20.6%	22.1%	24.9%	24.7%	25.9%	26.3%	27.1%	5.1%	19.0%	22.0%	26.1%	29.3%
QoQ growth (%)																	
Revenue	7.9%	14.5%	19.5%	15.1%	83.0%	12.4%	13.8%	13.4%	64.0%	5.6%	11.0%	9.1%	-	-	-	-	-
Gross profit	22.9%	58.2%	34.9%	22.5%	270.4%	20.7%	20.9%	19.8%	115.9%	9.1%	13.7%	10.4%	-	-	-	-	-
Operating income	16.5%	141.3%	53.4%	27.8%	556.9%	23.8%	23.2%	21.7%	138.1%	10.3%	14.2%	11.0%	-	-	-	-	-
Net income	42.7%	160.1%	-40.1%	29.8%	243.2%	21.2%	22.1%	27.8%	134.4%	10.4%	12.9%	12.6%	-	-	-	-	-
YoY growth (%)																	
Revenue	24.4%	32.1%	50.7%	70.0%	111.0%	119.9%	138.9%	165.6%	158.3%	138.1%	121.3%	109.6%	14%	45%	62%	41%	35%
Gross profit	67.1%	150.6%	215.5%	221.3%	403.4%	476.0%	550.0%	547.4%	464.3%	289.4%	228.1%	195.8%	12%	169%	123%	63%	46%
Operating income	117.6%	340.7%	565.6%	451.2%	1126.7%	1174.1%	1446.4%	1119.7%	1026.3%	414.7%	283.4%	232.9%	30%	389%	167%	69%	49%
Net income	451.4%	NA	258.2%	188.7%	1226.6%	NA	717.9%	549.2%	374.3%	101.3%	279.3%	228.9%	31%	443%	87%	68%	52%

Source: Company data, Goldman Sachs Global Investment Research

Investment thesis, PT methodology and risks

Investment Thesis - Zhen Ding Technology

Zhen Ding Technology (ZDT) is the global leading PCB supplier (top 1 in market share in sales) with 7-10% market share, and started its ABF substrate business from 2023 in Shenzhen, China; it has the highest ABF revenue exposure to the China market compared to all other ABF substrate suppliers. We believe ZDT will hold more than 40% ABF substrate market share in China by 2027E (up from 31% in 2024) and benefit the most from the strong and growing China ABF substrate market (53% 2025-27E CAGR) due to the increasing in-sourcing ratio for the AI computing ASIC/GPU market in China. We also expect the increasing foldable smartphone penetration rate in the long term to drive ZDT's FPC TAM, and account for 39% of the company's total revenue in 2027E. We see further revenue upside potential from foldable phones. We are Buy rated mainly due to our positive view on the company's China ABF substrate business opportunity, which should not only drive ZDT's revenue growth, but also improve its OPM level in the long term. We see upside for the stock price considering the company's solid growth opportunity, and our TP implied P/E multiple is still lower than the company's past 10+ year P/E average, which we believe is fair considering the potential upside from China ABF substrate market and increasing foldable phone penetration rate.

Valuation: Our 12-month TP of NT$1,025 is based on a SOTP valuation methodology, including (1) 3.5x blended 2028E P/B for ABF & BT substrate, (2) 20x 2028E P/E for high-growth AI server/switch related PCB (in line with industry average), and (3) 8x 2028E P/E for low-growth consumer electronics PCB (in line with industry downcycle average valuation).

Key downside risks include: (1) weaker-than-expected iPhone demand or slower content upgrade, (2) delay in new substrate capacity or slower-than-expected yield rate ramp up progress, and (3) fiercer competition in China ABF market.

