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Asia-Pacific Technology | Asia Pacific

AI Supply Chain: Google ASIC, who gets what for design services?

With the complexity of TPU v10, we see room for multiple design service providers to contribute 'blocks' for MediaTek to build v10 chips. We reiterate OW on MediaTek, and raise GUC and Alchip PTs on expected larger revenue size in 2027/2028.

What's new? Investors have recently been interested in several chip designers who stated they are associated with Google TPU-related projects. In Joe Moore's report [Marvell: Thoughts on MRVL Google Opportunity \(19 Aug 2026\)](#), there is some discussion that AMD may also be involved in TPUv10. [On July 31](#), Taiwan's GUC stated its confidence in engaging with project design services for Google TPU, while [on Aug 14](#), Taiwan's Alchip also indicated Google's COT (customer-owned tooling) business model would provide Alchip with an opportunity to win Google-related design services. So, is everyone winning?

We think MediaTek remains the major coordinator for TPU v10: According to Joe, Marvell is winning additional content around TPU rather than replacing core TPU itself. We would not yet assume it is displacing the existing TPU designers (Broadcom in the US [covered by Joe], and MediaTek in Taiwan). Our view from Asia is that we do see more 'blocks to build' for TPU v10 so more design service providers may be included in the same project. We see three key trends in Google TPU v10:

- 1. KGD (known good die) for compute die, which means Google owns the compute die design and the tool (photomask), and has some flexibility to include other design services for that compute die backend-design service.
- 2. Adoption of 3.5D packaging. It requires 3D IC stack the compute die on other attached dies, and that needs a 3D IC IP vendor for the design service.
- 3. Larger reticle size. The chip reticle size may further expand to >12 reticles, vs. currently around 9 reticles.

We think TPU v10 continues to use Intel EMIB-T given the larger reticle size, while MediaTek's SerDes IP is also improving, creating some stickiness to MediaTek's design service. We suggest to accumulate MediaTek on its recent share price dip. The stock trades at 12x 2028 EPS.

Raising target prices for both GUC and Alchip - attractive on 2028 valuations

- Raising GUC PT to NT\$6,288, given better TSMC 3nm allocation in 2027, and its Meta/Microsoft projects wins. The company also announced the issue of a CB to enlarge business scale. Stock trades at 25x 2028 EPS.
- Raising Alchip PT to NT\$5,888, based on US\$8bn revenue contribution from Trainium4, implying 60% Y/Y of 2028 EPS. Stock trades at 10x 2028 EPS.

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WHAT'S CHANGED		
Global Unichip Corp (3443.TW)		
	Price Target	From NT\$5,688.00 To NT\$6,288.00
Alchip Technologies Ltd (3661.TW)		
	Price Target	From NT\$5,088.00 To NT\$5,888.00

investors should be aware that the firm may have a conflict of

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1. Google AI ASIC TPU provided by MediaTek in Asia

TPU v10 is the project that can involve many

We see three key trends in Google TPU v10: 1) KGD (known good die) for compute die, which means Google owns the compute die design and the tool (photomask), and has some flexibility to include other design services for that compute die backend-design service. 2) Adoption of 3.5D packaging. It requires 3D IC stack the compute die on other attached dies, and that needs a 3D IC IP vendor for that part of the design service. 3) Larger reticle size. The chip reticle size may further expand to >12 reticles, vs. currently around 9 reticles.

Investors have recently been interested in several chip designers who stated they are associated with Google TPU-related projects, including but not limited to:

- 1) Marvell (covered by Joe Moore) which disclosed an expanded partnership with Google (covered by Brian Nowak) across a range of custom silicon programs that attach to the TPU ecosystem, including inference accelerators, storage controllers, NICs, memory interface controllers, and near memory compute.
- 2) In Joe's report [Marvell: Thoughts on MRVL Google Opportunity \(19 Aug 2026\)](#), there is some discussion that AMD may also be involved in TPUv10.
- 3) On July 31, Taiwan's GUC stated its confidence in engaging with project design services for Google TPU.
- 4) On Aug 14, Taiwan's Alchip also indicated Google's COT (customer-owned tooling) business model would provide Alchip with an opportunity to win Google-related design services. So, is everyone winning?

Our view from Asia is that we do see more 'blocks to build' for TPU v10 so more design service providers may be included in the same project.

Exhibit 1: We believe MediaTek would still at least handle the packaging and I/O die for TPU v10, of which the revenue recognition could still be higher than TPU v9

MediaTek/Intel EMIB-T advanced packaging	
Google	KGD (Known Good Die) /Compute die
Memory Suppliers	HBM Chip
MediaTek	Electrical I/O Die
Marvell or others	Memory I/O
GUC or others	3D IC/CPO

MediaTek TPU revenue could reach US\$70bn by 2029 even under a COT (customer-owned tooling) model

We believe MediaTek remains the major integrator of TPU v10 (IceFish) and its responsibility is very similar to what it does for TPU v9 (HumuFish), in that: 1) I/O die design with its own SerDes IP; 2) chip packaging integration compute die KGD, I/O die, and HBM chips. MediaTek's content per chip (ASP) can increase at TPU v10, given larger die size of the I/O dies vs. TPU v9.

Our assumption for MediaTek's 2027 and 2028 TPU revenue remains unchanged at US\$13-15bn and US\$43-45bn, respectively, by forecasting 3mn units of TPU v8t in 2027 and 1mn/3mn units of TPUv8t/v9 in 2028. For 2029, we expect the demand for TPU v9 will continue to increase while TPU v10 starts to ramp up. We currently project 4mn units of TPU v9 in 2029 and around 1mn units of TPU v10, leading to around US\$70bn of TPU revenue.

MediaTek TPU v10 single chip ASP/revenue recognition could still be higher than TPU v9: On TPU v10, we believe the project will be closer to a COT model where different parties might handle different functions or "blocks" within the projects. For example, Google will handle the design and production of compute die and provide the die to MediaTek as a KGD (known good die) and let MediaTek finish the final packaging at Intel EMIB-T. Google owns the compute die design and the tool (photomask), and has some flexibility to include other design services for that compute die backend-design service.

MediaTek's role in handling the I/O die could remain the same as what it has done for TPU v8t and TPUv9. Even without recognizing the KGD/compute die revenue, our industry checks suggest MediaTek could still book higher single chip ASP/revenue than TPU v9, where we now expect the ASP for MediaTek could be US\$18k per TPU v10.

Exhibit 2: We expect MediaTek 2029 TPU revenue to reach US\$70bn

		2027e	2028e	2029e
Volume (mn)	TPU v8t (Zebrafish)	3	1	
	TPU v9 (Humufish)		3	4
	TPU v10 (Sunfish)			1
Chip ASP Recognized by MediaTek (US\$k)	TPU v8t	4.5	4.5	
	TPU v9		13	13
	TPU v10			18
TPU Revenue (US\$bn)	TPU v8t	13.5	4.5	
	TPU v9		39	52
	TPU v10			18
	Total TPU Revenue	13.5	43.5	70
Total MediaTek Revenue (US\$bn)		35	67	NA
% of TPU Revenue		38%	65%	NA

Exhibit 3:

k Units	2023	2024	2025e	2026e	2027e	2028e
v5	500	2,400	250			
v6 (Trillium)			1,200			
v7 (Ironwood, by Broadcom)			300	2,300	200	
v8i (Sunfish; 3nm, by Broadcom)				900	4,000	2,500
v8t (Zebrafish; 3nm, by MediaTek)				500	3,000	1,000
v9 (Humufish; 2nm, by MediaTek)					150	3,000
v10 (loefish; 1.4nm, by MediaTek)						unknown
v10a (Merope; 2nm, by US design service)						unknown
Total	500	2,400	1,750	3,700	7,350	>6500

Google CPU should be the largest customer for GUC in 2026-2028: In 2026, Google CPU volume is falling a little short of our original forecast given the capacity constraints. We therefore now forecast only 1.2-1.3mn units of Google Axion2 CPU in 2026 vs. our initial forecast of 1.5mn-2mn. By assuming chip ASP at around US\$700, we now see 2026 Google CPU contributing US\$900-1000mn.

For 2027, we have been seeing strong upward demand revisions for Google CPU, including some push out of Axion2 from 2026 and the ramp of next generation Axion3. We now expect Google CPU revenue of close to US\$2.8bn, including 3mn units of Axion2 and 500k units of Axion3. In addition, we also expect the chip ASP of Axion3 to double from Axion2 given the increase of 3nm compute die from one to two.

For 2028, we now forecast only 2.5mn units of Axion3, lower than Axion2's annual run rate of 3-4mn units, mostly also driven by the doubling of compute die.

CPU turnkey revenue carries a low gross margin for Google CPU – likely around 10% – because this is a “Turnkey 2 or 3” project, where GUC provides advanced packaging design support (e.g., silicon interposer and ABF substrates) but does not own the photomasks for the ASIC designs. We also expect Axion3 margin to be slightly lower than Axion2 given higher chip ASP or larger project size.

Note, these forecasts are from Asia Pacific research and incorporate supply chain and industry checks.

2. AWS AI ASIC Trainium provided by Alchip in Asia

Alchip might achieve US\$8bn revenue for Trainium4 in 2028: During its latest earnings call, Alchip management mentioned that it believes its Trainium4 TAM could be similar to Google TPU. Our industry checks suggest the Trainium4 volume in 2028 could be at least 2.5mn units. By suggesting Trainium4 ASP of around US\$10k without HBM and Alchip getting around 30% of the turnkey allocation (similar to Trainium3 of around one-third), we now see the revenue contribution of Trainium4 to be US\$8bn in 2028, higher than our initial forecast of US\$4bn. We therefore also raise our price target for Alchip to NT\$5,888, implying >50% upside and a potential win of a second CSP customer.

Exhibit 4: Alchip 2028 Trainium revenue could reach US\$8bn

		2026e	2027e	2028e
Volume (k)	Trainium3	400	600	
	Trainium4			800
Chip ASP Recognized by Alchip (US\$k)	Trainium3	4.6	4.6	
	Trainium4			10
TPU Revenue (US\$bn)	Trainium3	1.8	2.8	
	Trainium4			8
	Total Trainium Revenue	1.8	2.8	8
Total Alchip Revenue (US\$bn)		3.1	4.4	9.8
% of Trainium Revenue		60%	63%	82%

Exhibit 5:

x Units	2023	2024	2025e	2026e	2027e	2028e
Trainium1/Inferentia2	300	600	30			
Trainium2		300	1,200			
Trainium3			85	1,700	2,380	-
Trainium4					unknown	2,500
Total	300	900	1,315	1,700	2,380	2,500

Alchip Trainium3 margin could be better: We believe our initial forecast of Trainium3 allocation to Alchip was a bit too aggressive and we therefore now revise down the revenue contribution slightly to US\$1.8bn and US\$2.8bn for 2026 and 2027, respectively. However, we do believe Alchip has very good support from TSMC given large Trainium ASIC volume, suggesting better than expected margins. We now expect the Trainium3 margin to be close to high-teens % rather than our original expectation of low-mid teens %.

