

When electronics inflation reaches industrial products

Defending product economics through the 2026-28 repricing cycle

October 2026

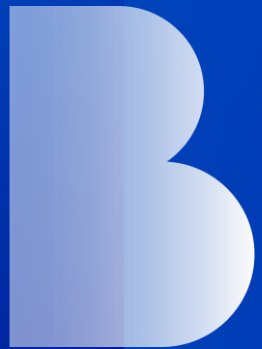
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Agenda

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1. Why this reaches you	3
2. Electronics material cost and impact outlook	5
a) Market context and driver	7
b) Market outlook	10
c) Product implications & industry response	42
3. "Power Hour" with Roland Berger experts	56



1. Why this reaches you

The resilience built since 2021 solved availability, the 2026–28 repricing tests price, and a second source or a second plant does not neutralize it

Industrial manufacturers answered the last five years structurally: regional and local sourcing, redundant manufacturing, dual-sourced components, design modifications, and disciplined pass-through of tariffs that remain fluid and are still being priced through. What arrives now is different in kind with memory, compute, boards and passives repriced by AI-driven demand, on components industrial products share with automotive and data centers, a cost wave that reaches every qualified source at once.



Why this reaches you: the case study inside is automotive, but the arithmetic is yours, same categories, same concentration with one structural difference in your favor: lighter qualification gates that let you re-source in months, not years. Knowing where the repricing lands, what your resilience already covers, and what only commercial and design action can offset is the difference between a third year of pricing actions your customers accept and one they push back on.



2. Electronics material cost and impact outlook

Electronics material cost outlook

Executive summary

2A

Market context & drivers

7

- **Cost and supply pressure is uneven across categories** with memory and PCB / laminate emerging as the clearest combined hotspots
- **Risk differs materially by category** with continuity pressure concentrated in memory and high-spec electronics, while metals and resins skew more toward cost exposure
- **Four forces are reshaping the outlook** as AI / data-center demand, uneven capacity response, upstream input pressure and external disruption interact across markets

2B

Market outlook

10

- **Memory remains the clearest continuity and pricing hotspot** as legacy DRAM supply declines while investment shifts toward HBM and newer generations
- **Advanced SoC / compute pressure remains node-specific** with 3 nm capacity tightness supporting selective availability and pricing pressure
- **PCB / laminate pressure is concentrated at the high-performance end** with specialized material constraints sustaining elevated cost pressure
- **Copper remains primarily a cost and volatility exposure** as structural demand growth meets a slow upstream supply response
- **Additional markets show selective inflation pressure** with mature-node power, high-end MLCCs and polyamides warranting closer watch

2C

Product implications & industry response

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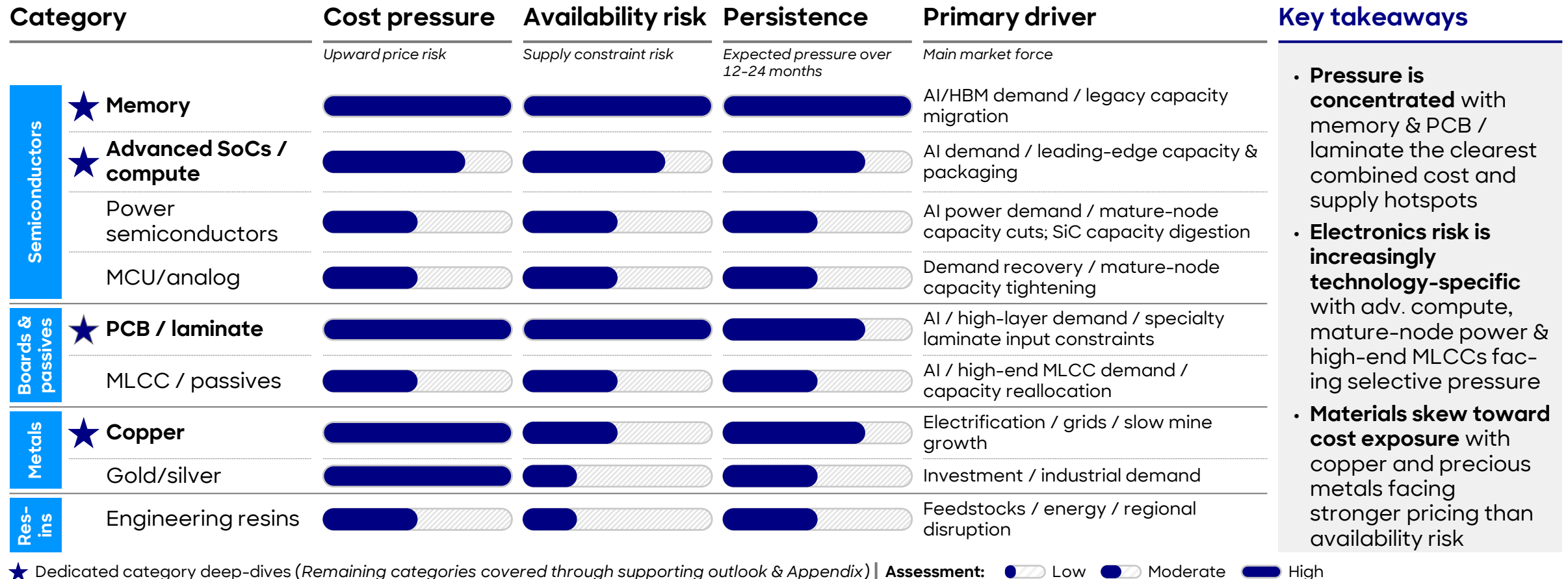
- **BOM composition determines the actual cost impact** as the illustrative controller shows how concentrated electronics exposure translates market pressure into product-level inflation
- **Near-term mitigation is meaningful but partial** with resilience built since 2021 protects availability, while industrial qualification gates typically pull design-lever capture earlier than automotive can
- **Operating models influence how much inflation reaches product cost** with integrated, localized and substitution-ready players move faster



2A. Market context & drivers

Cost and supply pressures are uneven, with memory and PCB / laminate emerging as the clearest hotspots

Cross-category outlook overview



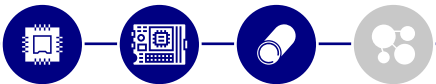
Four primary forces are reshaping cost and availability across electronics relevant materials and components

Key market drivers¹⁾

Demand shift

AI, data centers & electrification are creating new demand pools

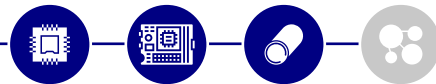
- AI infrastructure is accelerating compute and memory demand
- Data centers & electrification increase demand for selected electronics & materials
- Growth is increasingly concentrated in specific technologies



Capacity response

Supply is responding unevenly as investment shifts and new capacity takes time

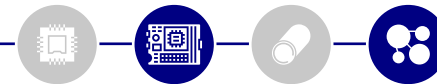
- Investment shifts toward higher-growth/higher-return segments
- Existing capacity can be converted, retired or deprioritized
- New supply takes time to build, ramp and qualify



Upstream input pressure

Upstream material and intermediate-input pressure can propagate downstream

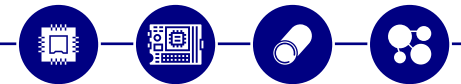
- Metals, chemicals and specialty materials feed multiple component categories
- Input inflation can raise downstream component prices
- Tier-n bottlenecks can constrain output and extend lead times



External disruption

Trade policy, geopolitics and geographic concentration can amplify market tightness

- Concentrated supply increases exposure to regional disruption
- Tariffs and export controls can alter cost or market access
- Energy, logistics and geopolitical shocks can disrupt supply



Relative relevance: ● Primary ● Secondary | 📡 Semiconductors 📌 Boards & passives 🏭 Metals 🧪 Resins

1) Primary market-level drivers; company-specific FX, contracting and hedging effects not shown



2B. Market outlook

Market outlook will focus on the categories where cost pressure, availability risk and persistence appear most meaningful

Overview of markets covered and priority topics

Semiconductors

- ★ **Memory**
- ★ **Advanced SoCs / compute**
 - Power semiconductors
 - MCU / analog

Boards & passives

- ★ **PCB / laminate**
 - MLCC / passives

Metals

- ★ **Copper**
 - Gold / silver

Resins

- Engineering resins

Priority market review sequence



What each market review covers

Current pricing and availability

Key demand and supply drivers

12-24 month outlook

Market relevance¹

★ Priority market reviews | Remaining categories covered in supporting outlook & appendix

1. Automotive relevance is shown as the reference case; the same market mechanics apply to industrial electronics, with qualification gates that are typically shorter



2B.1 Memory

Memory is entering a tighter market environment as demand rises and supply increasingly diverges by generation

Memory market outlook summary

1 Memory

2 Advanced SoCs / compute

3 PCB / laminate

4 Copper

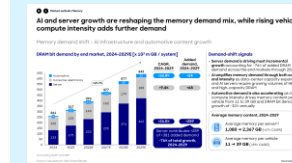
5 Additional market outlooks

- **DRAM pricing and availability remain under pressure** as the market enters a sharp upcycle and suppliers signal continued tightness through 2026 and into 2027
- **AI and server growth are reshaping the demand mix** with servers driving most incremental DRAM demand while product memory requirements also continue to rise
- **Supplier focus is shifting toward newer DRAM generations and HBM** as higher-growth technologies attract greater investment relative to legacy DDR4
- **The forward outlook differs increasingly by generation** with legacy DRAM facing the greatest continuity risk while newer generations receive greater supply support
- **Electronics intensive products remains particularly exposed to legacy-memory constraints** as long product cycles and qualification requirements slow substitution even as newer-generation capacity expands

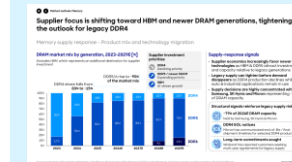
Supporting deep-dives



Market outlook



Demand shift



Supply response



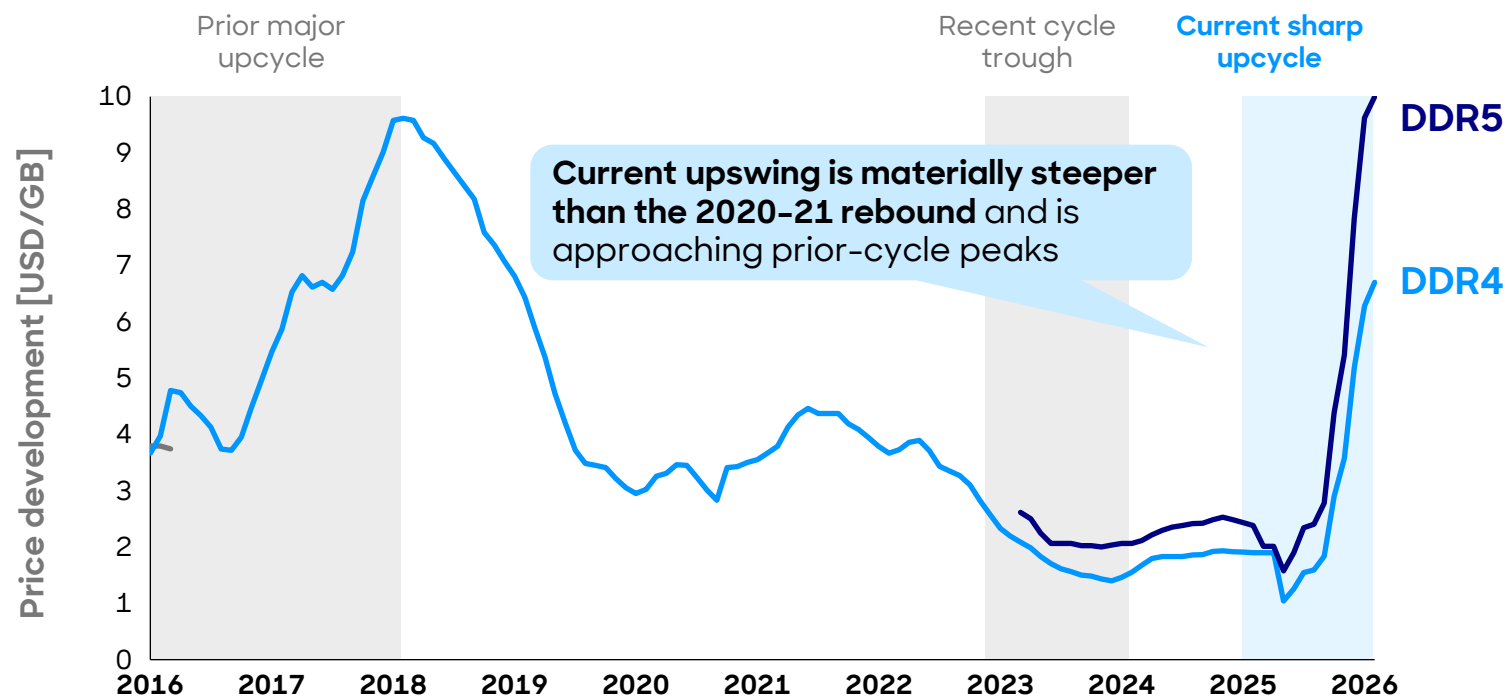
Forward outlook

DRAM has entered a sharp upcycle, with supplier signals indicating tightness through 2026 and into 2027

