



Electronics Supply Chain Weekly Digest

Important Disclosures in the Appendix

A weekly collection of news summaries, survey results and channel insights, and report summaries from Edgewater Research

Nik Todorov

Sr. Research Analyst

Nik@EdgewaterRC.com

216.206.6103

Dennis Reed

Sr. Research Analyst

Dennis@EdgewaterRC.com

216.426.6279

Sean Muir

Sr. Research Analyst – Partner

Sean@EdgewaterRC.com

216.426.6277

DATAPOINT OF THE WEEK: S&P reported Eurozone Oct flash PMI of 43.0 vs. 43.4 in Sept signaling an accelerating downturn at the start of the 4th quarter with a steeper rate of contraction across orders and output. In Germany Oct flash mfg. PMI at 40.7 vs 39.6 in Sep indicated the contraction in the sector continued, albeit at a slightly less severe rate. For Japan S&P reported Oct flash mfg. PMI of 47.6 vs 48.7 in Sep indicating worsening conditions. For the US S&P reported Oct flash PMI of 50 vs. 49.8 in Sep, marking a 6-month high, and signaling a stabilization in operating conditions. S&P noted further improvement in supplier performance and still soft demand led firms to cut their input buying for the fifteenth month running in October.

Reports published this week:

[Distribution Insights – October 2023](#)

Key Takeaways:

1. 3Q POS seen in-line, down low to mid-single digits Q/Q, with seasonal EMEA, downside in Americas, and slight upside in APAC.
2. 3Q booking seen missing expectations globally; recovery in orders not projected until 2Q24.
3. 4Q outlook weaker M/M on soft bookings, backlog flush, continued inventory headwinds and increased cancellations in China.
4. Avnet seen outperforming Arrow in 3Q in Americas and APAC on strong execution and Arrow headwinds from TI moving direct.
5. Arrow/Avnet/others courting Future customers/suppliers with Arrow offering aggressive pricing. Asian/Private distis seen turning more competitive buying market share via terms/prices. Arrow seen trimming costs more aggressively than Avnet.
6. Infineon considering consolidating large (>\$50M) programs to Avnet from Future; timing noted as potentially 6-12 months away.
7. Avnet seen consolidating Apple programs from Asian distis.
8. Feedback points to more customers aggravated by Arrow's aggressive tactics; Avnet/others' aggression noted as more modest.
9. Arrow seen making additional changes to GC mgmt., dividing APAC to two divisions. Supply chain sees changes as positive, potentially stabilizing Arrow's execution in ST/MT, but unlikely to affect TI/Analog Devices trend of going direct.

[HDD Insights – October 2023](#)

Key Takeaways:

1. C3Q23 HDD shipment TAM forecast revised slightly higher yet still within prior ~29-31M unit range, assuming slight decline in client/consumer (and channel) HDD shipments while nearline shipments held flattish Q/Q due to limited pull-ins in late-Sept'23
2. Slightly adjusting C4Q23 HDD shipment TAM forecast higher to flattish Q/Q at ~30M units, led by modest improvement in nearline orders from select U.S. (and China) hyperscalers; C4Q23 HDD production forecasts increased >500k M/M to ~28.5M units.
3. CY23 HDD shipment TAM trending towards upper-end of prior ~122-125M unit range, yet down >25% Y/Y, ongoing M/M gyrations in HDD production suggests forecasts likely to remain fluid; CY24 HDD shipment TAM forecast unchanged at ~115-120M.
4. Adjusting C3Q23 nearline HDD shipment TAM forecasts lower to ~9M units or flattish Q/Q and ~10M units Q/Q in C4Q23; select U.S. (and China) hyperscalers still projecting modest improvement in orders this quarter following muted/delayed orders in C3Q23.
5. CY24 nearline HDD shipment TAM unchanged at ~50-54M units, or up low-30% Y/Y, despite modest downtick in C1H24/C3Q24 shipment forecasts as pace of recovery projected to remain lumpy as select U.S. hyperscalers now highlighting possible elongation of efficiency/optimization projects into C1H24+ vs. prior plan to complete/exit efficiency projects by23.3 .