Exhibit 6: Alchip: Major customer breakdown

Revenue (US\$ mn)	2025e	2026e	2027e	2028e	2025 Y/Y	2026 Y/Y	2027 Y/Y	2028 Y/Y
NRE								
Total NRE	321	400	450	500	-15%	25%	13%	11%
Turnkey								
AWS	100	1,800	2,800	8,000	-86%	1700%	56%	186%
Intel Habana	300	0	0	0	50%	-100%	NA	NA
Amazon Lab126	40	50	50	50	-33%	25%	0%	0%
Sony	20	0	0	0	-60%	-100%	NA	NA
Chinese CPU	10	200	300	300	-75%	1900%	50%	0%
Li Auto	20	350	500	700	NA	NA	NA	NA
Japan Consumer	30	100	100	100	NA	NA	NA	NA
Others	143	150	180	150	-25%	5%	20%	-17%
Total turnkey	663	2,650	3,930	9,300	-47%	300%	48%	137%
Total revenue	984	3,050	4,380	9,800	-39%	210%	44%	124%

3. Microsoft and Meta AI ASIC provided by GUC in Asia

GUC's Microsoft demand should also more than double into 2027: GUC also helps with the Maia 200 and Cobalt 200 CPU for Microsoft. Our checks indicate the demand from Microsoft has also be enhanced over the past quarter, of which GUC management suggests the demand should more than double in 2027. We now forecast at least US \$250mn of GUC revenue contribution from Microsoft in 2027.

Meta ASIC (MTIA 600): In our [AI supply chain tracker](#), we noted that we believe GUC could win one of the Meta ASIC projects led by the Rivos team, and we now think it might be MTIA 600 based on supply chain checks. The AI ASIC targets tape-out in 1H27, with potential CoWoS out by 2027 year-end or 1H28.

Revise up GUC price target to NT\$6,388 on more 2027 3nm wafer allocation: We also raise GUC PT to NT\$6388, given more TSMC 3nm wafer allocation in 2027, and also GUC's potential 3D IC design service for Google TPU v10 in 2028. Larger 3nm wafer allocation also leads stronger Google CPU contribution in our forecasts.

Exhibit 7: We expect US CSP projects to contribute >50% of GUC's 2026 revenue

Revenue (US\$ mn)	2025e	2026e	2027e	2028e	2025 Y/Y	2026 Y/Y	2027 Y/Y	2028 Y/Y
NRE								
Normal NRE projects	76	100	130	150	-49%	32%	30%	15%
Ship-outs	185	200	220	250	68%	8%	10%	14%
Total NRE	261	300	350	400	0%	15%	17%	14%
Turnkey								
US CSPs	210	1,030	4,050	6,600	600%	390%	293%	63%
Others	621	670	1,350	1,400	31%	8%	101%	4%
Total turnkey	831	1,700	5,400	8,000	65%	105%	218%	48%
Others								
IP	8	17	17	17	-43%	113%	0%	0%
Total revenue	1,100	2,017	5,767	8,417	41%	83%	186%	46%

Exhibit 8: GUC: Major customer breakdown

Revenue (US\$ mn)	2025e	2026e	2027e	2028e	2025 Y/Y	2026 Y/Y	2027 Y/Y	2028 Y/Y
NRE								
Normal NRE projects	76	100	130	150	-49%	32%	30%	15%
Ship-outs	185	200	220	250	68%	8%	10%	14%
Total NRE	261	300	350	400	0%	15%	17%	14%
Turnkey								
Microsoft	60	80	250	400	100%	33%	213%	60%
Google	150	950	2,800	3,500	NA	533%	195%	25%
Korean AI Start-up	0	20	0	0	NA	NA	-100%	NA
Tesla	0	0	800	1,800	NA	NA	NA	125%
US CSPs	0	0	200	900	NA	NA	NA	NA
Amazon Lab 126	0	50	100	100	NA	NA	100%	0%
SK Hynix	50	10	10	10	-38%	-80%	0%	0%
Sandisk	0	20	250	250	NA	NA	1150%	0%
Horizon	0	20	500	500	NA	NA	2400%	0%
Suzhou Centec	54	27	14	7	-50%	-50%	-50%	-50%
Macronix	56	68	81	98	30%	20%	20%	20%
DJI	35	10	5	5	-31%	-71%	-50%	0%
Aspeed	105	121	139	150	50%	15%	15%	8%
Sony	29	26	23	21	-10%	-10%	-10%	-10%
Other turnkey	292	298	228	260	221%	2%	-24%	14%
Total turnkey	831	1,700	5,400	8,000	65%	105%	218%	48%
Ex-US CSP turnkey	621	670	1,550	2,300	31%	8%	131%	48%
IP								
Google (GLink)	2	5	5	5	NA	150%	0%	0%
Microsoft (HBM3E)	4	5	5	5	0%	25%	0%	0%
Others	2	7	7	7	-80%	250%	0%	0%
Total revenue	1,100	2,017	5,767	8,417	41.2%	83.4%	185.9%	46.0%

2027 Global GPU/ASIC Total Power Consumption

Implied chip volume vs. electricity consumption (GW) frequently discussed, suggesting power supply remains a global bottleneck

We recently published [Asia-Pacific Technology: Connecting Dots: HK investors' feedback on Asian semis \(9 Aug 2026\)](#). During our recent Hong Kong marketing trip, investors questioned whether power infrastructure can support our projected 2027 CoWoS-implied chip volume of approximately 19mn units. Assuming an average TDP of 2kW per GPU/ASIC, **the installed base would require roughly 38GW of power capacity.**

Conversely, when SpaceX (covered by Adam Jonas) indicated plans to expand its computing capacity from 2GW by the end of this year to nearly 10GW under an ambitious scenario (see [SpaceX: Strong Beat/Outlook vs. Higher Capex](#)), investors also asked what this would imply for TSMC's CoWoS capacity consumption. Notably, Adam models only 3GW of incremental computing demand, reaching 5GW by end-2027. As a rough illustration, the additional 8GW implied by SpaceX's target would equate to approximately 4mn Rubin GPUs, or roughly 20% of the AI accelerators that TSMC could produce in 2027.

Exhibit 9: 2027 GPU/ASIC chip-implied power consumption – 38GW in total

2027 GPU/ASIC total power consumption (GW)

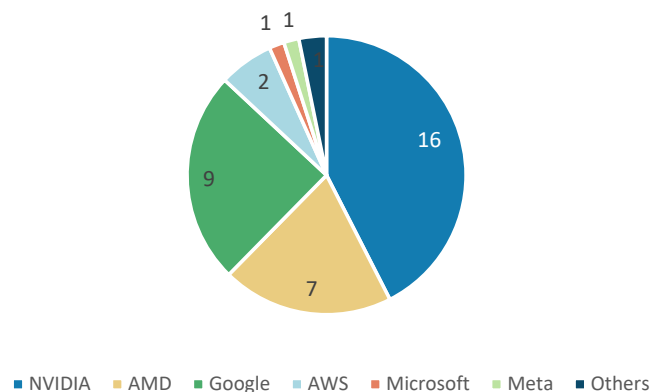
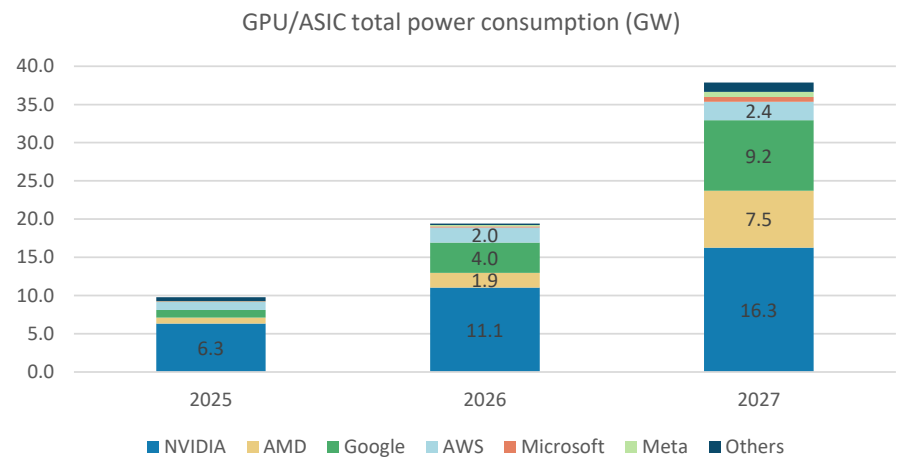


Exhibit 10: GPU/ASIC total power consumption from TSMC CoWoS shipment



Global CoWoS Capacity Allocation

Exhibit 11: AI HBM consumption: Up to 50bn Gb in 2027

AI chip vendor	Product name	CoWoS capacity allocation (k wafers)	Chips per CoWoS wafer	Implied shipments (k)	HBM chip density (GB)	HBM chip units	Total HBM size (GB)	HBM generation	HBM vendor	Total HBM demand (k GB)
AI GPU (2027e)										
NVIDIA	B300	40	14	560	36	8	288	HBM3e 12hi	Hynix/Micron	161,280
	Vera CPU	250	23	5,750						
	Rubin R200	740	8	5,920	36	8	288	HBM4 12hi	Hynix/Micron/Samsung	1,704,960
	Rubin Ultra	130	8	1,040	48	8	384	HBM4e 12hi	Hynix/Micron/Samsung	399,360
AMD	MI350 series	24	12	288	36	8	288	HBM3e 12hi	Samsung/Micron	82,944
	MI455	157	7	1,099	36	12	432	HBM4 12hi	Samsung/Micron	474,768
	MI450 (for Meta)	35	14	490	36	6	216	HBM4 12hi	Samsung/Micron	105,840
	MI500 (Arcadia)	24	4	96	48	16	768	HBM4e 12hi	Samsung/Micron	73,728
	Venice CPU	270	21	5,670						
AI ASIC (2027e)										
Google	TPU v7p (Ironwood; AVGO)	13	16	208	24	8	192	HBM3e 8hi	Hynix/Samsung	39,936
	TPU v8i (Sunfish; AVGO)	330	12	3,960	36	8	288	HBM3e 12hi	Samsung/Hynix/Micron	1,140,480
	TPU v8t (Zebrafish; MediaTek)	180	20	3,600	36	6	216	HBM3e 12hi	Samsung/Hynix/Micron	777,600
	TPU v9 (Humufish; MediaTek)			400	48	12	576	HBM4e 12hi	Samsung/Hynix/Micron	230,400
AWS	Trainium 3	140	17	2,380	36	4	144	HBM3e 12hi	Hynix/Samsung/Micron	342,720
GUC's customers		60	20	1,200	24	6	144	HBM3e 8hi	Samsung?	172,800
Microsoft	Maia 300	50	11	550	36	8	288	HBM4 12hi	Samsung	158,400
Meta	MTIA 3 (Iris)	55	10	550	36	8	288	HBM3e 12hi	Samsung/Hynix/Micron	158,400
Others		18								
Total		2,664								6,077,256
Total HBM demand (mn Gb)										48,618

