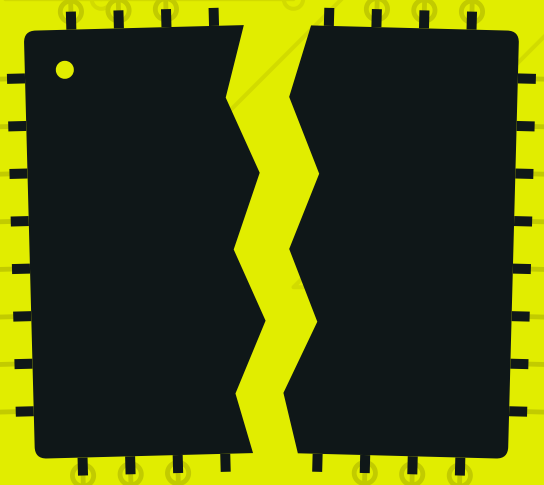
Prewave

Supply Chain Analysis
19 November 2026

Mature-Node Semiconductor Crunch

How AI data centre demand is pulling mature-node chip capacity away from automotive



Scope. This analysis covers mature-node semiconductors (28 nm and older), including analog and power management ICs, power discretes and microcontrollers, and their supply to the automotive industry, from wafer fabs and fab equipment to assembly and test, with an outlook to the end of Q1 2027. It draws on company releases, filings and earnings calls, official notices, established news agencies and recognised market-intelligence sources.

Executive summary

Mature-node supply for automotive is constrained: chipmakers confirm that supply, not demand, limits their shipments, and that scarce capacity goes to AI data centre customers before automotive.

AI data centre demand is taking the mature-node power, analog and discrete chips that cars also depend on. Chipmakers confirm that supply, not demand, now limits their shipments and that scarce capacity goes to AI customers first. Automotive enters this squeeze with little inventory and no new capacity before the second half of 2027.

The impact shows up in production and cost. Semiconductor-related line stops are confirmed at one European OEM, and Tier-1s expect chip cost inflation in 2027 that they will pass on to OEMs. The base case is intermittent line stops through Q1 2027, rising to multi-week stops at several OEMs if China imposes trade measures or supplier disputes resurface.

Posture: elevated, escalating. Base case is intermittent OEM line stops through Q1 2027 [M].

Key takeaways

- **The shortage is confirmed at the source.** Chipmakers said so publicly in their Q3 results and at the Electronica trade fair between 21 October and 11 November 2026 (section 1). Distributors report lead times of six months to over a year on key analog, power and discrete lines.
- **The cause is structural, not a one-off.** AI infrastructure needs large volumes of the same mature-node power, analog and discrete parts that cars use, and suppliers, packaging houses and toolmakers are prioritising the higher-paying AI business (section 2).
- **Automotive has no buffer and no near-term relief.** Customers hold little inventory, the first supplier-guided automotive catch-up is Q1 2027, and new capacity is slowed by 12-24 month equipment lead times (sections 2, 5.1).
- **The impact is on production and cost.** Semiconductor-related line stops are confirmed at one European OEM, and Tier-1s expect chip cost inflation in 2027 that they will pass to OEMs, with one estimating a gross hit of about €1 bn. In the escalation scenario, multi-week stops at several OEMs in Q1 2027 become plausible (sections 1.4, 5.1, 5.2).

+95%
data centre revenue growth year on year at Texas Instruments in Q3 2026 [C]

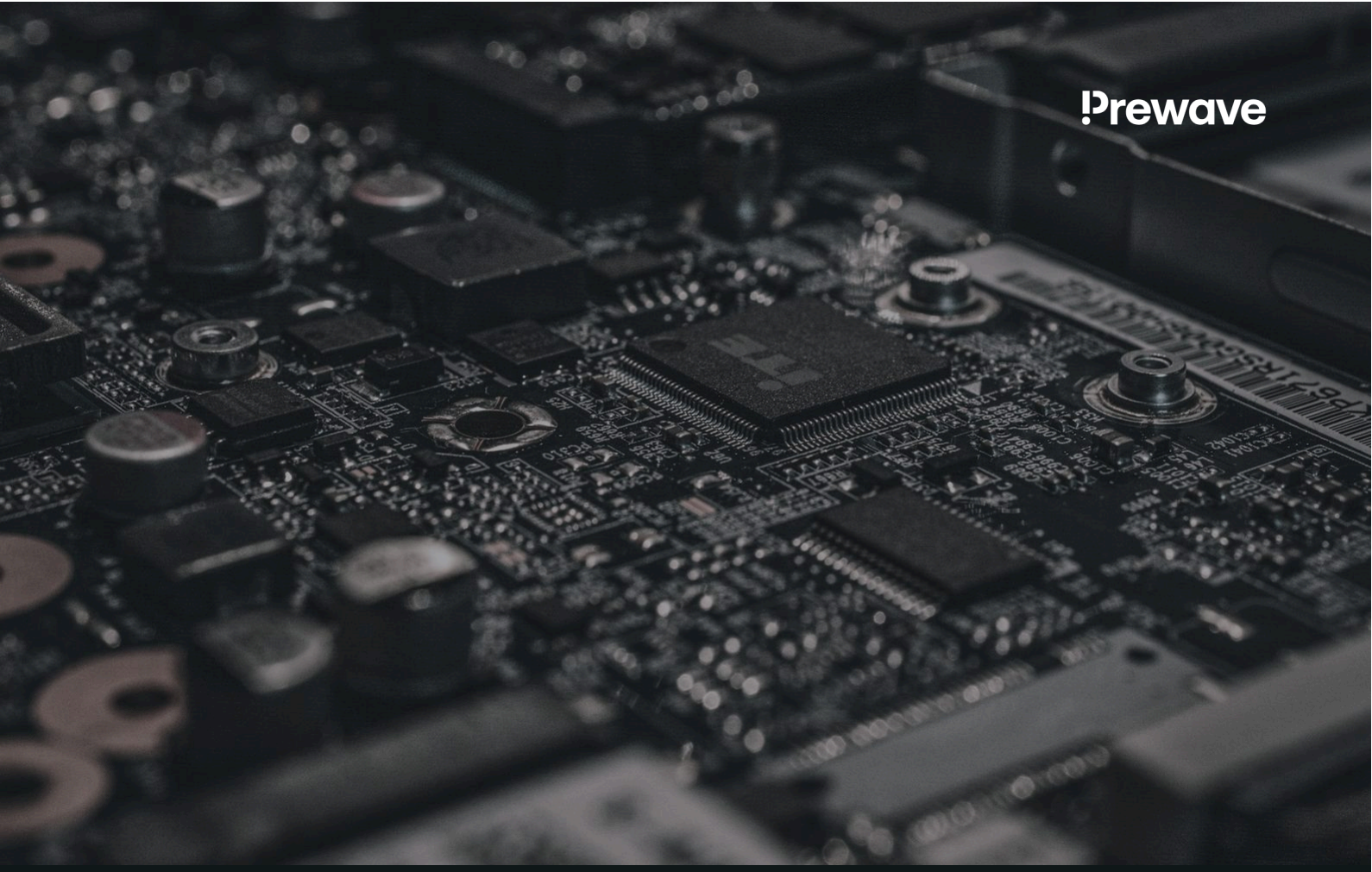
€1 bn
expected gross hit to 2027 earnings from chip price inflation at one major Tier-1 [C]

Q1 2027
first supplier-guided catch-up for automotive shipments [C]

Scope of this report

	In scope	Out of scope
Products	Mature-node semiconductors (28 nm and older): analog and power management ICs, power discretes (MOSFETs, diodes, transistors), general-purpose and automotive MCUs	Leading-edge logic (AI accelerators, CPUs), passive components
Supply chain stages	Wafer fabs, foundries, assembly and test (OSAT), fab equipment as a capacity constraint	Raw materials and wafers except where they signal allocation
Industries	Automotive	Industrial manufacturing and consumer electronics, except as competing demand sources
Adjacent risks	Memory (DRAM, NAND) and China trade measures, only where they hit the same parts or ECUs	A full memory or geopolitical assessment (see the 20 May 2026 and 14 Oct 2026 editions)
Time horizon	Now to end of Q1 2027	Structural capacity outlook beyond 2027

How to read the evidence. Every claim carries a marker: **[C]** confirmed by a named source, **[M]** Prewave analytical judgment, **[D]** derived by Prewave from confirmed figures, **[A]** unverified or assumed. Section 1 lists the confirmed facts by source type, so readers can see which come from chipmakers themselves and which come from distributors or media.



1

What is confirmed

1.1 Chipmaker statements (company-confirmed)

1.2 Q3 2026 earnings calls (company-confirmed)

1.3 Distributor and market observations (not company-confirmed)

1.4 OEM and Tier-1 impact (confirmed)

1.5 Reported but not verified

The strongest evidence comes from the chipmakers themselves. Distributor data shows the same picture at part level but is market observation, not company disclosure.

Evidence is listed from strongest to weakest.

1.1 Chipmaker statements (company-confirmed)

Source (date)	What was said	What it confirms
Dutch-headquartered, Chinese-owned discrete supplier, interim CEO at Electronica (10 Nov)	Capacity "totally oversubscribed"; "the automotive industry is suffering at the moment quite heavily"; competitors moved capacity away from commodity diodes and transistors [C, Reuters via Business Day]	Discretes are sold out and fallback suppliers have shrunk
STMicroelectronics CEO, Electronica panel (9 Nov)	Foundries and packaging firms are moving resources away from automotive and industrial: "We see many bottlenecks" [C, Reuters via Claims Journal]	Allocation away from auto at foundry and back-end level

A wafer supplier, Siltronic, adds supporting context: its CEO said on 4 November that chipmakers will send wafers to the customers that pay best, and that hyperscalers pay most [C, Reuters via SRN News].

He named smartphones and PCs as the segments losing out, not automotive, so this report uses it as evidence of price-based allocation in general (section 2.2) rather than of automotive allocation.

1.2 Q3 2026 earnings calls (company-confirmed)

Every major analog, power and MCU supplier grew strongly in Q3 2026, led by AI data centre and industrial demand.

At every supplier that reports it, automotive revenue grew more slowly than total company revenue, and at one supplier it fell. This matters because it shows where scarce output is going.

Company (report date)	Total revenue, YoY	Automotive signal	Supply and pricing signal
Microchip (5 Nov)	+42.2%	Not broken out	Lead times extended to as much as 32 weeks on capacity constraints; backlog growing; December quarter guided down 1% at the midpoint
onsemi (2 Nov)	+11.1%	Auto $777 m, down 1% YoY and QoQ; Q4 auto guided down high single digits	Constrained supply shifted to AI data centre and industrial; the company says the auto decline reflects this reallocation, not end demand; catch-up expected Q1 2027
Infineon (10 Nov)	+19%	Auto +8% QoQ; FY27 auto growth guided mid-teens	Power & Sensor +48% YoY on AI servers; FY27 data centre power close to €4 bn
STMicroelectronics (29 Oct)	+17.9%	Auto +5% YoY, flat QoQ, against industrial +40% and communications and computer +64%	Demand above supply in several product categories; distributor inventory below target; book-to-bill above 2
Renesas (29 Oct)	+30.2% (+22.3% excluding currency and one-off effects)	Auto +19% reported, +13.3% excluding currency, about half of it from channel restocking; industrial and infrastructure +46.4%	Capacity is the bottleneck for data centre products; modest unit-price increases in Q3; CFO says vehicle production volumes remain somewhat weak
NXP (27 Oct)	+19%	Auto $2.07 bn, +13% YoY (+17% excluding divested MEMS sensors), from processors and mixed-signal products	Inventory days down to 148 from 156; channel inventory 11 weeks
Texas Instruments (21 Oct)	+28%	Auto up mid-teens YoY; customers "have not kept much inventory"	Data centre +95% YoY; OSAT partners delivered less than Texas Instruments wanted; back-end tool lead times extending; analog prices rose in H2 2026 after a flat H1

Infineon's quarter is fiscal Q4 FY26 (Jul-Sep 2026); Microchip's is fiscal Q2 FY27 (Jul-Sep 2026). Figures from company releases, filings, call transcripts and published call minutes. Renesas reports in yen, so its reported growth includes currency effects.

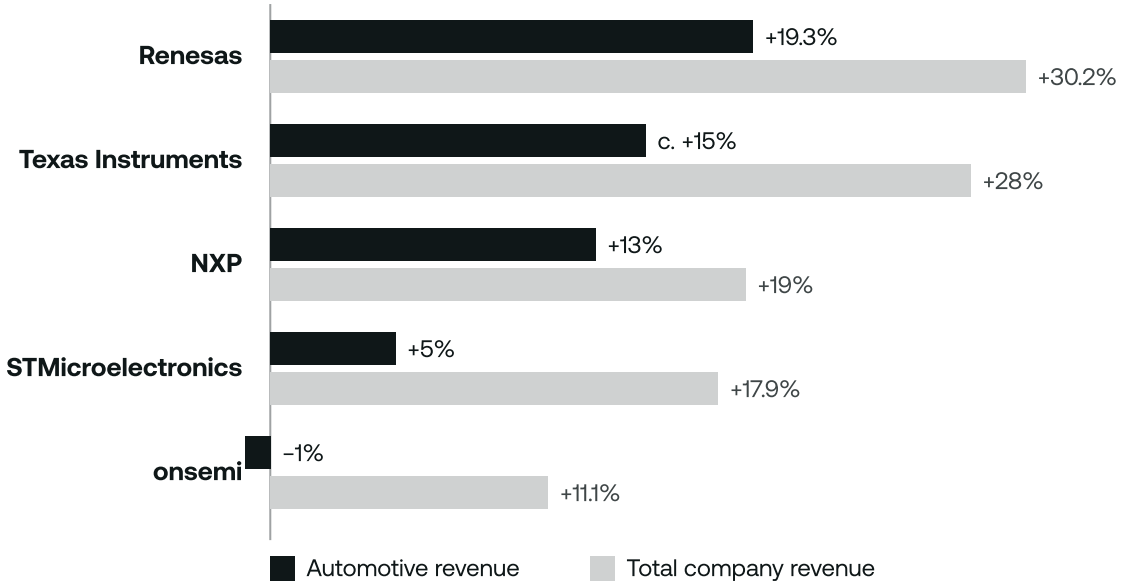
Reading the automotive numbers

Where automotive revenue grew, the growth came mainly from price, chip content per vehicle and channel restocking, not from more vehicles being built [M]. The evidence for each:

- **Volume.** Global light-vehicle production was forecast at 92.6 million units in 2026, down 0.4% [C, S&P Global Mobility, Jan 2026]. The October forecast update cites weak Chinese domestic demand and oil-price risk as the main pressures, not chip supply [C, Mobility Global, 20 Oct 2026]. Renesas' CFO said vehicle production volumes remain somewhat weak [C, Renesas Q3 call minutes].
- **Price.** Texas Instruments said analog prices rose in the second half of 2026 after a flat first half, and that it is negotiating 2027 prices now [C, Texas Instruments Q3 2026 call]. Renesas made modest unit-price increases in Q3, citing rising supply-chain costs [C, Renesas Q3 call minutes].
- **Content.** NXP attributes its automotive growth to processors and mixed-signal products [C, NXP Q3 2026 10-Q]; Renesas to 28 nm MCUs adopted by several Chinese OEMs and its R-Car Gen4 SoC [C, Renesas Q3 call minutes].
- **Restocking.** Renesas said about half of its 13.3% currency-adjusted automotive growth came from building channel inventory, the other half from sell-through [C, Renesas Q3 call minutes].
- **Allocation.** onsemi said its automotive decline reflects constrained supply moved to AI data centre and industrial customers, not weaker automotive demand [C, onsemi Q3 2026].

Automotive revenue growth is therefore no sign that automotive is well supplied: higher prices and restocking raise revenue while specific parts stay short. The gap between automotive and company-wide growth is the better measure of where scarce capacity is going [M].

Exhibit 1. Automotive and total revenue growth, Q3 2026, year on year



Automotive and total revenue growth, Q3 2026, year on year, as reported. Texas Instruments gives automotive growth only as "mid-teens". Infineon and Microchip do not report a comparable automotive figure. Sources: company releases, filings and calls listed above.

1.3 Distributor and market observations (not company-confirmed)

Fusion Worldwide's 29 October market report shows the shortage at part level [C, Fusion Worldwide Greensheet, Oct 2026].

Lead times on key analog, power and discrete lines run from six months to well over a year, and some orders confirmed earlier are being cancelled. This is market observation across distributors' customer bases rather than supplier disclosure. It matters because it shows how the allocation decisions described in 1.1 and 1.2 reach buyers in practice, and which part families are tightest.

- **Texas Instruments:** quoted 12-16 weeks, actual closer to six months; some customers report 52+ weeks; significant purchase-order decommits; a further 10-15% price increase expected in October. Texas Instruments has since confirmed that analog prices rose in the second half of 2026, without giving a rate [C, Texas Instruments Q3 2026 call].
- **Power discretes and MOSFETs:** 48 to 104+ weeks depending on brand; automotive MOSFETs at one supplier 52+ weeks with customers expecting about 10% of requested allocation.
- **The discrete supplier in 1.1:** 36-40+ weeks after price increases of 5-70% in August.
- **Automotive MCUs** at one European supplier: 52+ weeks.

Mature-node foundries raised wafer prices 5-20% in 2026 and 8-inch capacity is shrinking 2.4% this year [C, TrendForce, 14 Jan 2026].

1.4 OEM and Tier-1 impact (confirmed)

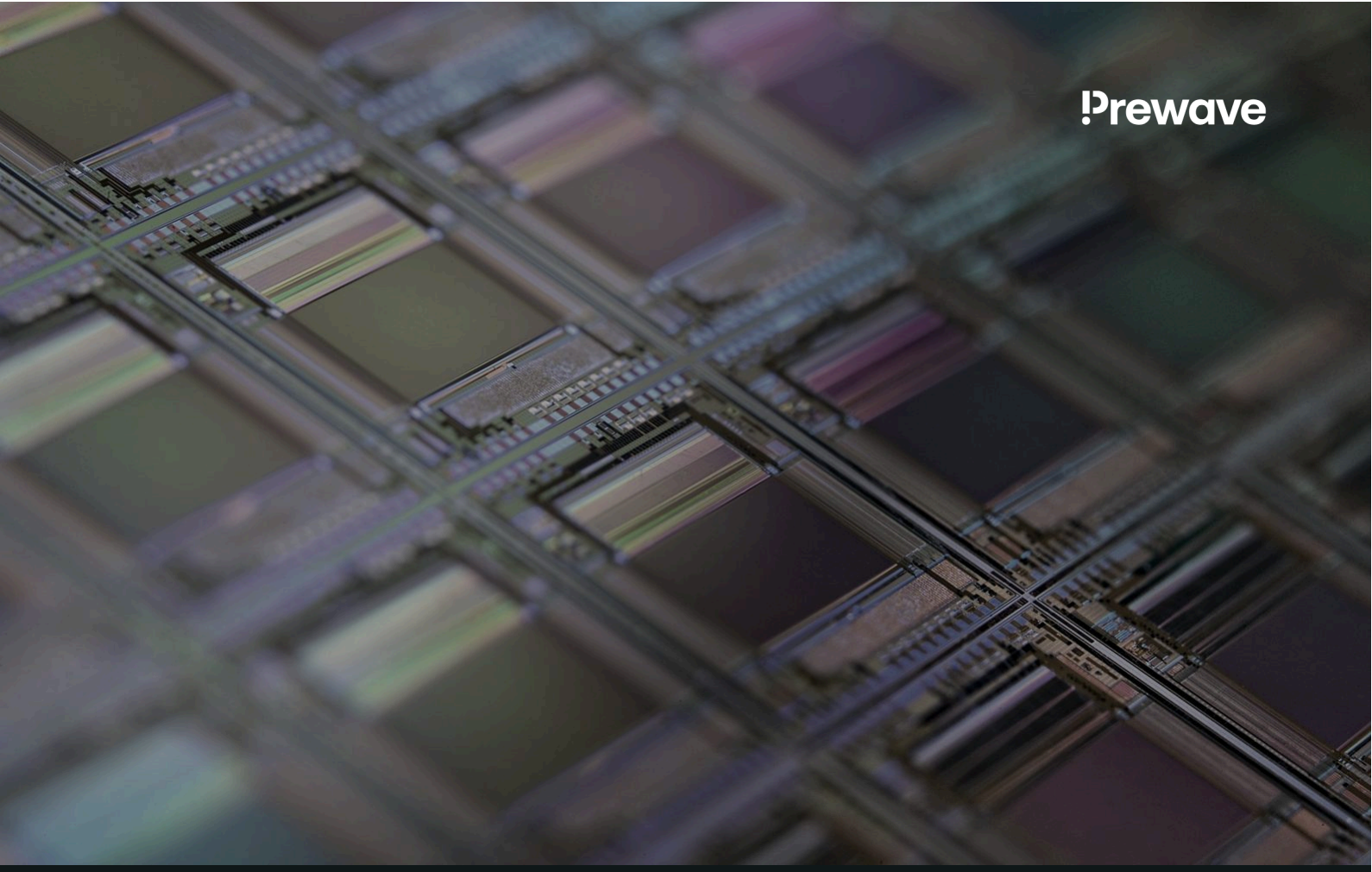
The shortage has started to reach vehicle production and supplier costs. One European OEM has confirmed semiconductor-related line stops, and two global Tier-1s expect supply disruption and higher chip costs in 2027. This is where upstream allocation turns into lost output and margin pressure for automotive, and it sets the baseline for the scenarios in section 5.1.

- A European OEM said on 2 November that a shortage of a chip used in an engine control unit was causing significant disruption at its Italian plants and could last through December. One affected plant's stop had run into a fifth week by 12 November; unions attribute part of it to weak demand for the model [C, Reuters via The Star, TimesLIVE and TimesLIVE, 2, 5 and 12 Nov 2026].
- A major Tier-1 expects a gross hit of about €1 bn ($1.1 bn) to 2027 earnings, mainly from semiconductor price inflation. It says the effect has been barely noticeable so far and plans to pass part of it to OEMs [C, Bloomberg via Claims Journal, 6 Nov 2026].
- A second global Tier-1 said ongoing supply constraints will continue to cause intermittent production disruption, and expects price pass-through to rise meaningfully in 2027 [C, Q3 2026 earnings call].

1.5 Reported but not verified

These claims circulate in market reports and internal monitoring but could not be confirmed against a company filing, an official notice or a reputable primary source. We list them so readers can recognise them when they come up elsewhere, without treating them as established. None of them is used to support the conclusions in this report.

- **+80% Chinese demand** cited as a cause of one US supplier's scarcity: no public filing or call confirms it [A].
- **24-48 week lead times for Texas Instruments automotive, power and isolation parts** attributed to A2 Global: the A2 Global reports we could open (June and August 2026) give no Texas Instruments-specific lead times [A].
- **Further OEM stops** (a Canadian minivan plant, Japanese OEM plants in China): reported in internal monitoring, not independently confirmed for this edition [A].
- **New Chinese anti-dumping questionnaires** for US analog chipmakers with a 37-day deadline, reported on 12 November 2026 [ad-hoc-news citing The Economic Times]: the details match the questionnaires China issued on 22 October 2025 [TrendForce, 23 Oct 2025], and we found no new notice from China's Ministry of Commerce [A].



2

Why it is happening

2.1 The value chain: where capacity is decided

2.2 Four AI-driven channels

2.3 Where assembly and test capacity sits

2.4 Two amplifiers outside AI

2.5 Working the other way: soft vehicle demand

2.6 Why it turned urgent in October and November

AI is about advanced chips, but every AI rack also needs large volumes of conventional mature-node power, analog and discrete parts, and those compete with cars for the same factories.

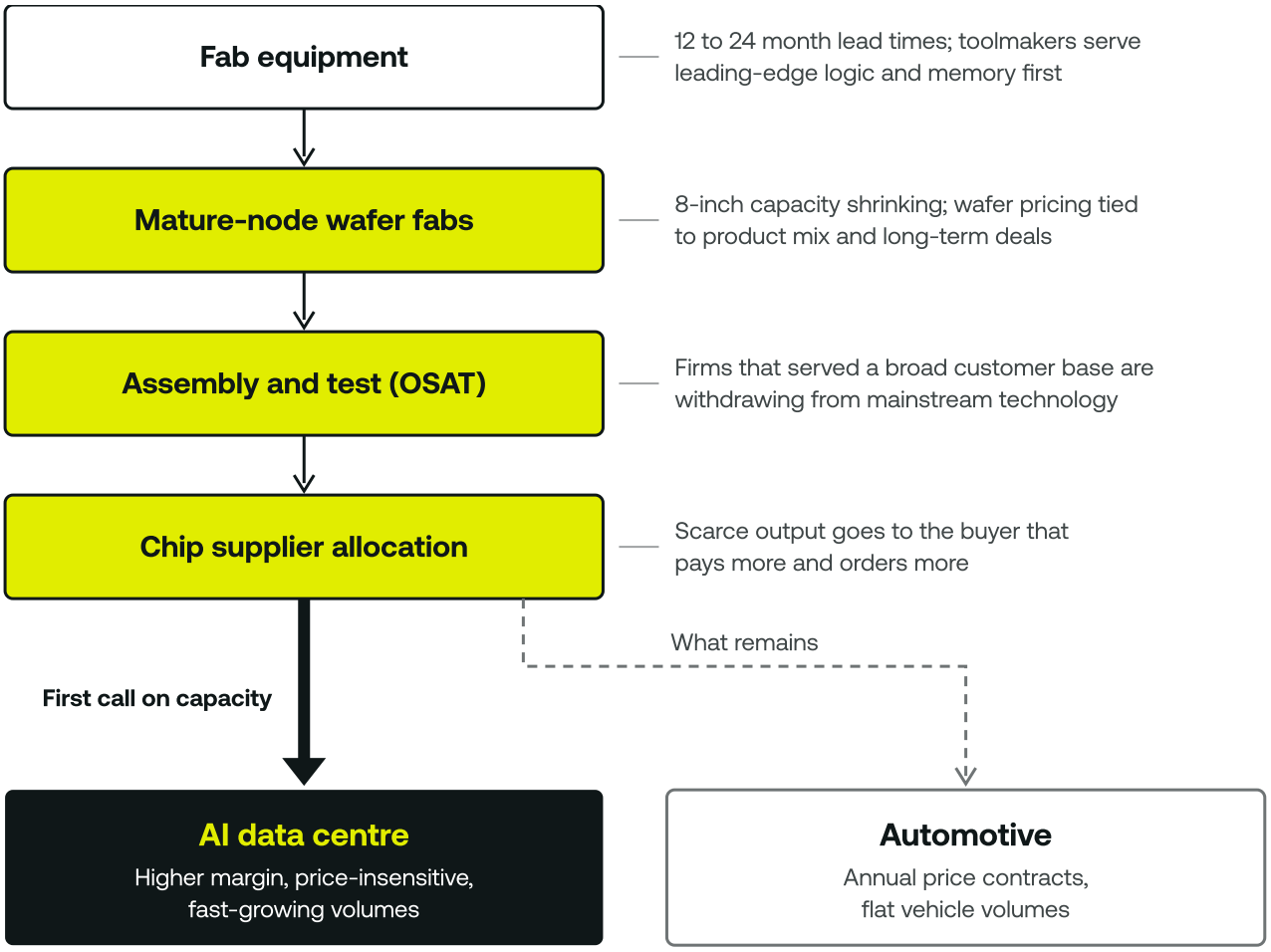
Section 2.1 shows where in the value chain that competition is decided. The squeeze works through four AI-driven channels and is amplified by two non-AI factors. Soft vehicle demand works in the other direction.

2.1 The value chain: where capacity is decided

AI data centre and automotive buyers draw on the same mature-node capacity at three shared points: wafer fabs, assembly and test, and the chip supplier's allocation decision.

Fab equipment sets how fast any of them can grow. At each point the AI buyer pays more and orders more, so scarce output flows that way first [M].

Exhibit 2. Where AI data centre and automotive demand compete for capacity



Simplified mature-node value chain. Yellow marks the shared capacity points where AI data centre and automotive demand compete.

The decision is not made by the automotive chip supplier alone. Foundries tie wafer pricing to product mix, capacity and long-term deals [C, TrendForce, 17 Apr 2026]; assembly and test firms that served a broad customer base are withdrawing from mainstream technology [C, Reuters, 10 Nov 2026]; and toolmakers serve leading-edge logic and memory first (section 2.2).

An automotive buyer can therefore have a committed direct supplier and still be short, because the constraint sits one or two tiers upstream [M].

2.2 Four AI-driven channels

1. **Demand: AI uses the same parts as cars.** Each AI server needs power stages, voltage regulators, power MOSFETs and analog control, all made on mature nodes. Data centre revenue rose 95% YoY at the largest US analog supplier [C, Texas Instruments Q3 2026] and AI data centre revenue 175% YoY at one power supplier [C, onsemi Q3 2026]. AI-related MOSFETs at one discrete supplier are quoted at 104+ weeks [C, Fusion Worldwide, Oct 2026].
2. **Wafer allocation: capacity goes to whoever pays most.** Foundries and chipmakers favour higher-margin AI orders over automotive [C, Siltronic and STMicroelectronics CEOs, Nov 2026]. At the same time, global 8-inch capacity is shrinking as large foundries phase out older fabs [C, TrendForce, 14 Jan 2026].
3. **Assembly and test: the hidden bottleneck.** Even suppliers with their own fabs depend on external assembly-and-test (OSAT) partners, and those partners are filled by AI work. Texas Instruments said OSAT partners delivered less than it wanted [C, Texas Instruments Q3 2026]; Microchip said AI customers absorbed foundry and OSAT test capacity [C, Microchip FQ2 FY27].
4. **Equipment: new capacity arrives slowly.** Toolmakers are booked by leading-edge logic and memory investment. Front-end tool lead times are currently 12-24 months, conventional etch and deposition tools about 12 months (double the norm), and high-end packaging and test tools over 18 months [C, TrendForce, 19 Aug 2026]. We assess that replacing a failed tool on a mature line now takes much longer than before, though no source separates mature-node tool lead times [A].

2.3 Where assembly and test capacity sits

Back-end capacity is concentrated in mainland China and Taiwan, and the mix differs by part type: discretes depend most on China, while analog and MCU assembly is spread more widely.

Location	Share of global assembly, test and packaging capacity (2022)	Role for mature-node parts
Mainland China	30%	Largest assembly location by part count for discretes (about 406,000 part numbers, roughly three times Taiwan) and for analog and mixed-signal ICs
Taiwan	27%	Largest assembly location by part count for MCUs; second for discretes
Malaysia	7%	Back-end for power and analogue parts; Renesas is expanding its power back-end In Malaysia, Nexperia likewise is expanding in Malaysia and the Philippines.
Philippines	6%	Second for analog and mixed-signal ICs by part count; third for MCUs and discretes

Capacity shares [C, SIA and BCG, May 2024, 2022 data]; part-count rankings [C, Z2Data, Oct 2026]; Malaysia expansion [C, Renesas Q3 call minutes].

This shapes the exposure. Discretes carry the most China back-end risk. Analog and MCU back-end is spread across China, Taiwan and the Philippines, where the main risk is capacity moving to AI customers rather than a trade measure.

A supplier's brand or wafer origin says little about which of these applies to a given part [M].

2.4 Two amplifiers outside AI

- **Governance.** The Dutch-Chinese governance dispute over a discrete supplier remains unresolved a year after the October 2025 crisis.
- **Geopolitics.** Separately, China's anti-dumping investigation into US interface and gate-driver chips made at 40 nm and above was due to conclude by 13 September 2026, with a possible six-month extension [C, MOFCOM Announcement No. 27 of 2025]. That puts the latest closing date at 13 March 2027 [D]. We found no published ruling as of 19 November 2026. Neither has produced a new restriction yet.

- **Thin buffers.** After the 2023-24 destocking cycle, automotive customers hold little inventory [C, Texas Instruments Q3 2026] and distributor stock is below target [C, ST Q3 2026]. Tier-1s now raising inventory targets add demand on top [C, Rand Technology, May 2026].

2.5 Working the other way: soft vehicle demand

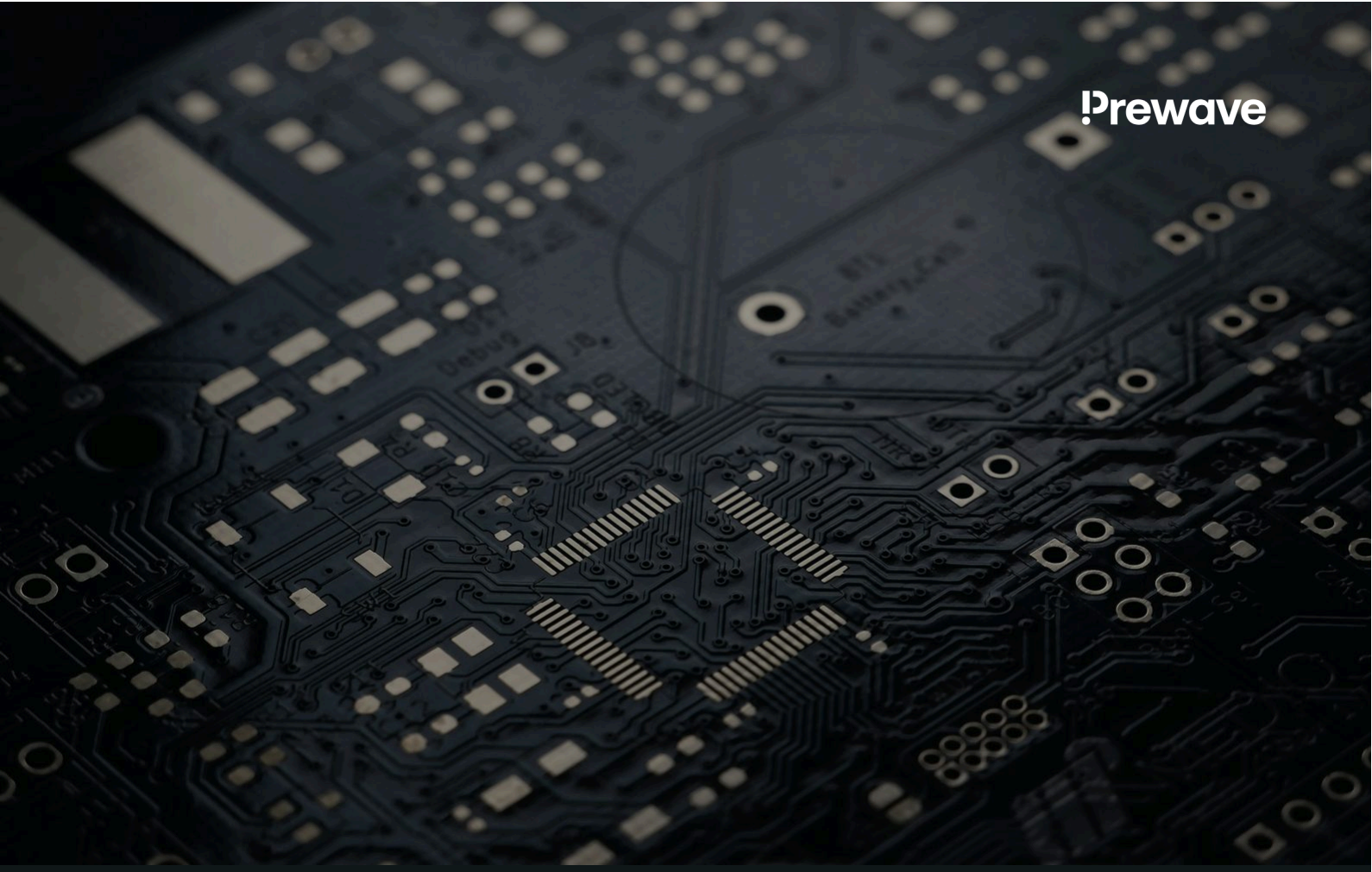
Weak vehicle demand is absorbing part of the shortage. Global light-vehicle production is forecast slightly down for 2026, with weak Chinese domestic demand the main drag [C, S&P Global Mobility, Jan 2026; Mobility Global, Oct 2026]. At the Italian plants in section 1.4, unions attribute part of the stoppage to weak sales of the model [C, Reuters, Nov 2026].

