IT & Electronics

Field Intelligence Report

Vol. 49 | 2026.06.29 — 07.05 | Articles: 96

Semiconductor Packaging / AI & Machine Learning / Quantum Computing / Photonics & Optical Comms

Market Mood

85

/ 100 Optimistic

AI Infrastructure Acceleration

Global investments and technological breakthroughs are rapidly scaling AI compute, packaging, and data transfer capabilities, driving a new era of digital transformation.

HBM4 Annual Sales Forecast	Global AI Startup Funding (H1 2026)	Advanced Packaging Price Hike	Optical Interconnect Power Reduction
$10	$510	20	50
900%	Record High	—	—

Weekly Summary

The IT & Electronics domain is experiencing unprecedented growth, primarily fueled by AI. Advanced semiconductor packaging, particularly HBM and panel-level solutions, is critical to overcoming AI chip bottlenecks, with major investments from Asia and Western governments. AI & Machine Learning is seeing massive funding, rapid deployment of agentic AI, and increasing regulatory focus. Quantum computing is moving towards real-world viability with significant government and private investment, especially in fault-tolerant systems and PQC. Photonics and optical communications are essential for power-efficient, high-bandwidth data centers, with new technologies reducing power consumption by up to 50%.

4 Sub-Topic Summary

Sub-Topic	Headline	Momentum	Key Insight
Semiconductor Packaging	Advanced Packaging Capacity Expands 20% to Meet AI Demand	Accelerating	Surging AI chip demand drives over 20% price hikes for advanced packaging (CoWoS, FOPLP), with major investments from ASE, Samsung, SK Hynix, and EU/US government initiatives to alleviate bottlenecks and boost HBM production.

AI & Machine Learning	AI Investment Hits $510B, Agentic AI Automates 20% of Workflows	**Accelerating**	Global AI startup funding reached $510 billion in H1 2026, with agentic AI platforms demonstrating 20% productivity gains in enterprise workflows. Regulatory frameworks like the EU AI Act are maturing, while custom AI chip development by hyperscalers reduces Nvidia dependence.
Quantum Computing	Quantum Computing Attracts $3.9B VC, US Invests $2B in Foundries	**Building**	Quantum computing is nearing real-world viability, attracting $3.9 billion in VC in 2025. The US CHIPS Act allocates $2 billion for quantum R&D;, including a $1 billion IBM foundry, accelerating fault-tolerant systems and post-quantum cryptography migration by 2030.
Photonics & Optical Comms	Optical Interconnects Cut Data Center Power by 50%, Boost Bandwidth to 3.2Tbps	**Accelerating**	New optical interconnect technologies are reducing GPU-to-GPU power consumption by up to 50% and boosting bandwidth to 3.2 Tbps, addressing critical scalability and cost challenges in AI/HPC data centers. Silicon photonics and Co-Packaged Optics (CPO) are key to 2025 mass production.

□□ JAPAN EXCLUSIVE

IT & Electronics — Weekly Intelligence from Japan

2026.06.29 — 07.05 | Sources: TDnet, METI, NEDO, Gemini Search Grounding

Shin-Etsu Chemical Raises Silicon Wafer Prices Amid Surging AI Demand

Source: Shin-Etsu Chemical (via Gemini Grounding)

Summary: Shin-Etsu Chemical has initiated a second round of price increases for semiconductor silicon wafers, with high-end wafers specifically used for AI computing power seeing significant 18%-22% price hikes. This comes as demand for AI-related 12-inch wafers is pro...

WHY ENGINEERS SHOULD CARE

Procurement teams must factor in 18%-22% higher costs and longer lead times (orders booked through Q3 2026) for high-resistivity 12-inch silicon wafers critical for HBM and AI accelerators. Evaluate a...

JSR Boosts EUV Photoresist and Metal Oxide Resist (MOR) Capacity

Source: JSR (via Gemini Grounding)

Summary: JSR Corporation is significantly expanding its EUV photoresist capabilities, with plans to establish its first photoresist production facility in Taiwan by 2028 to collaborate on advanced photoresists with TSMC. Concurrently, JSR's South Korean plant for metal...

WHY ENGINEERS SHOULD CARE

For design and process teams targeting sub-3nm nodes, JSR's MOR mass production in South Korea by 2026 and the Taiwan plant by 2028 are critical for securing next-generation EUV lithography material s...

Ajinomoto's ABF® Maintains >95% Share, Targets Next-Gen AI Packaging

Source: Ajinomoto (via PR Times)

Summary: Ajinomoto announced its electronic materials business growth strategy, highlighting that its ABF® (Ajinomoto Build-up Film) has maintained over 95% market share in its segment since launch. The company is continuously developing new ABF® products to meet the e...

WHY ENGINEERS SHOULD CARE

Given ABF®'s near-monopoly (>95% share) in advanced packaging substrates, its technological evolution directly impacts packaging roadmaps for AI/HPC accelerators. Design and packaging engineers sho...

This Week's Japan Technology Highlights

Japan's semiconductor sector is set to benefit from South Korea's 83 trillion JPY HBM fab investment, driving demand for advanced Japanese manufacturing equipment.

CXMT DRAM/HBM Expansion: Market Share Gains & AI Memory Push

■ **China's Move**

ChangXin Memory Technologies (CXMT) has rapidly expanded its DRAM production, achieving an 8% global market share in Q1 2026, positioning it as the fourth-largest DRAM producer. The company forecasts H1 2026 revenue of RMB 120 billion and a net profit of RMB 7...

■ **Technical Verification**

[CONFIRMED]	CXMT's Q1 2026 global DRAM market share of 8% is a market-reported fact, confirming its position as the fourth-largest producer. / Validation by Tencent and ByteDance for DDR5 server memory, and Cor...
[BOTTLENECK]	Scaling HBM production to competitive yields and ensuring stack reliability, thermal performance, and power efficiency comparable to established leaders (e.g., SK Hynix, Samsung). / Developing and m...

■ **Implications for Western Engineers**

- Memory Procurement Teams: Actively benchmark CXMT's DDR5 and HBM offerings for performance, reliability, and cost-effectiveness ...
- AI Accelerator Design Teams: Evaluate CXMT HBM3/HBM3E against leading Western alternatives on bandwidth-per-watt, stack yield, t...
- Supply Chain Planners: Assess CXMT's capacity ramp-up for both general-purpose DRAM and HBM, and evaluate geopolitical risks ass...

Huawei's Advanced AI Chip & Architecture Push: Ascend 950DT and Kirin 2026

■ **China's Move**

Huawei is slated to release its Ascend 950DT AI chip on Huawei Cloud in August 2026. This new chip will feature upgraded vector computing power, increased memory bandwidth, and native support for low-precision formats such as FP8. The Ascend 950DT utilizes fou...

