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Tech Bytes | Asia Pacific

Global Analog Semis – Is This Time Different?

Analog semiconductors are set for a cyclical recovery with optionality from AI and data centers. Demand indicators are clearly improving, pricing pressure is easing, and AI power/optical content is broadening the growth opportunity. Stay selective in bellwethers and AI/DC content beneficiaries.

Why revisit analog now? After more than three years stuck in an L-shape bottom, we think the analog setup is improving now on three fronts: 1) lean channel inventories, 2) pricing stabilizing, and 3) selective tight supply environment in mature-node and power-related products. This makes the next leg of cyclical recovery less reliant on a sharp macro rebound and even a modest improvement in Industrial and Automotive demand could support restocking. At the same time, AI computing and data centers are adding significant new content opportunities across rack power, digital power, memory interfaces, and optical connectivity. We think this is not a repeat of the 2020-23 shortage cycle, but a more selective tightening cycle where mature-node supply, analog/MCU pricing, and AI-related power demand offering the best investment opportunities.

Is this just another restock? A 'head fake' is a key risk, but recent companies' read-across so far have been much better than feared.

- TXN – the broad-cycle bellwether – is seeing the cleanest read-across for analog demand, pricing, and industrial/data center strength.
- STM issued above-seasonal guidance, calling a trough in 1Q for gross margin, and pointed to better MCU pricing, improving Industrial demand and data center revenue scaling to well above US$1bn by F27.
- Renesas reported strong March quarter revenue but softer June quarter margins, while still indicating strong near-term demand, channel inventory build, and faster growth in data center digital power and memory interfaces.
- NXP adds another important proof point – a broad beat/raise, better 2Q auto trajectory, new data center disclosure, and improving GM bridge.

What could make the upside case broader? AI/data center is turning analog from a pure auto/industrial cycle into a power and connectivity content story. The relevant exposures include 800V power architectures, power conversion, MCUs, digital power, silicon photonics, optical interconnects, and LEO (Low Earth Orbit) satellite communications. This does not remove cyclicality, but could lift a mid-cycle earnings base and multiples for select stocks if the cyclical turn coincides with visibility in AI/DC revenue contribution.

See the next section for How to play the theme .

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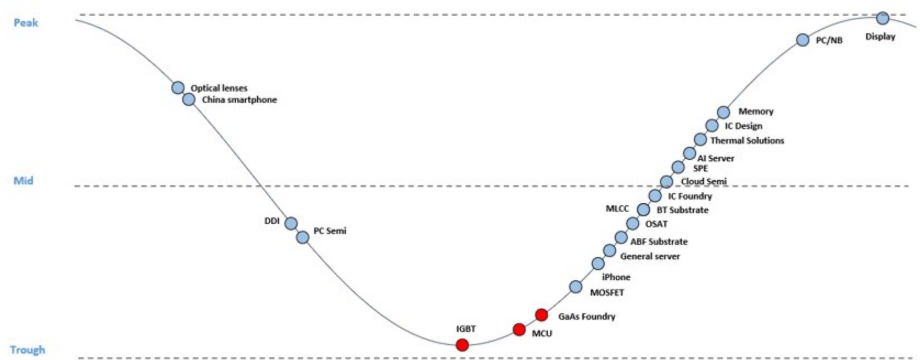
Overview (cont'd)

How to play the theme

We would put the analog groups into three buckets:

1. **Broad analog recovery** – We prefer *ADI*, *NXP*, and *Espressif* over *TXN* and *Nuvoton* as premium analog/MCU exposures with flexible geographic manufacturing matching, in addition to *ALGM* with both secular and cyclical tailwinds;
2. **AI/data centre power and connectivity** – *IFX* for AI rack power/800V, *STM* for optical/LEO and margin recovery, *Renesas* for digital power and memory interfaces; and
3. **Higher-beta power/800V** – *ON* for more torque to power/SiC and 800V architecture recovery.

