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

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DATAPOINT OF THE WEEK: China NEV retail sales in September reached 746K units surpassing the 700k mark for the second time, according to China Passenger Car Association (CPCA) data, reflecting 22% Y/Y and 4.2% M/M increase. The figure, however, missed the 750K estimate from CPCA at the end of August. BEV accounted for 500K retail units up 9% Y/Y and 1.9% M/M. PHEV sales totaled 246K units, up 60% Y/Y and 9.2% M/M. Total auto retail sales in September reached 2.018 million units, up 5% Y/Y and M/M, reflecting the strongest Y/Y growth since May 2023. NEVs accounted for 37% of all light vehicle sales, consistent with the prior month but up from 32% a year ago. Exports grew 50% in September year-on-year following a 31% gain in August, the data showed. According to the China Association of Automobile Manufacturers (CAAM), production of passenger vehicles in September totaled 2.496M, up 10% Y/Y and 4% M/M while production of commercial vehicles totaled 350K, up 35% Y/Y and 18% M/M, both surpassing expectations. According to CAAM officials China auto sales are expected to exceed the initial target of 3% growth for the year with volume likely exceeding the market peak from 2017.

Reports published this week:

Memory Insights – October 2023

Key Takeaways:

1. Adjusting CY24 DRAM bit demand growth forecast to +13-16% Y/Y yet forecasts likely to remain volatile, growth primarily driven by content gains as end market/s recovery muted – C2H23 pull-ins likely to weigh on DRAM orders/shipments throughout C1H24.
2. C4Q23 D4 32GB/64GB RDIMM ASP forecasts unchanged at flattish/up slightly Q/Q to ~$50/$95, as supplier/s likely to remain firm regarding any additional ASP concession requests while supplier/s had already messaged that prior Jul/Aug'23 ASP flexibility vs. our baseline ASP forecasts last quarter have already/will likely be pulled as ongoing D4 WSPM reduced supplier/s on-hand DOI.
3. Adjusting CY23 NAND bit demand growth forecasts to +10-15% Y/Y, driven primarily by seasonal improvement in PC/mobile builds/content gains while PC/mobile OEM inventory buffering hindering actual demand vs. shipments; CY23 NAND bit production growth of negative ~2-5% Y/Y unchanged, while ongoing/incremental WSPM cuts, led by Samsung, likely to hit C1H24 output.
4. CY24 NAND bit demand growth forecasts revised higher to +15-20% Y/Y yet forecasts likely to remain fluid given C2H23 PC/mobile pull-ins – forecasting PC OEM cSSD bit demand to increase ~15-20% Y/Y and DC/eSSD bit demand to increase ~15-25% Y/Y.

Server DRAM Average Contract Price Forecasts - DDR4 32GB/64GB RDIMMs

DDR4 32GB	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
Price	$72	$69	$62	$58	$54	$50	$50	$49	$49	$49	$49	$50
Qtr Avg.			***$68***			***$54***			***$49***			***$49***
M/M	*-7%*	*-5%*	*-9%*	*-8%*	*-7%*	*-6%*	*-2%*	*-2%*	*0%*	*0%*	*1%*	*2%*
Q/Q			***-19.9%***			***-20.6%***			***-9.3%***			***1.0%***
Y/Y	*-49%*	*-50%*	*-54%*	*-58%*	*-61%*	*-62%*	*-59%*	*-58%*	*-51%*	*-46%*	*-42%*	*-35%*
DDR4 64GB	**Jan-23**	**Feb-23**	**Mar-23**	**Apr-23**	**May-23**	**Jun-23**	**Jul-23**	**Aug-23**	**Sep-23**	**Oct-23**	**Nov-23**	**Dec-23**
Price	$138	$131	$119	$110	$102	$97	$96	$94	$94	$94	$95	$97
Qtr Avg.			***$130***			***$103***			***$94***			***$95***
M/M	*-7%*	*-5%*	*-10%*	*-8%*	*-7%*	*-5%*	*-2%*	*-2%*	*0%*	*0%*	*1%*	*2%*
Q/Q			***-20.4%***			***-20.4%***			***-8.5%***			***1.0%***
Y/Y	*-50%*	*-52%*	*-57%*	*-60%*	*-62%*	*-63%*	*-60%*	*-58%*	*-51%*	*-46%*	*-42%*	*-35%*

Source: Edgewater Research Estimates

Auto/Transportation

GM – GM and the Canadian union Uniform reached a tentative agreement hours after the union initiated a strike at GM's four facilities in Canada.

GM – U.S. investigators on Thursday proposed $270,000 in fines for a GM and LG Energy Solution joint venture battery plant in Ohio for safety and health violations. Occupational Safety and Health Administration (OSHA) investigators examining the cause of a March explosion and fire at the Ultium Cells plant prompted the agency to issue 19 safety and health violations, 17 of them serious.

German Automakers – Mercedes-Benz and BMW saw their sales in China dip in 3Q, the two companies said on Tuesday, with Mercedes hit by supply chain issues and model changeovers. Mercedes' global sales fell 4% to 510,600 vehicles, with sales in China declining 12%. BMW's global volume increased 5.8% to 621,699 vehicles while sales in China declined 1.8%.

Ford – A senior Ford executive Kumar Galhotra said Thursday the automaker is "at the limit" of what it can spend on higher wages and benefits for the United Auto Workers, and warned the union's strike at the company's most profitable factory could harm workers and slash profits. Ford said it had raised its offer to 23% increase in wages from the previous proposal of 20%.

EVs – EV sales in the US jumped to more than 300,000 in 3Q23 says Cox Automotive. The growth represents near 50% increase from a year ago pushing EV penetration to 7.9%. YTD EV sales in the U.S. has reached 873k, putting the market firmly on track to surpass 1 million for the first time this year, adds Cox.