Current memory market – DRAM pricing and availability

DRAM spot-price development [USD per GB]

USD/GB spot price for base-quality eTT DRAM – Spot prices are directional indicators of market conditions and may differ from industry contract pricing



Current market signals

- **The current upcycle is materially stronger than the prior recovery** with prices rising faster than in 2020-21
- **Price pressure spans both legacy and newer generations** as DDR4 and DDR5 rise sharply into 2026
- **Market pressure is likely to persist** as suppliers signal tight conditions through 2026 and limited incremental supply into 2027



Demand is greater than supply for both DRAM and NAND ... tight industry conditions are expected to persist through and beyond 2026

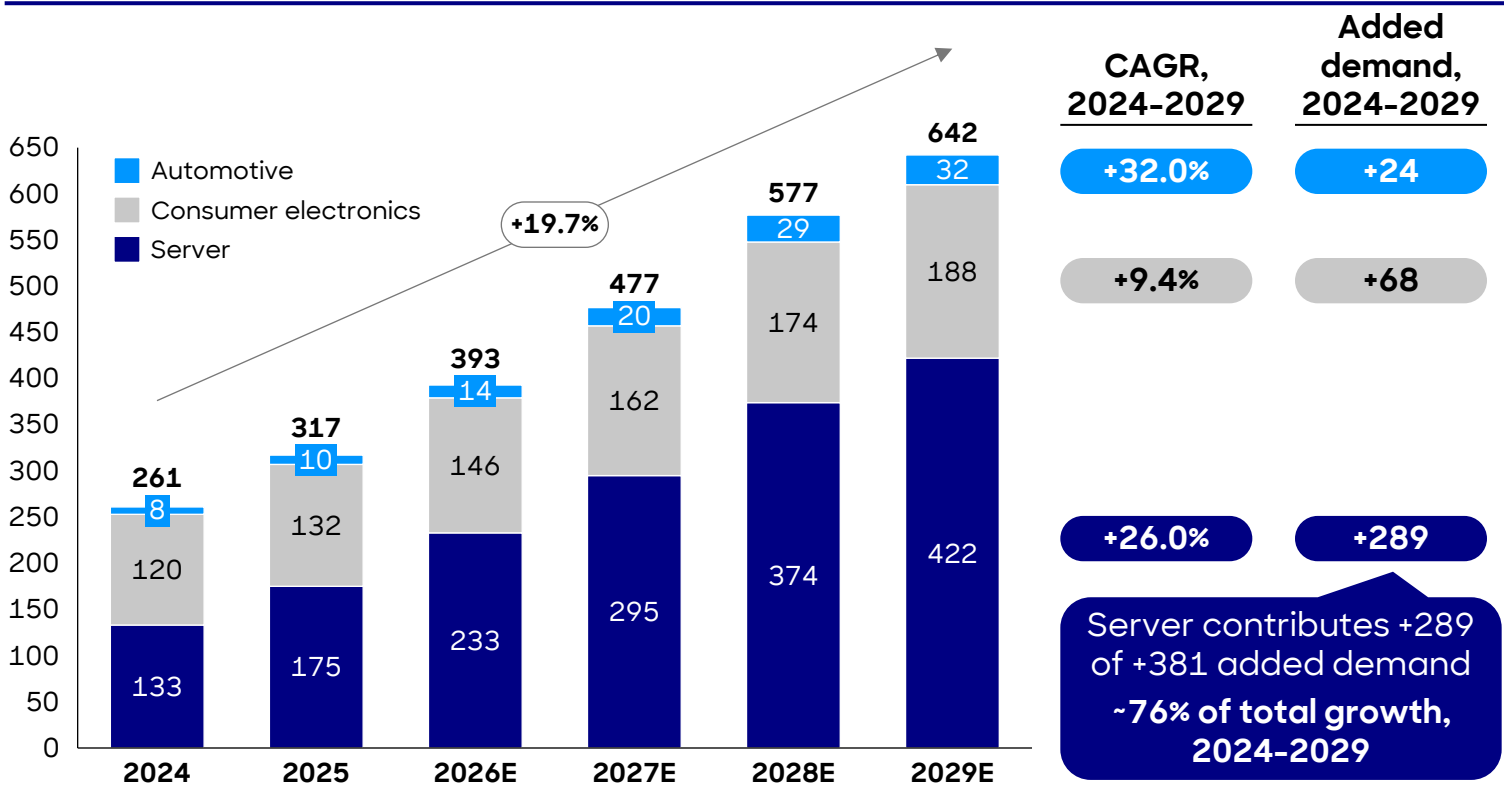
– Sanjay Mehrotra, CEO



AI and server growth are reshaping the memory demand mix, while rising vehicle compute intensity adds further demand

Memory demand shift – AI infrastructure and product content growth

DRAM bit demand by end market, 2024-2029E [x 103 m GB / system]



Demand shift signals

- **Server demand is driving most incremental growth** accounting for ~76% of added DRAM demand across the end markets through 2029
- **AI amplifies memory demand through both scale and intensity** as data-center capacity expands and AI servers require growing volumes of HBM and high-capacity DRAM
- **Automotive demand is also accelerating** as rising compute intensity drives memory content per vehicle from 11 to 39 GB and DRAM bit demand growth of ~32% annually

Average memory content, 2024-2029



Average memory per server¹⁾
1,080 → 2,367 GB (+17% CAGR)



Average memory per vehicle
11 → 39 GB (+29% CAGR)

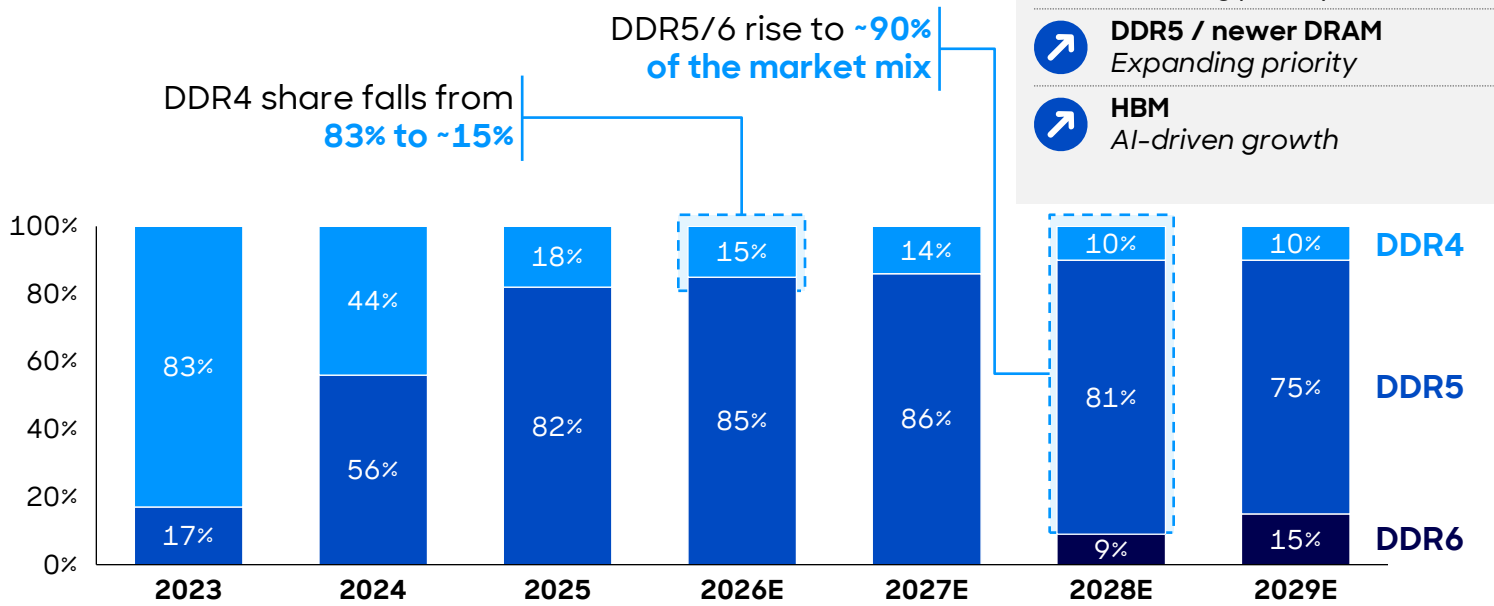
1) Including DRAM and HBM

Supplier focus is shifting toward HBM and newer DRAM generations, tightening the outlook for legacy DDR4

Memory supply response – Product mix and technology migration

DRAM market mix by generation, 2023-2029E [%]

Excludes HBM, which represents an additional destination for supplier investment



Supplier investment priorities

- DDR4**
Declining priority
- DDR5 / newer DRAM**
Expanding priority
- HBM**
AI-driven growth

Supply response signals

- **Supplier economics increasingly favor newer technologies** as HBM & DDR5 attract investment and capacity relative to legacy generations
- **Legacy supply can tighten before demand disappears** as DDR4 production declines while auto & industrial applications remain in use
- **Supply decisions are highly concentrated with Samsung, SK Hynix and Micron** representing ~79% of DRAM capacity

Structural signals reinforce legacy supply risk

- ~79% of 2026E DRAM capacity**
held by Samsung, SK Hynix & Micron
- DDR4 EOL notices**
Micron has communicated end-of-life / final-shipment timelines for selected DDR4 products
- Long-term commitments sought**
Winbond has reported customers seeking multi-year agreements for legacy supply

DRAM supply dynamics are increasingly diverging by technology, with legacy products facing the greatest continuity risk through 2027

Memory forward outlook – ~12-24 month pricing and availability

Memory technology outlook, 2026H2-2027

	Legacy DRAM DDR3/DDR4	Current-gen DRAM DDR5	AI/high-bandwidth memory HBM
Demand outlook 	 Persistent legacy demand	 Growing	 Rapid growth
Supply constraint 	 Declining supplier priority	 Investment expanding	 Capacity expanding rapidly
12-24 mth. availability risk 	 Most constrained	 Tight, gradually improving	 Tight despite expansion
Price pressure 	 Elevated / volatile	 Elevated	 Elevated
Exposure	 High today	 Increasing	 Mostly indirect today

Pressure / exposure:  Highest  High  Moderate  Low / indirect

Forward outlook signals

- **DRAM tightness is likely to persist through 2027** as AI and server demand continue to absorb near-term supply additions
- **New capacity will provide uneven relief** as investment remains concentrated in HBM and newer DRAM generations while fab ramps take time
- **Legacy availability remains the key continuity risk** as DDR4 supply declines faster than industrial demand can migrate

What this means for electronics intensive products



Legacy-qualified products remain most exposed
as capacity additions in newer generations do not directly replace DDR3/4 supply



Qualification requirements slow substitution
so broader market relief may not translate immediately to individual product components



2B.2 Advanced SoCs / compute

Advanced SoCs face selective near-term pressure as AI demand reshapes leading-edge capacity economics

Advanced SoCs / compute market outlook summary

1 Memory

2 Advanced SoCs / compute

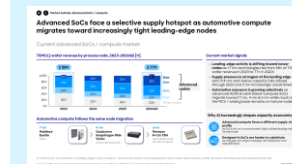
3 PCB / laminate

4 Copper

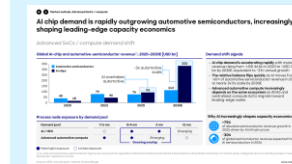
5 Additional market outlooks

- **Advanced SoCs face selective supply pressure** as product compute migrates toward increasingly tight leading-edge nodes
- **AI chip demand is reshaping the market** and increasingly influencing leading-edge capacity economics
- **Advanced-node supply is expanding rapidly** with ≤ 7 nm capacity growing through 2028 and investment shifting toward newer technologies
- **The outlook remains node-specific** with 3 nm the key near-term hotspot as expanding 3 nm and ≤ 2 nm capacity gradually improves supply
- **Electronics intensive products remains selectively exposed** requiring earlier supply planning while cost relief may lag capacity improvement

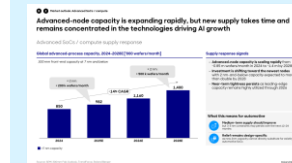
Supporting deep-dives



Market outlook



Demand shift



Supply response

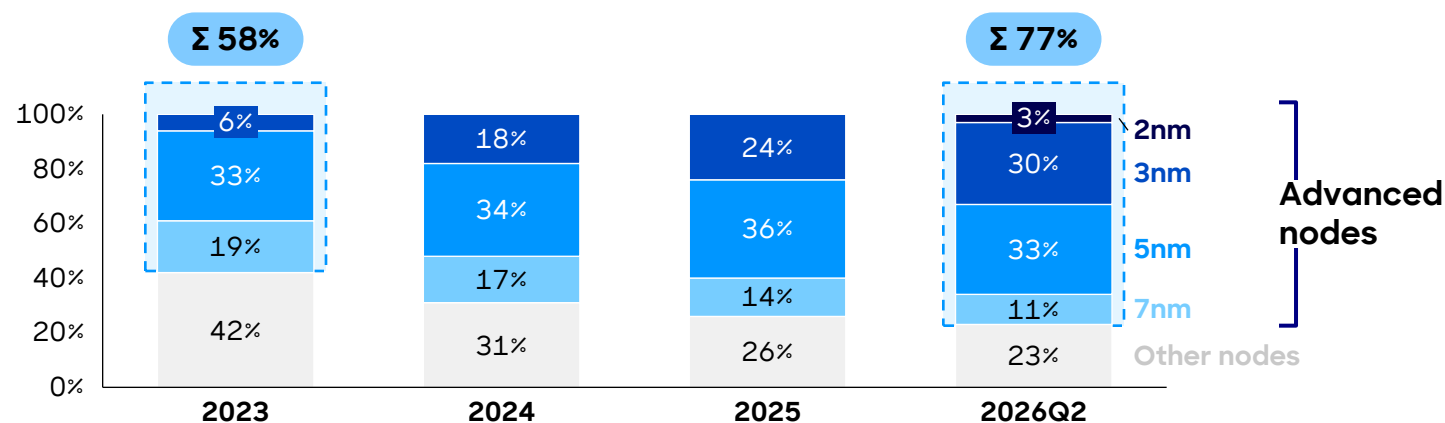


Forward outlook

Advanced SoCs face a selective supply hotspot as product compute migrates toward increasingly tight leading-edge nodes