Exhibit 1: Analog moving past cycle trough (current YoY relative to historical peaks and trough)



Source: Morgan Stanley Research

Why Revisit Analog Now? A Closer Look

Analog semis have historically been cyclical, slow-moving and tied to broad macro end markets. The segment has been in a prolonged L-shape bottom, but recent developments point to three changes that deserve investors' attention:

1. **Cycle trough appears increasingly credible.** Recent read-across from MS distributor survey, STM, TI, and Renesas point to better order visibility, stronger-than-expected Q2 outlooks, firmer pricing in selected industry categories, and evidence that Industrial and Automotive inventory corrections are largely behind the sector.
2. **Pricing is no longer a headwind.** After several quarters of pressure, survey and company commentary suggest pricing is stabilizing across analog/MCUs, particularly in distributor-facing products. ADI list prices increased in February 2026, and Renesas has flagged potential price revisions if raw material and logistics costs continue to rise. At the same time, trailing-edge foundries are pushing wafer prices higher, adding a cost-side catalyst for broader analog/MCU pricing.
3. **AI/data center is moving from narrative to numbers.** AI infrastructure is now increasingly relevant across the analog universe, from Infineon's power-semiconductor content per rack, to Renesas's digital power and memory-interface growth, and STM's silicon photonics, optical interconnects, and LEO satellite opportunity. TXN's management formally added Data Center as a standalone reporting segment since Q4 25 and NXP disclosed revenue exposure for the first time in their most recent 1Q26 earnings call.

Exhibit 2: Analog sector remains a laggard relative to SOX by 20% since 2025

Source: Morgan Stanley Research Note: Analog is an average performance of ON, NXPI, TXN, ADI, Renesas, IFX, STM

What's different this time?

The recovery does not need to be V-shaped to matter. If pricing stops deteriorating, channel inventories normalize, utilization improves, and AI-related power/optical content scales, earnings can recover even with only modest end-demand growth. We also note that the sector still needs macro support where industrial PMIs, auto production, China competition, and distributor digestion all remain relevant drivers – but many of which have improved materially since last year.

This creates a potentially different setup versus prior cycles. Analog semis are not only a cyclical recovery story, but also an AI content story. That does not eliminate cyclicality, but it can raise trough earnings visibility and justify a broader discussion around higher mid-cycle margins and higher multiples for selected names.

Key Drivers

1) Demand is broadening

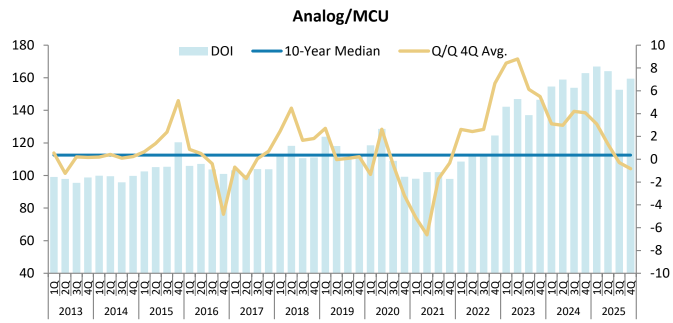
Our US semi team has highlighted stronger bookings trends in Industrial, Aerospace & Defence and power, consistent with improving PMI data. While SIA data moderated in February, much of that softness is likely due to Chinese New Year seasonality, with March bookings improving and strength broadening beyond the initial AI/data-center pockets.

- TXN provided the strongest company validation – management characterized demand signals as broad, most clearly in Industrial, and did not identify clear panic-buying behavior. Data Centre remains a major growth vector with +25% q/q sequential guidance and roughly 12% of revenue expected in the quarter. Autos were better than feared at flat q/q, communications were notably strong, and personal electronics were modestly better sequentially. The read-across is that analog recovery is no longer just an isolated Data Center or power-management story.
- Renesas also supports the broader demand call, though with more margin noise. Management flagged strong near-term demand and plans to build channel inventory, while also committing ¥94bn of capex to expand capacity for digital power products for data-centre applications. The key structural drivers are memory interfaces and digital power for data centres, R-Car Gen 4 and 28nm MCUs in Automotive.
- NXP strengthens the Auto/MCU leg of the argument. MarQ revenue and EPS were slightly ahead of expectations, but the more important point was the JunQ guide: revenue of US$3.45bn at the midpoint, up 8.5% q/q and 18% y/y, with GM/EPS of 58%/US$3.50. Auto was better than feared and 2Q points to a stronger high-single-digit sequential recovery, while China held up better than production headlines suggested. The bigger message is that auto semis remain a content story, not just a SAAR story, with SDV, zonal/central compute and L2+/L3 ADAS still early in the ramp.