Auto/Transportation

China Sales – China retail sales in October are expected to be ~2.02M units in October, flat M/M and up 9.5% Y/Y according to China Passenger Car Association (CPCA). CPCA estimates NEV sales in October totaled 750k up 0.9% M/M and up 35% Y/Y, indicating a penetration of 37%, consistent with September.

Denso – Denso announced that it will invest about JPY500 billion (US\$3.3 billion) in semiconductors by 2030 as it aims to triple the scale of its chips business by 2035.

EV – GM and LG Energy announced they are scrapping a \$5B plan to jointly develop low-cost EVs, a year after announcing the intentions. GM said it would focus on addressing near-term EV demand rather than hitting specific volume targets while LG CFO noted EV demand in 2024 could be lower than expected due to global economic uncertainty. The decision by GM and Honda adds to a growing list of cautionary signs for EVs from Tesla slowing its ramp up in Mexico, Ford cutting production shifts for its F-150 Lightning, VW scrapping plans for EV mfg. facility in Europe and Nidec expressing concerns about increasingly tough China EV market.

EV Charging – BP's electric vehicle charger unit is ordering \$100 million worth of Tesla ultra-fast chargers for rollout in the US, the first deployment of Tesla's chargers on an independent network, the companies said on Thursday. The purchase is part of BP Pulse's plans to invest up to \$1 billion in charging stations across the U.S. by 2030. BP said the Tesla chargers will be rolled out as early as 2024 at BP brands including Travel Centers of America and Amoco, plus at third-party locations via partnerships with companies like rental car company Hertz.

Euro Sales – Total new car registrations in Europe increased 11% Y/Y, signaling a decelerating growth and the slowest pace since Jan. Sequentially registrations increased 29%, in-line with typical seasonality. BEV sales growth slowed significantly to +13% Y/Y from avg growth of +50% YTD.

Decline in BEV sales Y/Y in Germany was the primary reason. PHEV sales increased 7% Y/Y, HEV increased 30% Y/Y and ICE vehicles increased 3% Y/Y, according to ACEA data.

GM – California on Tuesday ordered GM's Cruise unit to remove its driverless cars from state roads, calling the vehicles a risk to the public and saying the company had "misrepresented" the safety of the technology. Consequently, GM announced suspending Cruise road-testing operations on state roads in the US.

Ford – Ford and UAW have reached a tentative labor deal that the two announced on Wednesday. The proposed accord, which UAW's leadership must still approve, provides a 25% wage hike over the 4-1/2-year contract, starting with an initial increase of 11%. The Ford deal, which could help create a template for settlements of parallel UAW strikes against GM and Chrysler parent Stellantis would amount to total pay hikes of more than 33% when compounding and cost-of-living mechanisms are factored in, the UAW said. Ford has agreed to end lower-pay tiers and also reverse concessions the union agreed on during the global financial crisis.

Ford – Ford reported 3Q results below consensus expectations, blaming the UAW strike, as well as costs and quality issues. Ford said it has lost production of 80k units so far due to the strike. The company pulled its full-year guidance citing the tentative deal and the lingering impact of the strike. Ford said it would delay \$12B of previously announced EV investments, including postponing the construction of EV battery plant in Kentucky. Ford noted demand for EVs has been lower than expected amid raw materials and labor costs as well as pricing pressure.

Mercedes-Benz – Mercedes-Benz said a "brutal" electric vehicle market of heavy price cuts and supply chain issues meant it would likely hit the lower end of its 12-14% adjusted return on sales forecast for the cars division, as third-quarter earnings fell. Mercedes-Benz described the market environment as "subdued", but Wilhelm said "we are beyond the worst" when it comes to inflation and energy pricing. Car revenue dipped 3.8% due to the fall in deliveries,

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Sr. Research Analyst

Nik@EdgewaterRC.com

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but the average selling price remained stable, the company said.

Hyundai – Hyundai said on Thursday it would not delay plans to roll out new electric vehicles and was upbeat about prospects for continued growth this year - a contrast to recent steps by rivals to cut back on EV output. CEO of Hyundai said Hyundai's EV sales next year could be slightly lower than previously expected, but the automaker had the production flexibility to boost output of gasoline engine cars if demand shifted that way and he did not expect a significant impact on overall sales

Stellantis – Stellantis announced it will buy 21% stake in Chinese EV maker Leapmotor for \$1.6B. The deal will give Stellantis a controlling stake in a JV incorporated in the Netherlands that will allow Stellantis to build and sell Leapmotor cars outside of China. The deal comes one year after Stellantis said it will close its JV with Guangzhou that makes Jeeps in China.

Tesla – Tesla increased the price of its Model Y high-performance version SUV in China by 14,000 yuan (\$1,913.88) from Friday.

VW – VW joined the chorus of peers and analyst warning about slowing EV demand. The company said its order intake in Europe is down to 150K EVs from 300K last year. The company also cut its profitability target for the year due to headwinds from raw material hedges, particularly for EV materials. VW is working to cut costs and sticking with its electric vehicle prices despite reductions at some rivals, as the German automaker aims to rebuild margins. A program targeting 10 billion euros (\$10.6 billion) in savings at its main passenger cars brand is delayed, but some measures have already been implemented, said the company.

US Efficiency Standards – A group representing nearly all other major automakers on Monday sharply criticized the Biden administration's proposal to drastically hike fuel efficiency requirements. The industry group argued the plan would boost average vehicle prices by \$3,000 by 2032 because of penalties automakers would face for not being in

compliance, adding the figure "exceeds reason and will increase costs to the American consumer with absolutely no environmental or fuel savings benefits."

UAW – UAW expanded its strike at Stellantis and GM this week striking the companies' most profitable facilities, producing pickup trucks and large SUVs. The UAW blamed the latest walkout by 6,800 workers at the Michigan plant on Stellantis having the "worst proposal" on the table on wage increases, temporary worker pay and conversion to full time status as well as cost-of-living adjustments. Later in the week, the UAW union offered a new contract proposal to GM and Stellantis. similar to the tentative agreement signed with Ford Motor.

US Auto Sales – New vehicle sales are forecasted to remain stable in October according to Cox Automotive with SAAR pace expected to finish near 15.8M, up 1.1M from last year and up slightly of the 15.7M last month. Despite the ongoing UAW strike, Cox data suggest new vehicle inventory in the US increased to 2.3 million units in October from 2.1 million in mid-September.

Datacenter

Apple – Apple is on track to spend \$1B per year on developing its generative AI products, according to Bloomberg. The report states that Apple has already built its own Large-language-model (LLM) framework, known as Ajax as well as a rumored chatbot. Apple is reportedly looking to integrate AI into Siri and Apple Music.

Cloud Spending – AWS noted cloud spending from customers is starting to stabilize with the cloud division of AMZN closing deals including extensions with some long-term customers. AMZN also said it expects generative AI to drive tens of billions of revenue for AWS. AWS revenue increased 12% Y/Y in 3Q, consistent with the prior quarter. Azure reported growth accelerating to 29% Y/Y from 27% last quarter while Google reported cloud revenue growth of 22.5% vs. 28% prior quarter.

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Sr. Research Analyst

Nik@EdgewaterRC.com

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216.426.6277



China – China has stepped up spending to replace Western-made technology with domestic alternatives as Washington tightens curbs on high-tech exports to its rival, according to Reuters citing government tenders, research documents. China has spent heavily on replacing computer equipment, and the telecom and financial sectors are probably the next target, said two people familiar with the industries.

Ericsson – Ericsson on Tuesday said it expected the uncertainty impacting its mobile networks business to persist into 2024, after reporting a fall in third-quarter revenue as demand for 5G equipment fell in North America. Ericsson noted spending in India has been pulled forward in 2023 and 2024 volumes in the country will come down.

Microsoft – Microsoft will invest \$5B in Australia to expand its cloud computing and AI infrastructure over the next two years. The plan includes the construction of 9 new data centers in the country, adding to the 20 already in existence.

Semiconductors

Asia ICs – Taiwanese fabless manufacturer Himax Technologies has signed an MoU with China's Nexchip Semiconductor Corporation to accelerate the two firms' entry into the automotive space. Himax is recognized for its strength in these specialist areas. It delivers display products for TVs, PC monitors, laptops, mobile phones, tablets, automotive, ePaper devices, industrial displays and more. Meanwhile, Nexchip Semiconductor Corporation manufactures ICs, 12-inch wafers and other products.

GlobalWafers – GlobalWafers, which has grown its business through a series of acquisitions since 2008, is looking to acquire silicon carbide (SiC) and gallium nitride (GaN) compound semiconductor companies next, according to DigiTimes.

Infineon – Infineon announced it has officially closed the acquisition of GaN Systems.

Intel – Intel reported 4Q revenue and EPS ahead of investor expectations. Sales of PC products declined 3% Y/Y, narrowing from the double-digit decline earlier in the year.

Intel noted inventory rebalancing in PCs is complete and sales for Intel are projected to return to growth. Datacenter sales increased 6% Q/Q, but down 10% Y/Y as server CPU sales increased mostly driven by ASP. Offsetting that was weakness in PSG/Altera FPGA with weakness expected to continue into 4Q.

OSAT – Several Taiwan-based OSATs, including ChipMOS Technologies, Lingsen Precision Industries, Orient Semiconductor Electronics (OSE), and Walton Advanced Engineering, have begun to see mild increases in their fab utilization rates, according to DigiTimes.

onsemi – onsemi has completed the expansion of its S. Korean SiC fab which will allow the company to reach more than 80k 200mm SiC wafer starts per month when fully ramped up.

onsemi – onsemi and Renesas announced a collaboration to enhance the safety of semi-autonomous driving. onsemi announced its family of image sensors will be integrated into Renesas's R-Car V4x platform to enhance the vision system in vehicle ADAS.

Microchip – The Microchip Detroit Automotive Technology Centre in Novi, Michigan, has doubled in size with the third phase its expansion. The dedicated high-voltage lab includes demonstrations of reference designs featuring Microchip's silicon carbide mSiC solutions, dsPIC Digital Signal Controllers (DSCs) and analog and mixed-signal designs as well as support for central compute and zonal networks in ADAS platforms using Microchip's PCIe Gen 4 and Gen 5 switching hardware, single-pair Ethernet devices and development tools.

Nvidia – Nvidia has been quietly designing PC CPUs based on Arm architecture reports Reuters. Nvidia is reportedly part of Microsoft's effort to help Nvidia to build an Arm-based CPU for Windows PCs. According to the report, AMD is also planning to make PC CPUs based on Arm architecture.

Nvidia – The US Commerce Department announced today it plans to update export restrictions on sales of advanced AI chips to China, with administration officials telling CNBC that includes banning sales of NVIDIA's H800/A800 chips that

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Nik@EdgewaterRC.com

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were redesigned specifically for the Chinese market in response to the initial restrictions instituted last fall.

Semi equipment – Sales of Japanese semi equipment tools declined more than 20% Y/Y in September according to Japanese government data. Sales turned negative in June 2023 with the pace of decline accelerating over the last 3 months.

SiC – According to reports from Asia, China's silicon carbide (SiC) production capacity has increased significantly since 2023 and the industry predicts that China's silicon carbide wafer share in the world is expected to reach 50% in 2024. The report pointed out that companies such as SICC Co., Ltd, TankeBlue Semiconductor Co. Ltd. and SanAn Optoelectronics have all invested in increasing SiC wafer production capacity. The current total monthly production capacity of these Chinese companies is about 60,000 wafers. With the expansion of production capacity, it is expected that the monthly production capacity will reach 120,000 pieces in 2024, and the annual production capacity will be 1.5 million.