Exhibit 12: AI wafer consumption: At least US\$59bn in 2027

AI chip vendor	Product name	CoWoS capacity allocation (k wafers)	Chips per CoWoS wafer	Implied shipments (k)	Compute die size	Geometry	Compute die units	Wafer consumption (k wafers)	Wafer price (US\$)	Wafer revenue TAM (US\$ mn)
AI GPU (2027e)										
NVIDIA	B300	40	14	560	850	4nm	2	44	23,042	1,024
	Vera CPU	250	23	5,750	850	3nm	1	228	27,300	6,229
	Rubin R200	740	8	5,920	850	3nm	2	470	27,300	12,827
	Rubin Ultra	130	8	1,040	850	3nm	2	83	27,300	2,253
AMD	MI350 series	24	12	288	110	3nm	8	8	27,300	229
	MI455	157	7	1,099	850	2nm	2	116	30,000	3,489
	MI450 (for Meta)	35	14	490	850	2nm	1	26	30,000	778
	MI500 (Arcadia)	24	4	96	850	2nm	2	10	30,000	305
	Venice CPU	270	21	5,670	155	2nm	8	227	30,000	6,804
AI ASIC (2027e)										
Google	TPU v7p (Ironwood; AVGO)	13	16	208	700	3nm	2	14	27,300	371
	TPU v8i (Sunfish; AVGO)	330	12	3,960	800	3nm	2	296	27,300	8,075
	TPU v8t (Zebrafish; MediaTek)	180	20	3,600	800	3nm	2	269	27,300	7,341
	TPU v9 (Humufish; MediaTek)			400	850	2nm	4	63	30,000	1,905
AWS	Trainium 3	140	17	2,380	700	3nm	2	127	27,300	3,465
GUC's customers		60	20	1,200	645	4nm	1	29	23,042	674
Microsoft	Maia 300	50	11	550	850	2nm	1	29.1	30,000	873
Meta	MTIA 3 (Iris)	55	10	550	850	3nm	2	44	27,300	1,192
Others		18								
Total		2,664						2,119		58,798

Exhibit 13: CoWoS allocation breakdown by CoW vendor

(k wafer)	2023	2024	2025	2026e	2027e	2023	2024	2025e	2026e	2027e
NVIDIA	53	200	425	780	1,222	45%	54%	62%	56%	45%
TSMC			390	680	1,090					
CoWoS-L			390	650	910					
CoWoS-S			0	20	50					
CoWoS-R			0	10	130					
Non-TSMC			35	100	132					
Amkor			35	100	132					
CoWoS-S			20	20	12					
CoWoS-R			15	80	120					
ASE/SPIL			0	0	0					
CoWoS-S			0	0	0					
CoWoS-R			0	0	0					
Broadcom	23	68	85	300	484	20%	18%	12%	22%	18%
TSMC			83	260	420					
CoWoS-L			0	15	55					
CoWoS-S			83	245	365					
ASE/SPIL			2	30	40					
CoWoS-L			0	0	0					
CoWoS-S			2	30	40					
Amkor				10	24					
CoWoS-S				10	24					
AMD	7	40	60	130	530	6%	11%	9%	9%	20%
TSMC			60	80	240					
CoWoS-L			0	70	230					
CoWoS-S			60	10	10					
ASE/SPIL			0	50	170					
CoWoS-L			0	50	170					
Amkor				0	120					
CoWoS-L				0	120					
Xilinx	3	10	10	10	10	3%	3%	1%	1%	0%
MediaTek				40	180				3%	7%
TSMC				40	180					
CoWoS-S				40	180					
AWS/Annapurna			60	62	90				4%	3%
TSMC			60	32	54					
CoWoS-R			60	32	54					
ASE/SPIL				30	36					
CoWoS-R				30	36					
AWS/Alchip	9	16	5	26	36	8%	4%	1%	2%	1%
Intel Habana	0	7	9	0	0	0%	2%	1%	0%	0%
Marvell	1	18	15	17	64	1%	5%	2%	1%	2%
TSMC				5	50					
CoWoS-L				5	50					
CoWoS-R			15	0	0					
ASE/SPIL				12	14					
CoWoS-R				12	14					
GUC	1	1	2	14	60	1%	0%	0%	1%	2%
Cisco		2	3	5	6		1%	0%	0%	0%
Others	20	10	15	10	12	17%	3%	2%	1%	0%
Total demand	117	372	689	1,394	2,694	100%	100%	100%	100%	100%

Exhibit 14: Global CoWoS demand breakdown: 2026e vs. 2027e

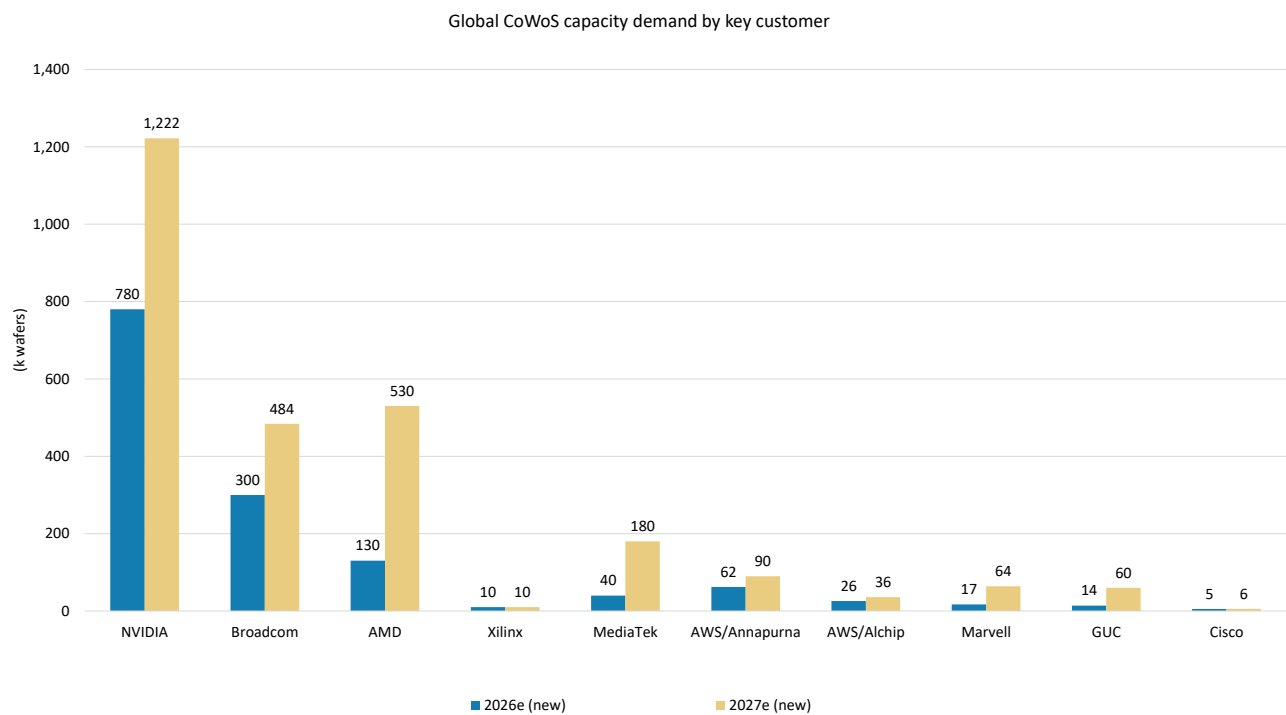
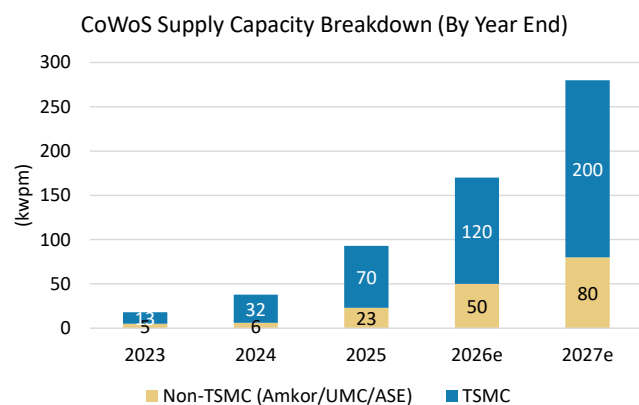
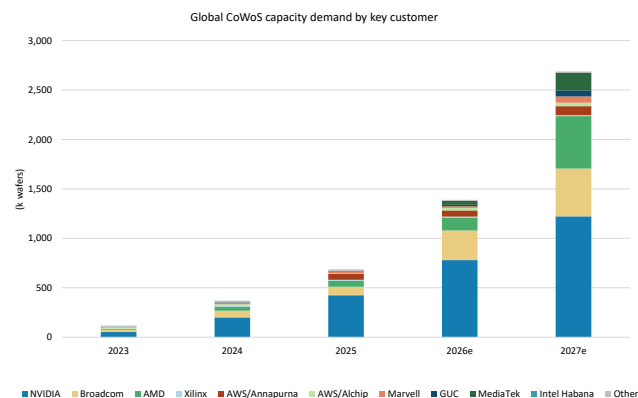


Exhibit 15: Global CoWoS demand Y/Y growth profile

Y/Y	2023	2024	2025	2026e	2027e
NVIDIA	119%	280%	113%	84%	57%
Broadcom	56%	191%	25%	253%	61%
AMD	485%	470%	50%	117%	308%
Xilinx	63%	242%	0%	0%	0%
AWS/Annapurna				3%	45%
AWS/Alchip		71%	(69%)	420%	38%
Marvell	(22%)	1438%	(17%)	13%	276%
GUC		(15%)	300%	600%	329%
Cisco			36%	67%	10%
Others	23%	(49%)	50%	(33%)	20%
Total demand	95%	218%	85%	102%	93%

Exhibit 16: Global CoWoS capacity expansion by year-end and by vendor**Exhibit 17:** Global CoWoS consumption, by customer

supply chain checks

Exhibit 18:

AI HBM consumption: up to 30bn Gb in 2026

AI chip vendor	Product name	CoWoS capacity allocation (k wafers)	Chips per CoWoS wafer	Implied shipments (k)	HBM chip density (GB)	HBM chip units	Total HBM size (GB)	HBM generation	HBM vendor	Total HBM demand (k GB)
AI GPU (2026e)										
NVIDIA	B300	390	14	5,460	36	8	288	HBM3e 12hi	Hynix/Micron/Samsung	1,572,480
	Vera CPU	90	23	2,070						
	Spectrum/CPX	60		-						
	Rubin R200	260	8	2,080	36	8	288	HBM4 12hi	Hynix/Micron/Samsung?	599,040
	H200	20	27	540	24	6	141	HBM3e 8hi	Hynix	76,140
AMD	MI300	3	12	36	24	8	192	HBM3e 12hi	Samsung	6,912
	MI350/375	7	12	84	36	8	288	HBM3e 12hi	Samsung/Micron	24,192
	MI455	65	7	455	36	12	432	HBM4 12hi	Samsung/Micron	196,560
	Venice	50	21	1,050						
AI ASIC (2026e)										
Google	TPU v7p (Ironwood; AVGO)	145	16	2,320	24	8	192	HBM3e 8hi	Hynix/Samsung	445,440
	TPU v8i (Sunfish; AVGO)	80	12	960	36	8	288	HBM3e 12hi	Hynix/Samsung/Micron	276,480
	TPU v8t (Zebrafish; MediaTek)	40	20	800	36	6	216	HBM3e 12hi	Hynix/Micron	172,800
AWS	Trainium 3	100	17	1,700	36	4	144	HBM3e 12hi	Hynix/Samsung/Micron	244,800
GUC's customers		10	20	200	24	6	144	HBM3e 8hi	Samsung?	1,152
Microsoft	Maia 200	4	29	116	16	4	64	HBM3	Samsung	7,424
	Maia 300	5	11	55	36	8	288	HBM4 12hi	Samsung	15,840
Meta	MTIA 3 (Iris)	15	10	150	36	8	288	HBM3e 12hi	Hynix/Samsung	43,200
Total		1,424								3,741,260
Total HBM demand (mn Gb)										29,930

Exhibit 19: AI wafer consumption: At least US\$26bn in 2026

AI chip vendor	Product name	CoWoS capacity allocation (k wafers)	Chips per CoWoS wafer	Implied shipments (k)	Compute die size	Geometry	Compute die units	Wafer consumption (k wafers)	Wafer price (US\$)	Wafer revenue TAM (US\$ mn)
AI GPU (2026e)										
NVIDIA	B300	390	14	5,460	850	4nm	2	433	21,945	9,510
	Vera CPU	90	23	2,070		3nm				
	Spectrum/CPX	60		-						
	Rubin R200	260	8	2,080	850	3nm	2	165	26,000	4,292
	H200	20	27	540	814	4nm	1	15	21,945	331
AMD	MI300	3	12	36	110	5nm	8	1	18,000	19
	MI350/375	7	12	84	850	3nm	2	5	26,000	139
	MI455	65	7	455	850	2nm	2	48	28,125	1,354
	Venice	50	21	1,050	155	2nm	8	70	28,125	1,969
AI ASIC (2026e)										
Google	TPU v7p (Ironwood; AVGO)	145	16	2,320	700	3nm	2	152	26,000	3,942
	TPU v8i (Sunfish; AVGO)	80	12	960	800	3nm	2	72	26,000	1,864
	TPU v8t (Zebrafish; MediaTek)	40	20	800	800	3nm	2	60	26,000	1,554
AWS	Trainium 3	100	17	1,700	700	3nm	2	91	26,000	2,357
GUC's customers		10	20	200	645	4nm	1	5	21,945	107
Microsoft	Maia 200	4	29	116	700	3nm	1	3.0	26,000	79
	Maia 300	5	11	55	850	2nm	1	2.9	28,125	82
Meta	MTIA 3 (Iris)	15	10	150	850	3nm	2	11.9	26,000	310
Total		1,424						1,165		28,619

Aligning Blackwell and Rubin Chip Shipments with HGX and Rack Shipments

We analyzed Blackwell chip shipments versus rack shipments in [our last June AI tracker](#). We believe TSMC's Blackwell chip output, based on CoWoS-L capacity, aligns more closely with underlying demand as reflected in AI capex trends.

We now incorporate HGX systems (8 GPUs per server) into our chip consumption model and assume that nine HGX servers are equivalent to one NVL72 rack. We forecast 5.4mn Blackwell units in 2026, with chip supply sufficient to meet Grace Blackwell NVL72 demand by 2H26.

Our latest checks also suggest shipments of nearly 7mn Rubin and Rubin Ultra units in 2027, while total Rubin NVL72 rack shipments could reach 90k units in 2027 ([Exhibit 22](#)).

All Blackwell chip "inventory" has proven to be supply-chain buffer stock and should be fully absorbed by 2026. As a result, we see little reason for concern over inventory levels. We expect Rubin to follow a similar pattern. Rubin should begin ramping up in 3Q26, with rack shipments starting in 4Q26.

Exhibit 20: (old) Blackwell chip vs. GB NVL72 rack shipments

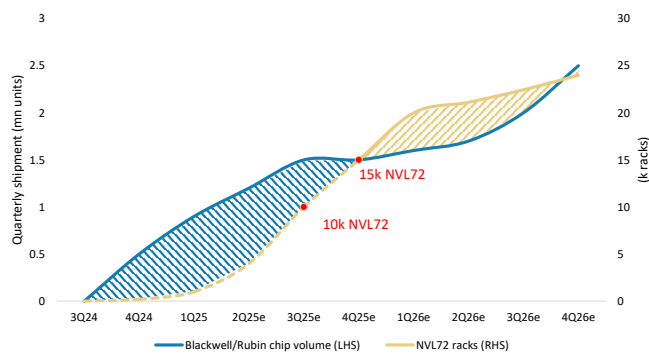


Exhibit 21: (new) Blackwell chip vs. GB NVL72 and HGX equivalent rack shipments

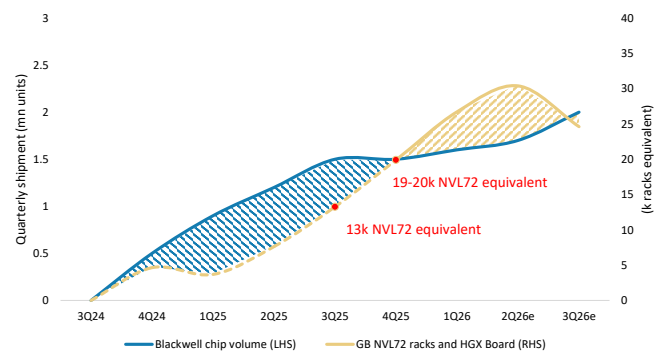
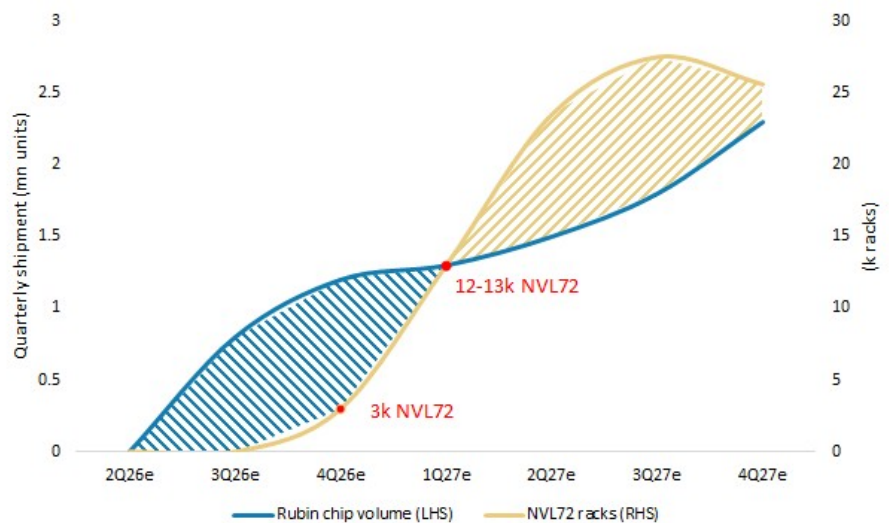


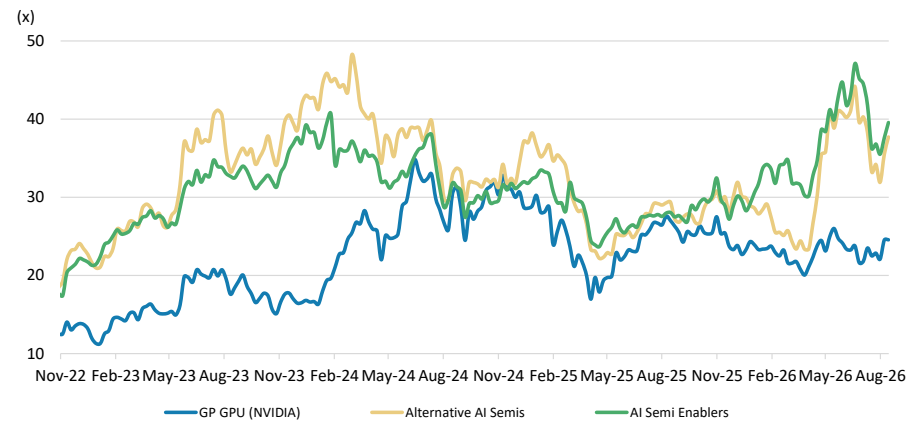
Exhibit 22:

Rubin chip shipments vs. VR NVL72 rack shipments



AI semis – stock implications, P/E multiples, revenue exposure

Exhibit 23: P/E multiple trend of AI semis



Note: Alternative AI semis group: AMD, Alchip, Andes, Marvell, Broadcom. AI semi enablers group: TSMC, Synopsys, Cadence, ASML, BEI,

Exhibit 24: We still expect AI chip revenue to rise QoQ

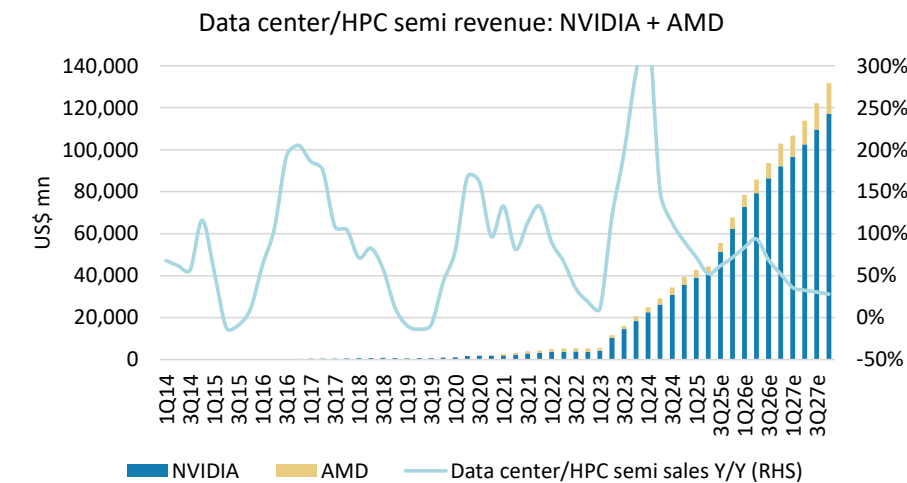
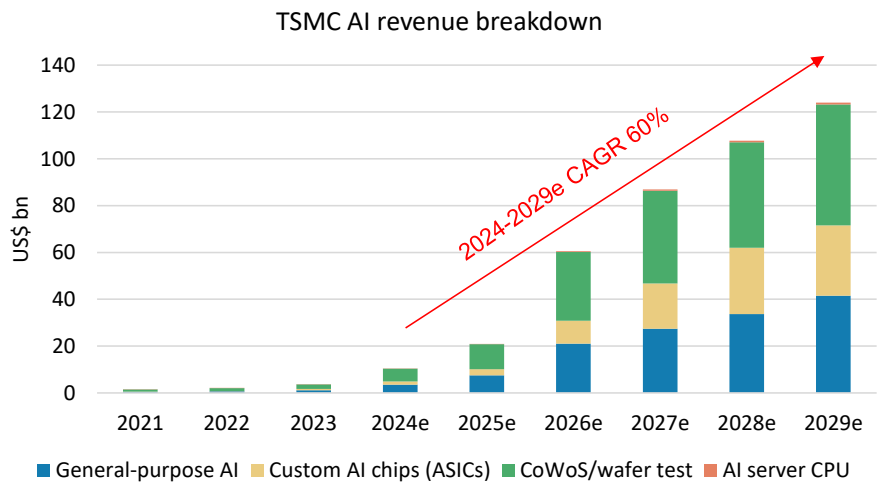