2) Lean inventories support near-term restocking

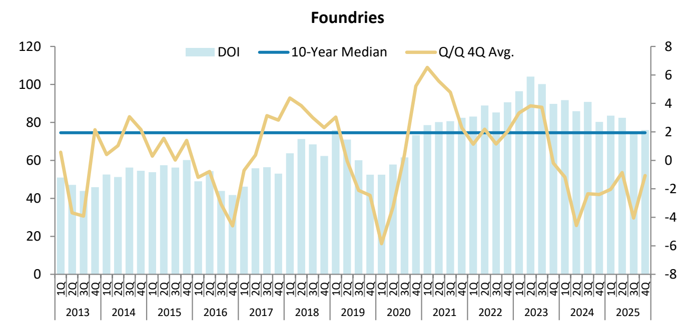
MS latest inventory tracker suggests the inventory backdrop has reached a tipping point. Semi-company inventory remains elevated versus history, but customer and distributor inventories are leaner, and lead times are reportedly being pushed out by 4-8 weeks. That creates a more favorable replenishment setup, especially if end demand continues to improve gradually. The most important distinction is that inventory is not uniformly clean. Supplier inventories still need to be worked down, but customer/distributor behavior is shifting from de-stocking to rebuilding. Survey respondents looking to deplete inventory fell materially, while intentions to build inventory rose across analog, MCU and connector product lines. This supports near-term revenue upside, but it also means investors need to monitor whether sell-through follows purchase orders.

Exhibit 3: Even though analog/MCU inventories are elevated...



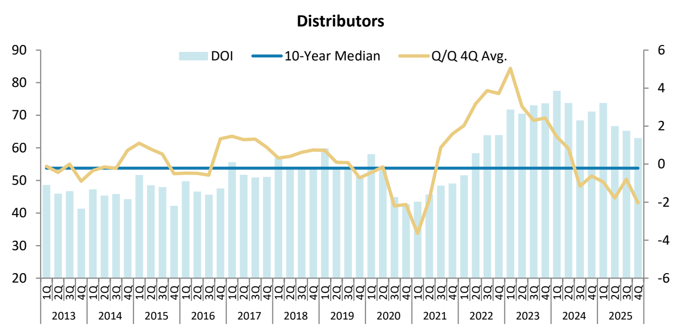
Source: FactSet, Morgan Stanley Research

Exhibit 4: ... foundry inventories have nearly fallen below LT median levels...



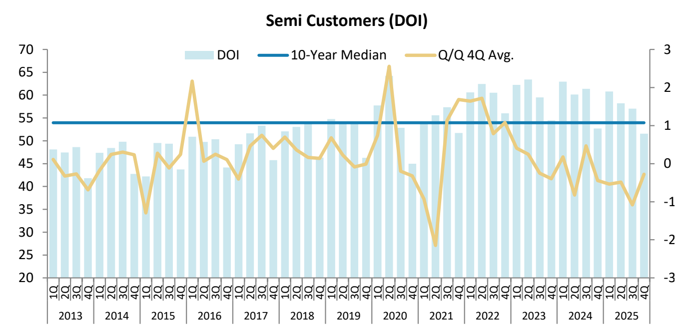
Source: FactSet, Morgan Stanley Research

Exhibit 5: ... while distributor inventory has been leaning out for the last 4Q...



Source: FactSet, Morgan Stanley Research

Exhibit 6: ... along with customer Days of Inventory (DOI)



Source: FactSet, Morgan Stanley Research

3) Pricing pressure is easing

Pricing is becoming less negative, especially in MCUs and general-purpose products, but the driver is partly cost pass-through rather than pure pricing power. Reported April spot prices rose sharply for selected 32-bit MCUs, with STM32 and GigaDevice examples suggesting suppliers are attempting to pass through higher 40nm/55nm input costs. The broader evidence is consistent with this: MS's distributor survey shows stronger-than-usual analog pricing rose to 65% from 33%, while stronger MCU pricing rose to 58% from 33%. ADI implemented a broad list-price increase in February 2026, Renesas flagged raw material/logistics inflation and potential price revisions, and TXN noted pricing could become a more meaningful 2H26 lever.