Current advanced SoCs / compute market

TSMC¹⁾ wafer revenue by process node, 2023-2026Q2 [%]



Current market signals

- **Leading-edge activity is shifting toward advanced nodes** as ≤7 nm technologies rise from 58% of TSMC wafer revenue in 2023 to 77% in 2Q26
- **Supply pressure is strongest at the leading edge** with 5/4 nm-and-below capacity fully utilized through 2026 and 3 nm increasingly constrained
- **Exposure is growing selectively** as advanced ADAS & centralized-compute SoCs migrate toward 7 nm, 4 nm & 3 nm while much of the MCU / analog base remains on mature nodes

Product compute follows the same node migration

7 nm
Mobileye
EyeQ6
ADAS



4 nm
Qualcomm
Snapdragon Ride
Vision
Advanced ADAS/AD



3 nm
Renesas
R-Car X5H
Centralized multi-domain compute



Why AI increasingly shapes capacity economics



Advanced compute faces a different supply-risk profile
as SoCs rely on a concentrated, highly utilized leading-edge foundry base



Designed-in SoCs are harder to substitute
as changes can require redesign, SW adaptation and requalification

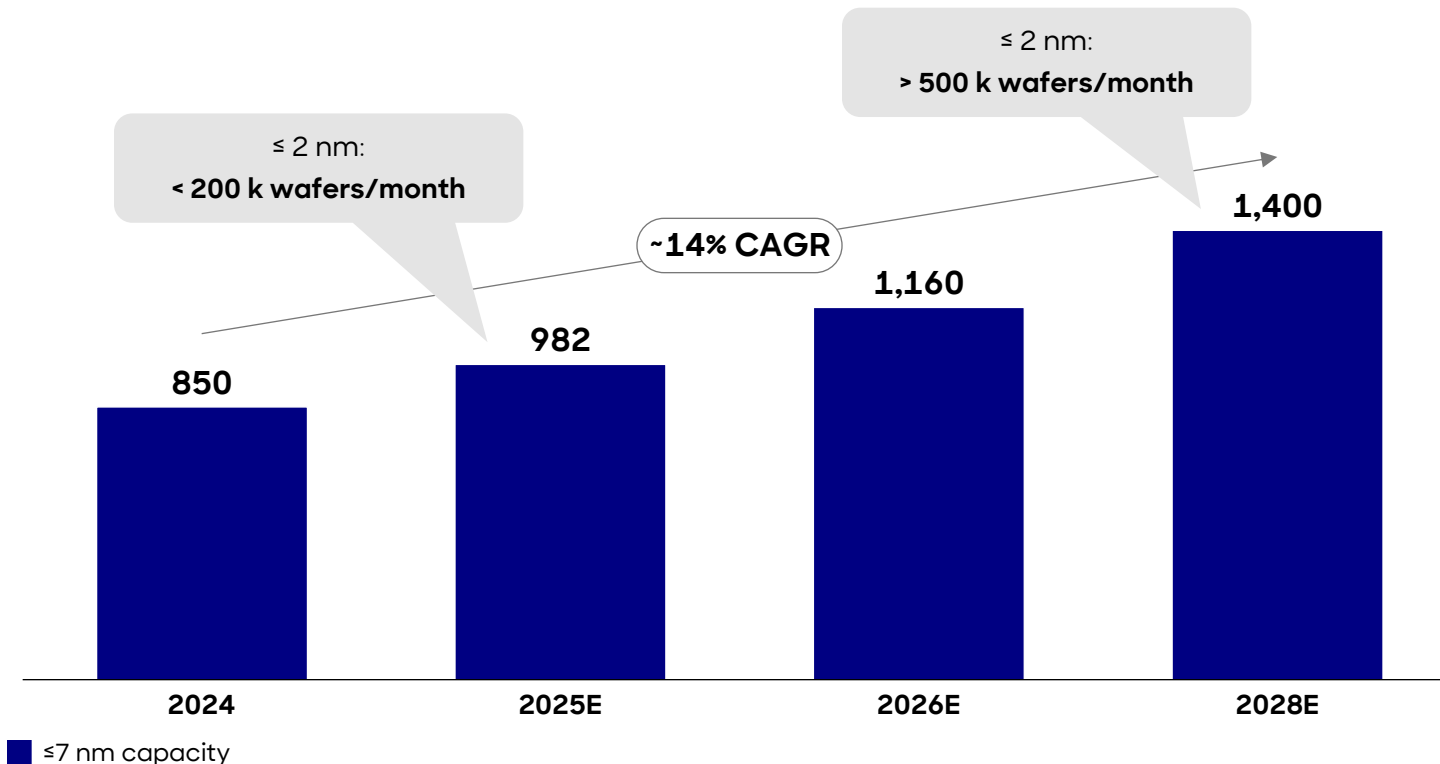
1) TSMC shown as an indicator of leading-edge foundry evolution – revenue mix should not be interpreted as total market demand share. 2026E represents the latest quarterly snapshot (2026 Q2)

Advanced-node capacity is expanding rapidly, but new supply takes time and remains concentrated in the technologies driving AI growth

Advanced SoCs / compute supply response

Global advanced-process capacity, 2024-2028E ['000 wafers/month]

300 mm front-end capacity at 7 nm and below



Supply response signals

- **Advanced-node capacity is scaling rapidly** from ~0.85 m wafers/month in 2024 to ~1.4 m by 2028E
- **Investment is shifting toward the newest nodes** with 2 nm-and-below capacity expected to more than double by 2028
- **Near-term tightness persists** as leading-edge capacity remains highly utilized through 2026

What this means for electronics intensive products



Medium-term supply should improve
but 3-5 nm constraints may persist over the next 12-24 months



Relief remains design-specific
as new 2nm capacity cannot directly substitute for existing automotive SoCs

Leading-edge tightness is likely to extend into 2027, with 3 nm the key near-term hotspot as 2 nm capacity ramps

Advanced SoCs / compute outlook, next 12-24 months

Leading-edge process-node outlook, 2026H2-2027

	5/4 nm Current advanced compute base	3 nm Near-term migration hotspot	≤ 2 nm Next-generation capacity build
Demand outlook 	 High	 Highest	 Moderate / Rising
Supply constraint 	 Capacity expanding	 Tight despite rapid expansion	 Early-ramp limited
12-24 mth. availability risk 	 Tight, but gradually improving	 Most constrained	 Ramp-limited
Price pressure 	 Elevated	 Elevated / highest pressure	 Premium at ramp
Exposure	 High today	 Increasing	 Emerging

Pressure / exposure:  Highest  High  Moderate  Low / indirect

Forward outlook signals

- **Leading-edge tightness extends into 2027** as AI GPUs and custom ASICs sustain demand for 5/4 nm and below
- **3 nm is the near-term hotspot** as AI/HPC migrates from 4 nm before broader 2 nm adoption
- **Supply relief should build gradually** as 3 nm capacity expands and ≤2 nm production ramps

What this means for electronics intensive products

-  **Advanced-node programs require earlier supply planning**
as 4/5 nm and emerging 3 nm designs remain exposed to tight capacity
-  **Cost relief may lag supply improvement**
as pricing remains elevated even while new leading-edge capacity ramps



2B.3 PCB / laminate

PCB / laminate pressure is increasingly concentrated in high-complexity boards and specialized materials

PCB / laminate market outlook summary

1 Memory

2 Advanced semiconductors

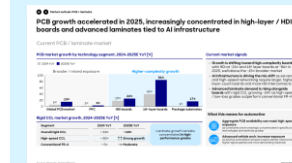
3 PCB/laminate

4 Copper

5 Additional market outlooks

- **Growth is shifting toward high-complexity boards** with HDI and 18+ layer PCB significantly outpacing the broader market while high-performance laminates outperform standard grades
- **AI is driving both volume and content growth** as newer server architectures require more HDI, higher layer counts and increasingly low-loss materials
- **High-end supply is expanding, but upstream inputs remain the bottleneck** as T-glass ramp timing and premium-foil yields limit effective output
- **Relief will remain uneven through 2027** with standard PCB more balanced, HDI gradually improving and high-performance laminate inputs remaining most constrained
- **Electronics intensive products remains selectively exposed** as advanced architectures increase HDI and low-loss material requirements while qualification can slow effective substitution

Supporting deep-dives



Market outlook



Demand shift



Supply response

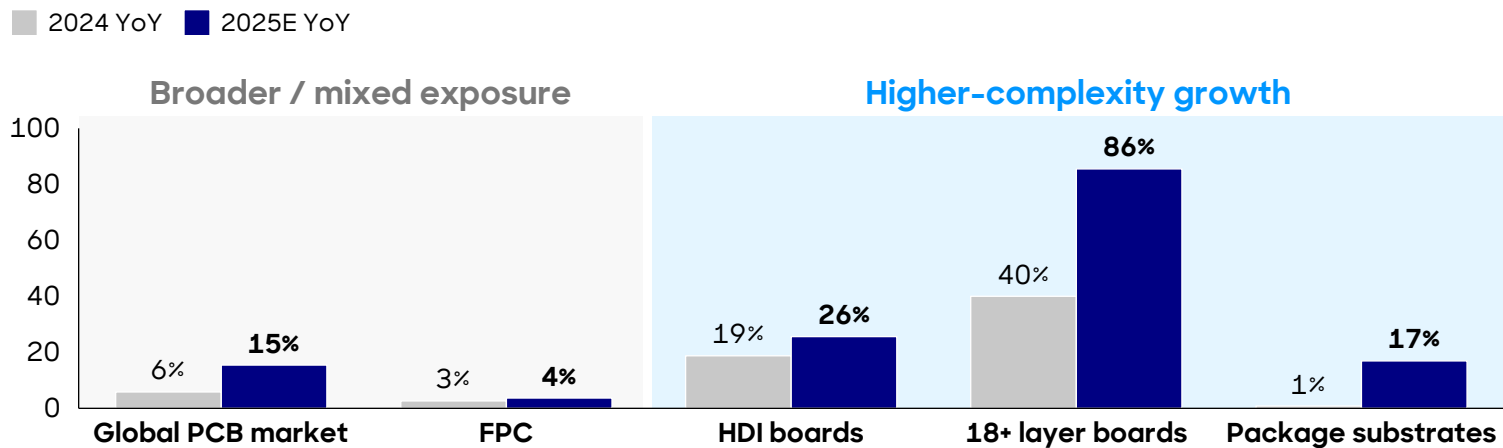


Forward outlook

PCB growth accelerated in 2025, increasingly concentrated in high-layer / HDI boards and advanced laminates tied to AI infrastructure

Current PCB / laminate market

PCB market growth by technology segment, 2024-2025E YoY [%]



Current market signals

- **Growth is shifting toward high-complexity boards** with HDI at ~26% and 18+ layer boards at ~86% in 2025, well above the ~15% broader market
- **AI infrastructure is driving the mix shift** as servers and high-speed networking require larger, higher-layer-count boards and more HDI interconnects
- **Advanced laminate demand is rising alongside boards** with rigid CCL growing ~24% as high-speed / low-loss grades outperform conventional FR-4

Rigid CCL market growth, 2024-2025E YoY [%]

Segment	2024 YoY	2025E YoY
Overall rigid CCL	~+18%	~+24%
High-speed CCL	~+50%	↑↑ Strong growth
Conventional FR-4	~+3%	→ Moderate

