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Greater China Semiconductors | Asia Pacific

Quantum Security / eMemory: Investor Feedback

Low investor expectations, mostly a teach-in – eMemory remains under-owned and under-researched, so feedback was largely educational rather than push-back; we see this as the marketing opportunity.

Key Takeaways

- Under-owned, mostly a teach-in: feedback was largely educational, not push-back – the marketing opportunity; clients called the level "a good entry point".
- August sales momentum: NT$357mn, +42.8% Y/Y; 8M26 +21.9% Y/Y (8th straight month of Y/Y growth).
- Reiterate Overweight, PT NT$3,330: ~30% further upside, plus free optionality on a US$310mn base-case PUF-PQC TAM by 2030.

What we published – and the feedback. On 17 August we released the Global Foundation "Hardware Quantum Security – Building Defenses for Q-Day and Beyond" with our **eMemory OW initiation (PT NT$3,330)**: as quantum computing nears (base case ~2030), a new hardware-security layer must be deployed 3-5 years ahead, with physical unclonable function (PUF)-based Root-of-Trust IP adding 5-10% to the semi IP market. Feedback was constructive – clients agree the "Harvest Now, Decrypt Later" risk and 2030-31 migration deadlines make this a multi-year, non-binary theme. The recurring point – and our marketing opportunity – is that Aspeed is already well-owned while eMemory stays under-researched by global funds.

Debate 1 – sizing the TAM. The key question is whether PUF is truly required once post-quantum cryptography (PQC) arrives. We size a PUF-PQC TAM of **~US$310mn by 2030 (base)**, US$600mn bull / US$190mn bear, on ~25% PQC adoption and ~50% PUF attach, with datacenter/AI servers the largest royalty pool. Once PQC is implemented, secure key generation/storage makes PUF the logical anchor – so sensitivity sits on PQC pace, not PUF attach. We view eMemory's NeoPUF as best-in-class: near-zero bit-error rate, lower area/power, and superior advanced-node scaling vs. SRAM PUF.

Debate 2 – is eMemory the right proxy? Yes. The case rests on the **core royalty engine**: royalties are the majority of earnings and tied to customer production, so as mix shifts to leading-edge nodes, higher wafer values lift royalty per design-win. Advanced-node projects are already >50% of licensing non-recurring engineering (NRE) revenue. This is corroborated by the just-reported **August sales of NT $357mn, +42.8% Y/Y (8M26 +21.9% Y/Y, 8th straight month of growth)**; royalties were 60.8% of 2Q26 revenue (+7.8% Y/Y) and management guides for royalty growth to accelerate into 2H26 on advanced-node ASPs and new apps (OTP, NeoFlash/1T Flash, PUF-PQC). (Continued in the next section)

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GREATER CHINA TECHNOLOGY SEMICONDUCTORS
Asia Pacific
Industry View **Attractive**

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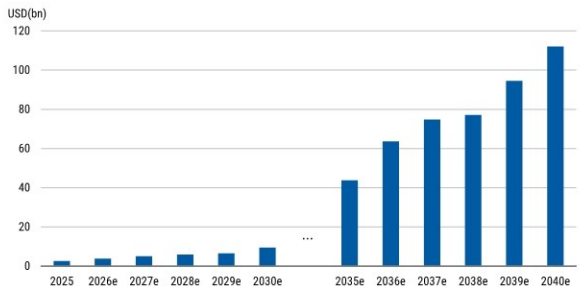
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Our view and stock calls. Reiterate **OW, PT NT$3,330** (~30% upside from NT$2,570) – a rare mix of a defensive, high-visibility royalty stream (100% gross margin, ~63% ROE) plus free optionality on the post-quantum build-out, alongside Synopsys (OW) and adopter Aspeed (OW). Catalysts: monthly-sales momentum, the advanced-node royalty ramp, PQC design-win news-flow and San Jose OCP in Oct 2026. Risks: 1) semi downturn, 2) PUF-PQC competition, 3) slower quantum/PQC adoption. Net-net, eMemory is an under-owned name where the royalty re-rating and quantum-security theme are both intact.