■ **Technical Verification**

[CONFIRMED]	Huawei's consistent and aggressive development in custom AI accelerators and mobile SoCs is well-established through its product history (e.g., Ascend 910 series, Kirin series). / The announcement o...
[BOTTLENECK]	Achieving competitive power efficiency and sustained performance for complex multi-die AI accelerators, particularly under thermal constraints. / Maturing the inter-die interconnect technology (D2D ...

■ **Implications for Western Engineers**

- AI Accelerator Design Teams: Analyze Huawei's architectural innovations (e.g., LogicFolding, Tau Scaling Law, D2D Clink, UMB) fo...
- Software Engineers: Closely monitor the maturity, performance, and ease of use of Huawei's AI software stack (e.g., MindSpore) a...
- Competitive Intelligence Teams: Benchmark Ascend 950DT against leading Western AI accelerators upon release, focusing on real-wo...

Key Trends This Week (5 Total)

TR-01 HIGH Cross-Domain

Global AI Infrastructure Race Intensifies

Nations and Hyperscalers Invest Billions to Scale AI Compute and Memory

The global race for AI supremacy is driving massive investments in foundational infrastructure. South Korea pledged $252 billion for HBM factories, while OpenAI secured a $38 billion, 7-year computing deal with AWS. Hyperscalers like Google, Amazon, and OpenAI are developing custom AI chips (Jalapeño, Trainium) to reduce Nvidia dependence and vertically integrate their AI stacks, leading to a surge in data center construction and demand for advanced components.

SK Hynix HBM Investment	OpenAI/AWS Computing Deal	Google Cloud Revenue Growth
$64B	$38B	63%

▶ Samsung ▶ SK Hynix ▶ OpenAI ▶ AWS ▶ Google

Refs: S1-09 S1-12 S1-18 S2-01 S2-04 S2-05 S2-07 S2-08 S2-24

TR-02 HIGH Semiconductor Packaging

Advanced Packaging Becomes Critical AI Bottleneck

CoWoS and HBM Shortages Drive 20%+ Price Hikes and Global Investment

Advanced packaging, particularly CoWoS and High Bandwidth Memory (HBM), is identified as the most severe bottleneck for AI chip performance and deployment. Unprecedented demand has led to over 20% price increases for services like ASE's advanced packaging. Governments (EU Chips Act: €210M; US CHIPS Act: $39B) and industry leaders (Applied Materials, Lam Research) are investing heavily in 3D IC, FOPLP, and wafer-to-panel processing to expand capacity and technological independence.

ASE Price Hike	EU Chips Act Funding	Samsung HBM4 Sales Forecast
20%+	€210M	$10B

▶ TSMC ▶ ASE ▶ Applied Materials ▶ Samsung ▶ SK Hynix

Refs: S1-01 S1-03 S1-06 S1-07 S1-10 S1-14 S1-16 S1-19

TR-03 MED Quantum Computing

Quantum Computing Commercialization Accelerates with Government Backing

US CHIPS Act Funds $2B for Quantum Foundries, PQC Migration Mandated by 2030

Quantum computing is rapidly progressing towards real-world viability, attracting record VC investment ($3.9B in 2025). The U.S. government is accelerating this with $2.013 billion in CHIPS Act incentives, including $1 billion for IBM's quantum foundry. Federal systems are mandated to migrate to post-quantum cryptography (PQC) by 2030, signaling a critical push for national cyber resilience. European firms like IQM are also gaining public market traction.

US CHIPS Act Quantum Funding	Quantum VC Investment 2025	PQC Migration Deadline

$2.013B	$3.9B	2030

▶ IBM ▶ GlobalFoundries ▶ IonQ ▶ D-Wave ▶ QuEra

Refs: S3-03 S3-04 S3-07 S3-11 S3-13 S3-14 S3-27

TR-04 MED AI & Machine Learning

AI-Driven Material Discovery & Manufacturing Optimization

Generative AI Accelerates R&D; from Months to Days, Boosting Factory Efficiency

AI is revolutionizing material science and manufacturing. Generative AI, as demonstrated by Syensqo and Matforge, dramatically shortens material discovery timelines from months to days, accelerating innovation for semiconductors and other advanced applications. In manufacturing, AI vision systems (AWS Nova Pro, Overview.ai) achieve zero-defect standards and high-accuracy defect detection at line speed, solving the 'cold-start problem' for rare defects using synthetic data and driving autonomous factory development.

Material Discovery Time Reduction	Enterprise Workflow Productivity Boost	AI in Life Science Market 2031
Months to Days	20%	$69.34B

▶ Syensqo ▶ Microsoft ▶ Matforge ▶ AWS ▶ Overview.ai

Refs: S2-16 S2-18 S2-19 S2-20 S2-21 S2-22 S2-23

TR-05 LOW Photonics & Optical Comms

Optical Interconnects Revolutionize Data Center Efficiency

New Technologies Cut Power by 50%, Boost Bandwidth to 3.2Tbps for AI/HPC

Breakthroughs in optical interconnect technology are fundamentally transforming AI/HPC data centers. New solutions reduce GPU-to-GPU power consumption by up to 50% and expand bandwidth to 3.2 Tbps, addressing critical scalability and operational cost challenges. Silicon photonics and Co-Packaged Optics (CPO) are key enablers, with 1.6T transceivers entering trials and Broadcom's Tomahawk 6-O CPO platform targeting 2025 commercial deployment. Linear Pluggable Optics (LPO) also offer up to 25% power reduction.

Power Consumption Reduction	Max Bandwidth	CPO Power Efficiency Boost
50%	3.2Tbps	30%

▶ Broadcom ▶ Marvell ▶ Ayar Labs ▶ NTT ▶ Pilot Photonics

Refs: S4-01 S4-02 S4-03 S4-04 S4-05 S4-06

Macro Market Indicators

Indicator	Direction	Value	Note	Source
South Korea HBM Investment	↑	$252B	South Korea pledges $252 billion to support Samsung and SK Hynix in building HBM packaging factories.	Let's Data Science
US CHIPS Act Quantum Funding	↑	$2.013B	U.S. government allocates $2.013 billion in CHIPS Act incentives to nine quantum computing companies, including $1 billion for IBM.	The Motley Fool
EU Chips Act 3D IC Packaging R&D;	↑	€210M	EU Chips Act allocates €210 million to bolster 3D IC packaging R&D; for strategic semiconductor autonomy.	The Chosun Daily
Global AI Startup Funding H1 2026	↑	$510B	Global startup funding reached an unprecedented $510 billion in the first half of 2026, primarily fueled by the AI boom.	Crunchbase

Macro Environment Summary

Global governments and private investors are pouring hundreds of billions into advanced IT & Electronics, particularly AI infrastructure. The US CHIPS Act and EU Chips Act are channeling billions into semiconductor packaging and quantum computing R&D;, while South Korea commits $252 billion to HBM factories. This capital influx, alongside record global AI startup funding of $510 billion in H1 2026, signals a concerted effort to accelerate technological leadership and address critical supply chain bottlenecks.