Laminate growth remains concentrated in high-performance grades

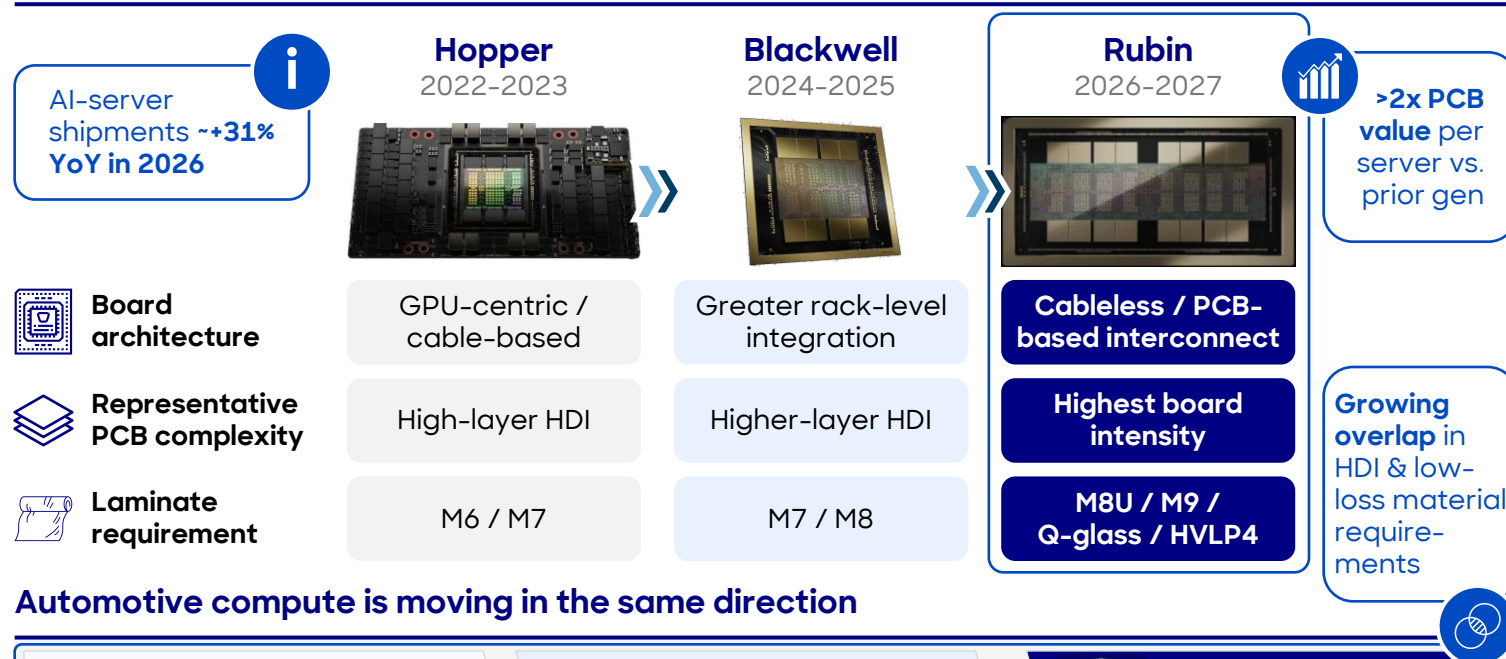
What this means for electronics intensive products

-  **Aggregate PCB availability can mask high-spec exposure**
as constraints are increasingly concentrated in specific board technologies and laminate grades
-  **Advanced arch. increase exposure for auto**
as ADAS & centralized compute require denser interconnects, higher signal speeds and more demanding materials

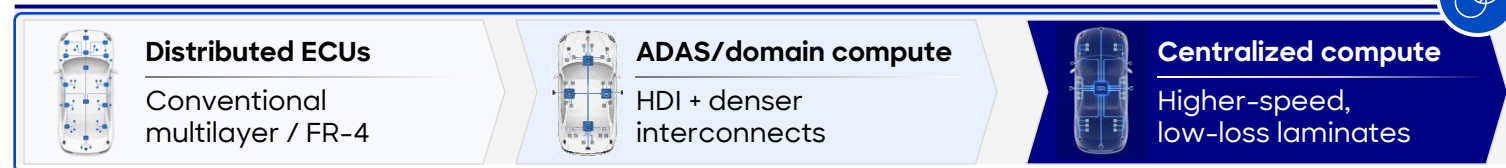
AI server architectures are increasing PCB content and complexity, pulling demand toward high-layer HDI and low-loss laminates

PCB / laminate demand shift

AI server generations drive a step-change in PCB complexity and material intensity¹⁾



Automotive compute is moving in the same direction



Demand shift signals

- **AI demand is growing on two fronts** as server volumes rise and PCB content per system increases
- **Interconnects are shifting onto the board** driving greater HDI use and higher layer counts
- **Material requirements are moving higher** as faster signaling increases demand for low-loss laminates and advanced copper foil

What this means for electronics intensive products

- **Product compute is moving along the same technology path** as architectures require denser, higher-speed boards
- **Overlap with AI-driven material demand is increasing** particularly for HDI & low-loss laminate requirements

1) Architecture, PCB complexity and laminate specifications shown are representative of selected AI-server designs; actual configurations vary by system and board

High-performance PCB-material supply is expanding, but specialized inputs remain the limiting factor for near-term relief

PCB / laminate supply response

Supply response across the high-performance PCB / laminate stack

Material	Constraint today	Supply response	Relief outlook
Low-Dk/ T-glass cloth Critical for low-loss laminates	~90% T-glass share held by Nittobo – Major new capacity not expected before mid-'27	Capacity expansion underway, but supply remains concentrated	Tight/slower relief Mid-2027+
HVLP copper foil Enables low-loss, high-speed signal performance	Higher-spec conversion reduces yield ~50%	Premium output expanding, but lower yields constrain effective supply	Gradual relief 2026-2027
High-speed rigid CCL Converts specialty inputs into advanced laminate	Korea import prices +74.5% YoY – Advance ordering >5x typical monthly usage ¹⁾	EMC, TUC and peers ramping output	Tight / input-dependent through 2027
HDI/18+ layer PCB capacity Required for dense high-layer adv. electronics	Higher layer counts reduce yield and narrow the qualified supplier pool	High-end PCB investment and capacity ramping	Improving, input-dependent 2026H2+

Supply response signals

- **High-end PCB investment is accelerating** with >20 Chinese PCB makers announcing expansion plans in 2026H1
- **Downstream capacity is ramping** as PCB and CCL suppliers add high-performance output
- **Upstream relief remains slower** as specialty glass ramp timing and premium-foil yields constrain effective supply

Why relief remains uneven



Downstream cap. can expand faster than inputs as CCL and PCB ramps still depend on specialized glass and copper foil



~87% of CCL cost tied to glass cloth, copper foil & resin



High-spec capacity is not fully fungible as material specifications, yields and qualification narrow the usable supply pool

1) Korea CCL import-price data and advance-order example shown as directional evidence of market tightness

PCB / laminate availability should improve unevenly through 2027, with high-spec materials remaining the key constraint

PCB / laminate outlook, next 12-24 months

PCB / laminate outlook by segment, 2026H2-2027

	Standard PCB / FR-4	HDI / high-layer PCB	High-performance laminate / inputs
Demand outlook 	Moderate	High	Highest
Supply constraint 	Broad capacity	Capacity expanding	Selective / slower ramp
12-24 mth. availability risk 	More balanced	Tight, but improving	Most constrained
Price pressure 	Moderate / rising	Elevated	Elevated / volatile
Exposure	High today	Increasing	Increasing

Pressure / exposure: ● Highest ● High ● Moderate ● Low / indirect

Forward outlook signals

- **Fabrication capacity should improve first** as high-end PCB investments ramp through 2026-2027
- **HDI / high-layer tightness should ease gradually** as new capacity enters production
- **Specialized materials remain the key watchpoint** with T-glass and premium foil limiting full relief into 2027

What this means for electronics intensive products

- 
High-spec exposure matters more than aggregate PCB availability
as advanced vehicle electronics increasingly depend on HDI and low-loss materials
- 
Material qualification can delay relief
as additional market capacity does not immediately translate into qualified supply



2B.4 Copper

Copper remains primarily a cost and volatility exposure as structural demand growth meets a slow upstream supply response

Copper market outlook summary

1 Memory

2 Advanced semiconductors

3 PCB/laminate

4 Copper

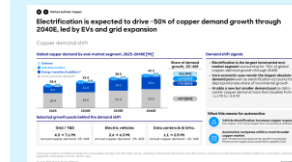
5 Additional market outlooks

- **Copper prices remain elevated despite a broadly balanced refined market** as slow mine growth and concentrate tightness continue to support physical-market pressure
- **Electrification is becoming the largest source of incremental demand** accounting for ~50% of copper demand growth through 2040E, led by EVs & grid
- **Near-term supply response remains constrained** as concentrate availability limits refined production growth in 2026, with greater relief expected in 2027
- **Price pressure and volatility are likely to persist** even as physical availability improves, given structural demand growth and recurring mine, inventory and regional-flow disruptions
- **Electronics intensive products primarily exposed through cost rather than broad shortages** as automotive electrification increases copper intensity while larger infrastructure demand pools influence market pricing

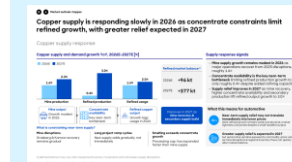
Supporting deep-dives



Market outlook



Demand shift



Supply response

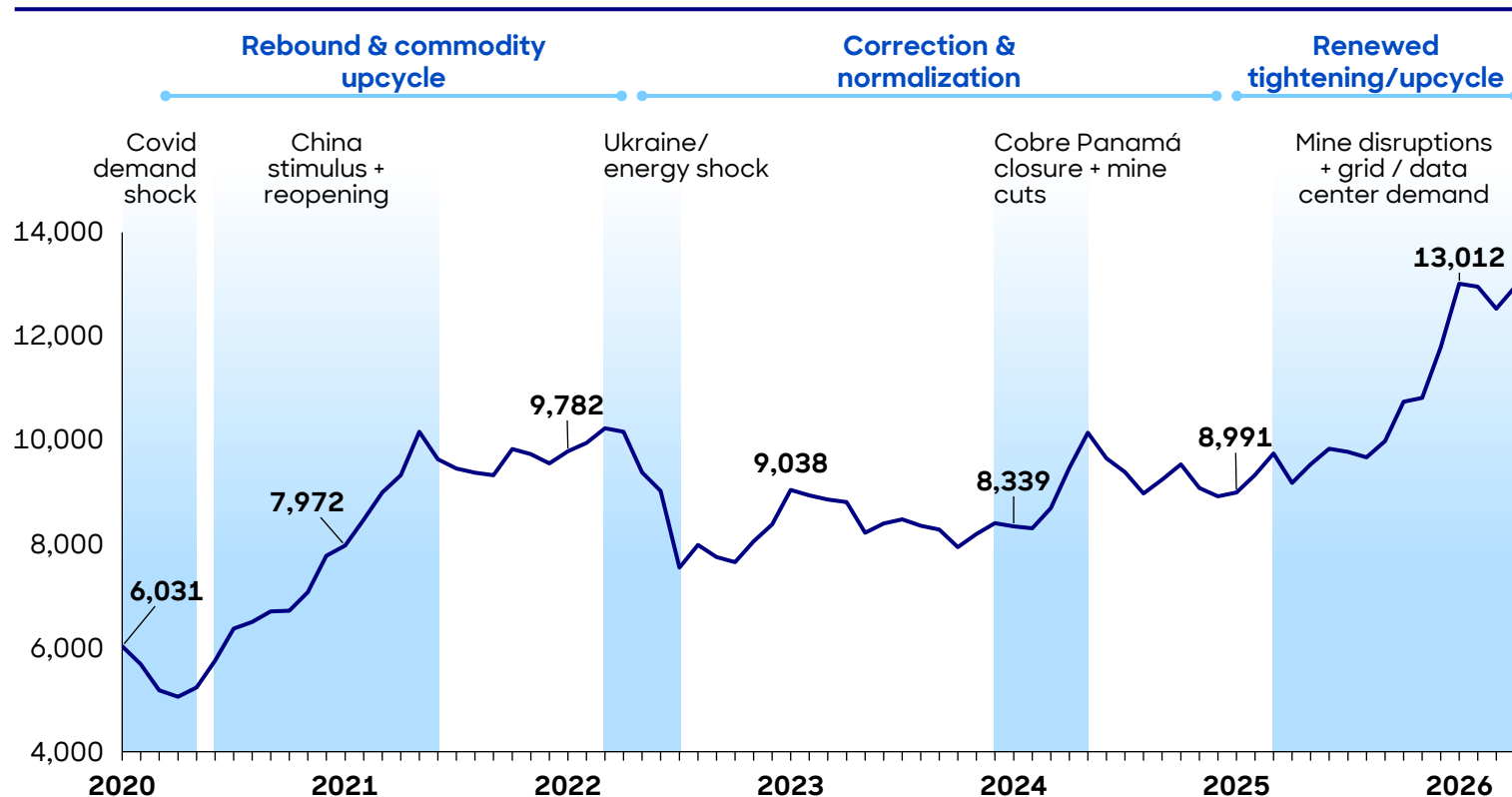


Forward outlook

Copper prices remain elevated amid slow mine growth and concentrate tightness, despite a broadly balanced refined market

Current copper market

Monthly LME copper price, 2020-2026 [USD/t]



Current market signals

- **Copper prices have re-accelerated** after the 2023-2024 normalization as physical-market tightness returns
- **Mine supply remains the limiting upstream factor** with 2026 growth revised down to ~1.6% as major producing regions face disruptions and slower ramp-ups
- **Concentrate availability remains tight** constraining refined output even as smelting capacity continues to expand