EV batteries – The Chairman of SK Group, a key supplier of EV batteries says the tensions between the US and China will keep EV battery prices higher for longer. "Due to the geopolitics and the supply chain, the schedule has been changed," Chey Tae-won said in a rare interview. "Without that, actually, I could have lowered down much more the cost of the battery side." The issue lies with the Inflation Reduction Act to source raw materials and components outside of Cina to qualify EV models for tax credits. SK has been forced to look elsewhere for key materials and "cannot 100% rely on" China, Chey said.

EV Batteries – Chinese battery companies critical to electric vehicles are pursuing deals with U.S. free-trade partners South Korea and Morocco, seeking to tap growing demand in America and bypass rules aimed at shutting them out of the market. Chinese businesses that supply raw materials to make EV batteries have announced at least nine joint ventures and investments worth more than $4.5 billion in South Korea this year, according to a Wall Street Journal review of stock exchange filings. At least four Chinese firms said they plan to build plants in Morocco producing battery-related products. Morocco sits on over 70% of the world's known phosphate reserve, a raw material key to EV batteries.

Li Auto – Li Auto has set aggressive sales targets for the years to come. The company said it targets at least 3 million vehicles sold in 2028 nearly double its previous 2025 target of 1.6M vehicles. Li Auto is targeting to become a top 5 EV in market share and assumes NEV penetration of 90% by 2028.

Porsche – Porsche said on Friday that deliveries worldwide for the first nine months of 2023 were up 10% on the year, reaching 242,722 vehicles, with growth seen in every region but China. China sales fell 12% in the same January to September period, reaching 60,748 vehicles, due to the continuing challenging economic situation in the region, it said.

Porsche – Porsche is recalling a total of 2,570 imported Taycan series vehicles with production dates between September 22, 2022, and August 3, 2023 in China due to a risk of battery thermal runaway, says China's State Administration for Market Regulation (SAMR) website. Porsche has recalled Taycan EVs in China several times in the past two years.

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Stellantis – Stellantis and Samsung SDI announced plans to build a second EV battery plant in Kokomo, Indiana. The plans is scheduled to open in 2027.

Stellantis – A major union on Wednesday cut its vehicle production forecast for Stellantis in Italy this year, citing a market slowdown in recent weeks. The FIM Cisl union, presenting Stellantis' Italian output data for January-September, said it now expected the company to produce around 730,000 vehicles in Italy this year, which will be up 6.4% from 2022 but below the 800,000 vehicle forecast made three months ago. In response to weaker demand, Stellantis has confirmed it will halt from late October to early November its Mirafiori plant in Turin, where the 500 BEV small car and Maserati models are assembled.

Tesla – Tesla's September sales in China totaled 43,507 units, down 11% Y/Y and down 19% compared to August 2023 according to CPCA data. Model Y sales totaled 41,428 units, or 95% of total. YTD Tesla has sold 278,681 Model Y units in China, up 61% Y/Y. According to CPCA, Tesla produced 74.073 units in China in Sep, of which 30,566 were exported.

UAW – United Auto Workers has unexpectedly expanded its U.S. strikes at Ford Motor to a highly profitable SUV and truck plant for the automaker in Kentucky. The strike was effective at 6:30 p.m. ET Wednesday at Ford's Kentucky Truck Plant, where it employs 8,700 UAW members to produce Ford Super Duty pickups and the Ford Expedition and Lincoln Navigator SUVs.

UAW – Nearly 4,000 members of the United Auto Workers went on strike at Volvo Group's Mack Trucks unit after rejecting a five-year contract proposal. UAW-represented workers at Mack plants in Pennsylvania, Maryland, and Florida walked off their jobs after 73% voted down a contract offer on Sunday. The tentative agreement reached a week earlier between the union's bargaining team and the company included 19% raises over the life of the contract, starting with a 10% increase in the first year and a $3,500 lump-sum bonus for ratifying the contract.

UAW – United Auto Workers said on Friday that the union will not expand its strike against the Detroit Three automakers at the moment, but said its members would now walk out of additional facilities without warning rather than wait until Fridays to announce new plans. Earlier this week UAW struck at Ford's SUV Kentucky plant. The UAW strike has hit the one-month mark with more than 34,000 union members on strike.

US Auto Sales – New auto sales in the U.S. continue to be driven by growth in fleet deliveries says Cox Automotive. Sales to rental, government, and commercial fleet increased 53%, 38%, and 7% in September says Cox while retail sales increased 17%. YTD fleet sales have increased 39% led by 72% and 44% growth in rental and government fleets.

Datacenter/Telco

Ericsson – Ericsson reported preliminary 3Q results which included 60% drop Y/Y in N.A. sales and 39% fall in overall operating profit. Ericsson also announced a $2.9B impairment charge related to the acquisition of Vonage for $6.9B a year ago.

Aerospace

Boeing – Boeing deliveries of its best-selling 737 MAX fell in September to the lowest level since August 2021, the plane maker said on Tuesday, as it continues struggling with work needed to correct a manufacturing defect. Boeing is inspecting and fixing thousands of holes that were drilled wrong on the 737 MAX aft pressure bulkhead. While new orders improved sharply, the largest U.S. planemaker said deliveries in September fell to 15 737 MAX planes, 10 787s and two 777s, for a total of 27 deliveries.

Semiconductors

ASE – OSAT supplier ASE reported September revenue which hit a 10–month high. 3Q sales for ASE reached $4.9B, a decrease of 22% Y/Y. ASE noted near-term uncertainty

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remains in the industry as inventory reductions are expected to continue in 4Q.

Amkor – