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GF SECURITIES (HONG KONG) BROKERAGE LIMITED

Overseas Technology

ASIC Outlook Wrap-up - MTK, MRVL, Intel Firming

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What's New?

Following our recent earnings notes and supply chain research, we provide our view on major ASIC's volume and progress. We continue to like MRVL, MTK and Intel for the positive/intact outlook.

Comments

Nvidia vs. ASIC: Contrary to general perception, we still believe that Nvidia's share will remain stable in 2027, on CoWoS consumption basis at TSMC; together with AMD, we expect GPU share is on an increasing trend (figure 1). As said in our recent *Nvidia Preview note on Aug 18*, we believe that Nvidia' Vera Rubin Platform is much ahead of its competitors in performance/TCO/supply chain and is gaining shares in major CSPs such as AWS/GOOG which even have their own ASICs.

TPU dynamics—prefer MTK (2454 TT Buy): We cut Broadcom's Sunfish volumes for 2026/27 on June 16 (our *report of June Edition*) due to packaging re-design, and set 460k CoWoS (ASIC) in 2027. Shipments of Sunfish should begin in late-2026 with volume in 1Q27. For 2027, we keep Broadcom's 50k CoWoS estimate to Meta for Iris+ and ARKE, but highlight the difficulty in 2H27 of reallocating capacity back to TPU as MTK's Humufish ramps on N2 advantage. On the other hand, we keep MTK's Zebrafish volumes unchanged at 25k/180k CoWoS for 2026/27. However, investor feedback suggests MTK is more like a funding-short stock amid concerns over Humufish tape-out, Google's slower AI model progress and worries over AMD/MRVL. However, we expect the engineering tape-out to be around Nov-2026, with Google/MTK committing meaningful resources and a manageable pass-rate bar. We continue to prefer MTK over Broadcom.

Google attach silicon—prefer MRVL (Buy): As said in our *MRVL report on Aug 20*, we continue to see meaningful contribution from Google's silicon—CXL, DPU, and MPU. We expect ~$3bn each from CXL and DPU by 2028. For MPU, optimized for token generation, we model a 2Q28 start on TSMC N2 and conservatively estimate ~$3bn CY28 revenue. We also view Google's equity partnership as increasing MRVL's chances of securing TPU v10 (Merope) in 2H28. This won't impact MTK, in our view, given that the Icefish engagement already confirmed.

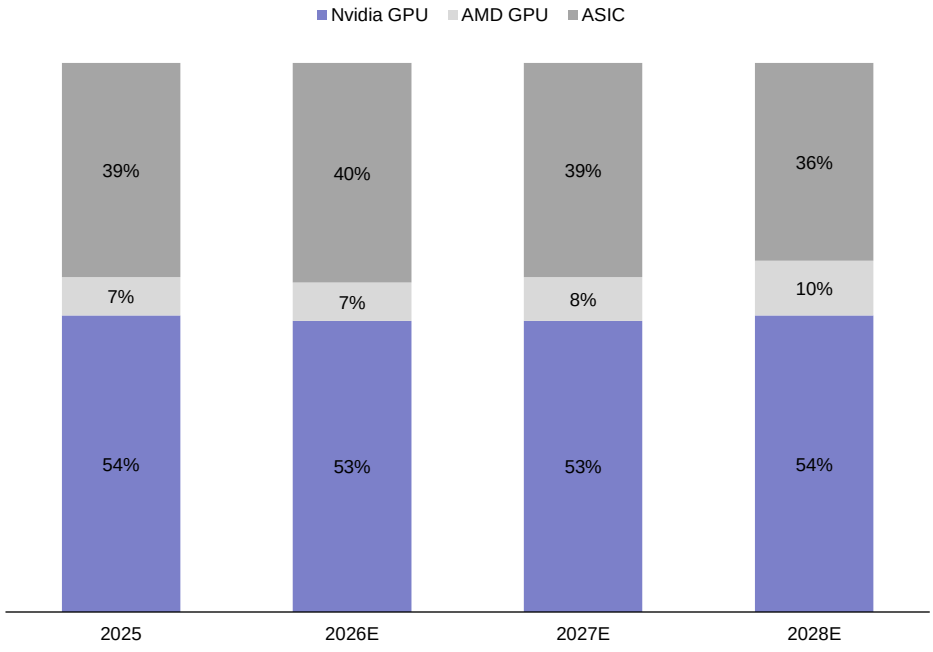
AWS T3/T4—prefer MRVL (Buy) and SMTC (Buy): We continue to expect Marvell to participate in Trainium 3, contributing roughly $1bn/$2bn in CY26/27. For Trainium 4, given the design of NPO scale-up for UALink/NVLink, we believe that Marvell's strengthened scale-up optical networking position post-Celestial AI will lead to an enhanced allocation share, vs. its competitors. Together with a much higher ASP, we expect >$3bn revenue contribution of T4 to MRVL in CY28. For NPO, we expect 6.4T OE to be the primary specs for T4. We forecast AWS will consume 5m/12m OE units for Trainium 4 in 2H27E/2028E. We forecast global OE units to be 11m/40m at optical component's level and like SMT (Buy) for its 2nd supplier position.

ASIC packaging—prefer Intel (Buy) and ABF substrate names: Per our *Intel note on Aug 14*, we raised our back-end revenue forecast to $1.1bn/$7bn in FY27/FY28, supported by better visibility on AWS T3 for EMIB-T in 2027 and major Google Humufish/Triggerfish volumes through 2H27–2028. Looking ahead, we see a path with high likelihood to win back-end business from U.S. fabless including MSFT, QCOM, MRVL, with products across ASIC, CPU and CPO. On supply, we expect ABF substrate to greatly benefit from EMIB.

Risks: 1) AI demand slowdown, 2) infrastructure deployment, 3) supply constraints, 4) competition.

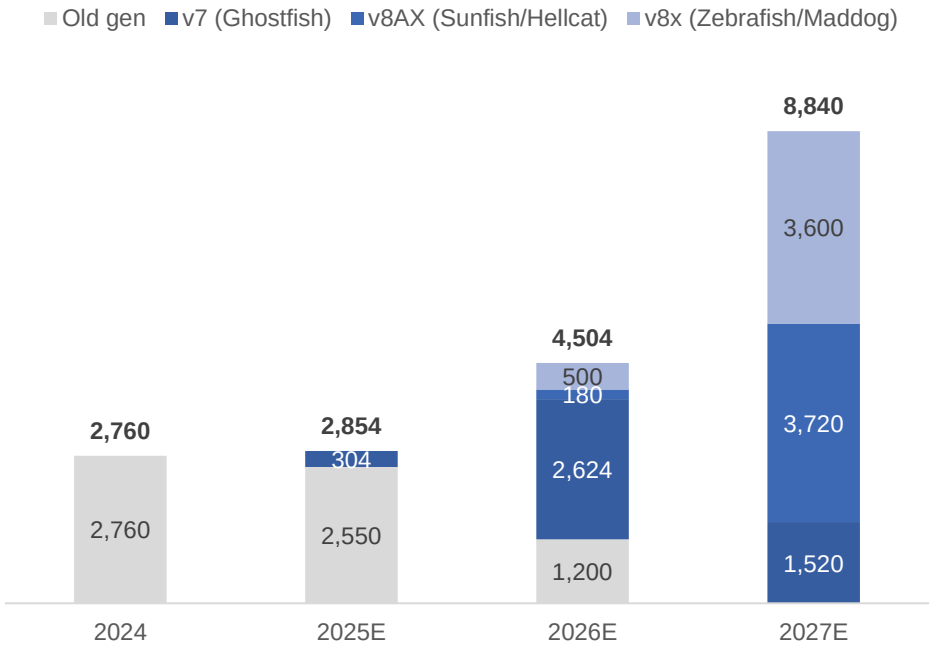
Focus Charts

Figure 1: GPU, vs. ASIC's CoWoS share at TSMC



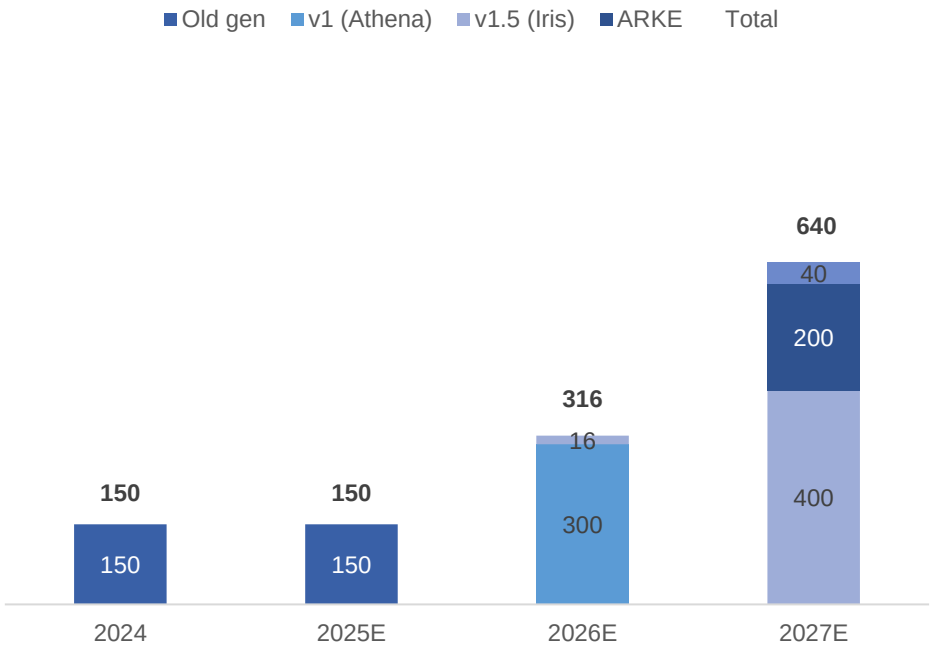
Sources: Company data, GF Securities (Hong Kong) Brokerage

Figure 2: Google TPU volume estimates (units mn)



Sources: Company data, GF Securities (Hong Kong) Brokerage

Figure 3: Meta ASIC volume estimates (units mn)



Sources: Company data, GF Securities (Hong Kong) Brokerage

Figure 4: Google TPU Roadmap

	TPU v7 Ironwood	TPU 8i	TPU 8t	TPU v9t	TPU v9t+	TPU v9i	TPU v10t
Code name	**Ghostfish**	**Sunfish**	**Zebrafish**	**Humufish**	**Triggerfish**	**Whalefish**	**Icefish**
Time	4Q25	4Q26	4Q26	4Q27	4Q27	1Q28	4Q28
Design Service - Compute	BRCM	BRCM	GOOG	GOOG	GOOG	BRCM	GOOG
Design Service - I/O	BRCM	BRCM	MTK	MTK	MTK	BRCM	MTK
Design Service - back-end	BRCM	BRCM	MTK	MTK	MTK	BRCM	GOOG or MTK
Compute	2*N3E	2*N3P	1*N3P	4*N2P	4*N2P	2*N3P	A14/N2P*8+ N2P*16
I/O	1*N5	1*N4	1*N4P	4*N3P	4*N3P	2*N4	N2P*6
Memory	8*HBM3e 8-Hi	8*HBM3e 12-Hi	6*HBM3e 12-Hi	(6*HBM4 8Hi) *2	(6*HBM4e 8Hi) *2	(6*HBM4e 8Hi) *2	16*HBM5 12-Hi
Memory spec	192GB	288GB	216GB	288GB	384GB	384GB	
Memory BW (TB/s)	7.4	8.6	6.5				
Back-end	CoWoS-S	CoWoS-L	CoWoS-S	EMIB-T	EMIB-T	CoWoS-S/SOIC	EMIB-T or CoWoS