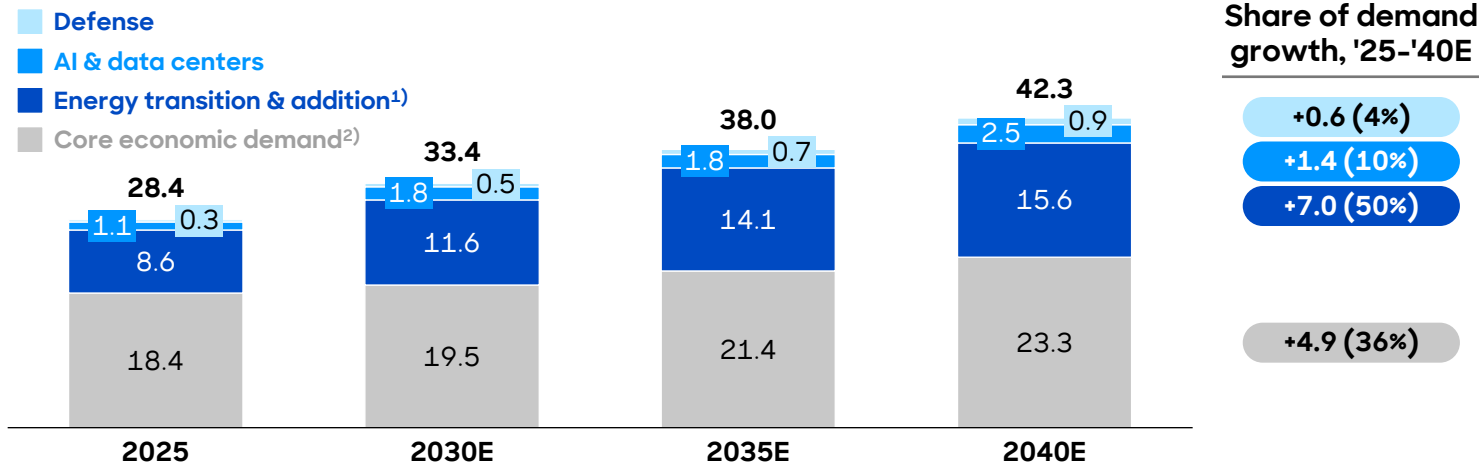
Why price pressure persists

- 
Mine supply responds slowly
 as new projects require long development cycles and existing mines face declining grades & operational disruption
- 
Refined balance can mask physical tightness
 as concentrate scarcity, regional inventories and metal flows influence spot pricing

Electrification is expected to drive ~50% of copper demand growth through 2040E, led by EVs and grid expansion

Copper demand shift

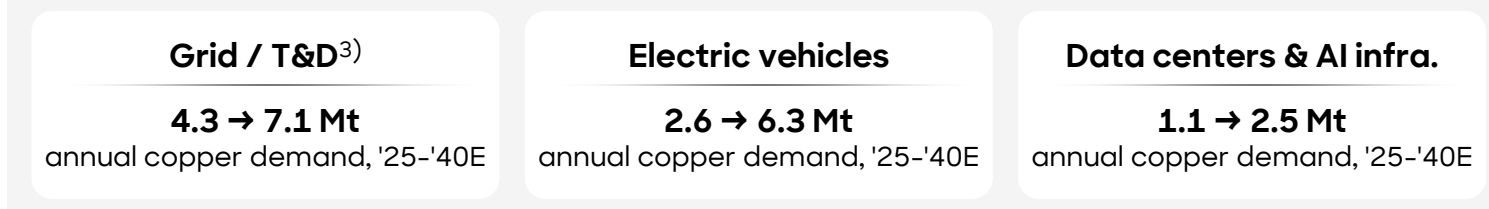
Global copper demand by end-market segment, 2025-2040E [Mt]



Demand shift signals

- **Electrification is the largest incremental end-market segment** accounting for ~50% of global copper-demand growth through 2040E
- **Core economic uses remain the largest absolute demand pool** even as electrification accounts for a disproportionate share of incremental growth
- **AI adds a new but smaller demand pool** as data-center copper demand more than doubles from ~1.1 Mt to ~2.5 Mt

Selected growth pools behind the demand shift



What this means for electronics intensive products



Auto electrification increases copper exposure
EVs require ~2.9x more copper than conventional vehicles



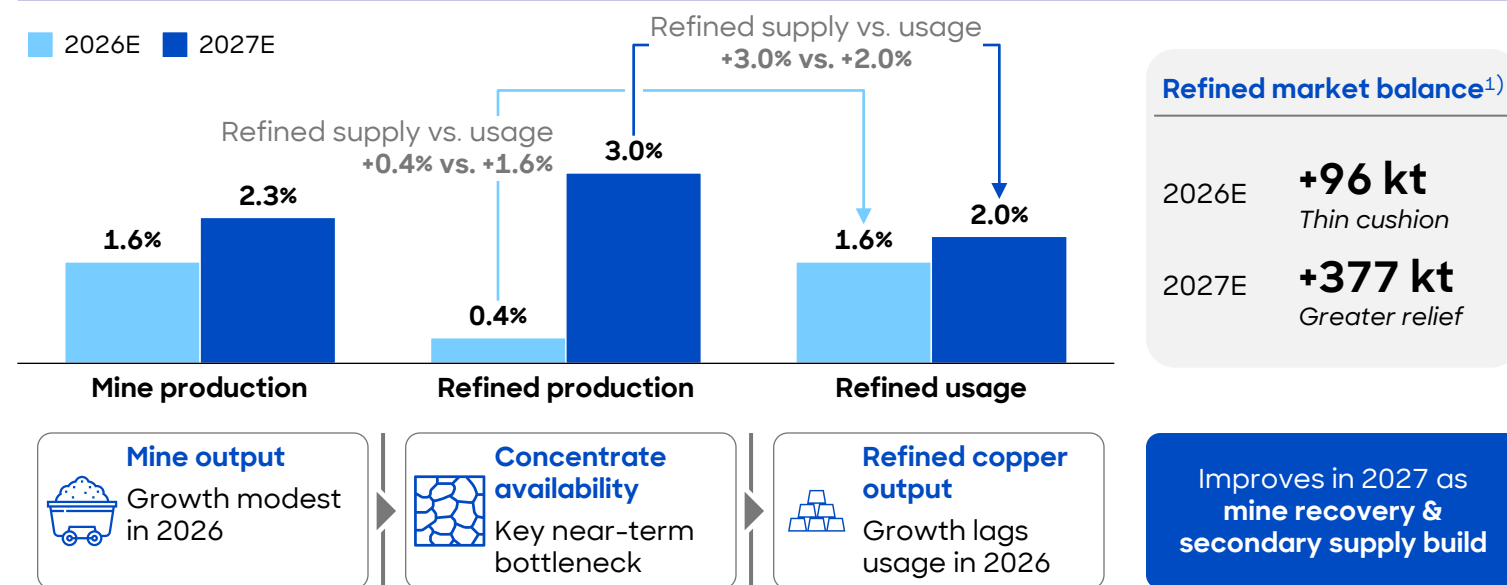
Higher competes within a much broader copper market
grid, infrastructure & data center growth increasingly influence the copper prices

1) Energy transition & addition includes EVs, renewables, storage and T&D. Data-center-related grid demand is allocated to AI & data centers; 2) Core economic demand includes traditional construction, machinery, appliance, fossil-power and ICE-vehicle uses; 3) T&D = Transmission and distribution

Refined copper supply remains constrained in 2026 as concentrate availability lags, with materially greater relief expected in 2027

Copper supply response

Copper supply and demand growth YoY, 2026E-2027E [%]



What is constraining near-term supply?

Mine disruptions

Grasberg & Kamo a recovery remains gradual

Long project ramp cycles

New supply adds gradually, not immediately

Smelting capacity has grown faster than concentrate supply

Processing cap. has expanded faster than mine feed availability

Supply response signals

- **Mine supply growth remains modest in 2026** as major operations recover from 2025 disruptions, at roughly 1.6%
- **Concentrate availability is the key near-term bottleneck** limiting refined production growth to only roughly 0.4% despite added refining capacity
- **Supply relief improves in 2027** as mine recovery, higher concentrate availability and secondary production lift refined output growth to 3.0%

What this means for electronics intensive products



Continuity risk should ease into 2027

Improving refined availability reduces the probability of broad supply shortages



Price risk remains

A more balanced refined market does not eliminate exposure to mine disruptions, inventories and regional flows

1) Refined balance may vary with unreported inventory movements and unforeseen supply disruptions

Copper supply should improve into 2027, but structural demand growth keeps price pressure elevated and volatility recurring

Copper outlook, 2026–longer term

Copper outlook by dimension, 2026H2–longer term

	2026 H2	2027	Beyond 2027 ¹⁾
Demand pressure 	 High	 High	 Structurally rising
Upstream supply tightness 	 High	 Improving	 Increasingly project-dependent
Refined availability risk 	 Tight / volatile	 More balanced	 At risk without new supply
Price pressure 	 Elevated / volatile	 Elevated, potentially moderating	 Upward bias / recurring volatility
Exposure	 High cost exposure	 High cost exposure	 Structurally higher exposure

Pressure / exposure:  Highest  High  Moderate  Low / indirect

Forward outlook signals

- **Near-term physical tightness should ease** as mine recovery and improved concentrate availability support stronger refined output in 2027
- **Demand remains structurally strong** as EVs, grid investment and data centers continue to expand copper consumption
- **Price volatility is likely to persist** as mine disruptions, inventories and regional flows can quickly tighten an otherwise balanced market

What this means for electronics intensive products

- 
Cost exposure remains the primary risk
 Copper is more likely to create recurring price and margin pressure than broad component-level shortages
- 
Specification & sourcing choices can reduce exposure
 Material efficiency, contractual mechanisms and sourcing strategy can help mitigate commodity-price risk

1) Beyond-2027 outlook reflects directional assessment based on projected demand growth, prospective supply additions and mine-development constraints



2B.5 Additional market outlooks

Additional markets show selective pressure points rather than broad-based supply constraints

Additional market outlooks summary

1 Memory

2 Advanced semiconductors

3 PCB/laminate

4 Copper

5 Additional market outlooks

Additional electronics outlooks

Power semiconductors



Mature-node silicon tightens while SiC remains comparatively well supplied

MCU / analog



Selective tightness is returning, but broad shortages remain unlikely

MLCC / passives



High-end MLCCs tighten while broader passives face mainly cost pressure

Additional materials outlooks

Gold / silver



Elevated prices create cost pressure, not broad availability risk

Engineering resins



Polyamides remain the watchpoint while broader resin supply stays balanced

Power semiconductor pressure is becoming increasingly technology-specific - Mature-node silicon tightening while SiC remains comparatively well supplied

Power semiconductors outlook, next 12-24 months

Power semiconductor outlook by dimension, 2026H2-2027

	Silicon power / PMICs <i>Mature-node manufacturing base</i>	SiC power devices <i>High-voltage EV growth platform</i>	GaN power devices <i>Emerging high-efficiency platform</i>
Demand pressure 	 AI power + broad industrial / auto demand	 EV / 800V adoption expanding	 AI infrastructure driving rapid growth
Supply constraint 	 8-inch capacity declining	 Capacity digestion underway	 Capacity scaling
12-24 mth. availability risk 	 Selectively tight	 Broadly adequate	 Qualification / supplier-limited
Price pressure 	 Elevated / rising	 Competitive / easing	 Premium at early adoption
Exposure	 High today	 Increasing	 Emerging today

Pressure / exposure:  Highest  High  Moderate  Low / indirect

Forward outlook signals

- **Mature-node silicon is the near-term pressure point** as 8-inch capacity reductions and AI-driven power demand push utilization and foundry pricing higher
- **SiC supply is comparatively well positioned** as EV adoption continues but recent capacity expansion shifts the market toward digestion and cost competition
- **GaN is emerging as the next growth platform** with AI infrastructure accelerating demand

What this means for electronics intensive products



Mature-node power devices warrant the closest near-term watch

Tightening 8-inch capacity raises selective cost and supply risk



Wide-bandgap pressure is more manageable

SiC supply is ample while GaN remains earlier-stage in most applications

MCU / analog demand is recovering, but broad shortages appear unlikely as selective mature-node constraints emerge into 2027

MCU / analog outlook, 2026-2027

MCU / analog outlook by dimension, 2026H2-2027

	2026H2	2027	Beyond 2027
Demand pressure 	 Recovery underway	 Auto / industrial demand strengthens	 SDV content growth
Supply constraint 	 Capacity still broadly available	 Mature-node utilization tightens	 Node / supplier dependent
12-24 mth. availability risk 	 Generally balanced	 Selective tightness	 Auto-qualified parts remain less fungible
Price pressure 	 Stabilizing / turning	 Foundry repricing feeds through	 Structural mature-node support
Exposure	 High today	 High	 Content increasing

Pressure / exposure:  Highest  High  Moderate  Low / indirect

Forward outlook signals

- **Overall MCU / analog demand is recovering** as customer inventories normalize and vehicle semiconductor demand improves
- **Mature-node capacity is tightening selectively** as AI-related demand and foundry reductions push 8-inch utilization toward ~90%
- **Broad shortages remain less likely than selective constraints** with qualification and long product lifecycles limiting substitution for specific parts

What this means for electronics intensive products



Selective supply risk is returning

Mature-node and auto-qualified parts warrant closer monitoring



Qualification limits rapid substitution

MCU / analog redesigns can require meaningful validation effort

Passive-component pressure is becoming increasingly selective, with high-end MLCC supply tightening while broader passives face mainly cost pressure