4) Foundry supply is tightening beyond AI

The supply backdrop has become more supportive. TrendForce reports PMIC (Power Management Integrated Circuit) lead times extending from 21-26 weeks to 35-40 weeks and BMC (Board Management Chip) lead times from 11-16 weeks to 21-26 weeks, with foundries prioritizing higher-margin AI server orders. TrendForce also projects global 8-inch capacity to decline 2.4% YoY in 2026, while utilization rises to 85–90% from 75–80% in 2025.

This does not mean mature-node supply is constrained everywhere. Rather, the supply environment is shifting from abundance to selectivity. As AI and AI-peripheral demand absorb more 8-inch/mature-node capacity, analog/MCU customers may face higher wafer costs and less excess supply – improving suppliers' ability to pass through costs, but not guaranteeing margin expansion unless demand and utilization also improve.

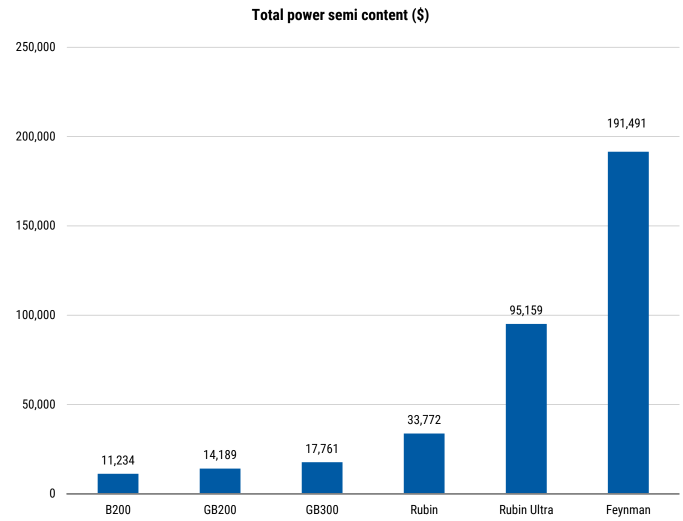
5) Data-centre acceleration and the 800V transition

The most important structural shift for analog is the next 12-24 months of AI rack power evolution, especially the move toward 800V architectures. Nvidia's *Kyber* rack is the lead example. Our Europe semis team has increased server-rack model granularity to incorporate a Power Capacitor System inside the new power sidecar. The sidecar absorbs parts of the traditional PSU (Power Supply Unit), rack-level BBU (Battery Back-up Unit) and bulk capacitance previously inside servers.

Infineon has described the PCS (Power Capacitor System) as a ~10-part hybrid system combining lithium-ion batteries, super capacitors, and power semiconductors. In our framework, we assume SiC MOSFETs for power conversion, GaN FETs for high-frequency DC–DC stages, and solid-state transformers (SSTs) for AC/DC conversion. MS estimates more than US$20k of power-semiconductor content for the PCS per Rubin Ultra rack, with total power-semiconductor BoM rising to US$159/kW for Rubin Ultra and US$191/kW for *Feynman*.

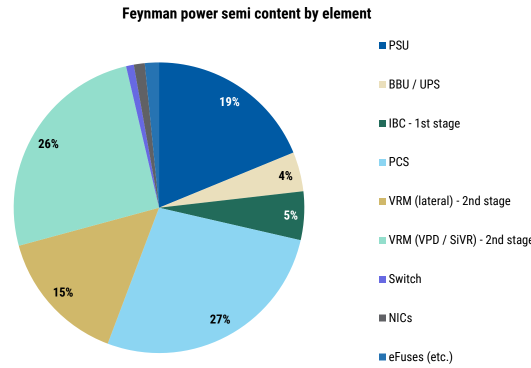
Beyond power, optical is the second structural vector. The shift toward optical circuit switches and co-packaged optics raises the value of analog content around the optical chain. This is where STM's silicon photonics and optical interconnect engagement becomes relevant, with additional upside from LEO satellite communications.

Exhibit 7: We estimate power semi content in *Feynman* to reach US$191/kW.



Source: Morgan Stanley Research estimates

Exhibit 8: We see the PCS, VRM (VPD/SVR) and VRM (lateral) as the highest US$-content power semi components in the *Feynman* rack.