Market Data: SOXX (Semiconductors) Weekly Trend

566.32 USD -4.00%

HBM Market Forecast Source: Samsung, GuruFocus

Samsung HBM4 sales forecast increased to $10B annually by year-end 2026, up from $1B in initial 4 months.

Year	Prev (B USD)	Curr (B USD)	Δ
2025	0.0	0.0	+0
2026	0.0	10.0	+10
2027	0.0	0.0	+0
2028	0.0	0.0	+0

CoWoS Packaging Capacity Severe Bottleneck → Increased Supply: 20%+ Price Hike

ASE increased advanced packaging prices by over 20% due to explosive AI demand and CoWoS supply constraints (S1-06). TSMC's CoWoS supply chain sees robust demand (S1-16).

Action Recommendations by Player

Action Recommendations for Western OEM

OEM NVIDIA, Intel, AMD, Google, Amazon, Microsoft, Apple, Palantir, HPE

Western OEMs like Google and Amazon are vertically integrating AI hardware, developing custom chips (Trainium, Jalapeño) and expanding cloud AI infrastructure, with Google Cloud revenue up 63% to $20.3B.

Risk

- Over-reliance on non-Western advanced packaging (TSMC CoWoS) creates supply chain fragility, risking 12-18 month delays for new AI product launches if capacity is not secured.
- Failure to secure HBM4 supply from Western-aligned sources could lead to significant competitive disadvantages in next-gen AI systems.
- Lagging in AI governance implementation could expose high-risk AI systems to regulatory penalties under the EU AI Act by late 2027.

Opportunity

- Partner with Western foundries and material suppliers to co-develop 3D IC packaging solutions, leveraging EU Chips Act €210M and US CHIPS Act incentives to secure domestic supply.
- Integrate agentic AI platforms to automate enterprise workflows, boosting internal productivity by 20% and freeing human resources for strategic tasks.
- Invest in optical interconnects (e.g., Ayar Labs' 3.2Tbps chiplets) to reduce GPU-to-GPU power consumption by 50% and eliminate AI accelerator bottlenecks.

Actions This Week

- By Q3 2026: Initiate joint R&D; projects with Western material suppliers (e.g., Soitec) for glass substrates and low-κ dielectrics to diversify advanced packaging options.
- Within 6 months: Evaluate and pilot Linear Pluggable Optics (LPO) for short-reach AI data center connections to reduce power consumption by up to 25% and cut costs.
- By Q4 2026: Establish multi-year HBM4 supply contracts with Western-aligned memory makers to mitigate future supply shocks and secure next-gen AI memory.

☐ Scenario: If non-Western advanced packaging capacity remains constrained through 2027, then Western OEMs must accelerate domestic 3D IC and HBM packaging R&D; and manufacturing partnerships to avoid significant product launch delays.

☐ Quick Win : This week: Task R&D; to assess the integration of Ayar Labs' 3.2Tbps optical I/O chiplets for next-gen AI accelerator designs, targeting 50% power efficiency gains.

Action Recommendations for Western Contract Manufacturer

Foundry GlobalFoundries, IBM (foundry), Intel Foundry Services

GlobalFoundries received $375M from the US CHIPS Act for diverse quantum architectures, while IBM secured $1B for a superconducting quantum foundry, bolstering Western capabilities.

Risk

- Lagging Asian OSATs (ASE, JCET) in FOPLP and CoWoS mass production, risking market share loss in advanced AI packaging, which sees 20%+ price increases.
- Failure to rapidly scale 3D IC packaging capacity could lead to Western OEMs seeking non-Western alternatives, impacting long-term contracts.
- Insufficient investment in quantum-specific fabrication processes could hinder participation in the emerging $2B US CHIPS Act quantum market.

Opportunity

• Leverage US/EU Chips Act funding (€210M EU, $2B US) to invest in 3D IC and panel-level packaging R&D;, targeting high-margin AI chip integration.

• Partner with Western quantum computing firms (e.g., IBM, QuEra) to provide specialized fabrication services for fault-tolerant quantum processors.

• Develop and offer secure, ITAR-compliant advanced packaging services for defense and critical infrastructure AI chips, leveraging government demand.

Actions This Week

• By Q4 2026: Develop a detailed roadmap for FOPLP mass production, targeting 2027 commercial readiness to compete with ASE's end-2026 launch.

• Within 3 months: Engage with Western OEMs (e.g., Intel, AMD) to co-invest in advanced packaging capacity, securing long-term contracts for AI and HPC chips.

• By Q3 2026: Establish a dedicated team to pursue EU Chips Act grants for 3D IC packaging R&D;, focusing on heterogeneous integration.

☐ Scenario: If Western OEMs prioritize domestic advanced packaging, then Western foundries must rapidly scale 3D IC and panel-level packaging capabilities by 2027, leveraging government incentives to capture market share.

☐ Quick Win : This week: Schedule a meeting with Intel Foundry Services and EU Chips Act program managers to explore joint ventures for 3D IC packaging R&D; and capacity building.

Action Recommendations for Western T&M; Provider

T&M; Teradyne, NI, Keysight, Eurofins, Bureau Veritas

AI-driven quality inspection (AWS Nova Pro, Overview.ai) and sub-10nm defect detection (Applied Materials) are creating new demand for advanced test and measurement solutions in semiconductor packaging.

Risk

• Failure to adapt existing test platforms for high-density 3D IC and optical interconnects, leading to obsolescence as packaging complexity increases.

• Lack of specialized expertise in quantum component characterization and post-quantum cryptography validation, missing emerging market opportunities.

• Slow adoption of AI-powered inspection tools, resulting in less efficient and less accurate defect detection compared to competitors.

Opportunity

• Develop AI-powered inspection and metrology tools for advanced packaging (HBM, FOPLP) and quantum components, targeting a $69.34B AI in life science market by 2031.

• Provide testing and certification services for post-quantum cryptography (PQC) solutions, capitalizing on the US federal mandate for PQC migration by 2030.

• Offer specialized test solutions for high-speed optical interconnects (1.6T/3.2T) and co-packaged optics (CPO) to support AI data center infrastructure.

Actions This Week

• By Q1 2027: Launch a new product line for sub-10nm defect detection and characterization specifically for 3D IC and HBM, aligning with Applied Materials' new systems.

• Within 6 months: Partner with AI vision software providers (e.g., Overview.ai, AWS) to integrate zero-shot defect detection into existing manufacturing test solutions.

• By Q3 2026: Invest in R&D; for quantum component testing and calibration, leveraging US CHIPS Act quantum initiatives to enter an emerging market.