MLCC / passives outlook, next 12-24 months

MLCC / passives outlook by dimension, 2026H2-2027

	High-end / specialty MLCC <i>High-capacitance/high-temperature applications</i>	Mainstream MLCC <i>Broad consumer/auto-motive applications</i>	Other passives <i>Resistors, inductors, ferrite beads</i>
Demand pressure 	 AI / server demand accelerating	 Auto demand + spillover ordering	 Broad demand mixed
Supply constraint 	 Capacity concentrated / reallocated	 Supply flexibility narrowing	 Broad supplier base
12-24 mth. availability risk 	 Selectively constrained	 Tightening selectively	 Generally available
Price pressure 	 Rising	 Selective increases	 Metal-cost pass-through
Exposure	 Increasing	 High today	 Broad BOM exposure

Pressure / exposure:  Highest  High  Moderate  Low / indirect

Forward outlook signals

- **High-end MLCCs are the key supply watchpoint** as AI platforms consume more premium-capacitance capacity
- **Supply risk is increasing selectively** as suppliers prioritize AI and customers pull forward medium- / high-capacitance MLCC orders
- **Broader passives face greater cost than availability pressure** as higher metal prices feed into resistors, inductors and ferrite components

What this means for electronics intensive products



MLCC specifications matter more than aggregate supply
High-capacitance and qualified parts face the greatest risk



Passive-component cost pressure is broadening
Metal inflation can raise BOM cost even where availability remains adequate

Gold and silver remain primarily cost exposures, with elevated prices unlikely to translate into broad availability constraints

Gold / silver outlook, next 12-24 months

Gold / silver outlook by dimension, 2026H2-2027

	Gold <i>High-reliability electronics / plating</i>	Silver <i>Contacts, conductors / joining applications</i>
Demand pressure 	 Investment + electronics support	 AI, grid & auto offset PV weakness
Supply constraint 	 Mine supply relatively stable	 Market remains in structural deficit
12-24 mth. availability risk 	 Broadly available	 Physical market tighter, but no broad auto shortage
Price pressure 	 Elevated / macro-driven	 Elevated / volatile
Exposure	 Low volume, high value	 Broader industrial / electronics usage

Pressure / exposure:  Highest  High  Moderate  Low / indirect

Forward outlook signals

- **Precious-metal prices remain elevated** with gold driven primarily by investment / macro factors and silver retaining greater industrial sensitivity
- **Industrial demand remains supportive but mixed** as AI, grid and industrial growth offset substitution and thrifting in price-sensitive applications
- **Availability risk remains secondary to cost** as manufacturers respond to high prices through material efficiency, thinner plating and substitution

What this means for electronics intensive products



Cost exposure outweighs continuity risk
High metal prices raise electronics and connector cost without implying broad shortages



Material efficiency can mitigate exposure
Selective plating, lower loadings and substitution can reduce precious-metal intensity

Engineering-resin availability remains broadly adequate, while polyamides face the greatest near-term cost and supply pressure

Engineering resins outlook, next 12-24 months

Engineering resins outlook by polymer family, 2026H2-2027

	PA6 / PA66 <i>High-temperature/ structural auto applications</i>	PBT / POM <i>Electrical connectors / precision components</i>	PC / ABS <i>Housings / interior & exterior applications</i>
Demand pressure 	 Auto demand still subdued	 Stable end-use demand	 Weak auto/consumer demand
Supply constraint 	 Feedstock + regional restructuring	 Supply broadly sufficient	 Ample capacity / imports
12-24 mth. availability risk 	 Selective regional tightness	 Generally balanced	 Broadly available
Price pressure 	 Feedstock-driven volatility	 Mostly stable	 Feedstock-sensitive
Exposure	 High today	 High in E/E components	 Broad vehicle applications

Pressure / exposure:  Highest  High  Moderate  Low / indirect

Forward outlook signals

- **Polyamides remain the primary watchpoint** as feedstock volatility and European capacity restructuring keep PA6 / PA66 costs elevated
- **Other engineering resins remain broadly balanced** with PBT, POM and PC supply generally sufficient amid muted demand
- **Cost pressure should remain more important than continuity risk** as petrochemical feedstocks and regional energy / logistics costs drive volatility

What this means for electronics intensive products



Broad resin shortages appear unlikely
Risk is concentrated in selected polyamide grades and regions



Feedstock volatility remains the key cost driver
Material choice and regional sourcing can materially affect exposure



2C. Product implications & industry response

We scenario modeled material inflation for a dual-board automotive controller: the product is automotive, but the arithmetic transfers to any electronics-intensive platform

MANUFACTURER

Global Tier-1 manufacturer

- Global semiconductor and electronics sourcing
- Global including North American production footprint
- High-volume automotive program

PART

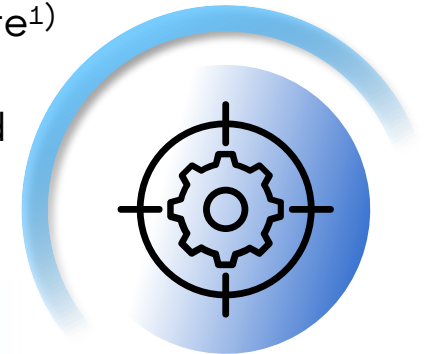
Dual-board controller

- Main SoC / application processor
- DRAM + NAND storage
- Automotive-qualified PCB, passives and connectors

COST

Material cost Baseline index = 100

- Electronics dominate material cost
- ~20-25% illustrative 2026 inflation exposure¹⁾
- Memory drives >50% of modeled 2026 uplift



THE SUPPLIER IS FACING MULTIPLE SUPPLY CHAIN DISRUPTIONS:

Memory repricing & legacy supply tightness

PCB / laminate input pressure

Copper / plating inflation

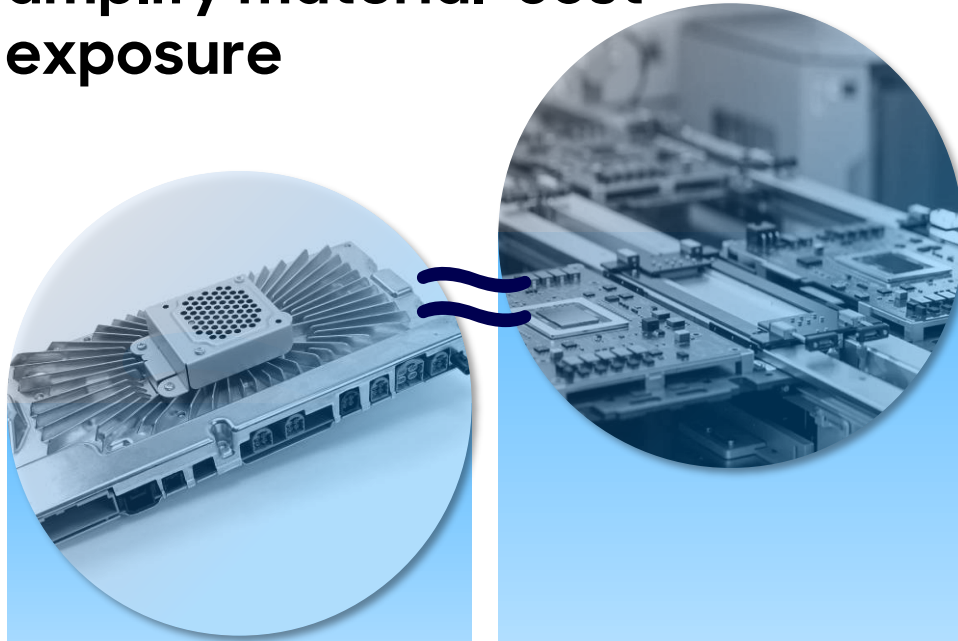
Mature-node semiconductor constraints

Selective MLCC / passive tightness

Trade, export-control & logistics disruption

¹⁾ Based on the illustrative controller BOM and Roland Berger market-outlook assumptions; actual exposure varies by product architecture, specification, sourcing terms and supplier mix

Electronic controllers illustrate how concentrated electronics content, global sourcing and qualification constraints can amplify material-cost exposure



REASONS FOR THE CONTROLLER COMPLEXITY



Variety in **COMPONENTS & TECHNOLOGIES**

- SoCs / logic, DRAM / NAND, PCB / laminate, passives, connectors & plating
- Different technology cycles & supply-demand dynamics across components



Complex **QUALIFICATION & DESIGN DEPENDENCIES**

- Automotive-qualified components cannot always be substituted directly
- HW, SW and board design changes can require revalidation



Supply chain **SPANNING MULTIPLE REGIONS**

- Semiconductor, memory, PCB and passive supply concentrated across global electronics hubs
- Regional disruptions can propagate across multiple component tiers



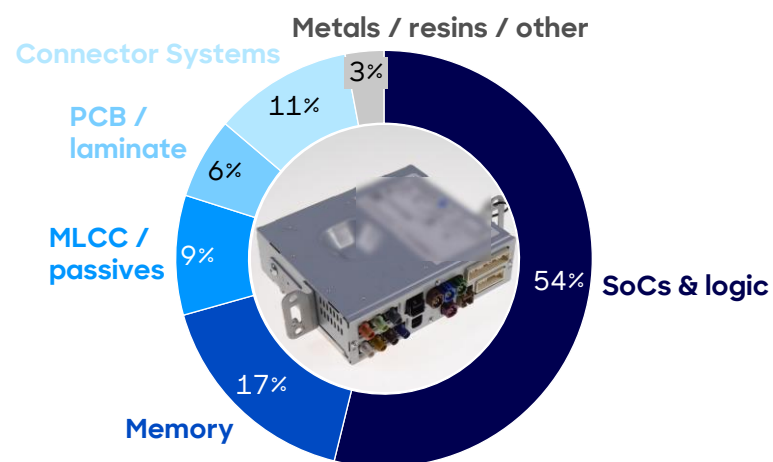
LONG PRODUCT LIFECYCLES & LEGACY EXPOSURE

- Automotive programs remain in production much longer than many underlying electronics technologies
- Component EOL/migration can create supply and repricing risk

Our inflation outlook model reflects sharply different category inflation impact on a should-costed cBOM, led by memory spike in 2026

Base case inflation outlook by key cBOM components to develop what-if scenarios

Controller cBOM¹ mix [% of material cost]

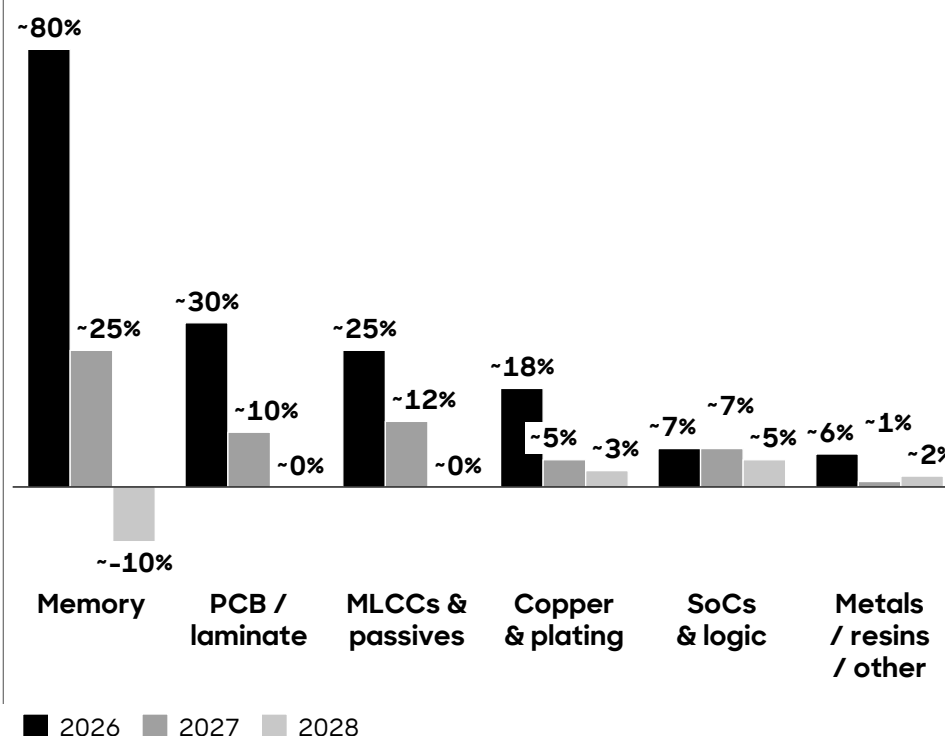


Representative high exposure components

SoCs & logic	Main SoC / application processor	~20%
Memory	DRAM (DDR 4/5)	~10-15%
PCB / laminate	Full mainboard (multilayer / HDI)	~5%

Base case category mat. cost inflation YoY, 2026-28 [%]

Figures shown reflect the base inflation case, with low / high inflation scenarios developed for sensitivity analysis



Key takeaways

- **Controller exposure is concentrated in electronics** with SoCs & logic and memory representing the majority of material cost
- **2026 inflation is highly uneven by category** with memory the clear outlier while PCB / laminate, passives and copper also face meaningful pressure
- **Category trajectories diverge thereafter** as memory is expected to reprice down while SoCs & logic remain modestly inflationary through 2028