Source: Morgan Stanley Research estimates

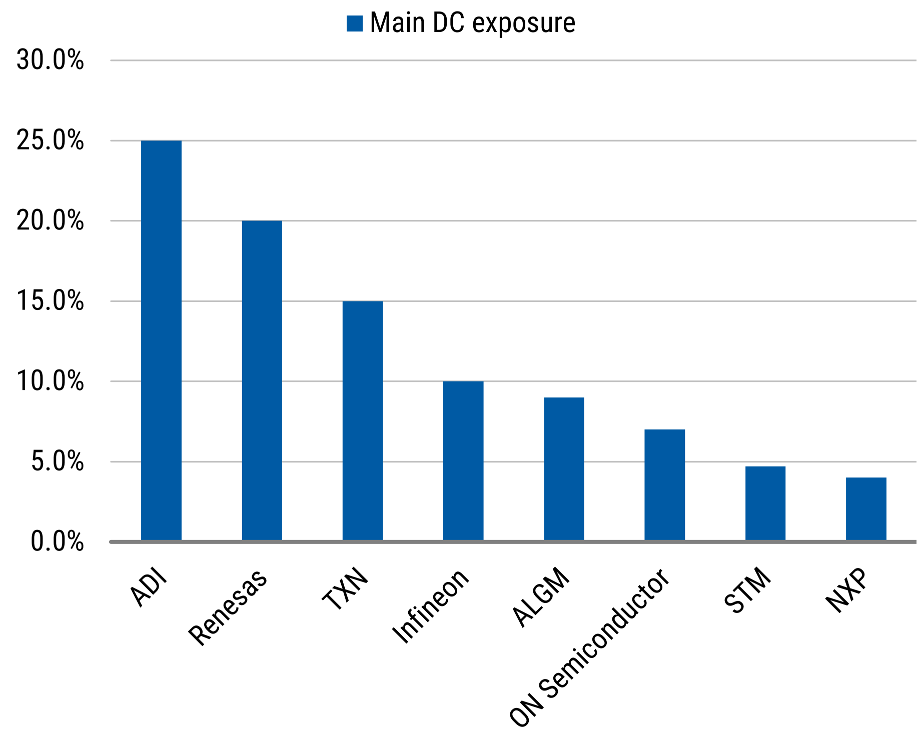
Exhibit 9:

DC exposure across major analog names

Company	DC exposure	Revenue disclosure / scale
Infineon	AI rack power and 800V architecture: PCS, SiC MOSFETs, GaN FETs, SSTs, VRMs and rack/grid power conversion	AI data-centre power-supply revenue expected at ~€1.5bn in FY26 and ~€2.5bn in FY27.
STM	Silicon photonics, optical interconnects, analog/power and LEO satellite communications	Data Centre revenue "nicely above" $500mn in 2026 and "well above" $1bn in 2027.
Renesas	Data-centre digital power and memory interfaces tied to CPU/GPU platform transitions	MS estimates DC revenue rising from ¥163.5bn in CY25 to ¥261.2bn in CY26 and ¥365.0bn in CY27; company committed ¥94bn capex for DC digital power capacity
NXP	Control-plane content: networking for control-plane switching, i.MX board-management processors, MCUs for root-of-trust/security, cooling/fan control	First-time DC disclosure: c.$200mn in 2025, guided to $500mn+ in 2026; split roughly 50/50 between Industrial & IoT and Communications
TXN	Broad analog/power management read-across to Data Centre; Complete power solution	TXN formally broke out data center as a standalone market segment starting in Q1 2026. Data center grew ~70% YoY in FY2025 and represented ~9% of total revenue.
ON Semiconductor	Higher-beta power, SiC and 800V architecture exposure	AI data center revenue went from immaterial to slightly above $250mn in 2025.
ALGM	Fan Motor Driver Ics, TMR Current Sensors, Isolated Gate Drivers (IGDs)	Data center reached 10% of total sales in Dec-25 Quarter, with current sensors becoming a growing contributor alongside the dominant fan motor drivers.
ADI	High-performance signal chain, precision analog and power management; more indirect AI/DC exposure. Test equipment, data center power & comms	The broader AI exposure includes ATE ($800mn in FY25) and AI DC applications ($1bn FY25), both of which continued to accelerate in Q1. The optical/power balance remains 50/50, with both seeing continued run

Source: Morgan Stanley Research

Exhibit 10: DC revenue as % of total revenue (FY26E)



Source: Morgan Stanley Research Esitmates

What could still go wrong?