☐ Scenario: If advanced packaging and quantum computing continue rapid development, then T&M; providers must invest heavily in AI-driven, sub-10nm metrology and quantum test solutions by 2027 to

remain competitive.

☐ Quick Win : This week: Initiate a competitive analysis of Applied Materials' new eBeam defect review system and identify gaps in current product offerings for 3D IC packaging.

Action Recommendations for Western Material Supplier

Material BASF, Dow, DuPont, Syensqo, Soitec

Syensqo, partnering with Microsoft, accelerates material discovery from months to days using generative AI, with Innores already adopting novel materials for semiconductor sealing solutions.

Risk

- Slow adoption of AI-driven material discovery tools, leading to longer R&D; cycles and loss of competitive edge against agile, AI-enabled competitors.
- Failure to develop specialized materials for 3D IC packaging (e.g., glass substrates, low-κ dielectrics) could limit participation in high-growth AI markets.
- Supply chain disruptions for critical raw materials could impact production and delivery timelines for advanced semiconductor and quantum components.

Opportunity

- Supply advanced materials (glass substrates, low-κ dielectrics) for 3D IC packaging and silicon photonics, leveraging EU Chips Act funding for R&D; (€210M).
- Utilize AI scientific assistants to accelerate the discovery of novel materials for quantum computing components, reducing R&D; timelines from decades to months.
- Provide high-performance materials for optical interconnects and co-packaged optics, supporting the demand for power-efficient AI data center infrastructure.

Actions This Week

- By Q4 2026: Implement generative AI platforms for material discovery, aiming to reduce R&D; timelines by 50% for advanced packaging and optical components.
- Within 3 months: Engage with EU-funded 3D IC packaging projects (e.g., Infineon, ASML subsidiary, Soitec) to become a preferred supplier for advanced substrates.
- By Q2 2027: Develop specialized low-κ dielectric materials compatible with DUV-assisted laser grooving for next-gen microelectronics packaging.

☐ Scenario: If AI-driven material discovery becomes standard by 2027, then Western material suppliers must integrate generative AI into their R&D; pipelines now to maintain innovation speed and market relevance.

☐ Quick Win : This week: Research Syensqo's partnership with Microsoft on generative AI for material discovery and identify potential AI solution providers for internal R&D; integration.

Action Recommendations for Western Distributor

Distributor Arrow Electronics, Avnet, Brenntag

The surge in AI infrastructure demand (HBM, advanced packaging, optical interconnects) creates significant opportunities for distributing high-value components and equipment.

Risk

- Failure to adapt supply chain logistics for highly specialized and sensitive advanced packaging materials and quantum components, leading to lost revenue opportunities.
- Increased direct sourcing by large OEMs and hyperscalers could bypass traditional distribution channels for high-volume AI components.
- Geopolitical tensions impacting cross-border trade could disrupt the flow of critical components, requiring more localized inventory and logistics.

Opportunity

• Become a key value-added reseller for advanced packaging equipment, AI chips, and optical interconnects, capitalizing on the $510B H1 2026 AI startup funding.

• Develop specialized distribution channels for quantum computing components and post-quantum cryptography hardware, leveraging US CHIPS Act incentives.

• Offer integrated supply chain solutions for AI data center builds, including HBM, optical transceivers, and power-efficient cooling systems.

Actions This Week

• By Q3 2026: Expand inventory and logistics capabilities for HBM and 1.6T/3.2T optical transceivers, anticipating increased demand from AI data center builds.

• Within 6 months: Develop specialized distribution channels for quantum computing components and post-quantum cryptography hardware, leveraging US CHIPS Act incentives.

• By Q4 2026: Offer value-added services like pre-integration and testing for advanced packaging components to differentiate from competitors.

☐ Scenario: If the AI infrastructure build-out continues at its current pace, then distributors must rapidly expand their high-value component logistics and technical support by 2027 to capture market share.

☐ Quick Win : This week: Identify top 5 Western advanced packaging equipment makers (e.g., Applied Materials, Lam Research) and initiate discussions for distribution partnerships in Europe and North America.

Action Recommendations for Western Equipment Maker

Equipment Applied Materials, Lam Research, ASML, Thermo Fisher, Sartorius, HPE, Qblox

Applied Materials launched six new systems for DRAM and advanced packaging, including sub-10nm defect detection, directly addressing AI chip bottlenecks. Lam Research expands wafer-to-panel processing.

Risk

• Intense competition from Asian equipment makers and the need for continuous, high-cost R&D; to keep pace with rapidly evolving advanced packaging and quantum technologies.

• Dependency on a few large customers (e.g., TSMC, Samsung) for advanced packaging equipment, making revenue streams vulnerable to their capex cycles.

• Failure to develop equipment for next-generation optical interconnect manufacturing could lead to market share loss in the rapidly growing AI data center segment.

Opportunity

• Supply critical equipment for 3D IC packaging, HBM manufacturing, and quantum foundries, leveraging US CHIPS Act ($2B) and EU Chips Act (€210M) funding.

• Innovate in wafer-to-panel processing and hybrid bonding solutions to support FOPLP and PLP mass production, addressing AI chip bottlenecks.

• Partner with quantum computing hardware developers (e.g., IBM, QuEra) to provide specialized manufacturing and control systems for fault-tolerant quantum computers.

Actions This Week

• By Q1 2027: Accelerate R&D; for next-gen wafer-to-panel processing and hybrid bonding solutions to support FOPLP and PLP mass production by 2027.

• Within 3 months: Engage with IBM's $1B quantum foundry project to supply specialized equipment for superconducting qubit fabrication and testing.

• By Q4 2026: Develop and commercialize equipment for manufacturing silicon photonics and co-packaged optics, targeting 2025 mass production timelines.

☐ Scenario: If advanced packaging and quantum manufacturing become highly localized due to geopolitical factors, then Western equipment makers must secure long-term government and OEM contracts by 2027 to

ensure sustained R&D; investment and market leadership.

☐ Quick Win : This week: Review Applied Materials' new systems for HBM and 3D stacking (S1-02, S1-17) and identify specific product development targets to match or exceed their capabilities by Q2 2027.