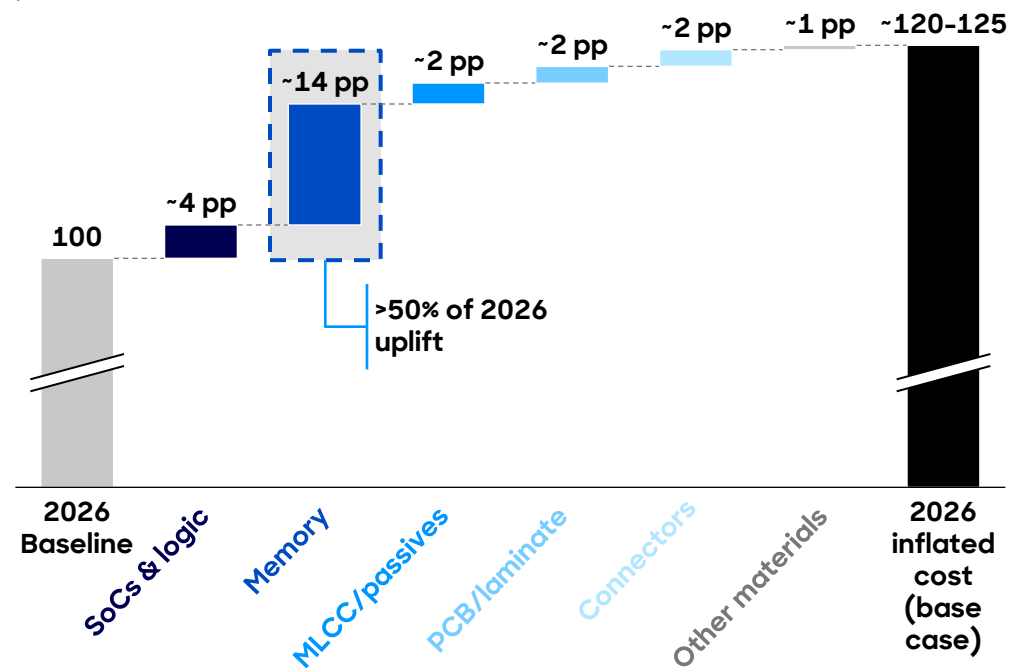
1) Controller cBOM based on representative dual-board controller assembled in Vietnam/Thailand should cost, April 2026 base, and Roland Berger market-outlook assumptions; actual exposure varies by architecture, specification, sourcing terms and supplier mix

The controller cBOM could face ~20–25% material-cost inflation in 2026, with memory driving more than half of the impact

Controller¹⁾ cBOM inflation outlook – Base case

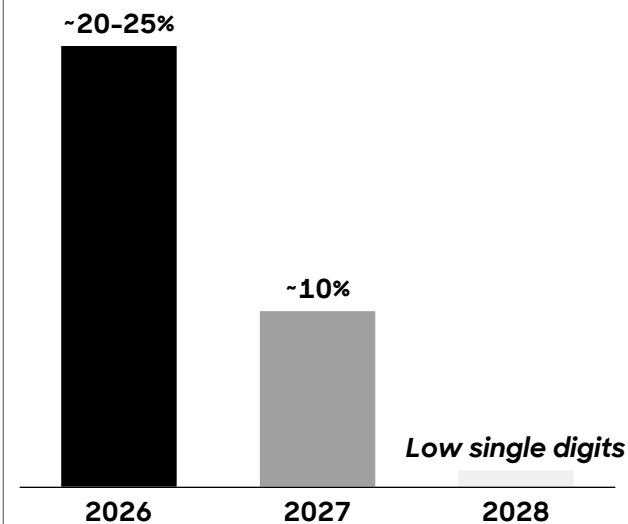
2026 material cost impact (base case, indexed=100)

Illustrative example: magnitude varies materially by product architecture & cBOM mix



Base case weighted cBOM material cost inflation YoY [%]

Base case scenario shown



Key takeaways

- **Scenario definitions:**
 - **Base** = most-likely path given announced capacity, contracted LTAs and current pricing momentum
 - **Low** = earlier capacity relief / demand destruction and softer supplier pass-through
 - **High** = supply discipline holds, with allocation premiums and tariff/feedstock shocks compounding
- **2026 inflation is highly concentrated** with memory driving most impact representing only ~15–20% of material cost
- **Industrial controllers, drives and interconnects show the same electronics concentration**, the exposure shape transfers; the gates and timing differ



Next: priority mitigation levers by cost family

1) Illustrative controller cBOM based on representative dual-board infotainment content and Roland Berger market-outlook assumptions; actual exposure varies by architecture, specification, sourcing terms and supplier mix

Same categories, different gates and the differences mostly favor industrial value chain over automotive

How the inflation mitigation outlook reads from an industrial-electronics perspective

Faster capture

Where automotive faces AEC-Q100 and PPAP cycles of 6–24 months, industrial qualification (IEC/UL, customer FAI, lighter revalidation) shortens most design levers with second sources, right-sizing and substitutions can pay in 2026–27, not 2027–28.

Resilience covers availability, not price

Redundant plants, regional sourcing and dual-sourced components built since 2021 help protect continuity. They do not dilute a demand-driven repricing that every qualified source charges at once; that layer is commercial structure and design action.

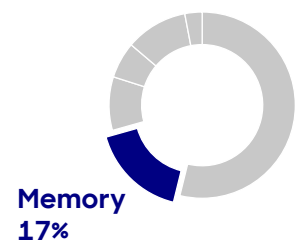
AI sits on both sides of your ledger

The data-center build-out is the demand shock inflating your components, and, for many industrial players, also a fast-growing customer. Exposure mapping has to net the two.

Memory: Protect 2026 exposure now while unlocking larger structural savings from 2027 onward

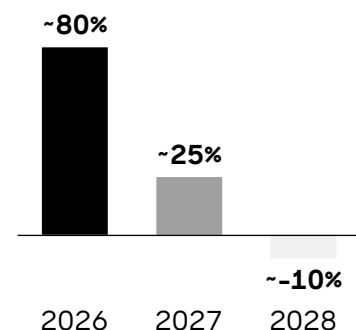
Illustrative controller actions and value potential – Memory

Share of cBOM



Inflation profile

Sharp near-term spike, then normalization



Top-5 priority actions

Top-5 priority actions		Value mechanism / potential		Timing	Key gate / dependency ³
Commercial	Design	Savings	~5-10% of memory-family cost protected	3-9 months	None: but competing with CSPs for the same fabs
		Avoidance			
		Risk transfer			
Commercial	Design	Savings	Margin protection/risk transfer	0-6 months	None: commercial negotiation; requires index definition (DXI/contract price)
		Avoidance			
		Risk transfer			
Commercial	Design	Savings	~10-20% savings on applicable storage scope ¹⁾	12-18 months	AEC-Q100 device qual + board-level DV + SI validation and capacity; OEM change approval
		Avoidance			
		Risk transfer			
Commercial	Design	Savings	~15-30% savings on DRAM scope ²⁾	6-12 months	SW validation + OTA / map-provider alignment; no silicon requalification
		Avoidance			
		Risk transfer			
Commercial	Design	Savings	~5-8%	0-6 months	None: cross-BU consolidation + commonization roadmap
		Avoidance			
		Risk transfer			

Savings = reduces underlying cost | **Avoidance** = prevents expected cost increase | **Risk transfer** = shifts cost exposure contractually

1) Second source must hold uncommitted capacity

2) Value contingent on map / SW footprint leaving headroom below 128 GB

3) Gates shown reflect automotive qualification (AEC-Q100 / PPAP); industrial equivalents (IEC/UL, customer FAI, revalidation) are typically shorter with timing shown is an upper bound

SoCs & logic: Cap persistent inflation now while reducing sole-source dependence over the platform cycle

Illustrative controller actions and value potential – SoCs & logic

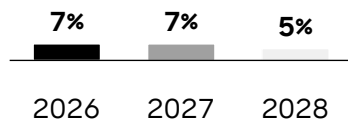
Share of cBOM



SoCs & logic
54%

Inflation profile

Persistent, moderate
inflation through 2028



Top-5 priority actions

Value mechanism / potential

Timing

Key gate / dependency²

Commercial	Negotiate multi-year pricing with foundry-increase cap / glidepath	Savings Avoidance Risk transfer	cap ~5-7% annual foundry-related increases	0-12 months	None: Negotiate before 2027 wafer increases (already agreed at foundries) flow through
Design					
Commercial	Qualify second-source SerDes on a competing link standard	Savings Avoidance Risk transfer	~10-20% of SerDes	12-24 months	AEC-Q100 + link-level interop + display/camera driver validation; OEM approval
Design					
Commercial	Introduce a mid-range SoC variant for lower trims (good-better-best)	Savings Avoidance Risk transfer	~5-12% of SoC	Platform cycle	AEC-Q100 + full SW port + OEM feature-set alignment; program-level decision
Design					
Commercial	Pool volumes across variants & programs on the platform SoC	Savings Avoidance Risk transfer	~2-5%	0-6 months	None: commercial consolidation; strongest at annual pricing round
Design					
Commercial	Screen for last-time-buys on EOL-risk logic (older nodes retiring)	Savings Avoidance Risk transfer	Avoids spot premium ¹⁾	0-6 months	None: lifecycle monitoring; ties to allocation strategy
Design					

Savings = reduces underlying cost | **Avoidance** = prevents expected cost increase | **Risk transfer** = shifts cost exposure contractually

1) Value realized only if EOL/shortage events occur; else carries inventory cost

2) Gates shown reflect automotive qualification (AEC-Q100 / PPAP); industrial equivalents (IEC/UL, customer FAI, revalidation) are typically shorter with timing shown is an upper bound

MLCC / passives: Qualify alternatives where scarcity is real and push back on broad-based pricing elsewhere

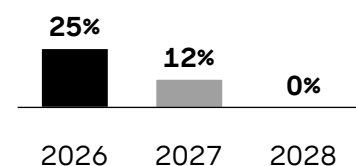
Illustrative controller actions and value potential – MLCC / passives

Share of cBOM



Inflation profile

Selective 2026 tightness, then normalization



Top-5 priority actions

Value mechanism / potential

Timing

Key gate / dependency²

Commercial	Qualify alternate MPNs on high-risk high-cap MLCC positions	Savings ~5-12%	3-6 months	PPAP-level; screen candidates against live distributor stock before committing qualification hours
Design		Avoidance Risk transfer		
Commercial	Consolidate PMICs onto an integrated multi-rail part	Savings ~5-15% of PMIC	Platform cycle	AEC-Q100 full + power-tree redesign + functional-safety re-analysis
Design		Avoidance Risk transfer		
Commercial	Reject / renegotiate increase notices on commodity (non-squeezed) grades	Savings ~3-8% of commodity ¹⁾	0-3 months	None: the shortage is bifurcated; pay only where scarcity is real
Design		Avoidance Risk transfer		
Commercial	Lock franchise agreements with bonded buffer stock	Savings ~2-5% + continuity	0-6 months	None: commercial; prioritize 47µF-class and high-voltage auto grades
Design		Avoidance Risk transfer		
Commercial	Consolidate passive purchasing across boards / programs	Savings ~3-6% of applicable passive scope	0-6 months	None: volume leverage at franchise / supplier level
Design		Avoidance Risk transfer		

Savings = reduces underlying cost | **Avoidance** = prevents expected cost increase | **Risk transfer** = shifts cost exposure contractually

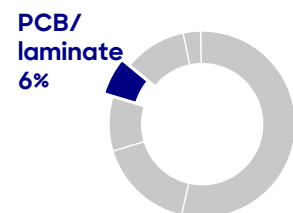
1) Holds while commodity-grade capacity stays loose

2) Gates shown reflect automotive qualification (AEC-Q100 / PPAP); industrial equivalents (IEC/UL, customer FAI, revalidation) are typically shorter with timing shown is an upper bound

PCB / laminate: Re-source high-cost positions now while using stack-up optimization and qualification to unlock structural savings

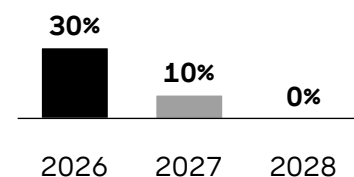
Illustrative controller actions and value potential – PCB / laminate

Share of cBOM



Inflation profile

High 2026 pressure, then normalization



Top-5 priority actions

Commercial Identify / qualify second fab source per board with CCL-allocation check
Design

Commercial Demand CCL cost breakout / indexation transparency in fab pricing
Design

Commercial Optimize panel utilization / array design with the fab
Design

Commercial Optimize layer count / HDI routing at the next board revision
Design

Commercial Standardize the laminate spec across both boards where SI allows
Design

Value mechanism / potential

Savings ~5-12% of PCB
Avoidance
Risk transfer

Savings ~3-8% of applicable PCB scope
Avoidance
Risk transfer

Savings ~3-8% of PCB
Avoidance
Risk transfer

Savings ~5-12% of PCB
Avoidance
Risk transfer

Savings ~2-5% of PCB
Avoidance
Risk transfer

Timing

4-8 months

0-6 months

3-6 months

12-18 months

6-12 months

Key gate / dependency¹

PPAP per board (two events); laminate allocation status verified before H1-27 builds