The strongest bear argument is that analog semis may be seeing a normal restocking phase after a deep correction, not a durable end-demand recovery. If Industrial orders fade after distributors rebuild inventory, if Automotive production weakens, or if China competition worsens pricing, the re-rate could stall.

Other risks include:

- **Restocking versus sell-through:** Rising lead times, expedite orders and double-ordering are constructive early-cycle signals, but they can also indicate pull-forward risk if sell-through does not follow.
- **Auto demand volatility:** EV, ADAS and broader auto production remain important for Infineon, STM, Renesas, NXP and ON Semiconductor.
- **Industrial recovery timing:** Industrial demand is improving but still early; a macro slowdown would delay utilisation recovery.
- **China competition:** Domestic Chinese designs could limit share expansion and pricing for selected analog/MCU categories.
- **AI/DC execution risk:** AI power, silicon photonics, and digital power ramps may be delayed or concentrated in a few customers.
- **Capex and utilisation risk:** Capacity additions can support efficiency gains, but overcapacity would pressure returns if demand disappoints.

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(as of April 30, 2026)

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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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Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Equal-weight (E). The stock's total return is expected to be in line with the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Not-Rated (NR). Currently the analyst does not have adequate conviction about the stock's total return relative to the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Underweight (U). The stock's total return is expected to be below the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

Analyst Industry Views

Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.

In-Line (I): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.

Cautious (C): The analyst views the performance of his or her industry coverage universe over the next 12-18 months with caution vs. the relevant broad market benchmark, as indicated below.

Benchmarks for each region are as follows: North America - S&P 500; Latin America - relevant MSCI country index or MSCI Latin America Index; Europe - MSCI Europe; Japan - TOPIX; Asia - relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

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INDUSTRY COVERAGE: Technology - European Semiconductors

COMPANY (TICKER)	RATING (AS OF)	PRICE* (04/30/2026)
Lee Simpson		
ASML Holding NV (ASML.AS)	O (09/22/2025)	€1,222.40
Infineon Technologies AG (IFXGn.DE)	O (02/06/2025)	€57.13
STMicroelectronics NV (STMPA.PA)	O (03/26/2026)	€46.02
Nigel van Putten		
Aixtron SE (AIXGn.DE)	E (05/25/2023)	€46.98
ASM International NV (ASMI.AS)	O (06/19/2024)	€830.60
BE Semiconductor Industries NV (BESI.AS)	O (11/07/2022)	€247.20
Melexis N.V. (MLXS.BR)	E (02/05/2026)	€71.35
Nordic Semiconductor ASA (NOD.OL)	E (02/10/2025)	NKr 189.00
Soitec SA (SOIT.PA)	O (03/26/2026)	€126.95
VAT Group AG (VACN.S)	E (03/21/2025)	SFr 583.00

Stock Ratings are subject to change. Please see latest research for each company.
* Historical prices are not split adjusted.

INDUSTRY COVERAGE: S. Korea Technology

COMPANY (TICKER)	RATING (AS OF)	PRICE* (04/30/2026)
Ryan Kim		
Ecopro BM (247540.KQ)	U (03/20/2023)	W206,000
Fadu Inc (440110.KQ)	O (09/21/2025)	W78,200
Hanmi Semiconductor Co. Ltd. (042700.KS)	O (08/16/2024)	W368,000
HD Hyundai Electric Co Ltd (267260.KS)	O (03/25/2025)	W1,252,000
Isu Petasys Co. Ltd. (007660.KS)	O (02/03/2025)	W150,300
L&F Co Ltd (066970.KS)	E (04/03/2025)	W195,100
Leeno Industrial Inc. (058470.KQ)	O (04/03/2025)	W119,300
Lotte Energy Materials Corp (020150.KS)	U (04/03/2025)	W66,700
LS Electric (010120.KS)	O (01/22/2026)	W278,000
POSCO FUTURE M (003670.KS)	U (04/03/2025)	W252,000
SK IE Technology (361610.KS)	U (04/03/2025)	W26,400
Wonik IPS Co Ltd (240810.KQ)	O (08/08/2025)	W117,100
Shawn Kim		
LG Display (034220.KS)	E (06/11/2025)	W12,260
LG Electronics (066570.KS)	E (04/07/2025)	W140,900
LG Innotek (011070.KS)	E (03/12/2025)	W573,000
Samsung Electro-Mechanics (009150.KS)	O (07/31/2025)	W832,000
Samsung Electronics (005935.KS)	O (11/18/2019)	W158,300
Samsung Electronics (005930.KS)	O (11/18/2019)	W220,500
Seoul Semiconductor (046890.KQ)	U (04/04/2018)	W16,510
SK hynix (000660.KS)	O (09/21/2025)	W1,286,000

