

AI infrastructure, packaging, photonics, quantum and governance converge into one roadmap.



83
Articles



72/100
Market Mood –
Dynamic Growth



\$242B
AI Startup
Funding



35%
CPO Adoption
by 2030

4 Signals That Decide Reading Value

1



AI Infrastructure Demand

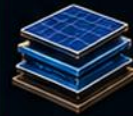
- NVIDIA growth 85%.
- HBM and advanced-packaging capacity pressure.
- China invests in domestic AI compute and grid power.

Supply Pressure

94



For Engineers



CoWoS / HBM



Hybrid Bonding



CPO /
Optical I/O

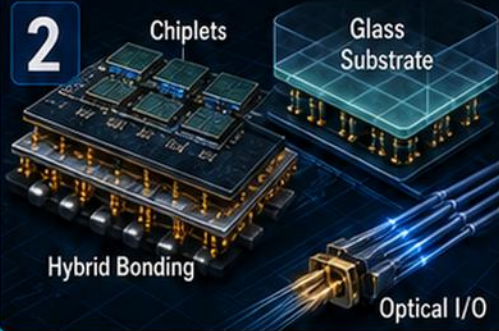


QEC / PQC



AI Safety

2



Compute Architecture Convergence

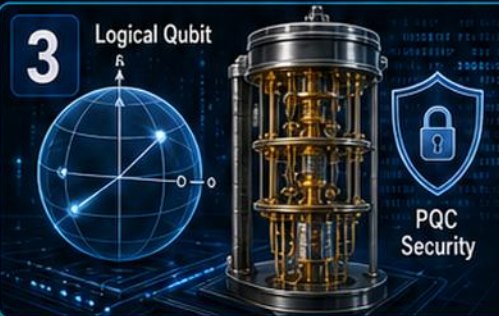
- Chiplets and hybrid bonding move into roadmaps.
- CPO reduces data-movement power.
- Equipment and yield qualification remain gating factors.

Execution Momentum

82



3



Fault-Tolerant Quantum

- Logical-qubit break-even becomes benchmark.
- Reported gains up to 800x require verification.
- PQC migration timing becomes a board-level issue.

Strategic Readiness

70



For Planners



Capacity
Contracts



Optical
Investment



Quantum
Partners



Compliance



Business
Continuity

4



AI Governance Becomes Product Work

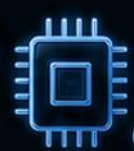
- US/EU safety frameworks affect product requirements.
- Agent reliability and ROI remain uneven.
- Governance must connect model, data and hardware controls.

Regulatory Pressure

58



Conclusion: AI infrastructure, packaging, photonics, quantum and governance must be managed as one investment roadmap.





Ascend 910C
Huawei AI Compute



50-60%
SMIC 7nm N+2 Yield




JPY 10T+
Japan Support to FY2030




WFE +20%
Tokyo Electron 2026-27

China Watch


- 

Huawei AI Compute Stack


 - Ascend 910C / Atlas 350 accelerators.
 - Software ecosystem expanding rapidly.
 - Deployment scale challenges Western suppliers.
- 

SMIC 7nm N+2

REPORTED YIELD: **50-60%**
TREND: **STABLE** ✓


 - Reported yield 50-60%.
 - Capability confirmed but economics and equipment access remain constraints.
 - Repeatability across volume runs is key.
- 

\$295B AI Grid Build-Out

 - Data-center power and transmission investment becomes AI scaling advantage.
 - Verify utilization assumptions.
 - Regional bottlenecks remain a risk.
- 

CXMT DDR5 Cost Gap

 - Domestic memory capacity expands quickly.
 - Yield, performance and qualification gaps persist.
 - Customer acceptance remains critical.