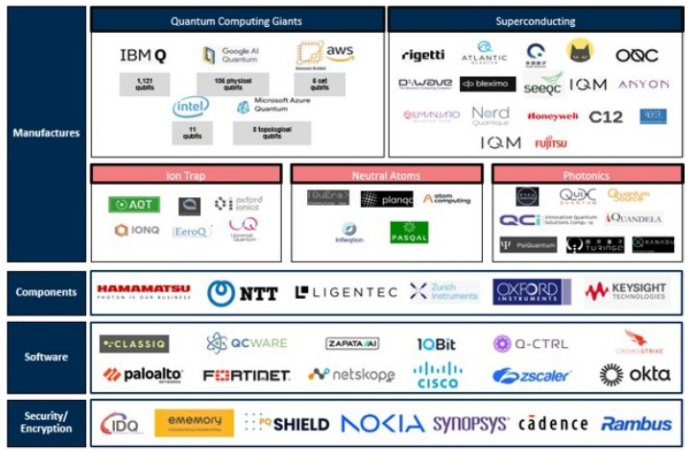
Key Charts and Exhibits

Exhibit 1: We project the quantum infrastructure TAM will reach US$110bn by 2040



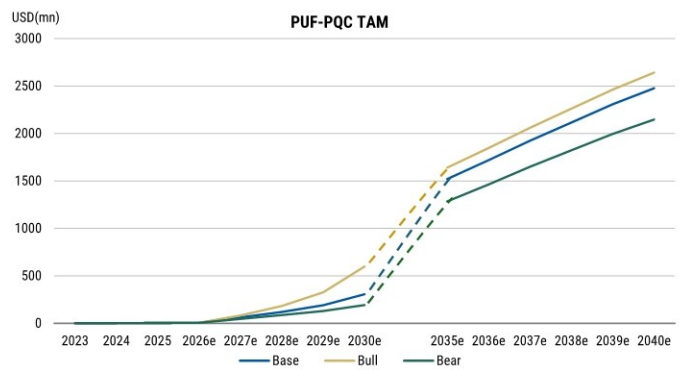
Source: Morgan Stanley Research (E) estimates.

Exhibit 2: Global quantum supply chain – Hardware security is the foundation



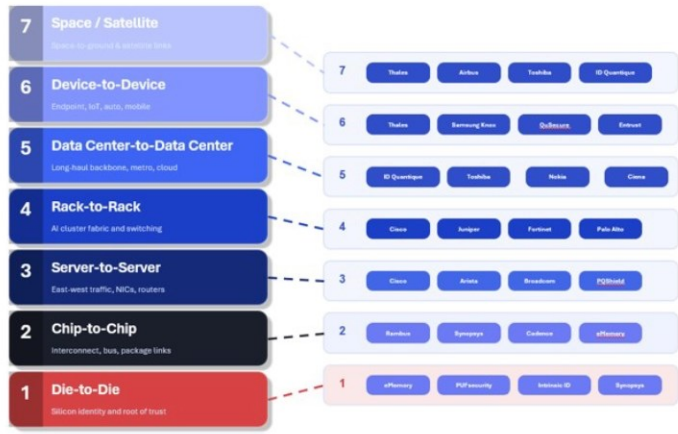
Source: Morgan Stanley Research.

Exhibit 3: The quantum hardware security TAM – our bull, base and bear cases



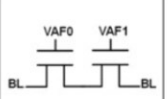
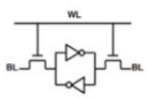
Source: Company data, Morgan Stanley Research estimates.

Exhibit 4: Quantum security across different connectivity layers



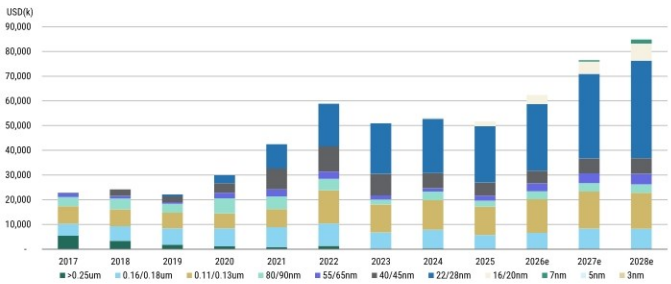
Source: Morgan Stanley Research.