Stock Ratings are subject to change. Please see latest research for each company.
* Historical prices are not split adjusted.

INDUSTRY COVERAGE: Semiconductors

COMPANY (TICKER)	RATING (AS OF)	PRICE* (04/30/2026)
Joseph Moore		
Advanced Micro Devices (AMD.O)	E (06/09/2024)	US$354.49
Aeva Technologies Inc (AEVA.O)	E (07/19/2021)	US$15.99
Allegro Microsystems Inc (ALGM.O)	O (02/13/2026)	US$48.50
Ambarella Inc (AMBA.O)	O (03/29/2016)	US$68.80
Amkor Technology Inc (AMKR.O)	E (11/08/2023)	US$69.75

Analog Devices Inc. (ADI.O)	O (11/16/2023)	US$402.26
Astera Labs Inc (ALAB.O)	O (05/11/2025)	US$194.74
Broadcom Inc. (AVGO.O)	O (06/09/2024)	US$417.43
GlobalFoundries Inc (GFS.O)	E (10/28/2024)	US$64.60
Intel Corporation (INTC.O)	E (02/22/2023)	US$94.48
IonQ Inc (IONQ.N)	E (04/25/2023)	US$45.12
Marvell Technology Group Ltd (MRVL.O)	E (09/14/2015)	US$165.15
Microchip Technology Inc. (MCHP.O)	E (07/10/2024)	US$92.91
Micron Technology Inc. (MU.O)	O (10/06/2025)	US$517.16
Navitas Semiconductor Corp (NVTS.O)	U (04/06/2025)	US$16.50
NVIDIA Corp. (NVDA.O)	O (03/16/2023)	US$199.57
NXP Semiconductor NV (NXPI.O)	O (02/11/2025)	US$293.59
ON Semiconductor Corp. (ON.O)	E (05/11/2025)	US$100.81
Qorvo Inc (QRVO.O)	E (10/28/2025)	US$94.22
Qualcomm Inc. (QCOM.O)	U (02/10/2026)	US$179.58
SanDisk Corporation. (SNDK.O)	O (03/03/2025)	US$1,096.51
Semtech Corp. (SMTC.O)	E (04/06/2025)	US$105.05
Silicon Laboratories Inc. (SLAB.O)	E (01/19/2021)	US$217.70
Skyworks Solutions Inc (SWKS.O)	E (11/28/2018)	US$70.17
Texas Instruments (TXN.O)	U (04/13/2020)	US$281.08
Wolfspeed, INC (WOLF.N)	NR (04/06/2025)	US$29.53
Lee Simpson		
Arm Holdings plc (ARM.O)	E (04/07/2026)	US$210.32
Cadence Design Systems Inc (CDNS.O)	O (02/14/2024)	US$329.59
Synopsys Inc. (SNPS.O)	E (02/27/2026)	US$482.60

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* Historical prices are not split adjusted.

INDUSTRY COVERAGE: Japan Semiconductors

COMPANY (TICKER)	RATING (AS OF)	PRICE* (05/01/2026)
Kazuo Yoshikawa, CFA		
HOYA (7741.T)	E (10/30/2023)	¥27,830
KIOXIA Holdings (285A.T)	O (08/12/2025)	¥36,410
Renesas Electronics (6723.T)	O (11/26/2019)	¥3,205
Rohm (6963.T)	++	¥3,487
Socionext (6526.T)	U (01/27/2026)	¥1,928

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