Exhibit 25: TSMC's AI-related revenue 2024-29e CAGR could reach 60%



AI GPU and ASIC rental price tracker

Exhibit 26: AI GPU H100 per GPU per hour as of end-March

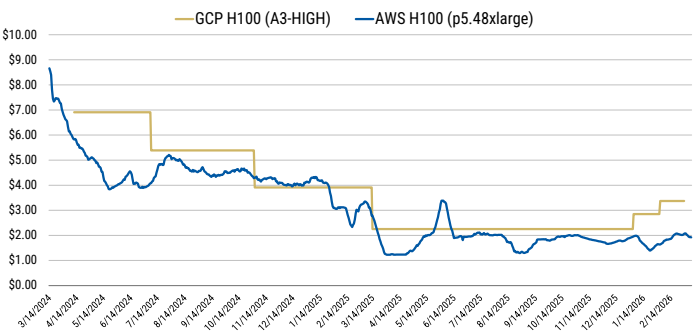


Exhibit 27: AI ASIC equivalent computing power – 16x Inferentia 2 per hour

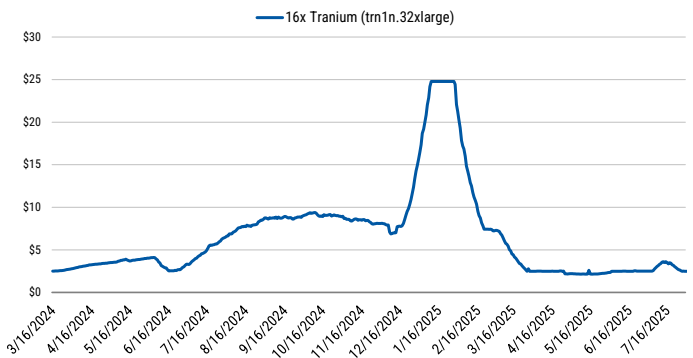
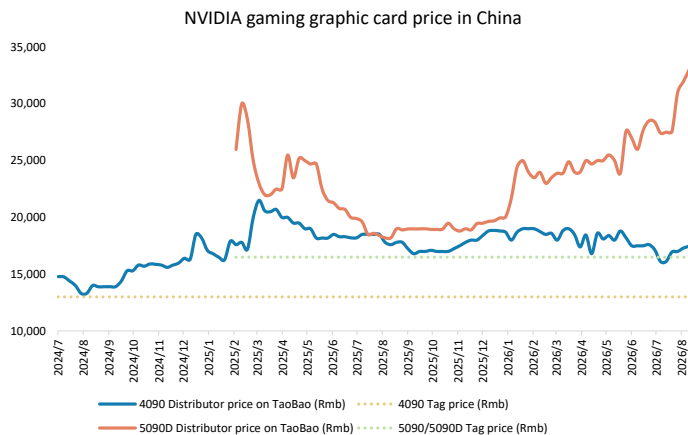


Exhibit 28: NVIDIA 5090 graphic cards pricing has rebounded recently, mainly in response to market expectations for price hikes and strong AI inference demand from China



Vice, Jan. 3, 2026)



GUC: Estimate revisions summary

We raise our 2026 EPS estimate 13%, 2027 11% and 2028 11%: We expect 2027 and 2028 revenue to grow strongly from several CSP projects as well as Chinese ADAS customers. With turnkey revenue share seen increasing in both 2026 and 2027, we now assume that gross margin will fall from 20.8% in 2026 to 15.3% in 2028.

Exhibit 29: GUC: Estimate revisions summary

NT\$ mn	New '26e	Old '26e	Diff.	New '27e	Old '27e	Diff.	New '28e	Old '28e	Diff.
Net sales	63,487	61,536	3%	181,440	148,903	22%	264,915	240,937	10%
NRE	9,452	8,032	18%	11,003	8,728	26%	12,555	9,349	34%
Turnkey	54,035	53,504	1%	170,437	140,175	22%	252,360	231,588	9%
Gross profit	13,179	12,164	8%	28,269	25,909	9%	40,642	38,340	6%
Operating profit	7,554	6,576	15%	21,650	19,485	11%	32,978	29,820	11%
Pretax Income	7,844	6,976	12%	21,919	19,733	11%	33,247	30,068	11%
Net income	6,740	5,939	13%	18,631	16,773	11%	28,260	25,558	11%
Reported EPS	49.97	44.04	13%	138.14	124.37	11%	209.53	189.50	11%
Margins									
Gross margin	20.8%	19.8%		15.6%	17.4%		15.3%	15.9%	
Opex ratio	8.9%	9.1%		3.6%	4.3%		2.9%	3.5%	
Operating margin	11.9%	10.7%		11.9%	13.1%		12.4%	12.4%	
Net margin	10.6%	9.7%		10.3%	11.3%		10.7%	10.6%	

Exhibit 30: GUC: Quarterly financials

(NT\$ mn)	1Q25	2Q25	3Q25	4Q25	1Q26	2Q26	3Q26e	4Q26e	2024	2025	2026e	2027e	2028e
Total revenues	7,024	6,105	8,613	12,400	11,448	13,897	15,288	22,855	25,044	34,141	63,487	181,440	264,915
Q/Q Change	16.6%	-13.1%	41.1%	44.0%	-7.7%	21.4%	10.0%	49.5%					
Y/Y Change	23.4%	-9.2%	30.3%	105.9%	63.0%	127.6%	77.5%	84.3%	-4.6%	36.3%	86.0%	185.8%	46.0%
Cost of Sales	5,051	4,071	6,527	10,038	8,335	10,903	12,460	18,611	16,937	25,687	50,308	153,171	224,273
Percent of Revenues	71.9%	66.7%	75.8%	81.0%	72.8%	78.5%	81.5%	81.4%	67.6%	75.2%	79.2%	84.4%	84.7%
Gross Profit	1,973	2,034	2,086	2,361	3,113	2,994	2,828	4,244	8,108	8,454	13,179	28,269	40,642
Gross Margin	28.1%	33.3%	24.2%	19.0%	27.2%	21.5%	18.5%	18.6%	32.4%	24.8%	20.8%	15.6%	15.3%
Total Opex	878	1,090	1,031	1,105	1,289	1,318	1,432	1,586	4,305	4,104	5,625	6,619	7,665
Percent of Revenues	12.5%	17.9%	12.0%	8.9%	11.3%	9.5%	9.4%	6.9%	17.2%	12.0%	8.9%	3.6%	2.9%
R&D	800	837	813	880	1,013	1,046	1,081	1,142	3,223	3,330	4,282	4,791	5,320
Percent of Revenues	11.4%	13.7%	9.4%	7.1%	8.9%	7.5%	7.1%	5.0%	12.9%	9.8%	6.7%	2.6%	2.0%
General & Adm Exp.	-18	159	125	129	151	153	183	193	674	395	679	740	1,020
Percent of Revenues	-0.3%	2.6%	1.5%	1.0%	1.3%	1.1%	1.2%	0.8%	2.7%	1.2%	1.1%	0.4%	0.4%
Selling Expenses	97	94	93	96	125	119	168	251	407	379	663	1,089	1,325
Percent of Revenues	1.4%	1.5%	1.1%	0.8%	1.1%	0.9%	1.1%	1.1%	1.6%	1.1%	1.0%	0.6%	0.5%
Operating Income	1,095	944	1,055	1,257	1,824	1,676	1,396	2,658	3,803	4,350	7,554	21,650	32,978
Operating Margin	15.6%	15.5%	12.2%	10.1%	15.9%	12.1%	9.1%	11.6%	15.2%	12.7%	11.9%	11.9%	12.4%
Total Non-operating Income (loss)	48	-15	-40	99	101	80	55	55	260	93	290	269	269
Profit Before Taxes	1,143	929	1,015	1,356	1,925	1,756	1,450	2,713	4,062	4,443	7,844	21,919	33,247
Percent of Revenues	16.3%	15.2%	11.8%	10.9%	16.8%	12.6%	9.5%	11.9%	16.2%	13.0%	12.4%	12.1%	12.6%
Taxes	181	147	148	196	278	201	218	407	612	673	1,104	3,288	4,987
Tax Rate	15.9%	15.9%	14.6%	14.5%	14.5%	11.4%	15.0%	15.0%	15.1%	15.2%	14.1%	15.0%	15.0%
Minor interest	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Net Income to Parent	961	782	867	1,160	1,646	1,555	1,233	2,306	3,451	3,770	6,740	18,631	28,260
Percent of Revenues	13.7%	12.8%	10.1%	9.4%	14.4%	11.2%	8.1%	10.1%	13.8%	11.0%	10.6%	10.3%	10.7%
Reported Basic EPS (NT\$, TW GAAP)	7.13	5.80	6.43	8.60	12.21	11.53	9.14	17.10	25.63	27.95	49.97	138.14	209.53
Y/Y Change	45%	-14%	-16%	37%	71%	99%	42%	99%	-2%	9%	79%	176%	52%

GUC: Price target rises 10% to NT\$6,288

This reflects our 2027-28 estimate revisions. All of our key valuation assumptions are unchanged, including cost of equity of 9.2% (a beta of 1.2, a risk premium of 6%, and a risk-free rate of 2%), intermediate growth rate of 14.5%, and terminal growth of 5.0%.

Our bull and bear case values rise by similar magnitudes, to NT\$8,545 and NT\$3,870, respectively.

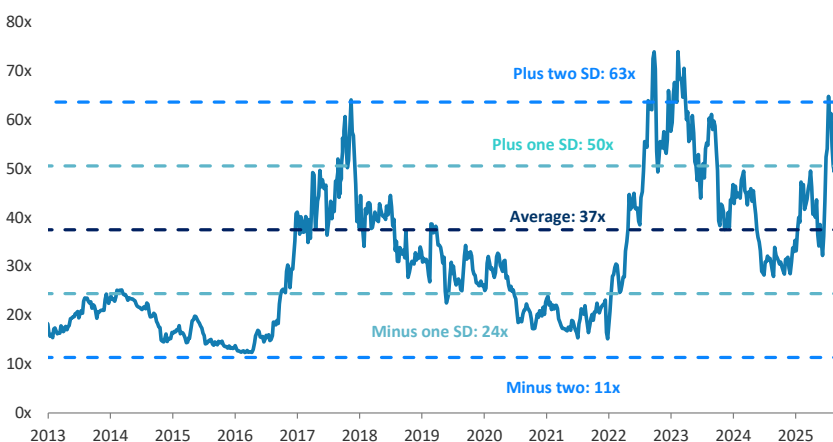
Exhibit 31: GUC: Residual income model

NT\$million	2026e	2027e	2028e	2029e	2030e	2031e	2032e	2033e	2034e	2035e	2036e	2037e
Total Equity	17,607	32,579	50,726	64,460	80,186	98,192	118,809	142,415	169,444	200,392	235,828	276,402
Net Profit	6,740	18,631	28,260	32,358	37,050	42,422	48,573	55,616	63,680	72,914	83,486	95,592
ROAE	44.2%	74.2%	67.8%	56.2%	51.2%	47.6%	44.8%	42.6%	40.8%	39.4%	38.3%	37.3%
Residual Income	4,515	11,453	19,107	23,833	27,091	30,762	34,924	39,660	45,059	51,224	58,268	66,324
Spread	35.0%	65.0%	58.6%	47.0%	42.0%	38.4%	35.6%	33.4%	31.6%	30.2%	29.1%	28.1%
Ending Equity Capital	17,607											
PV of Forecast Period	195,341											
PV of Continuing Value	629,740											
Equity Value	842,687											
No. of Shares	134											
Projected Price	6,288											

GUC: Relative valuation

Our price target of NT\$6,288 implies 45x our 2027 EPS estimate, lower than +1 SD from GUC's historical NTM P/E since 2013. We maintain our view that the design service market will proliferate with AI ASIC outgrowing AI GPU in the long term, and therefore we believe a further re-rating would be justified with project wins likely to come. Despite slower recovery of non-AI business, we continue to appreciate GUC's growing exposure to cloud AI semis (including AI accelerators, AI server CPU, and BMC chips).