Strategic Pressure: 92 / 100 

Japan Signals

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JPY 10T+ Support Package

 - Semiconductor and AI support through FY2030.
 - Opportunity for equipment, materials and advanced packaging.
 - Track program details and eligibility.
- 

JPY 84B AI / DX Subsidies

 - Implementation funding opens enterprise AI and infrastructure demand.
 - Track recipient projects and procurement.
 - Focus on manufacturing and regional DX hubs.
- 

Tokyo Electron WFE +20%

 - Expected equipment demand growth in 2026-27.
 - Watch order mix, leading-edge nodes and packaging tools.
 - Capacity lead times remain tight.
- 

Rapidus Partnership Window

 - Domestic leading-edge production creates openings.
 - Materials, metrology, packaging and equipment opportunities.
 - US/EU co-development partnerships are welcome.

Partnership Value: 90 / 100 

What This Means for Japan / US / EU Teams



Validate China yield and cost claims independently.



Secure HBM, CoWoS, optics and wafer-equipment capacity.



POLICY → ROADMAP

- FUNDING
- SUPPLIERS
- MILESTONES
- RISKS
- KPIs

Immediate Watchlist

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Track SMIC 7nm N+2 repeatable yield across volume runs.
- 

Monitor CXMT DDR5 qualification and acceptance.
- 

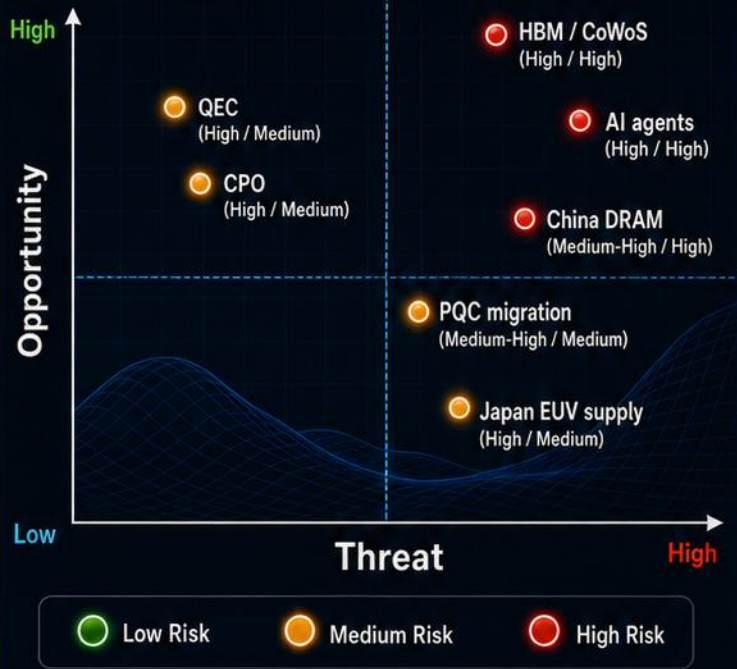
Map Rapidus and Tokyo Electron partnership opportunities.

China raises compute and supply pressure; Japan offers equipment, materials and co-development leverage.

Where to Read: Technical and Planning Actions — IT & Electronics

Use the report to update roadmaps, secure supply, and manage risk across advanced packaging, optics, quantum, and AI systems.

Opportunity vs Threat Map



Who Should Read



1 R&D / Packaging

CoWoS, HBM, hybrid bonding, NIL/DSA, AI ASICs



2 Data Center / Optics

CPO, photonic I/O, liquid cooling, high-speed networks



3 Procurement / SCM

HBM suppliers, CoWoS slots, China exposure, wafer supply



4 Quantum / Cybersecurity

QEC roadmap, PQC migration, crypto-agility, hardware security



5 Strategy / Planning

AI roadmap, CHIPS funding, partnerships, cost and ROI

Decision Questions



Can the AI roadmap survive packaging and memory constraints?



When must PQC migration begin?



Which China claims and Japan capacity signals change sourcing?

THIS WEEK

- Check CoWoS / HBM allocations
- Inventory crypto exposure
- Update wafer cost model

1 MONTH

- CPO pilot and system evaluation
- Benchmark QEC partners
- Assess CXMT samples

QUARTER+

- Secure advanced packaging capacity
- Execute PQC roadmap
- Build Japan materials partnerships



Practical value: The report converts IT & electronics signals into roadmap actions, supplier priorities, and risk controls.