Lower build rates reduce how many parts OEMs need, but they do not change the order in which suppliers serve customers, and shortages hidden by weak demand are likely to show when build rates recover [M].

2.6 Why it turned urgent in October and November

The squeeze builds first as price increases and becomes acute when suppliers run out of slack and start choosing customers. In the Q3 2026 reporting season (21 October to 10 November), suppliers said openly that supply caps shipments and that auto orders were deferred (section 1.2).

Acute phases tend to coincide with annual contract negotiations; for 2027, Texas Instruments said pricing is tied to the supply commitments customers want [C, Texas Instruments Q3 2026], so buyers without commitments risk being served last in 2027 [M].



3

Spotlight: the leading US analog supplier

Texas Instruments is tight but better placed than most peers: its own fabs protect wafer supply, while external assembly and test and booming data centre demand limit what reaches automotive.

Texas Instruments is tight but better placed than most peers: its own fabs protect wafer supply, while external assembly and test and booming data centre demand limit what reaches automotive.

Why it matters. Texas Instruments is one of the most widely used suppliers of analog and embedded parts in vehicles: power management, sensing, motor control and ECU components. Many of these parts are single-sourced at design level, so scarcity cannot be bridged by switching suppliers within the quarter [M].

Question	Confirmed by Texas Instruments	Reported by distributors or market	Not verified
Is supply tight?	OSAT partners delivered less than Texas Instruments wanted; back-end tool lead times extending [C, Q3 call, 21 Oct]	Actual lead times close to six months, some customers 52+ weeks; PO decommits [C, Fusion Worldwide, 29 Oct]	A company-wide shortage; Texas Instruments has not said this
Is automotive affected?	Auto up mid-teens YoY; customers "have not kept much inventory" [C, Q3 call]	OEM line stops linked to analog power parts (market reports)	Which OEM stops trace to Texas Instruments parts
Why now?	Data centre +95% YoY, now about 13% of revenue; China and US drove auto growth; analog prices rose in H2 2026 after a flat H1 [C, Q3 call]	Price increases of 10-15% expected in October [C, Fusion Worldwide]	+80% Chinese demand [A]
What is Texas Instruments doing?	Inventory of $4.7 bn (194 days); 2026 capex $2-3 bn; "can grow capacity every quarter" [C, Q3 call]		Specific new back-end capacity in Malaysia [A]

Better insulated than peers. Texas Instruments says it controls its own front-end and back-end, built inventory during the downcycle, and can add capacity each quarter [C, Texas Instruments Q3 2026 call]. Peers that outsource wafers or test to foundries and OSATs are more exposed to AI-driven reallocation [M].

The open exposure for Texas Instruments is the part of its back-end that still runs through external partners, and China's anti-dumping investigation, which covers interface and gate-driver chip types Texas Instruments sells; China has not named the companies under investigation [C, MOFCOM Announcement No. 27 of 2025].



4

How it compares with past disruptions

The current allocation squeeze moves more slowly than a fab disaster but is more structural than 2021: no single plant needs to restart, so there is no clear end date.

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Event	Trigger	Mechanism	Duration	Automotive outcome
Current mature-node allocation (from 2026)	AI data centre demand plus China-Europe and China-US trade friction	Suppliers allocate scarce wafer, test and packaging capacity to higher-margin customers	Open-ended; first supplier catch-up guided for Q1 2027	Intermittent line stops; chip cost inflation passed down the chain (one Tier-1 expects a ~$1.1 bn gross hit in 2027)
Oct 2025 discrete-supplier standoff	Dutch government control action, followed by a Chinese export ban on a back-end site located in China.	European wafers could not reach Chinese back-end; finished parts could not leave China	Acute phase about 6-8 weeks [M]; governance dispute still open	One Japanese OEM cited it among factors in a ¥150 bn operating-profit outlook cut; European OEMs reported days of inventory
2021-22 global chip shortage	Post-COVID demand rebound after auto orders were cancelled	Auto lost its place in foundry queues to consumer electronics	About 18-24 months	7.7 m vehicles of lost production and $210 bn lost revenue in 2021 alone [C, AlixPartners via CNBC, 23 Sep 2021]
2011 Japan earthquake	Physical damage to a leading MCU maker's main fab	Single-site loss of automotive MCU output	Restart after about 3 months, full capacity about 6 months [C, IEEE Spectrum]	Global OEM production cuts through spring and summer 2011

Sources for the October 2025 row: Reuters and WSJ (Oct-Nov 2025), electrive.com (22 Oct 2025), as cited in Prewave's 20 May 2026 edition.