Exhibit 5: NeoPUF vs. SRAM PUF

	Ideal PUF	NeoPUF*	SRAM PUF
Unit Cell			
Inter-Hamming Distance	50%	50%	~50%
Hamming Weight	0.5	0.5	0.59**
Bit Error Rate	0%	0%	5.5% w/o ECC***
Correction Methods & Impact	None	None	Stabilization, TMV, Masking and ECC Helper
Operation Temperature	Any Temp	-40~125 °C	< 85°C

Source: PUFsecurity

Exhibit 6: eMemory's OTP royalties from main foundries



Source: Company data, Morgan Stanley Research (e) estimates.

Valuation Methodology and Risks

eMemory Technology Inc (3529.TWO)

We derive our price target from a residual income model. We assume an 8.6% cost of equity (2.0% risk-free rate, 6.0% equity risk premium, and 1.1 beta), a payout ratio of 90%, a medium-term earnings growth rate of 23.0%, and a terminal growth rate of 4.4%. Based on these assumptions, our RI model implies an equity value of NT$249bn, or NT$3,330 per share.

Risks to Upside

- Faster-than-expected PUF adoption
- Stronger-than-expected advanced-node OTP migration
- Higher-than-expected royalty expansion from wafer value growth

Risks to Downside

- Slower-than-expected adoption by key customers
- Slower-than-expected PQC adoption
- Increasing geopolitical and trade policy risks

Aspeed Technology (5274.TWO)

Base case, residual income model. Key assumptions:

- Cost of equity of 9.8% (2.0% risk-free rate, 6% risk premium, 1.3 beta)
- Medium-term growth rate of 21.4%
- Terminal growth rate of 5.5%
- Cash payout ratio of 85%

Risks to Upside

- Stronger cloud demand
- Faster-than-expected spec migration
- Mild competition

Risks to Downside

- Softening cloud demand
- Slower-than-expected spec migration
- Intensified competition
- Further policy tightening in China

Synopsys Inc. (SNPS.O)

The sector is trading on a 30-35x P/E multiple range. We expect Synopsys to trade in line and apply a c.33x P/E multiple to estimated FY26 EPS ($15.12).

Risks to Upside

- Bigger ramp-up in AI ASICs and GPUs than modelled
- Quicker recovery in Automotive & industrial
- Design wins at expense of peers with Ansys products

- Strong recovery in IP business (esp. in China)

Risks to Downside

- Scale and duration of downturn seeing deeper R&D cuts
- Further tightening of export controls
- Loss of share to new entrant EDA players given localisation trends
- Failure to hit cost synergies from Ansys merger

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(as of August 31, 2026)
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	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment Services Clients (MISC)	
Stock Rating Category	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
Overweight/Buy	1555	42%	450	48%	29%	767	44%
Equal-weight/Hold	1577	43%	395	42%	25%	770	44%
Not-Rated/Hold	3	0%	1	0%	33%	1	0%
Underweight/Sell	559	15%	93	10%	17%	216	12%
Total	3,694		939			1754	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

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Stock Price, Price Target and Rating History (See Rating Definitions)

Aspeed Technology (5274.TWO) - As of 09/08/26 GMT in TWD
Industry : Greater China Technology Semiconductors



Stock Rating History: 9/1/21 : O/I; 10/12/21 : O/C; 5/20/22 : E/C; 10/4/22 : E/A; 1/11/23 : U/A; 2/22/23 : U/I; 7/7/23 : E/A; 11/8/23 : O/A; 7/21/24 : O/I; 9/15/24 : E/I; 6/9/25 : O/I; 7/14/25 : O/A