None – contract structure; prevents blanket increases riding the CCL headline

Fab engineering change + PPAP delta; near-zero design risk

Board respin + full DV + PPAP; couple to any planned revision, never standalone

SI validation on audio board + PPAP; consolidates purchasing leverage

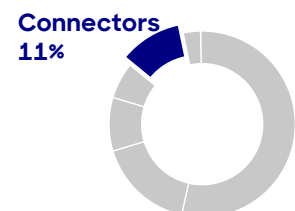
Savings = reduces underlying cost | **Avoidance** = prevents expected cost increase | **Risk transfer** = shifts cost exposure contractually

1) Gates shown reflect automotive qualification (AEC-Q100 / PPAP); industrial equivalents (IEC/UL, customer FAI, revalidation) are typically shorter with timing shown is an upper bound

Connectors: Separate metal-price exposure from supplier conversion cost now, then reduce plating intensity structurally

Illustrative controller actions and value potential – Connectors

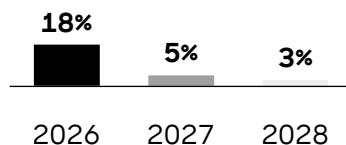
Share of cBOM



Primarily connector / terminal metal content and associated plating

Inflation profile

Sharp 2026 metal-cost pressure moderates, but underlying commodity volatility remains



Top-5 priority actions

Value mechanism / potential

Timing

Key gate / dependency¹

Commercial	Install plating-metal surcharge indexation (separate Ag/Au escalator, capped)	Savings Avoidance Risk transfer	Limits pass-through to actual indexed Ag/Au content	0-6 months	None – contract structure; splits metal pass-through from base-price negotiation
Design					
Commercial	Shift to selective plating – precious metal on the contact zone only	Savings Avoidance Risk transfer	~8-15% of applicable plating scope	3-6 months	PPAP + supplier process change; no board impact – the fastest design lever in the deck
Design					
Commercial	Dual-source high-value FAKRA / HSD connector positions	Savings Avoidance Risk transfer	~8-15% of applicable connector scope	6-12 months	PPAP + interface / performance validation + OEM approval
Design					
Commercial	Bundle the connector buy across your product lines	Savings Avoidance Risk transfer	~3-8% of applicable plating scope	0-6 months	None – corporate leverage with the same 3-4 connector houses
Design					
Commercial	Reduce plating thickness within the mating-cycle specification	Savings Avoidance Risk transfer	~5-10% of applicable plating scope	3-9 months	PPAP + durability validation (mating cycles, contact resistance over life)
Design					

Savings = reduces underlying cost | **Avoidance** = prevents expected cost increase | **Risk transfer** = shifts cost exposure contractually

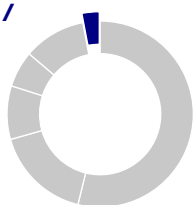
1) Gates shown reflect automotive qualification (AEC-Q100 / PPAP); industrial equivalents (IEC/UL, customer FAI, revalidation) are typically shorter with timing shown is an upper bound

Metals / resins / other: Challenge unsupported price increases now while pre-qualifying material alternatives and reducing mechanical content over time

Illustrative controller actions and value potential – **Metals / resins / other**¹⁾

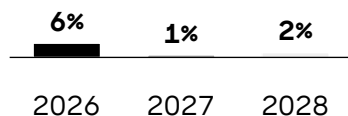
Share of cBOM

Metals /
resins/
other
3%



Inflation profile

Limited aggregate inflation,
but position-specific
opportunities remain



Top-5 priority actions

Value mechanism / potential

Timing

Key gate / dependency⁴

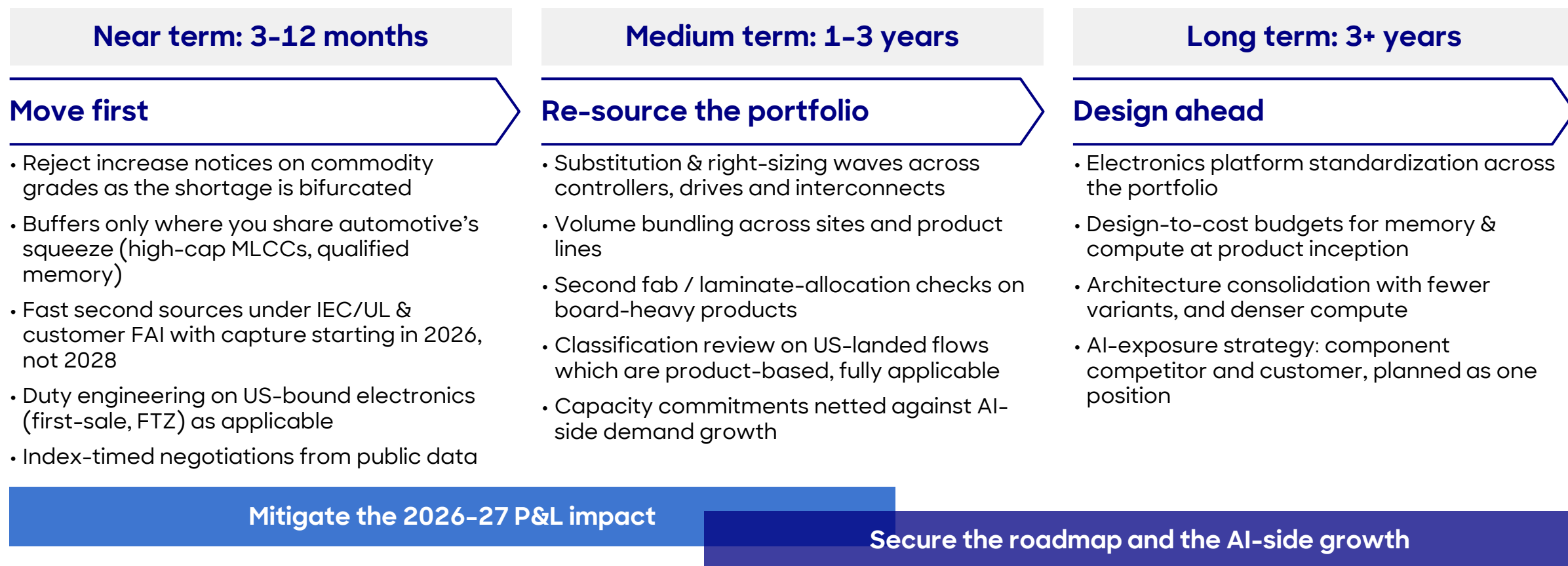
Commercial	Lock casting/stamping LTA with aluminum indexation; qualify near-shore second source	Savings Avoidance Risk transfer	~3-8% of mech	3-9 months	PPAP for second source; small absolute money, mainly for continuity, not savings
Design					
Commercial	Reject / renegotiate unsupported resin and mechanical price increases	Savings Avoidance Risk transfer	~3-8% of applicable resin scope ²⁾	0-3 months	Validate actual feedstock / supplier-cost movement
Design					
Commercial	Pre-qualify alternate engineering-resin grades / suppliers	Savings Avoidance Risk transfer	~4-10% of applicable resin scope ³⁾	3-6 months	Material-property equivalence + validation / OEM approval
Design					
Commercial	Rationalize fasteners, shields and low-value mechanical parts	Savings Avoidance Risk transfer	~3-8% of applicable HW scope	6-12 months	None to PPAP-delta; hygiene-level
Design					
Commercial	Right-size the heatsink via thermal redesign	Savings Avoidance Risk transfer	~5-12% of applicable mechanical scope	Platform / revision	Thermal / packaging validation
Design					

Savings = reduces underlying cost | **Avoidance** = prevents expected cost increase | **Risk transfer** = shifts cost exposure contractually

1) Engineering resins are explicitly included, with PA / PBT-type substitutions evaluated where specifications allow; 2) Holds while inventories stay high; re-spikes on feedstock geopolitics; 3) Value depends on an equivalent resin grade / supplier being technically suitable and approvable for the application; 4) Gates shown reflect automotive qualification (AEC-Q100 / PPAP); industrial equivalents (IEC/UL, customer FAI, revalidation) are typically shorter with timing shown is an upper bound

For industrial electronics manufacturers, capturing the fast levers your gates allow while standardizing the platform should be the primary cost management focus

Illustrative industrial levers across three time horizons, no single horizon closes the gap



The outlook raises three questions for industrial electronics manufacturers around exposure, speed and the AI build-out

Key discussion points

1

Which categories reach your BOMs and at what concentration?

Controllers, drives, inverters and interconnects show the same electronics concentration as the case study

- Where memory, compute and board content clusters across product lines
- What your existing resilience already covers – and what it does not
- Which risks are already reflected in current agreements and pricing

2

Where does your lighter qualification burden let you move faster?

Which levers can you capture in months that automotive competitors for the same parts must wait years for?

- Second sources under IEC/UL and customer FAI
- Right-sizing and substitution on memory, passives and boards
- Notice rejection where scarcity is not real
- Whether the speed advantage is being exploited systematically

3

How exposed are you to the AI build-out on both sides?

As a demand competitor for your components, and as a customer for your products.

- The netted position by product line
- Capacity commitments and strategic buffers
- How many more years of pass-through your customers will accept



Discussion should align on



Priority exposures

Which categories, products, regions and customers require the most attention?



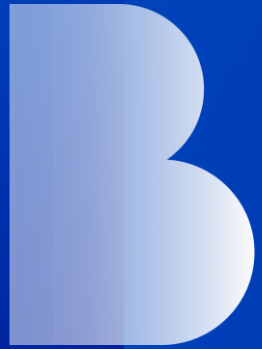
Response levers

Which actions and levers offer the greatest impact and are most feasible?



Areas requiring further fact base

What additional data, insights or scenarios are needed to decide?



3. "Power Hour" with Roland Berger experts

As a next step, we propose a “Power Hour”

Roland Berger "Power hour"

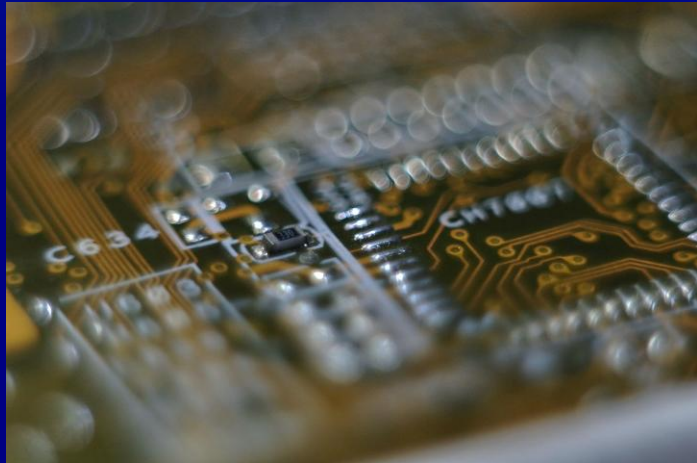
 Idea	45-60 min content impulse free of charge
 Content	Detailed review of electronics inflation current, future state, and impact on your product portfolio, with mitigation timing translated to your qualification gates
 Participants	You/Your team and RB experts from the Supply Chain, Engineering and Strategy functions
 Format	Online/MS Teams – Minimal effort
 Success factor	Discussion – Get the most out of it for your specific situation



Simply scan the QR code to reach out for your Roland Berger “Power Hour”

Example of a typical Power Hour agenda

Electronics
Inflation
Management



A Welcome & joint introduction
5 min

B Detailed market outlook across electronics categories
25 min

C Deep dive into your product-category inflation impact and the levers your gates let you capture early
25 min

D Optional: Additional insights
E.g., US-landed route & classification; AI-side demand exposure

Pick one product and we will return its 2026–28 exposure under three scenarios, and the lever plan to fight it

A working-session offer scenario-modeled exposure and a mitigation plan on a product of your choosing

1. You choose the product

- One electronics-intensive product family; a controller, drive, safety system, HMI or interconnect platform
- A BOM at whatever depth exists; costed, partial, or component list with volumes
- Your qualification pathway (IEC/UL, customer FAI) so lever timing reflects your gates, not automotive's

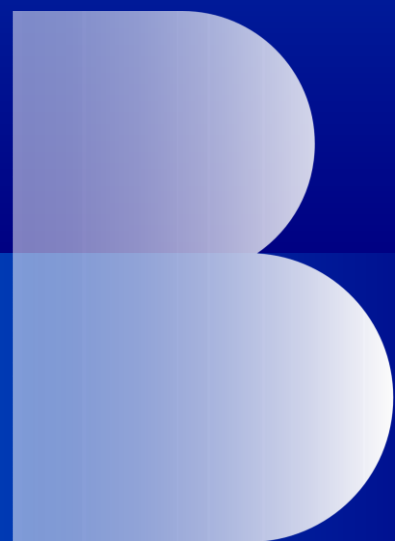
2. We model the exposure

- Low / Base / High inflation scenarios, 2026–28, on material and landed cost with the US-landed route and classification overlay where applicable
- Category decomposition: where the impact concentrates, netted against your AI-side demand

3. You receive the plan

- Top-5 mitigation actions for the product, with value ranges, timing and the specific qualification gate on each
- Savings classified honestly: real reduction vs. avoidance vs. risk transfer, what belongs in a savings total and what protects the P&L
- A sequencing view: what to execute this quarter, what to launch for 2027, what to hold for the next program

The mechanics: two to three weeks from BOM to briefing → your data stays local → findings in percentages and indices → a decision document, not a report



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