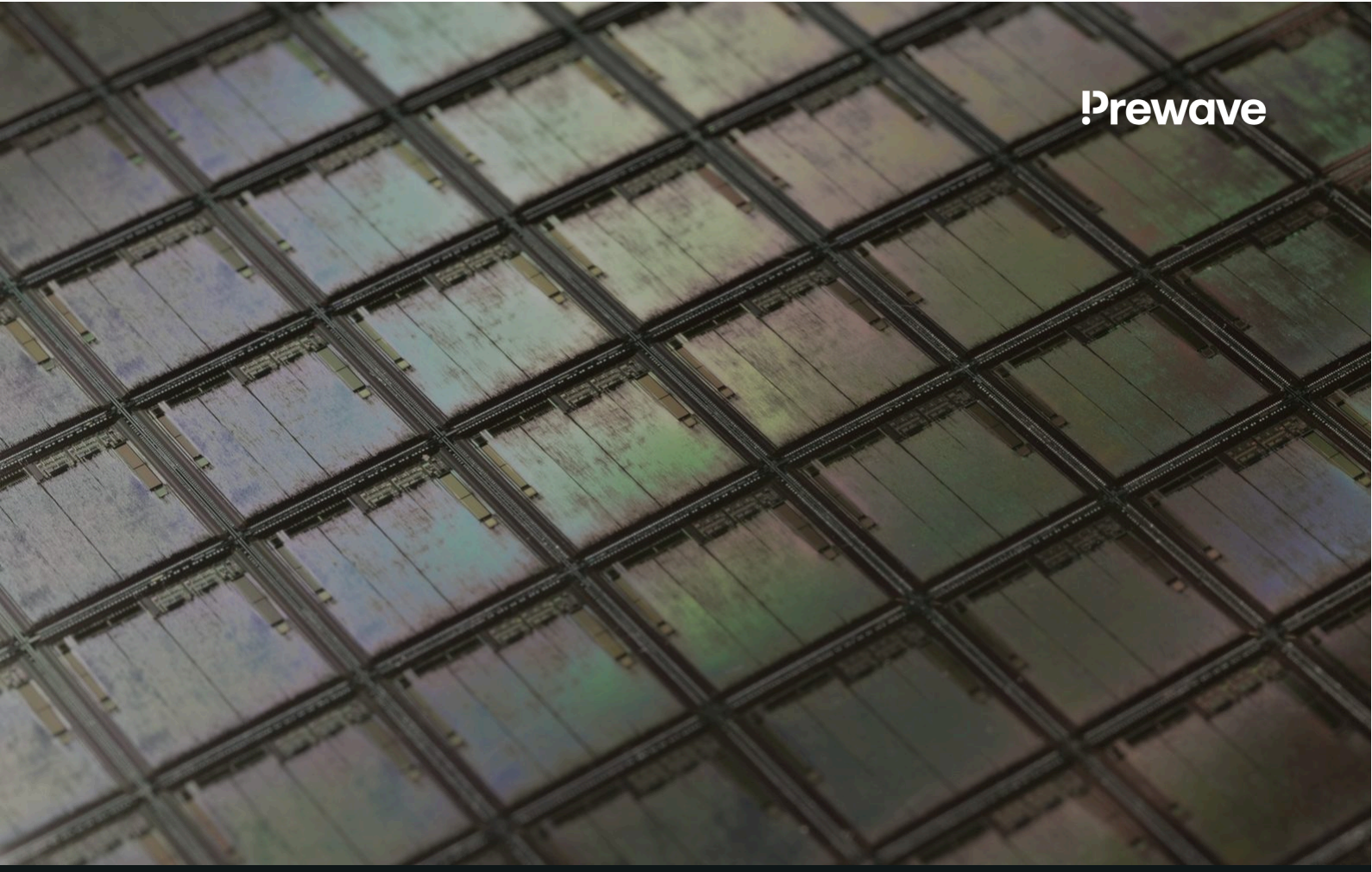
Three lessons that carry over

1. **Allocation events outlast physical events.** 2011 ended when one fab came back. 2021 ended only when demand cooled and capacity caught up, which took about two years. The 2026 pattern looks closer to 2021 [M].
2. **Forecasts escalate.** AlixPartners' 2021 loss estimate rose from $60.6 bn in January to $210 bn by September [C, CNBC]. Early-stage estimates in this cycle should be treated as floors, not central cases [M].

3 **Back-end location matters more than wafer origin.** October 2025 showed that a European wafer label does not protect a part whose test and packaging partially run through China. The same logic now applies to OSAT capacity being diverted to AI customers (section 2.3).

What is worse in the current climate: memory is tightening simultaneously, two separate China trade disputes are active, and suppliers are openly prioritising other end markets.

What is better: OEMs have 2021 playbooks, multi-year agreements are more common, and suppliers such as Texas Instruments built inventory during the downcycle (194 days) [C, Texas Instruments Q3 2026 call].



5

Outlook, automotive impact and what to watch

5.1 Outlook: rest of 2026 and Q1 2027

5.2 Automotive impact

5.3 Indicators and triggers to watch

5.1 Outlook: rest of 2026 and Q1 2027

Base case: tightness persists through Q1 2027 with no structural relief before the second half of 2027; the main swing factors are China trade actions and how fast AI demand keeps absorbing back-end capacity [M].

Rest of November and December 2026

Expect seasonal softness in reported revenue without any easing of supply: Texas Instruments guided Q4 revenue of $5.80-6.30 bn against $6.06 bn in Q3, and Microchip guided the December quarter down 1% at the midpoint [C, company releases].

Q4 auto guidance at onsemi is down high single digits, which signals further deferred auto shipments this quarter [C].

China's anti-dumping investigation can conclude at any point up to 13 March 2027 [D]. Year-end plant holidays give OEMs a natural buffer, which may mask shortages until restart in January [M].

January to March 2027

Several signals cluster here: onsemi's guided auto catch-up, Microchip's comment that March-quarter backlog is "much stronger" than December's was at the same point, and the January earnings calls where Texas Instruments said it will give more detail on 2027 pricing [C]. Expect new 2027 contract prices to show up in Tier-1 cost pass-through claims [M].

Memory adds pressure: the CEO of a top-three DRAM maker expects 2027 to be the tightest supply year in the industry's history [C, Tom's Hardware, 11 Jul 2026]. 8-inch capacity keeps shrinking as major foundries close older fabs through 2027 [C, TrendForce, 14 Jan 2026].

Scenario	What it looks like	Likelihood [M]
Managed tightness (base case)	Lead times hold at 20-35+ weeks; allocation by contract; isolated, short OEM line stops; price increases for 2027	Likely
Escalation	China imposes duties or other measures on US analog parts, or the discrete-supplier dispute disrupts shipments again; multi-week stops at several OEMs in Q1 2027	Plausible
Early relief	AI capex slows sharply, freeing back-end capacity; auto catch-up lands in Q1 2027 as guided. Soft vehicle demand reduces line stops but does not change allocation	Unlikely before mid-2027

Likelihood labels are Prewave analytical judgment, not modelled probabilities.

5.2 Automotive impact

Automotive is directly exposed: the parts under pressure (power management ICs, gate drivers, MOSFETs, diodes, transistors, general-purpose MCUs) sit in nearly every ECU, and a missing low-cost part stops a line as surely as a missing high-value one.

Where it bites in the vehicle. Engine and powertrain control units (already cited in one European stop), body and comfort electronics, lighting, battery management and on-board chargers in EVs, and zonal or domain controllers that combine analog power stages with memory [M]. EVs carry more power semiconductors per vehicle, so EV programmes are more exposed [M].

Buffer position. Weak. Suppliers report automotive customers holding little inventory and distributor stock below target [C, section 1.2]. Some Tier-1s are reported to be raising inventory targets from about 4 to up to 12 weeks [C, Rand Technology citing Edgewater Research, May 2026], which itself adds demand and may include double bookings of up to 15% [C, same].