Impact Matrix (Players × Trends)

++ = Strong Tailwind + = Tailwind 0 = Neutral − = Headwind −− = Strong Headwind

Player	TR-01 HIGH Global	TR-02 HIGH Advanc	TR-03 MED Quantu	TR-04 MED AI-Dri	TR-05 LOW Optica
Western OEM	+	++	+	+	++
Western Contract Manufacturer	+	+	++	0	+
Western T&M; Provider	+	+	+	+	+
Western Material Supplier	+	+	+	+	+
Western Distributor	+	+	0	+	+
Western Equipment Maker	++	+	++	++	++

Timeline This Week (10 Events)

Date	Tag	Headline	Source
2026-06-25	policy	EU Chips Act allocates €210M for 3D IC packaging R&D;	EU S1-01, S1-19
2026-06-25	product	Applied Materials unveils new systems for DRAM & advanced packaging	USA S1-02, S1-17
2026-06-25	policy	US Government allocates $2.013B CHIPS Act incentives for quantum	USA S3-27
2026-06-27	deal	OpenAI signs $38B, 7-year computing deal with AWS	USA S2-24
2026-06-29	product	Broadcom unveils Tomahawk 6-O CPO switch ASIC for AI networks	USA S4-03
2026-07-01	milestone	Fujitsu to deploy 1,024-qubit superconducting quantum computer	Japan S3-05
2026-07-02	policy	South Korea pledges $252B for HBM factories	South Korea S2-01
2026-07-02	milestone	IQM Quantum Computers debuts on Nasdaq with $1.9B valuation	USA S3-11
2026-07-02	policy	EU AI Act revisions finalize, high-risk compliance extended to 2027/2028	Europe S2-14
2026-07-03	milestone	Duke Quantum Center & IonQ demonstrate 3-node GHZ state	USA S3-06

Company Spotlight

Applied Materials [AMAT] ↑ New Systems Launch

Unveiled six new systems for DRAM and advanced packaging, including sub-10nm defect detection, directly addressing AI chip bottlenecks and HBM manufacturing.

- OEMs: Evaluate new AMAT systems for HBM and 3D stacking integration by Q4 2026.
- Foundries: Benchmark current process capabilities against AMAT's sub-10nm defect detection.

Samsung Electronics [005930.KS] ↑ HBM4 Sales Surge

Pivoted half of HBM production to HBM4, achieving $1B sales in 4 months and projecting $10B annually, solidifying AI memory leadership.

- OEMs: Secure HBM4 supply contracts with Samsung by Q3 2026 to ensure next-gen AI product timelines.
- Investors: Monitor Samsung's HBM4 capacity expansion and optical HBM development for 2028.

Quantum Systems ↑ $1.2B Funding Round

German defense tech startup raised $1.2B at an $8B valuation to scale autonomous systems and invest in advanced AI capabilities, partnering with Airbus.

- Investors: Research Quantum Systems' defense AI applications and potential for dual-use technologies.
- OEMs: Explore partnerships for integrating autonomous AI systems in critical infrastructure projects.

Technology Roadmap

2026

- ◆ ASE FOPLP mass production begins (S1-03).
- ◆ Fujitsu 1,024-qubit QC deployment (S3-05).
- ◆ EU AI Act transparency rules effective (S2-14).

2027

- ◆ High-risk AI systems compliance deadline (EU AI Act) (S2-14).
- ◆ CXMT HBM wafer capacity acceleration (S1-21).
- ◆ Western foundries target FOPLP readiness.

2028

- ◆ Samsung optical HBM mass production (S1-18).
- ◆ QuEra 'Libra' fault-tolerant QC on Amazon Braket (S3-13).
- ◆ Crédit Agricole/Pasqal quantum finance use cases (S3-16).

2029

- ◆ Ohio 2-3 GW AI data center campus launch (S2-04).
- ◆ US federal systems PQC migration for key establishment (S3-04).

2030

- ◆ Fujitsu 10,000+ qubit QC (S3-05).
- ◆ NTT IOWN photonic-electronic convergence commercialization (S4-06).
- ◆ US federal systems PQC migration for digital signatures (S3-04).

References (96 Total)

ID	Title	Source	Date	Region	Sub-Topic
S1-01	EU Chips Act Allocates €210M to Bolster 3D IC Packaging R&D; for Strategic Semiconductor Autonomy	The Chosun Daily	2026-06-25	EU	Semiconductor Packaging
S1-02	Applied Materials Unveils New Systems to Propel DRAM & Advanced Packaging for AI Chips	StockTitan	2026-06-25	US	Semiconductor Packaging
S1-03	ASE to Commence FOPLP Mass Production by End-2026, Launching 15 Expansion Projects Amid AI Chip Boom	TrendForce	2026-06-25	Taiwan	Semiconductor Packaging
S1-04	Intel and TSMC Champion Panel-Level Packaging, Projecting a Tenfold Market Expansion	The Elec	2026-07-02	South Korea	Semiconductor Packaging
S1-05	Applied Materials Guides Memory Makers to 'Logic-Class' Fabrication for Advanced Packaging	Futurum Group	2026-06-26	US	Semiconductor Packaging
S1-06	ASE Elevates Advanced Packaging Quotes Over 20% Amid Explosive AI Demand Crunch	SiliconAnalysts	2026-07-02	Taiwan	Semiconductor Packaging
S1-07	AI Packaging Bottleneck Shifts: CoWoS, Wafer-Scale, and CoWoP Emerge as Key Solutions	EDN	2026-06-26	US	Semiconductor Packaging
S1-08	Lam Research Forges Advanced Packaging Future with Wafer-to-Panel Processing Expansion	Lam Research Newsroom	2026-06-26	US	Semiconductor Packaging
S1-09	Samsung's HBM4 Sales Projected to Surpass $10 Billion, Driven by Surging AI Demand	GuruFocus	2026-06-26	South Korea	Semiconductor Packaging
S1-10	eWeek Reports on Critical AI Chip Bottlenecks: Advanced Packaging Identified as Key Solution	eWeek	2026-06-26	US	Semiconductor Packaging
S1-11	BOE Commences Sample Shipments of Glass Substrates for Advanced Chip Packaging to Domestic Customers, Signaling Innovation Boost	36Kr English	2026-06-27	China	Semiconductor Packaging
S1-12	SK Hynix Announces Massive $64 Billion Investment in South Korea to Bolster AI Memory and Packaging Capabilities	Biggo Finance	2026-07-02	South Korea	Semiconductor Packaging
S1-13	JCET Shares Soar on Major Investment in Advanced Chip Packaging Capabilities	Morningstar (Dow Jones News)	2026-06-25	China	Semiconductor Packaging
S1-14	Nomura Raises TSMC Target Price, Citing AI Infrastructure Cycle as Key Growth Driver	Futu News	2026-06-27	Taiwan	Semiconductor Packaging
S1-15	Kioxia Accelerates Next-Gen Memory Mass Production Amid AI Boom, Poised for Dramatic Comeback	Channel News Asia	2026-06-26	Japan	Semiconductor Packaging

ID	Title	Source	Date	Region	Sub-Topic
S1-16	TSMC's CoWoS Packaging Equipment Supply Chain Sees Robust Demand Amid AI Surge	DigiTimes	2026-06-30	Taiwan	Semiconductor Packaging
S1-17	Applied Materials Unleashes Six New Systems to Turbocharge AI Chips with Advanced Packaging and Sub-10nm Defect Detection	Applied Materials	2026-06-25	US	Semiconductor Packaging
S1-18	Samsung Pivots to HBM4, Hits $1B Sales Milestone, Eyes Optical HBM by 2028	Samsung	2026-07-02	South Korea	Semiconductor Packaging
S1-19	EU Chips Act Funds €210 Million for 3D IC Advanced Packaging, Benefiting Infineon, ASML Subsidiary, and Soitec	Qishuai-cn	2026-06-25	Germany	Semiconductor Packaging
S1-20	Fraunhofer Develops DUV-Assisted Athermal Laser Grooving for Low-κ Dielectrics in Advanced Packaging	Karriere Fraunhofer-Gesellschaft	2026-06-29	Germany	Semiconductor Packaging
S1-21	CXMT Confronts HBM Production Barriers: China's Memory Ambitions Hinge on Yield and Advanced Packaging Breakthroughs by 2028	South China Morning Post	2026-07-02	China	Semiconductor Packaging
S1-22	CHIPS Act Successfully Attracts Taiwanese Semiconductor Suppliers to US, Creating New Opportunities in Advanced Packaging and Materials Supply	Fidelity Investments	2026-07-01	US	Semiconductor Packaging
S2-01	South Korea Pledges $252 Billion for HBM Factories, Meta and xAI Initiate AI Compute Resale Market	Let's Data Science	2026-07-02	South Korea、USA	AI & Machine Learning
S2-02	EU AI Act Sets Global Standard for Risk-Based Governance and Human Oversight, Mandating Transparency in AI Deployment	Compliance Week	2026-07-02	Europe、USA	AI & Machine Learning
S2-03	Healthcare AI Governance Faces Hurdles from Regulatory Overlap and Patient Opt-Out, HIMSS Advocates Comprehensive Data Governance	Medical Buyer	2026-07-02	India	AI & Machine Learning
S2-04	Ohio to Host 2-3 Gigawatt AI Data Center, "The Real Stargate Ohio," Targeting Q2 2029 Launch; Silicon Foundation Energy Also Plans New Facility	News and Sentinel	2026-06-30	US	AI & Machine Learning
S2-05	OpenAI Develops Custom AI Inference Chip 'Jalapeño' with Broadcom, Adopting Apple-esque Vertical Integration to Reduce Nvidia Dependence	TechRadar	2026-06-30	US	AI & Machine Learning
S2-06	White House Accelerates Voluntary AI Model Testing Rules with OpenAI, Google, Anthropic for "Frontier AI Models"	Investing.com	2026-07-02	US	AI & Machine Learning

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S2-07	Google Cloud Revenue Jumps 63% to $20.3 Billion with Over $460 Billion in Backlog, Seizing Leadership in AI Infrastructure Market	24/7 Wall St.	2026-07-02	US	AI & Machine Learning
S2-08	AWS Launches $1 Billion AI Field Deployment Engineering Team to Build Custom AI Systems for Customers, Competing with OpenAI and Anthropic	KuCoin	2026-06-30	US	AI & Machine Learning
S2-09	Amazon to Offer Trainium AI Chips to External Customers, Expanding Marvell's Opportunities as Key Design Partner in AI Data Center Market	Simply Wall St News	2026-07-03	US	AI & Machine Learning
S2-10	AMD MI500 Series Matches Nvidia B300 in MLPerf Inference Benchmarks, Signifying a Shift in the AI Chip Market Landscape	Apple Podcasts (Semiconductor News with Fexingo)	2026-06-25	US	AI & Machine Learning
S2-11	China's Zhipu AI "GLM-5.2" Rivals Anthropic's Mythos in Cybersecurity Benchmarks, Signaling Concern for Nvidia and Micron Investors	Trefis	2026-06-29	China、USA	AI & Machine Learning
S2-12	Palantir Stock Surges 7% on Enhanced Strategic Partnership Integrating Nvidia's Nemotron for US Government and Critical Infrastructure	International Business Times Australia	2026-07-01	USA、Australia	AI & Machine Learning
S2-13	Major Tech Company Unveils AI Agent Platform to Automate Enterprise Workflows, Boosting Productivity by 20%	TechCrunch	2026-06-28	US	AI & Machine Learning
S2-14	EU AI Act Revisions: High-Risk Systems Gain Compliance Extension, AI Content Transparency Fast-Tracked	VinciWorks	2026-07-02	Europe	AI & Machine Learning
S2-15	Global AI Startup Funding Hits Record $510 Billion in H1 2026, OpenAI and Anthropic Account for 43%	Crunchbase	2026-07-02	Global	AI & Machine Learning
S2-16	AWS Introduces "Nova Pro" Zero-Shot Defect Detection and Agentic AI for Autonomous Factories	AWS	2026-06-25	US	AI & Machine Learning
S2-17	Qualcomm Unveils 'Dragonfly' Data Center Portfolio, Secures Meta & Microsoft Deals, Acquires Modular for $3.92 Billion	Medium (Noah Bean)	2026-06-25	US	AI & Machine Learning
S2-18	Overview.ai Achieves ITAR-Compliant Zero-Defect Standards for Military and Defense Manufacturing with Edge AI Vision Inspection	Overview.ai	2026-06-26	US	AI & Machine Learning
S2-19	Syensqo, Partnering with Microsoft, Accelerates Advanced Material Discovery from Months to Days using Generative AI; Innores Achieves Commercial Adoption	Hello Tomorrow	2026-07-01	France	AI & Machine Learning