Sources: Company data, GF Securities (Hong Kong) Brokerage

Figure 5: Meta ASIC Roadmap

	MTIA 300	MTIA 400	MTIA 400+	MTIA 450	MTIA 500
Code name	Athena	Iris Plus	Iris Plus+	ARKE	Astrid
Time	2Q26	2Q26	3Q26	1Q27	3Q27
Design Service - compute	BRCM	BRCM	BRCM	BRCM	BRCM
Design Service - I/O	BRCM	BRCM	BRCM	BRCM	BRCM
Design Service - back-end	BRCM	BRCM	BRCM	BRCM	BRCM
Compute	1*N3E	1*N3	2*N3	1*N2	N2
I/O	2*N4	2*N4	2*N3 +1 N3 SoC	2*N3 +1 N3 SoC	N3
Memory	6*HBM3e 12Hi	6*HBM3E 12Hi	8*HBM3E 12Hi	8*HBM4 12Hi	8*HBM4 12Hi
Memory spec	216GB	216GB	288GB	288GB	384GB
Memory BW (TB/s)	6.1	9.2	9.2	12.8	TBD
TDP (W)	800	1000	1200	1400	TBD
Back-end	CoWoS-S	CoWoS-L	CoWoS-L	CoWoS-L	CoWoS-L

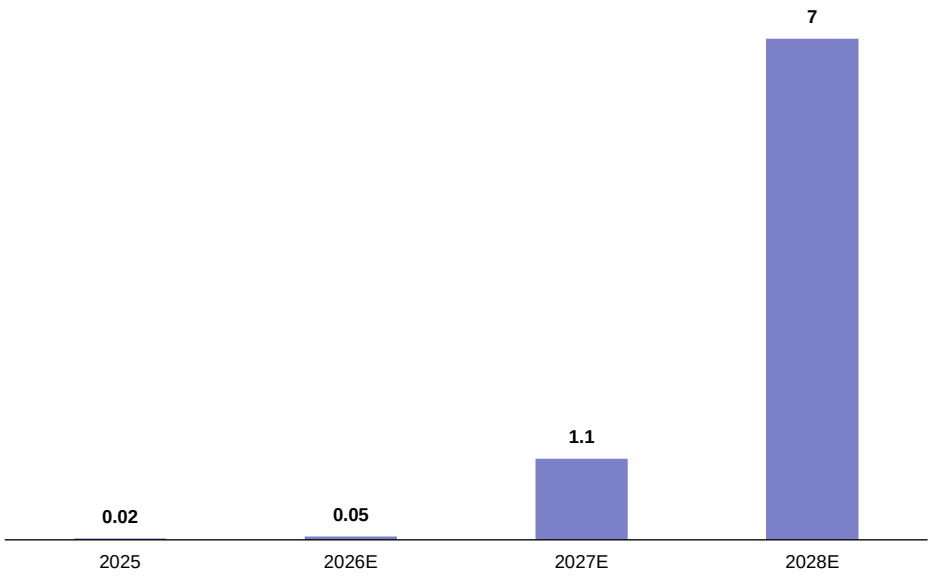
Sources: Company data, GF Securities (Hong Kong) Brokerage

Figure 6: NPO OE shipment forecast

	2027	2028
Market for Nvidia's scale up 3.2T NPO (k units)		
Rubin Ultra chip for NVL576(m units)	1.0	6
NPO Penetration rate	60%	95%
OE per GPU/switch ASIC	4	4
OE	**2.3**	**22.8**
Considering pull-in	6	19
Market for AWS's scale up 6.4T NPO (k units)		
Trainium 4 in total (m units)	0.8	4.5
NPO Penetration rate	80%	80%
Trainium 4 for Scale Up (m units)	0.6	3.6
OE per GPU/switch ASIC	4	4
OE	**2.6**	**14.4**
Considering pull-in	5	12
Market for Other CSPs' scale up NPO (k units)		
OE		**9.0**
Market for Total scale up NPO (k units)		
Total	**4.8**	**46.2**
Considering pull-in	11	40

Sources: Company data, GF Securities (Hong Kong) Brokerage

Figure 7: Intel's backend revenue forecast (USD bn)



Sources: Company data, GF Securities (Hong Kong) Brokerage

Risks

1) AI demand slowdown, 2) infrastructure deployment, 3) supply constraints, 4) competition.

Rating definitions Benchmark: Hang Seng Index (Hong Kong)

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	Hold	Expected stock relative performance ranges between -10% and 10%
	Underperform	Stock expected to underperform benchmark by more than 10%

Sector ratings	**Positive**	Sector expected to outperform benchmark by more than 10%
	Neutral	Expected sector relative performance ranges between -10% and 10%
	Cautious	Sector expected to underperform benchmark by more than 10%

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