Impact channels. The shortage reaches automotive through four channels. Production stops and cost inflation are already visible; programme delays and model-mix changes followed in 2021 and are plausible again [M].

Channel	How it works	Current evidence	Timing
Production stops	A Tier-1 cannot build an ECU without one missing part, so the OEM line stops even when every other part is available	Disruption at one European OEM's Italian plants, possibly through December [C, Reuters, Nov 2026]; a second global Tier-1 expects intermittent disruption [C, Q3 2026 call]	Isolated so far; more likely after the January restart (section 5.1) [M]
Cost inflation	Chip suppliers reset prices in annual contracts; Tier-1s pass part of the increase to OEMs	One Tier-1 expects a gross hit of about €1 bn in 2027 [C]; a US OEM expects about $2 bn of inflation in 2027, including memory chips [C, CNBC, 6 Nov 2026]	Concentrated in the Q1 2027 contract round [M]
Programme and launch delays	New ECUs and vehicle launches need qualified parts, and an alternative part takes 6-18 months to qualify (AEC-Q100/Q101 plus PPAP) [A]	None confirmed for this edition	Through 2027 if allocation persists [M]
Model-mix changes	OEMs direct scarce chips to higher-margin vehicles, as many did in 2021 [M]	None confirmed for this edition	If stops spread to several OEMs [M]

Exposure by region and powertrain

EVs carry more power semiconductors per vehicle, so EV programmes are more exposed [M]. Chinese OEMs are adopting 28 nm MCUs from at least one Japanese supplier [C] and have growing access to domestic analog and discrete suppliers, which China's anti-dumping investigation is designed to support [M].

European and US OEMs rely more on US and European chip suppliers whose back-end often runs through Asia (section 2.3) [M]. Indian carmakers report rising chip costs and are paying premiums and building inventory to protect production [C, Business Standard, 15 Nov 2026].

Timing

Year-end plant holidays reduce chip demand in December and can hide shortages until production restarts in January [M].

Tier-1 supply contracts commonly reset prices once a year, so cost effects concentrate at the start of the year; one Tier-1 said the effect has been barely noticeable so far but will rise sharply in 2027 [C, Bloomberg via Claims Journal, 6 Nov 2026].

5.3 Indicators and triggers to watch

Escalate to crisis posture if any two of the triggers below occur within the same month [M].

Indicator	Trigger to act	When
China anti-dumping probe into US analog chips	Preliminary or final duties, or customs measures, announced	Any time; latest closing date 13 Mar 2027 if extended
Supplier lead times	Broadline analog above 26 weeks or power discretes above 35 weeks in distributor quotes	Weekly
OEM production notices	A second OEM attributing a stop specifically to semiconductors	Weekly
Q4 earnings calls of analog and MCU suppliers	Language on auto allocation, 2027 price increases, or auto guided down again	Late Jan to early Feb 2027
Foundry pricing	New mature-node or 8-inch wafer price notices for 2027	Dec 2026 to Jan 2027
Memory contract prices	Auto-grade DRAM or NAND contract prices up more than 15% quarter on quarter	Monthly

Stand-down criteria: lead times shortening for two consecutive months, suppliers guiding auto revenue up on supply (not price), and no new China trade measure by end of Q1 2027.

Methodology, limitations and sources

Confidence markers. [C] confirmed by the named source; [M] Prewave analytical judgment; [D] derived by Prewave from confirmed figures, such as a date or ratio calculated from a published one; [A] assumption or unverified report. Earnings figures come from company releases, filings, call transcripts and published call minutes.

Limitations

- The reported +80% rise in Chinese demand for one US supplier's analog parts could not be verified in any public filing or call.
- OEM line stops beyond the Italian plants cited were taken from internal monitoring and were not independently confirmed for this edition.
- Likelihood labels are judgment, not modelled probabilities. Policy outcomes in China, the Netherlands and the US are not forecast.
- The October 2025 standoff row draws on sources cited in Prewave's 20 May 2026 edition rather than re-verified pages.
- Distributor lead times (Fusion Worldwide) are market observations across their customer base, not supplier-confirmed figures, and vary by part number.
- No source separates equipment lead times for mature-node versus leading-edge tools; the effect on mature-line repairs is our assessment.
- The status of China's anti-dumping investigation after 13 September 2026 could not be confirmed from the Ministry of Commerce's published notices.
- Assembly and test capacity shares are 2022 figures; part-count rankings show where parts are assembled, not volumes shipped.

Sources

- Company releases and filings: Texas Instruments Q3 2026 (21 Oct); STMicroelectronics Q3 2026, Form 6-K (29 Oct); NXP Q3 2026, Form 8-K and Form 10-Q (27 Oct); onsemi Q3 2026 (2 Nov); Microchip FQ2 FY27, Form 8-K (5 Nov); Infineon Q4 FY26 (10 Nov 2026)
- Earnings calls: Renesas Q3 2026 presentation minutes and Q&A (29 Oct); STMicroelectronics Q3 2026 call transcript (29 Oct); Texas Instruments Q3 2026 call highlights, Yahoo Finance / GuruFocus and Yahoo Finance (21 Oct 2026); Renesas Q3 2026 coverage (TechNews, 29 Oct 2026)
- China Ministry of Commerce, Announcement No. 27 of 2025 (13 Sep 2025): anti-dumping investigation into US analog chips; TrendForce (23 Oct 2025): questionnaires and 37-day deadline; ad-hoc-news (12 Nov 2026)
- Amsterdam Court of Appeal, Enterprise Chamber (Feb 2026): investigation ordered; Bloomberg (15 Nov 2026): parent company to appeal latest interim order
- Reuters via Claims Journal (12 Nov 2026) and Business Day (11 Nov 2026): chip CEOs at Electronica on automotive bottlenecks; Reuters via SRN News (4 Nov 2026): Siltronic CEO on AI-driven allocation
- Reuters via The Star (2 Nov 2026) and TimesLIVE (5 and 12 Nov 2026): OEM production stops in Italy; Bloomberg via Claims Journal (6 Nov 2026): Tier-1 2027 cost hit; Tier-1 Q3 2026 earnings call transcript (Earnings Whispers)
- S&P Global Mobility (Jan 2026): 2026 light-vehicle production outlook; Mobility Global (20 Oct 2026): October light-vehicle production forecast
- SIA and BCG, Emerging Resilience in the Semiconductor Supply Chain (May 2024): assembly and test capacity by region; Z2Data (Oct 2026): country of assembly by part type
- Fusion Worldwide, The Greensheet October 2026 (29 Oct 2026): part-level lead times, decommits, price increases
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- Rand Technology (27 May 2026): analog and power lead times, Tier-1 inventory targets
- Tom's Hardware citing Reuters (11 Jul 2026): 2027 memory outlook
- CNBC (23 Sep 2021): AlixPartners 2021 shortage estimates; IEEE Spectrum: 2011 fab recovery
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- CNBC (6 Nov 2026): automaker cost outlook for 2027; Business Standard (15 Nov 2026): Indian automakers and chip costs