Price Target History: 6/3/21 : 2111.57; 11/16/21 : 2809.92; 4/8/22 : 3305.79; 5/20/22 : 1983.47; 7/13/22 : 1983.64; 7/19/22 : 1545.45; 10/12/22 : 1450; 1/11/23 : 1377.27; 7/7/23 : 2363.64; 8/8/23 : 2090.91; 10/19/23 : 2363.64; 11/8/23 : 2863.64; 5/7/24 : 3454.55; 6/3/24 : 4090.91; 6/7/24 : 4681.82; 9/15/24 : 4331.82; 1/8/25 : 3272.73; 2/3/25 : 2909.09; 4/1/25 : 2727.27; 6/9/25 : 4545.46; 7/7/25 : 5545.46; 11/26/25 : 6818.18; 1/15/26 : 9090; 2/11/26 : 11222.73; 3/23/26 : 12261.82; 4/20/26 : 14140.91; 4/29/26 : 18181.82; 5/28/26 : 21323.64; 7/23/26 : 20888; 9/7/26 : 24000

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Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst)
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
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eMemory Technology Inc (3529.TWO) - As of 09/08/26 GMT in TWD
Industry : Greater China Technology Semiconductors



Stock Rating History: 8/18/26 : O/A

Price Target History: 8/18/26 : 3330

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Price Target History: 11/10/23 : 600; 5/23/24 : 625; 2/24/25 : 590; 5/29/25 : 540; 8/11/25 : 715; 9/11/25 : 510; 12/11/25 : 550; 2/27/26 : 480; 5/28/26 : 525; 8/19/26 : 500

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -·- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) ▬
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COMPANY (TICKER)	RATING (AS OF)	PRICE* (09/07/2026)
Charlie Chan		
ACM Research Inc (ACMR.O)	O (03/07/2023)	US$74.44
Advanced Micro-Fabrication Equipment Inc (688012.SS)	O (11/06/2023)	Rmb344.00
Advanced Wireless Semiconductor Co (8086.TWO)	U (07/14/2025)	NT$112.50
Alchip Technologies Ltd (3661.TW)	O (05/14/2021)	NT$4,030.00
ASE Technology Holding Co. Ltd. (3711.TW)	O (09/15/2024)	NT$618.00
Cambricon Technology Corporation (688256.SS)	O (04/27/2026)	Rmb1,092.38
CXMT Corp (688825.SS)	O (08/26/2026)	Rmb58.47
Global Unichip Corp (3443.TW)	O (06/24/2026)	NT$5,960.00
GlobalWafers Co Ltd (6488.TWO)	E (05/19/2026)	NT$971.00
Gudeng Precision (3680.TWO)	O (11/25/2025)	NT$529.00
Hua Hong Semiconductor Ltd (1347.HK)	E (03/12/2026)	HK$115.10
Iluvatar CoreX Semiconductor Co., Ltd. (9903.HK)	O (04/27/2026)	HK$339.80
King Yuan Electronics Co Ltd (2449.TW)	O (03/03/2023)	NT$268.50
MediaTek (2454.TW)	O (11/28/2025)	NT$4,710.00
MetaX Integrated Circuits (688802.SS)	E (04/27/2026)	Rmb570.08
Nanya Technology Corp. (2408.TW)	O (05/28/2026)	NT$531.00
NAURA Technology Group Co Ltd (002371.SZ)	O (11/06/2023)	Rmb660.65
OmniVision Integrated Circuits Group Inc (603501.SS)	E (11/17/2025)	Rmb81.08
Phison Electronics Corp (8299.TWO)	E (02/25/2026)	NT$2,095.00
SG Micro Corp. (300661.SZ)	E (11/03/2025)	Rmb110.60
Silergy Corp. (6415.TW)	U (05/19/2026)	NT$410.00
SMIC (0981.HK)	O (10/21/2025)	HK$68.30
TSMC (2330.TW)	O (02/07/2022)	NT$2,470.00
UMC (2303.TW)	O (05/19/2026)	NT$137.00
Vanguard International Semiconductor (5347.TWO)	E (01/14/2026)	NT$156.00
WIN Semiconductors Corp (3105.TWO)	U (07/14/2025)	NT$450.50