Exhibit 32: GUC: NTM rolling P/E



GUC: Financial Summary

Income Statement

NT\$m (Years End Dec)	2024	2025	2026e	2027e	2028e
Net sales	25,044	34,141	63,487	181,440	264,915
COGS	(16,937)	(25,687)	(50,308)	(152,474)	(223,075)
Gross profit	8,108	8,454	13,179	28,966	41,840
Operating expenses	(4,305)	(4,104)	(5,625)	(6,619)	(8,330)
Operating income	3,803	4,350	7,554	22,347	33,510
Non-operating income	260	93	290	269	269
Pre-tax income	4,062	4,443	7,844	22,616	33,780
Income tax	612	673	1,104	3,392	5,067
Minority Interest	0	0	0	0	0
Reported net Income	3,451	3,770	6,740	19,224	28,713
Adj.wtd.avg.shrs(m)	134	134	134	134	134
Reported EPS (NT\$)	25.63	27.95	49.97	142.53	212.89
Modelware EPS (NT\$)	25.63	27.95	49.97	142.53	212.89

Balance Sheet

NT\$m (Years End Dec)	2024	2025	2026e	2027e	2028e
Cash	10,427	6,650	7,181	3,431	13,874
Mkt Securities	2,980	2,082	2,082	2,082	2,082
AR/NR	2,007	3,417	5,044	14,415	21,047
Inventory	2,794	10,148	14,255	35,767	44,965
Other	6,271	3,440	3,440	3,440	3,440
Current Assets	24,480	25,737	32,002	59,136	85,408
Long-term investments	0	0	0	0	0
Fixed assets	942	1,347	1,347	1,347	1,347
Deferred assets	37	24	24	24	24
Other assets	850	1,335	1,335	1,335	1,335
Total Assets	26,309	28,443	34,707	61,841	88,114
S/T borrowings	0	0	0	0	0
AP/NP	1,691	4,126	5,697	17,266	25,260
Other ST liabilities	12,977	10,907	10,907	10,907	10,907
LT debt	73	169	169	169	169
Other LT liabilities	273	328	328	328	328
Common shares	1,340	1,340	1,340	1,340	1,340
Total Liabilities	15,015	15,530	17,101	28,670	36,664
Additional capital	1,812	2,158	2,158	2,158	2,158
Retained earning	8,145	9,431	14,125	29,690	47,967
Other shareholders' equity	(3)	(16)	(16)	(16)	(16)
Total Equity	11,294	12,913	17,607	33,172	51,449
Total Liab. & Shrhldr's Equity	26,309	28,443	34,707	61,841	88,114

Cash Flow Statement

NT\$m (Years End Dec)	2024	2025	2026e	2027e	2028e
Cashflow from Operations	6,242	(1,143)	2,850	182	21,151
Net profits	3,451	3,770	6,740	19,224	28,713
Depreciation	247	273	273	273	273
Working Capital Change	1,925	(5,930)	(4,163)	(19,315)	(7,835)
Other adjustments	619	744	0	0	0
Cashflow from Investing	(1,522)	(398)	(273)	(273)	(273)
Capex	(471)	(840)	(273)	(273)	(273)
Change of LT Investment	0	0	0	0	0
Change of ST Investment	(850)	688	0	0	0
Other adjustments	(201)	(246)	0	0	0
Cashflow from financing	(1,962)	(2,227)	(2,046)	(3,659)	(10,435)
Increase in L/T debt	(40)	96	0	0	0
Increase in S/T debt	0	0	0	0	0
Cash Dividend Paid	(1,876)	(2,144)	(2,046)	(3,659)	(10,435)
Dir& Emp Bonus Paid	0	0	0	0	0
Issuance of stock	0	0	0	0	0
Other adjustments	(46)	(178)	0	0	0
Exchange rate adjustment	31	(10)	0	0	0
Net change in cash	2,790	-3,778	531	-3,750	10,443

Financial Ratios

	2024	2025	2026e	2027e	2028e
Growth(%)					
Turnover	-4.6	36.3	86.0	185.8	46.0
Operating profits	-4.2	14.4	73.7	195.8	50.0
Pretax profits	-2.2	9.4	76.6	188.3	49.4
Net profits	-15.8	9.2	78.8	185.2	49.4
EPS	-1.5	9.1	78.8	185.2	49.4
Margins (%)					
Gross Margin	32.4	24.8	20.8	16.0	15.8
Operating Margin	15.2	12.7	11.9	12.3	12.6
Pretax Margin	16.2	13.0	12.4	12.5	12.8
Net Profit	13.8	11.0	10.6	10.6	10.8
Return (%)					
ROAE	32.9	31.1	44.2	75.7	67.9
ROAA	14.6	13.8	21.3	39.8	38.3
Gearing (%)					
Net Debt/Equity	(92.3)	(51.5)	(40.8)	(10.3)	(27.0)
Liabilities/Equity	132.9	120.3	97.1	86.4	71.3
Ratios (X)					
Current ratio	1.7	1.7	1.9	2.1	2.4
Quick ratio	0.8	0.7	0.7	0.6	1.0
Others					
AR/NR Turnover (days)	29	29	29	29	29
Inventory Turnover (days)	82	92	82	72	62
AP Turnover (days)	36	41	41	41	41
Cash Conversion (days)	75	80	70	60	50

Alchip: Earnings estimate revisions summary

We raise our earnings estimates 17% for 2026, 25% for 2027, and 67% for 2028: Our 2026-2027 EPS upward revisions come mostly from better than expected Trainium3 margin. 2028 revenue and earnings increase more than doubles from our previous forecast given larger Trainium4 contribution, of which we now forecast US\$8bn revenue to Alchip vs. our previous forecast of US\$4bn.

Exhibit 33: Alchip: Earnings estimate revisions

NT\$ mn	New '26E	Old '26E	Diff.	New '27E	Old '27E	Diff.	New '28E	Old '28E	Diff.
Net sales	94,550	92,318	2%	135,780	134,592	1%	303,800	165,250	84%
Gross profit	21,308	18,559	15%	28,414	23,547	21%	46,815	28,546	64%
Operating profit	16,633	13,954	19%	22,011	17,462	26%	36,362	21,472	69%
Pretax Income	18,186	15,590	17%	23,372	18,677	25%	37,599	22,576	67%
Net income	14,632	12,550	17%	18,697	14,941	25%	30,079	18,061	67%
Reported EPS	176.72	151.58	17%	225.82	180.46	25%	363.29	218.13	67%
Margins									
Gross margin	22.5%	20.1%		20.9%	17.5%		15.4%	17.3%	
Operating margin	17.6%	15.1%		16.2%	13.0%		12.0%	13.0%	
Net margin	15.5%	13.6%		13.8%	11.1%		9.9%	10.9%	
Opex %	4.9%	5.0%		4.7%	4.5%		3.4%	4.3%	

Exhibit 34: Alchip: Quarterly financials

(NT\$ mn) YE DEC 31	1Q25	2Q25	3Q25	4Q25	1Q26	2Q26E	3Q26E	4Q26E	2023	2024	2025	2026E	2027E	2028E
Total revenues	10,485	9,144	6,570	4,727	4,187	7,640	28,831	53,892	30,482	51,969	30,926	94,550	135,780	303,800
Q/Q Change	-19.8%	-12.8%	-28.2%	-28.0%	-11.4%	82.5%	277.4%	86.9%						
Y/Y Change	0.0%	-32.7%	-55.7%	-63.8%	-60.1%	-16.5%	338.8%	1040.0%	122.1%	70.5%	-40.5%	205.7%	43.6%	123.7%
Cost of Sales	8,056	7,257	4,729	2,730	2,086	4,978	23,065	43,114	23,687	41,768	22,772	73,242	107,366	256,985
Percent of Revenues	76.8%	79.4%	72.0%	57.7%	49.8%	65.2%	80.0%	80.0%	77.7%	80.4%	73.6%	77.5%	79.1%	84.6%
Gross Profit	2,429	1,887	1,841	1,997	2,101	2,662	5,766	10,778	6,794	10,201	8,154	21,308	28,414	46,815
Gross Margin	23.2%	20.6%	28.0%	42.3%	50.2%	34.8%	20.0%	20.0%	22.3%	19.6%	26.4%	22.5%	20.9%	15.4%
Incremental Margin	NM	NM	NM	NM	NM	16%	15%	20%	14%	16%	NM	21%	17%	11%
Total Opex	934	737	684	782	733	1,015	1,298	1,628	3,033	3,705	3,138	4,675	6,403	10,453
Percent of Revenues	8.9%	8.1%	10.4%	16.6%	17.5%	13.3%	4.5%	3.0%	10.0%	7.1%	10.1%	4.9%	4.7%	3.4%
R&D	467	494	453	417	508	742	792	792	1,547	2,142	1,831	2,834	3,545	4,915
Percent of Revenues	4.5%	5.4%	6.9%	8.8%	12.1%	9.7%	2.7%	1.5%	5.1%	4.1%	5.9%	3.0%	2.6%	1.6%
General & Adm Exp.	406	157	175	273	164	207	217	297	1,237	1,286	1,011	886	1,500	2,500
Percent of Revenues	3.9%	1.7%	2.7%	5.8%	3.9%	2.7%	0.8%	0.6%	4.1%	2.5%	3.3%	0.9%	1.1%	0.8%
Selling Expenses	61	86	56	92	61	66	288	539	250	276	295	955	1,358	3,038
Percent of Revenues	0.6%	0.9%	0.9%	2.0%	1.5%	0.9%	1.0%	1.0%	0.8%	0.5%	1.0%	1.0%	1.0%	1.0%
Operating Income	1,494	1,150	1,157	1,215	1,368	1,647	4,469	9,150	3,761	6,496	5,017	16,633	22,011	36,362
Operating Margin	14.3%	12.6%	17.6%	25.7%	32.7%	21.6%	15.5%	17.0%	12.3%	12.5%	16.2%	17.6%	16.2%	12.0%
Total Non-operating Income (loss)	299	449	433	522	416	388	374	374	436	1,312	1,703	1,553	1,361	1,237
Profit Before Taxes	1,793	1,599	1,591	1,737	1,784	2,035	4,843	9,524	4,198	7,808	6,720	18,186	23,372	37,599
Percent of Revenues	17.1%	17.5%	24.2%	36.7%	42.6%	26.6%	16.8%	17.7%	13.8%	15.0%	21.7%	19.2%	17.2%	12.4%
Taxes	332	277	265	250	357	397	945	1,858	877	1,362	1,124	3,557	4,674	7,520
Tax Rate	18.5%	17.3%	16.6%	14.4%	20.0%	19.5%	19.5%	19.5%	20.9%	17.4%	16.7%	19.6%	20.0%	20.0%
Minor interest	-2	-1	-2	3	-1	-1	-1	-1	-5	1	-2	-3	0	0
Total Net Income to Parent	1,464	1,324	1,328	1,483	1,428	1,639	3,899	7,667	3,325	6,446	5,598	14,632	18,697	30,079
Percent of Revenues	14.0%	14.5%	20.2%	31.4%	34.1%	21.4%	13.5%	14.2%	10.9%	12.4%	18.1%	15.5%	13.8%	9.9%
Y/Y change	19.0%	-16.6%	-25.9%	-19.2%	-2.4%	23.8%	193.6%	416.8%	81.3%	93.8%	-13.1%	161.4%	27.8%	60.9%
Diluted EPS (NT\$)	17.69	16.02	16.04	17.92	17.25	19.79	47.09	92.60	43.27	79.05	67.68	176.72	225.82	363.29
Reported Basic EPS (NT\$, TW GAAP)	18.13	16.37	16.40	18.33	17.55	20.01	47.61	93.63	45.42	81.51	69.22	178.80	228.33	367.32

Alchip: Valuation methodology

We raise our price target from NT\$5,088 to NT\$5,888: As well as reflecting our new 2028 earnings forecast, we cut some of our key assumptions given the ongoing competition from global peers and more newcomers to compete with AI ASIC projects, including GUC, QCOM, AMD, etc.