ID	Title	Source	Date	Region	Sub-Topic
S2-20	AI Scientific Assistants Accelerate Material Discovery, Establishing Themselves as Everyday Scientific Infrastructure	Near-Future Breakthroughs	Date unknown	Global	AI & Machine Learning
S2-21	AI Vision Revolutionizes Solar Panel Manufacturing Defect Detection, Achieving High-Accuracy Microcrack Identification at Line Speed	ifactoryapp.com	2026-06-29	US	AI & Machine Learning
S2-22	Synthetic Data Revolutionizes AI Quality Inspection Training, Solving the 'Cold-Start Problem' for Rare Defects in Manufacturing	zetamotion.com	2026-06-30	US	AI & Machine Learning
S2-23	Y Combinator-Backed Matforge Accelerates Semiconductor Material Discovery with 'AI Scientists', Reducing Timeline from Decades to Months	Y Combinator	Date unknown	US	AI & Machine Learning
S2-24	OpenAI Inks $38 Billion, 7-Year Computing Deal with Amazon AWS, Expands Partnerships with Apple and Reddit	Britannica Money	2026-06-27	US	AI & Machine Learning
S2-25	WeRide's GENESIS Autonomous Driving Platform Wins 'Generative AI Platform of the Year,' Cuts Data Costs Over 75%, Accelerating Global Commercialization	Markets Insider	2026-06-25	China	AI & Machine Learning
S2-26	Google's Waymo Scales Robotaxi Operations to Over 500,000 Weekly Paid Driverless Rides Across 11 Metros, Driving AI's Real-World Deployment	AI Supremacy	2026-06-25	US	AI & Machine Learning
S2-27	Aily Labs and AWS Partner to Deploy AI Decision Intelligence to Fortune 500, Leveraging Over $101M in Funding	Morningstar	2026-07-02	US	AI & Machine Learning
S2-28	MDPI Warns: Over $100 Billion Investment in AI Drug Discovery Fails to Improve Clinical Trial Success Rates, Citing Validation and Regulatory Gaps	MDPI	2026-07-01	Switzerland	AI & Machine Learning
S2-29	MARVEL Hub Catalyzes Over $800M in AI-Driven Materials Startup Funding, Bolstering Switzerland's Innovation Ecosystem	Quantum Zeitgeist	2026-07-01	Switzerland	AI & Machine Learning
S2-30	AI's Application in Drug Discovery Described as 'Steady Evolution' by Clinical Leader, with AI Adoption Slower in Clinical Development	Clinical Leader	2026-07-01	US	AI & Machine Learning
S2-31	CaoCao Mobility Unveils 'RoboX' Plan to Commercialize L4 Autonomous Driving with AI-Driven Operations	KR Asia	2026-06-30	China	AI & Machine Learning
S2-32	Datavault AI and Patriot Strategic Metals Establish Up to $700M Initial Fund to Build Digital Financial Infrastructure for Strategic Mineral Assets	ir.datavaultsite.com	2026-07-01	Global	AI & Machine Learning

ID	Title	Source	Date	Region	Sub-Topic
S2-33	AI in Life Science Market Projected to Reach $69.34 Billion by 2031, Driven by Advanced AI Architectures: GlobeNewswire Report Overview	GlobeNewswire	2026-07-01	Global	AI & Machine Learning
S2-34	XPENG Unveils 'X-Mind' Framework for Predictive Autonomous Driving AI, Completing Physical AI Foundation Model with 'Future-Foresight Brain'	PRNewswire	2026-06-29	China	AI & Machine Learning
S2-35	Anthropic Launches 'Claude Science' for Pharmaceutical Researchers to Aid Drug Discovery and Improve Patient Experience	pharmaphorum	2026-07-01	US	AI & Machine Learning
S2-36	SK bioscience Leads Gates Foundation-Funded AI Platform 'ROTOR' to Enhance Vaccine Development Decisions, Focusing on Next-Gen Rotavirus Vaccines	PR Newswire	2026-07-02	South Korea	AI & Machine Learning
S2-37	Kanerika Unveils Custom LLM Development Services for Enterprises, Emphasizing Robust Governance and Compliance for Regulated Industries	Kanerika	2026-06-30	India	AI & Machine Learning
S2-38	BioNetwork Consulting Introduces Agentic AI for Clinical Operations, Offering Expertise in Gen AI Governance and Real-World Evidence Strategy	BioNetwork Consulting	2026-07-01	US	AI & Machine Learning
S3-01	Yale's ERASE Project Secures $4 Million NSF Grant to Advance Fault-Tolerant Quantum Computing	YaleNews	2026-06-25	US	Quantum Computing
S3-02	German Defense Tech Startup Quantum Systems Raises $1.2 Billion at $8 Billion Valuation to Scale Autonomous Systems	Vestbee	2026-07-02	Germany	Quantum Computing
S3-03	Quantum Computing Nears Real-World Viability as Technology Maturation Accelerates	Fast Company	2026-07-02	US	Quantum Computing
S3-04	U.S. Accelerates Quantum Tech & PQC Adoption: $2B CHIPS Act Grants to IBM, GlobalFoundries; Federal Systems Mandated PQC Migration by 2030	Wiley Rein	2026-06-30	US	Quantum Computing
S3-05	Fujitsu to Deploy 1,024-Qubit Superconducting Quantum Computer in FY2026, Targeting Practical Quantum Computing by 2030	Fujitsu Global	2026-07-01	Japan	Quantum Computing
S3-06	Duke Quantum Center & IonQ Demonstrate First Fully Distributed 3-Node GHZ State Using Photonic-Linked Atomic Qubits	Quantum Computing Report	2026-07-03	US	Quantum Computing
S3-07	Quantum Computing VC Investment Hits Record $3.9 Billion in 2025, Led by BlackRock, Nvidia, and Temasek	Crypto Briefing	2026-06-29	US	Quantum Computing

ID	Title	Source	Date	Region	Sub-Topic
S3-08	Horizon Quantum IPO Sees Boost from US Executive Order, Plans Ireland Research Center with IonQ Quantum Computer	The Motley Fool	2026-07-01	US	Quantum Computing
S3-09	Quantum Computing in Pharma R&D;: Strategic Trends and Recommendations for Leaders Targeting Late 2020s Operational Impact	Sakara Digital	2026-06-28	US	Quantum Computing
S3-10	RIKEN's 144-Qubit Superconducting Quantum Computer "Ei-II" Commences Operation with 99.9% Fidelity Amid Japan-Taiwan Compound Semiconductor Collaboration	digitimes	2026-06-30	Taiwan	Quantum Computing
S3-11	IQM Quantum Computers Debuts on Nasdaq with $1.9 Billion Valuation, Becomes First European Quantum Firm Listed on Major U.S. Exchange	Business Wire	2026-07-02	US	Quantum Computing
S3-12	Qolab Secures $54.2M Series B Led by UC Investments to Accelerate Superconducting Quantum Platform Development	GlobeNewswire	2026-07-02	US	Quantum Computing
S3-13	QuEra Unveils Fault-Tolerant Roadmap Including GigaQuop-Class Systems, Expands AWS Partnership for 2028 "Libra" Launch on Amazon Braket	PR Newswire	2026-06-25	US	Quantum Computing
S3-14	Quantum Computing Investment Shifts Towards Ecosystem Development, Government Funding Accelerates Manufacturing and Post-Quantum Cryptography with $2.013 Billion CHIPS Act Incentives	Lux Research	2026-07-02	US	Quantum Computing
S3-15	French QPerfect Powers Commercial Launch of SDT's QuREKA™ Hybrid Quantum Cloud in South Korea	PR Newswire	2026-07-02	South Korea	Quantum Computing
S3-16	Crédit Agricole CIB and Pasqal Deepen Partnership to Deploy Quantum Computing in Finance, Targeting 2028 Production Use Cases for Credit Risk and Portfolio Optimization	Pasqal	2026-06-29	France	Quantum Computing
S3-17	D-Wave Awarded Over $1.5 Million NSF Grant to Advance Quantum Software, Error Correction, and Workforce Development, Bolstering U.S. Quantum Leadership	Business Wire	2026-06-30	US	Quantum Computing
S3-18	Google Cloud Launches SandboxAQ's Quantum-Inspired Scientific AI Models, "AQCat" and "AQPotency," on Marketplace to Accelerate Drug Discovery and Materials Science	GxP News	2026-06-30	US	Quantum Computing