Daisy Dai, CFA

ASMPT Ltd (0522.HK)	O (07/24/2025)	HK$167.70
China Resources Microelectronics Limited (688396.SS)	U (03/02/2026)	Rmb57.92
Empyrean Technology Co Ltd (301269.SZ)	E (01/17/2025)	Rmb93.28
Hangzhou Silan Microelectronics Co. Ltd. (600460.SS)	U (08/25/2025)	Rmb30.96
Hygon Information Technology Co., Ltd. (688041.SS)	O (07/03/2026)	Rmb242.71
Innoscience (2577.HK)	E (10/13/2025)	HK$44.50
JCET Group Co Ltd (600584.SS)	E (01/16/2026)	Rmb69.00
Shanghai Fudan Microelectronics (1385.HK)	O (03/07/2025)	HK$26.46
SICC Co Ltd (688234.SS)	O (03/20/2026)	Rmb100.01
StarPower Semiconductor Ltd (603290.SS)	E (05/14/2026)	Rmb86.40
Unigroup Guoxin Microelectronics Co Ltd (002049.SZ)	U (01/10/2023)	Rmb62.04
Universal Scientific Ind. (Shanghai) (601231.SS)	O (11/05/2025)	Rmb26.00
Yangjie Technology (300373.SZ)	O (06/10/2022)	Rmb89.00
Daniel Yen, CFA		
AP Memory Technology Corp (6531.TW)	O (07/11/2025)	NT$931.00
ASMedia Technology Inc (5269.TW)	U (10/03/2025)	NT$1,400.00
Aspeed Technology (5274.TWO)	O (06/09/2025)	NT$19,215.00
Egis Technology Inc (6462.TWO)	E (01/28/2026)	NT$100.50
Elan Microelectronics Corp (2458.TW)	O (10/03/2025)	NT$130.50
eMemory Technology Inc (3529.TWO)	O (08/18/2026)	NT$2,570.00
Espressif Systems (688018.SS)	O (05/15/2023)	Rmb113.81
GigaDevice Semiconductor Beijing Inc (603986.SS)	O (05/15/2025)	Rmb385.44
Macronix International Co Ltd (2337.TW)	O (09/18/2025)	NT$126.00
Montage Technology Co Ltd (6809.HK)	O (03/18/2026)	HK$279.00
Montage Technology Co Ltd (688008.SS)	O (03/18/2026)	Rmb197.82
Novatek (3034.TW)	U (02/04/2026)	NT$534.00
Nuvoton Technology Corporation (4919.TW)	U (11/10/2025)	NT$118.00
Parade Technologies Ltd (4966.TWO)	O (05/27/2026)	NT$566.00
Powerchip Semiconductor Manufacturing Co (6770.TW)	O (10/27/2025)	NT$72.40
Realtek Semiconductor (2379.TW)	E (01/30/2026)	NT$692.00
Shenzhen Goodix Technology Co Ltd (603160.SS)	U (07/14/2025)	Rmb52.84
Winbond Electronics Corp (2344.TW)	O (05/28/2026)	NT$188.00
WPG Holdings (3702.TW)	O (03/16/2026)	NT$104.50
WT Microelectronics Co. Ltd. (3036.TW)	O (01/27/2026)	NT$189.50
Duan Liu		
Dosilicon Co Ltd (688110.SS)	U (09/06/2024)	Rmb116.06
Shenzhen Longsys Electronics Co Ltd (301308.SZ)	E (02/25/2026)	Rmb358.22
Henry Zhao		
Maxscend Microelectronics Co Ltd (300782.SZ)	U (01/11/2021)	Rmb73.70
Tiffany Yeh		
AllRing Tech Co. (6187.TWO)	O (09/23/2025)	NT$1,370.00
FOCI Fiber Optic Communications Inc (3363.TWO)	O (01/15/2025)	NT$723.00
Himax Technologies Inc (HIMX.O)	E (02/04/2026)	US$13.68
Hon Precision (7769.TW)	O (04/17/2026)	NT$6,970.00
MPI Corporation (6223.TWO)	O (04/17/2026)	NT$5,490.00
Silicon Motion (SIMO.O)	O (05/06/2024)	US$256.21
WinWay Technology Co Ltd (6515.TW)	O (04/17/2026)	NT$7,700.00

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