ST Micro – SM Micro reported 3Q results ahead of consensus expectations though 4Q outlook came in below estimates. 3Q Auto and Discrete group sales increased 3% Q/Q and 30% Y/Y. Analog, MEMS and Sensor BU sales increased 5% Q/Q, but declined 28% Y/Y. MCU and Digital ICs declined 1% Q/Q and 2.8% Y/Y. STM cuts its full-year outlook by \$100M due to weaker orders in Industrial, particularly in China. STM cut utilization for non-automotive products in 2H23 and it expects to maintain that through 1H24. Outlook in Automotive remains strong with STM forecasting double-digit growth in 2024, in part driven by SiC, but a correction in Automotive B2B driven by the reduction in lead times.

TI – TI reported in-line 3Q results but a disappointing outlook. 3Q sales finished flat Q/Q and TI guided 4Q sales down 10% Q/Q which would mark the 4th consecutive quarter of double digits decline in Y/Y sales. TI also uncharacteristically noted it is cutting wafer starts starting in 3Q in order to slow down the pace of inventory growth on its balance sheet, taking a more conservative approach

given the prolonged duration of the downcycle. By end market Auto sales increased mid-single digit Q/Q and 20% Y/Y in 3Q, Personal Electronics increased 20% Q/Q of a low base while Communication, Industrial and Enterprise systems declined. TI noted relative to a quarter ago the biggest change is the broadening of the weakness in the Industrial end market.

TSMC – TSMC founder Morris Chang warned that the increasing tensions over technology between the United States and China will slow down the global chip industry. "I think that decoupling will ultimately slow down everybody. Of course the immediate purpose is to slow China down, and I think it's doing that" said Mr. Chang.

TSMC – TSMC is considering building a \$2B 12 inch fab in Singapore to serve automotive customers, according to Nikkei Asia.

UMC – UMC forecasts 4Q wafer shipments to decline 5% Q/Q with average unit price remaining stable. Co-general manager Wang Shi notes short-term demand in PCs and mobile phones is seen as gradually recovering in 4Q but customers continue to employ a cautious and conservative approach in maintaining lean inventory levels while automotive business conditions appear challenging into 2024. As a result of the decline UMC utilization in the 4Q is expected to decline to 61-63% from 67% in 3Q.

Western Digital – WDC and Kioxia have broken off talks to merge according to Nikkei. The companies have been unable to agree on conditions with top Kioxia shareholders Bain Capital and SK Hynix.

Wafers – SEMI predicts that global shipments of silicon wafers will decline by 14% in 2023, followed by a recovery in 2024, as demand for wafers and semiconductors recovers and inventory levels return to normal. The global shipments of silicon wafers are projected to decrease from a record high of 14.565 billion square inches in 2022 to approximately 12.51 billion square inches in 2023, SEMI said.

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Sr. Research Analyst

Nik@EdgewaterRC.com

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Consumer/EMS/Distribution

Apple – iPhone 15 is selling far worse in China than its predecessor, according to two reports. Counterpoint estimates iPhone 15 sales are down 4.5% vs iPhone 14 in the first 17 days after release, while Jefferies estimates an even sharper double-digit decline for iPhone 15. Both reports tie the soft sales to weak consumer spending in China and the return of Huawei to 5G market.

Smartphones – The global smartphone market contracted by 8% to its lowest third-quarter level in a decade on subdued demand for major brands including Apple and Samsung in most developed markets, according to data from Counterpoint Research. Sequentially Counterpoint says smartphone shipments increased 2%.

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Dennis@EdgewaterRC.com

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Sean@EdgewaterRC.com

216.426.6277



APPENDIX

We Nik Todorov, Dennis Reed, and Sean Muir hereby certify that the views expressed in this research report accurately reflect our personal views about any or all of the subject securities referred to in this research report. We certify that no part of our compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this research report. The analyst(s) responsible for the preparation of this report have no ownership stake in this company. Edgewater Research Company provides no investment banking services on this or any company

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Nik Todorov
Sr. Research Analyst
Nik@EdgewaterRC.com
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Dennis Reed
Sr. Research Analyst
Dennis@EdgewaterRC.com
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