We continue to derive our base case value, which is also our price target, from a residual income model. Our cost of equity of 10.4% (beta of 1.4, equity risk premium of 6.0%, and risk-free rate of 2.0%) remains unchanged, while intermediate growth rate of is cut from 16% to 12.5%, and terminal growth rate from 5.0% to 4%.

Our bear case value of NT\$2,465 and bull case value of NT\$6,880 are also raised from NT\$2,130 and NT\$5,950, respectively.

Exhibit 35: Alchip: Residual income model

NT\$ million	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	2034E	2035E	2036E	2037E
Total Equity	40,824	51,625	60,209	77,861	97,720	120,061	145,194	173,469	205,279	241,065	281,324	326,615
Net Profit	14,632	18,697	30,079	33,839	38,069	42,827	48,181	54,203	60,979	68,601	77,176	86,823
ROAE	36.4%	40.4%	53.8%	49.0%	43.4%	39.3%	36.3%	34.0%	32.2%	30.7%	29.5%	28.6%
Residual Income	10,281	12,267	22,401	23,251	25,666	28,271	31,129	34,294	37,817	41,752	46,158	51,097
Spread	26.0%	30.0%	43.4%	38.6%	33.0%	28.9%	25.9%	23.6%	21.8%	20.3%	19.1%	18.2%
Ending Equity Capital	40,824											
PV of Forecast Period	167,072											
PV of Continuing Value	279,635											
Equity Value	487,532											
No. of Shares	83											
Projected Price	5,888											

Alchip: Financial Summary

Exhibit 36: Alchip Financial Summary

Income Statement

NT\$m (Years End Dec)	2024	2025	2026E	2027E	2028E
Net sales	51,989	30,926	94,550	135,780	303,800
COGS	(41,768)	(22,772)	(73,242)	(107,366)	(256,985)
Gross profit	10,201	8,154	21,308	28,414	46,815
Operating expenses	(3,705)	(3,138)	(4,675)	(6,403)	(10,453)
Operating income	6,496	5,017	16,633	22,011	36,362
Non-operating income	1,312	1,703	1,553	1,361	1,237
Pre-tax income	7,808	6,720	18,186	23,372	37,599
Income tax	1,362	1,124	3,557	4,674	7,520
Minority Interest	1	(2)	(3)	0	0
Reported net income	6,446	5,598	14,632	18,697	30,079
Adj.wtd.avg.shrs(m)	79	81	82	82	82
Reported EPS (NT\$)	79.05	67.68	176.72	225.82	363.29
Modelware EPS (NT\$)	79.05	67.68	176.72	225.82	363.29

Balance Sheet

NT\$m (Years End Dec)	2024	2025	2026E	2027E	2028E
Cash	27,044	32,627	19,071	62,993	17,641
Mkt Securities	16	163	163	163	163
AR/NR	5,730	3,011	13,361	19,188	42,931
Inventory	8,661	6,945	25,097	36,790	88,059
Other	4,733	10,311	10,311	10,311	10,311
Current Assets	46,184	53,057	68,003	129,444	159,105
Long-term investments	1,600	2,204	2,204	2,204	2,204
Fixed assets	1,775	1,680	1,680	1,680	1,680
Deferred assets	169	440	440	440	440
Other assets	582	659	659	659	659
Total Assets	50,309	58,039	72,984	134,426	164,086
S/T borrowings	0	0	0	50,000	50,000
AP/NP	1,826	1,986	6,132	8,989	21,514
Other ST liabilities	8,845	14,988	14,988	14,988	14,988
LT debt	0	0	0	0	0
Other LT liabilities	161	240	240	240	240
Common shares	806	813	813	813	813
Total Liabilities	10,833	17,214	21,360	74,217	86,742
Additional capital	25,350	25,755	25,755	25,755	25,755
Retained earning	10,752	13,405	24,205	32,790	49,924
Other shareholders' equity	2,568	852	852	852	852
Total Equity	39,477	40,824	51,625	60,209	77,344
Total Liab. & Shrhldr's Equity	50,309	58,039	72,984	134,426	164,086

Cash Flow Statement

NT\$m (Years End Dec)	2024	2025	2026E	2027E	2028E
Cashflow from Operations	3,358	15,272	(6,982)	6,778	(29,864)
Net profits	6,446	5,598	14,632	18,697	30,079
Depreciation	2,129	2,744	2,744	2,744	2,744
Working Capital Change	(869)	4,741	(24,357)	(14,863)	(62,486)
Other adjustments	(4,348)	2,189	0	0	0
Cashflow from investing	(676)	(5,628)	(2,744)	(2,744)	(2,744)
Capex	(1,998)	(2,287)	(2,744)	(2,744)	(2,744)
Change of LT Investment	1,748	(3,701)	0	0	0
Change of ST Investment	(953)	(929)	0	0	0
Other adjustments	527	1,089	0	0	0
Cashflow from financing	12,855	(2,653)	(3,831)	39,887	(12,944)
Increase in L/T debt	0	0	0	0	0
Increase in S/T debt	0	0	0	50,000	0
Cash Dividend Paid	(1,818)	(2,946)	(3,831)	(10,113)	(12,944)
Issuance of stock	0	0	0	0	0
Other adjustments	14,673	293	0	0	0
Exchange rate adjustment	1,348	(1,208)	0	0	0
Net change in cash	16,885	5,583	-13,557	43,922	-45,352

Financial Ratios

	2024	2025	2026E	2027E	2028E
Growth(%)					
Turnover	70.5	-40.5	205.7	43.6	123.7
Operating profits	72.7	-22.8	231.5	32.3	65.2
Pretax profits	86.0	-13.9	170.6	28.5	60.9
Net profits	93.8	-13.1	161.4	27.8	60.9
EPS	82.7	-14.4	161.1	27.8	60.9
Margins (%)					
Gross Margin	19.6	26.4	22.5	20.9	15.4
Operating Margin	12.5	16.2	17.6	16.2	12.0
Pretax Margin	15.0	21.7	19.2	17.2	12.4
Net Profit	12.4	18.1	15.5	13.8	9.9
Return (%)					
ROAE	22.4	13.9	31.7	33.4	43.7
ROAA	15.6	10.3	22.3	18.0	20.2
Gearing (%)					
Net Debt/Equity	(68.5)	(79.9)	(36.9)	(21.6)	41.8
Liabilities/Equity	27.4	42.2	41.4	123.3	112.2
Ratios (X)					
Current ratio	4.3	3.1	3.2	1.7	1.8
Quick ratio	3.1	2.1	1.5	1.1	0.7
Others					
AR/NR Turnover (days)	29	52	52	52	52
Inventory Turnover (days)	89	125	125	125	125
AP Turnover (days)	16	31	31	31	31
Cash Conversion (days)	101	146	146	146	146

Key Featured Reports on the AI Supply Chain

Asia-Pacific Technology: AI Supply Chain: GPU Architecture Optimization Given Memory Shortage and Supernode Challenge (10 Aug 2026)

Asia-Pacific Technology: AI Supply Chain: Further Updates on 2027 CoWoS Allocation and ASIC Dynamics (8 Jul 2026)

Asia-Pacific Technology: AI Supply Chain: Preliminary 2027 TSMC CoWoS Allocation (23 Jun 2026)

Asia-Pacific Technology: AI Supply Chain: Cloud Capex Strength; More CoWoS Allocation for TPU (7 May 2026)

Asia-Pacific Technology: AI Supply Chain: Addressing Questions on Nvidia GPU/LPU and Google TPU (9 Apr 2026)

Greater China Semiconductors: AI Supply Chain Tracker: Key Investor Feedback from GTC/OFC (23 Mar 2026)

Asia Technology: AI Supply Chain: CPO and ASIC Dynamic Update (3 Mar 2026)

Foundation

Technology: Rise of the AI Agent – Global Implications (19 Apr 2026)

Global Technology: Supply-chain Reorientation (24 Jul 2025)

Global Technology: China – AI: The Sleeping Giant Awakens (13 May 2025)

Global Technology: AI Cloud Capex in the Spotlight (26 Feb 2025)

Global Semiconductors: AI ASIC 2.0: Potential winners (15 Dec 2024)

Global Technology: Global Technology – Dawn of the AI Smartphone Era: Edge AI – Apple Intelligence Fuels Innovation – More Charts, Fewer Words (17 Jul 2024)

Global Technology: AI PCs To Usher In The Next Leg Of PC Market Growth (21 May, 2024)

Key upstream AI supply chain companies

Asia-Pacific Technology: Connecting Dots: HK investors' feedback on Asian semis (9 Aug 2026)

King Yuan Electronics Co Ltd: AI revenue pushed out to 4Q26 and 2027 (7 Aug 2026)

Cambricon Technology Corporation: 2Q26 Revenue Miss, Profit in Line; Supply visibility Remains Key (7 Aug 2026)

AP Memory Technology Corp: More upside ahead; move to Top Pick (6 Aug 2026)

FOCI Fiber Optic Communications Inc: We Expect 2Q Earnings to Mark the Near-Term Trough – Stay OW (6 Aug 2026)

WinWay Technology Co Ltd: Revising Full-year Revenue, But Tempering GM Expectations (6 Aug 2026)

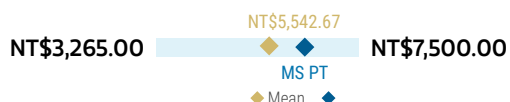
Risk Reward – Global Unichip Corp (3443.TW)

Winning more CSP projects

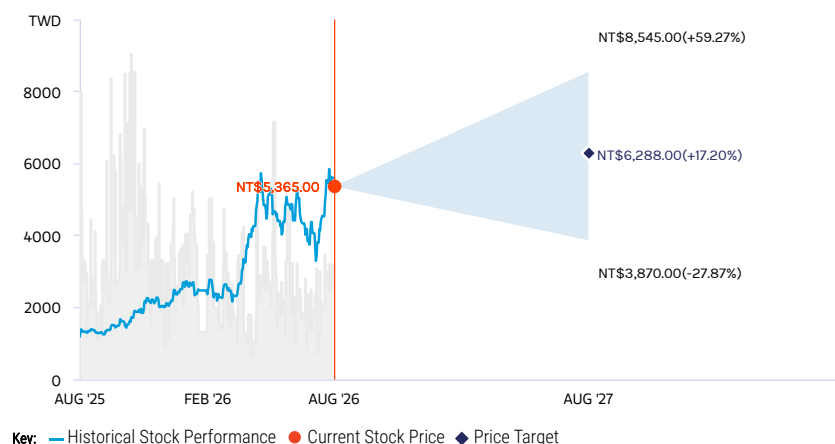
PRICE TARGET NT\$6,288.00

Base case, residual income model. Key assumptions: a cost of equity of 9.2%, an intermediate growth rate of 14.5%, and a terminal growth rate of 5%.