ID	Title	Source	Date	Region	Sub-Topic
S3-19	Quantum Global Technologies Secures Over $3 Million Texas State Grant for $43 Million Austin Semiconductor Expansion, Strengthening 2nm Chip Supply Chain	Texas Border Business	2026-06-25	US	Quantum Computing
S3-20	Classiq and QAI Launch South Korea's First Local Quantum-as-a-Service (QaaS) Offering, Integrating with Domestic AI Data Centers	Markets Insider	2026-07-01	South Korea	Quantum Computing
S3-21	German Quantum Systems Closes €1 Billion Series D Funding Round, Soaring to €7 Billion Valuation to Expand Autonomous Systems Business	Munich Startup	2026-07-03	Germany	Quantum Computing
S3-22	U.S. NIST Launches New Center with SRI International to Accelerate Commercialization of Quantum Sensing and Sensor Manufacturing	NIST	2026-06-29	US	Quantum Computing
S3-23	Redwood AI Acquires Quantum.IQ Technologies, Enhancing Support for Government, Defense, and Financial Institutions in Modernizing Cryptographic Systems for Post-Quantum Era	Mergers & Acquisitions	2026-06-29	US	Quantum Computing
S3-24	BTQ Technologies Completes Full Acquisition of QPerfect, Integrating MIMIQ™ Quantum Emulator and Digital Twin Capabilities into its Tech Stack	PR Newswire	2026-07-01	France	Quantum Computing
S3-25	Korea Research Institute of Standards and Science (KRISS) Partners with Fairfax County EDA to Support Korean Quantum Firms' Entry into U.S. Market	Seoul Economic Daily	2026-07-03	South Korea	Quantum Computing
S3-26	Qblox Partners with HPE to Advance Hybrid Classical-Quantum Computing, Integrating Quantum Control Systems into HPE's HPC/AI Infrastructure	PR Newswire	2026-06-25	Netherlands	Quantum Computing
S3-27	U.S. Government Allocates $2.013 Billion in CHIPS Act Incentives to Nine Quantum Computing Companies, Including $1 Billion for IBM Quantum Foundry	The Motley Fool	2026-06-25	US	Quantum Computing
S3-28	BIO 2026 AI Summit Highlights Quantum Drug Discovery as Imminent Reality: IBM and Cleveland Clinic Successfully Simulate 303-Atom Trp-Cage Protein Electron Structure	GeneOnline	2026-07-02	Global	Quantum Computing
S4-01	New Optical Interconnect Technology Reduces Power Consumption by 40% for GPU-to-GPU Links in AI/HPC Data Centers, Boosting Scalability	Lightwave Online	2026-06-28	US	Photonics & Optical Comms

ID	Title	Source	Date	Region	Sub-Topic
S4-02	1.6T Silicon Photonics Transceivers Enter Trials at Major Cloud AI Data Centers, Accelerating Towards 2025 Mass Production	EE Times	2026-07-01	US	Photonics & Optical Comms
S4-03	Broadcom Unveils Next-Gen "Tomahawk 6-O" Co-Packaged Optics Switch ASIC Platform for AI Networks, Achieving 30% Power Efficiency Boost Towards 2025 Commercial Deployment	Broadcom Investor Relations News	2026-06-29	US	Photonics & Optical Comms
S4-04	Marvell Expands Silicon Photonics Solutions for High-Performance AI Infrastructure, Supporting Bandwidth Up to 3.2T for GPU Interconnects	Marvell Newsroom	2026-06-30	US	Photonics & Optical Comms
S4-05	Ayar Labs Announces 50% Power Efficiency Boost and 3.2Tbps Bandwidth Expansion for Optical I/O Chiplets, Eliminating AI Accelerator Bottlenecks	Ayar Labs Blog	2026-07-02	US	Photonics & Optical Comms
S4-06	NTT Announces Breakthrough in IOWN Photonic-Electronic Convergence Technology, Halving Power Consumption and Reducing Latency by 90% for Data Center Interconnects	NTT R&D; News	2026-06-27	Japan	Photonics & Optical Comms
S4-07	Linear Pluggable Optics (LPO) Undergoing Extensive Evaluation in AI Data Centers for Up To 25% Power Reduction by Eliminating DSP in Short-Reach Connections	Optical Connections	2026-06-26	US	Photonics & Optical Comms
S4-08	Pilot Photonics Secures €10.4M EIC Investment to Scale Photonic Chips for AI and 6G Networks	Silicon Republic	2026-07-03	Ireland	Photonics & Optical Comms

Editor's Note

Navigating the AI-Driven IT & Electronics Frontier

The IT & Electronics sector is undergoing a profound transformation, driven by the insatiable demand for AI. This week's analysis reveals a landscape characterized by massive capital injections, rapid technological advancements, and intensifying geopolitical competition. Western manufacturers, investors, and executives must recognize that the future of AI is intrinsically linked to breakthroughs in advanced semiconductor packaging, quantum computing, and high-speed optical interconnects. Strategic investments in these foundational technologies are not merely about incremental improvements but about securing a competitive edge in the next decade.

The convergence of these sub-topics creates both immense opportunities and critical vulnerabilities. For instance, the AI chip bottleneck in advanced packaging (CoWoS, HBM) directly impacts AI model deployment, while the development of custom AI chips by hyperscalers signals a shift towards vertical integration. Simultaneously, quantum computing is moving from theoretical to practical applications, promising to revolutionize drug discovery and materials science, areas where AI is already accelerating R&D.; Western players must prioritize integrated strategies that address these interdependencies, fostering

cross-domain collaboration and leveraging government incentives to build resilient, innovative ecosystems.

To thrive in this dynamic environment, Western stakeholders must adopt a proactive stance. This includes aggressive investment in domestic R&D; and manufacturing capacity for advanced packaging and quantum technologies, establishing robust AI governance frameworks, and fostering talent development in these specialized fields. The race for AI supremacy is not just about software; it's about the underlying hardware and infrastructure that enables it. Those who master this integrated approach will define the future of IT & Electronics.

- ◆ How can Western OEMs and foundries accelerate domestic advanced packaging capacity to reduce reliance on non-Western suppliers by 2027?
- ◆ What specific investments in AI-driven material discovery and manufacturing optimization can yield a 20% productivity gain within the next 12 months?
- ◆ What strategic partnerships are essential for Western quantum computing firms to transition from R&D; to commercial deployment of fault-tolerant systems by 2028?

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Next Issue Vol. 50 Monday, July 13, 2026 06:00 JST Feature: Edge AI & IoT Integration