Investment Thesis - Kinsus

Kinsus is one of the key IC substrates suppliers globally with ~10% ABF/BT substrates market share in 2024, with ~18% of total 2025 revenue contributed by its contact lens subsidiary, Pegavision (6941.TW, Not Covered). With our view that the ABF substrate shortage started from 2Q26 (ABF substrate return to supply demand balance from late 2025), we believe Kinsus' performance will continue to improve compared with high-end ABF peers considering the company's increasing market share in the high-end ABF substrate market; however, ~36% of the company's revenue was contributed by BT substrates in 2025 and 30% of the company's ABF revenue is from non-LTA customers, which we believe will continue to enjoy a better pricing outlook. As a result, we believe Kinsus' earnings outlook should continue to be strong (~118% 2026-29E CAGR), mainly driven by better BT substrate and non-LTA ABF substrate pricing outlook, despite the unfavorable demand outlook before 1H26. We believe Kinsus is an experienced substrate supplier with a clear capacity expansion plan that can also upgrade its product portfolio in the long term. We believe we are at the beginning of an industry upcycle, making us positive on Kinsus' stock performance over the next 12 months.

Price Target Risks and Methodology - Kinsus

Valuation methodology: Our 12-month target price of NT$1,515 for Kinsus is based on 19.5x 2028E P/E, which is +2.0x STDV higher than Kinsus' past upcycle average P/E (14.2x).

Key downside risks: (1) Slower-than-expected PC demand recovery, (2) Slower-than-expected ABF substrates pricing upgrading outlook, (3) Slower/Less-than-expected AI server orders from 2H26.

Investment Thesis - NYPCB

NYPCB manufactures and markets printed circuit boards (PCBs) and integrated circuit (IC) substrates (including ABF and BT substrates). We are Buy rated on NYPCB considering the company's high exposure to BT substrates and non-LTA ABF substrate (70%+ of total revenue), where we expect GM/OPM to increase significantly in the coming quarters (from breakeven in OPM in 1H25 to 26/42% in 2026/27E) due to the favorable substrate pricing outlook. Despite the company's low exposure to high-end ABF substrate industry (<20% of total revenue in 2025), we believe the expanding demand from ASIC AI server and high-end switch IC demand will drive the company's high-end ABF revenue exposure to 40%+ by 2027E, suggesting better GM/OPM outlook in the long term. In 2H25-2H26, we believe NYPCB will continue to benefit from stronger ABF/BT pricing and should be a key beneficiary of the pricing uptrend considering the company's key focus on BT and non-LTA ABF substrate industries. Moreover, in the long term (after 2026), we expect the ABF industry to return to supply tightness, and NYPCB's expanding high-end exposure will lead to a long-term earnings growth outlook (148% 2026-28E earnings CAGR). As a result, we see solid upside potential for NYPCB's earnings and stock performance.

Price Target Risks and Methodology - NYPCB

Valuation methodology: Our 12-month target price of NT$2,700 for NYPCB is based on 21x 2028E P/E, which is +1.5x STDV higher than the past upcycle average P/E (13.3x).

Key downside risks: (1) Slower-than-expected PC demand recovery, (2)

Slower-than-expected ABF substrates pricing upgrading outlook, and (3) Slower-than-expected NYPCB new high-end capacity qualification progress.

Investment Thesis - Unimicron Technology

Unimicron is a key supplier of ABF substrates (25% market share in 2025) and BT substrates and also produces FPC/HDI/PCB products. We are Neutral rated on the shares given long-term growth opportunity prospects: (1) over 70% of ABF shipments are covered by long-term agreements (LTA), which limits pricing flexibility and makes price hike less likely; (2) the company's execution track record has been weaker than peers; (3) capacity expansion plan remains slower than peers, constraining its ability to capture incremental AI demand. The current ABF substrates market is seeing more favorable supply demand outlook, and Unimicron is likely to see better pricing outlook to reflect rising material costs in the coming quarters. AI ABF account for 10% of the company's total revenue, but the growth is likely to be slower than peers due to the company continuing to lose market share to peers given its less favourable production yield and slow capacity expansion. Overall, we are Neutral rated on Unimicron given our outlook for limited upside potential, barring ASIC AI servers, despite our generally positive view in the long term on its profitability trajectory.

Price Target Risks and Methodology - Unimicron Technology

Valuation methodology: Our 12-month target price of NT$1,270 for Unimicron is based on 17.4x 2028E P/E, which is 2.7x STDV higher than the past upcycle average P/E (10.3x).

Key upside/downside risks: (1) Slower/faster-than-expected PC demand recovery, (2) Slower/faster-than-expected ABF substrates upgrading pace, and (3) Slower/faster than-expected AI server PCB market share loss progress.