Consensus Price Target Distribution



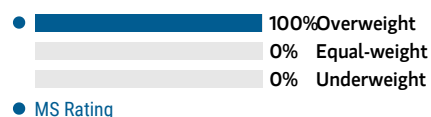
RISK REWARD CHART



OVERWEIGHT THESIS

- Besides strong Google CPU revenue contribution in 2026, we see 2027 revenue upside from Tesla AI5, Amazon edge AI chips, and SanDisk SSD controllers.
- We think the stock should rebound after new CPS projects design wins, now trading at 38x our 2027 EPS estimate.
- We maintain our view that the design service market will proliferate with AI ASIC outgrowing AI GPU in the long term.
- Despite slower recovery of non-AI business, we still appreciate GUC's growing exposure to cloud AI semis (including AI accelerators, AI server CPU, and BMC chips).

Consensus Rating Distribution



Risk Reward Themes

New Data Era: *Positive*

Pricing Power: *Negative*

Secular Growth: *Positive*

View descriptions of Risk Rewards Themes [here](#)

BULL CASE

NT\$8,545.00

61x 2027e EPS

Multiple leading-edge NRE projects successfully translate into volume production with healthy margin profiles. Many AI chipsets or other projects start to proliferate with substantial end demand, with customers' interest in migrating to more advanced nodes. Networking switch demand is stronger than expected, while SSD controller project contributions are sustainable in 2026. 3/5nm turnkey revenue growth is stronger than expected in 2026 and beyond.

BASE CASE

NT\$6,288.00

45x 2027e EPS

Networking switch turnkey projects volume remains stable. A few new leading-edge turnkey projects start to show decent shipments. TSMC's leading-edge tape-out numbers increase steadily, while some "turnkey 2/3" (TK2 and TK3) projects contribute to NRE and turnkey revenue. CSP (AI) revenue contribution should be the major growth driver for 2026 and 2027, as well as the auto chip and SSD controller projects.

BEAR CASE

NT\$3,870.00

28x 2027e EPS

AI chipsets and other projects lack concrete end demand, resulting in delayed tape-outs. TSMC's leading-edge tape-out numbers decrease or some customers turn directly to TSMC. BMC and SSD project losses arise from customers' in-sourcing. Fiercer-than-expected talent competition leads to higher opex to retain R&D engineers. High volume turnkey projects carry lower-than-expected gross margin.

Risk Reward – Global Unichip Corp (3443.TW)

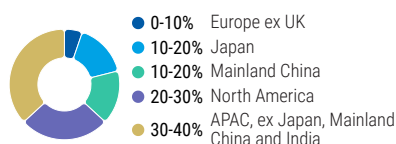
KEY EARNINGS INPUTS

Drivers	Dec 2025	Dec 2026e	Dec 2027e	Dec 2028e
NRE revenue Y/Y (%)	(4.8)	17.7	16.4	14.1
Turnkey revenue Y/Y (%)	59.2	110.0	215.4	48.1
Turnkey revenue (NT\$, mn)	25,736	54,035	170,437	252,360
Turnkey revenue contribution (%)	75.4	85.1	93.9	95.3

INVESTMENT DRIVERS

- ASIC/ASSP industry demand
- Technology migration to more advanced nodes
- New projects driven by China's semi localization efforts

GLOBAL REVENUE EXPOSURE



View explanation of regional hierarchies [here](#)

MS ALPHA MODELS

3/5
MOST

3 Month
Horizon

the highest favored Quintile and 5 is the least favored Quintile

RISKS TO PT/RATING

RISKS TO UPSIDE

- 5nm, 3nm and advanced packaging customers decide to accelerate tape-outs.
- AI and other high-growth projects gain substantial customer traction.
- 5nm turnkey momentum is stronger than expected.

RISKS TO DOWNSIDE

- AI and other high-growth projects lose significant customer traction.
- Customers' inventory correction is longer than expected.
- 5nm and below ASIC projects contribution is lower than expected.

OWNERSHIP POSITIONING

Inst. Owners, % Active 67%

MS ESTIMATES VS. CONSENSUS

FY Dec 2026e

Sales / Revenue (NT\$, mn) 51,446 63,487 58,850 64,972

EBIT (NT\$, mn) 6,576 7,554 7,660 8,876

Net income (NT\$, mn) 5,792 6,740 6,827 8,107

EPS (NT\$) 43.22 49.97 50.91 60.50

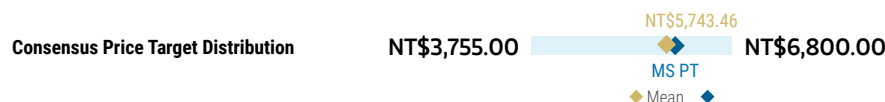
◆ Mean ◆

Risk Reward – Alchip Technologies Ltd (3661.TW)

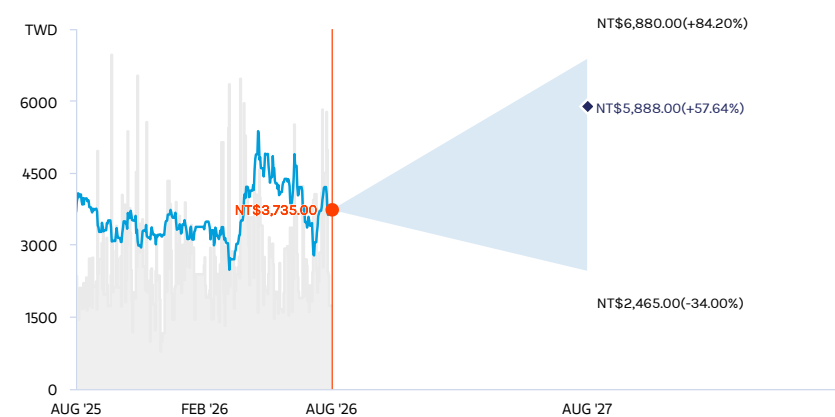
Strong Trainium4 upside in 2028

PRICE TARGET NT\$5,888.00

Base case value, derived from a residual income model. We assume the cost of equity is constant at 10.4% (2% risk-free rate, 6% risk premium, 1.4 beta). Our intermediate growth rate and terminal growth rates are 12.5% and 4%, respectively.



RISK REWARD CHART

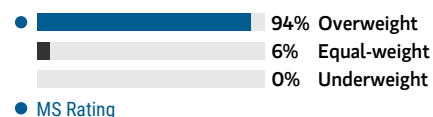


Key: — Historical Stock Performance ● Current Stock Price ◆ Price Target

OVERWEIGHT THESIS

- We continue to believe that AI ASICs will outgrow AI GPUs in the coming years, and Alchip is one of the few ASIC design service providers that can deal with increasingly complex designs (at 2nm) with good production/design track records for large leading edge chips.
- AWS's announcement of its 3nm Trainium3 chip matches the timing of Alchip's 3nm project win. The growing number of use cases for Trainium (e.g., Apple's adoption) bodes well for Alchip's revenue growth in 2026.
- We believe Alchip has strong potential to win Trainium4.
- Our price target implies 26x our 2027e EPS, which we find undemanding vs. our >100% revenue CAGR for 2025-28e.

Consensus Rating Distribution



Risk Reward Themes

New Data Era: *Positive*
Secular Growth: *Positive*

View descriptions of Risk Rewards Themes [here](#)

BULL CASE

NT\$6,880.00

30x 2027e EPS

AI chipsets and HPC projects start to proliferate, amid substantial end demand. Alchip's leading-edge tape-out numbers increase significantly, with some high-profile project wins at 3nm or even 2nm. Alchip is able to secure enough foundry capacity (front-end wafers and back-end packaging) and substrates for all of its leading-edge turnkey production. Alchip gradually gains market share within the design service market, amid continued proliferation of custom chip demand.

BASE CASE

NT\$5,888.00

26x 2027e EPS

AI chipsets and HPC projects start to proliferate amid strong end demand, resulting in steady growth in tape-outs and volume. There might be a slowdown in Alchip's Chinese customers' design activity for leading-edge chips as a result of US export controls; we believe this would be largely offset by ASIC demand strength from non-China regions.

BEAR CASE

NT\$2,465.00

11x 2027e EPS

AI chipsets and HPC projects lack concrete end demand, resulting in delayed tape-outs and mass production. Alchip's leading-edge project pipeline deteriorates, or some customers turn directly to TSMC. AI GPU's dominance in AI computing compresses the market share gain potential for overall ASIC, with customers starting to slow their custom silicon developments - and therefore ASIC procurement plans.

Risk Reward – Alchip Technologies Ltd (3661.TW)

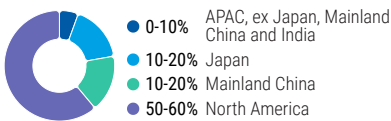
KEY EARNINGS INPUTS

Drivers	Dec 2025	Dec 2026e	Dec 2027e	Dec 2028e
HPC revenue (NT\$, mn)	25,816	47,317	67,890	151,900
Networking revenue (NT\$, mn)	698	14,877	21,725	48,608

INVESTMENT DRIVERS

- New promising AI chipset entrants
- NRE revenue growth
- Faster migration of semi industry to 7nm

GLOBAL REVENUE EXPOSURE



View explanation of regional hierarchies [here](#)

MS ALPHA MODELS

3/5 MOST	3 Month Horizon
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the highest favored Quintile and 5 is the least favored Quintile

RISKS TO PT/RATING

RISKS TO UPSIDE

- Demand for Chinese GPUs and AI chipsets takes off earlier than expected.
- NRE demand accelerates.
- Alchip wins more US hyperscaler HPC projects.

RISKS TO DOWNSIDE

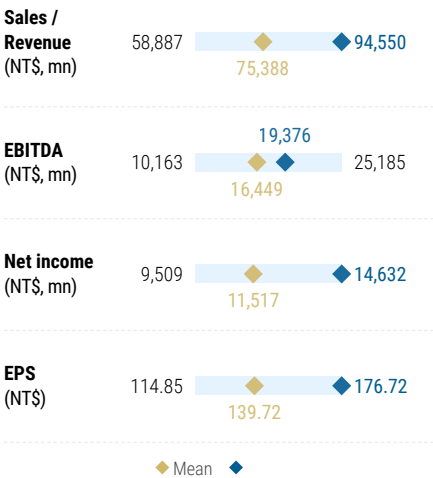
- China's HPC localization progress slows down.
- AI chipset progress is much slower to develop.
- NRE demand decelerates.
- Pricing competition intensifies.

OWNERSHIP POSITIONING

Inst. Owners, % Active	64.7%
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MS ESTIMATES VS. CONSENSUS

FY Dec 2026e



Valuation Methodology and Risks

MediaTek (2454.TW)

Base case, residual income model. Key assumptions: cost of equity 9.2%, intermediate growth rate 12.0%, terminal growth rate 3.0%.

Risks to Upside

- Edge AI proliferates smartphone replacement cycle.
- Smartphone demand rises in China and other EMs.
- New products attract high demand, resulting in market share gains.
- Google's TPU spurs demand.

Risks to Downside

- Smartphone demand deteriorates in China and other EMs.
- Competition heats up, resulting in pricing competition.
- New products attract low demand, causing market share loss.
- Margin dilution is more severe.

Risk Reward Reference links

1. View explanation of Options Probabilities methodology - [Options_Probabilities_Exhibit_Link.pdf](#)
2. View descriptions of Risk Rewards Themes - [RR_Themes_Exhibit_Link.pdf](#)
3. View explanation of regional hierarchies - [GEG_Exhibit_Link.pdf](#)
4. View explanation of Theme/Exposure methodology - [ESG_Sustainable_Solutions_External_Link.pdf](#)
5. View explanation of HERS methodology - [ESG_HERS_External_Link.pdf](#)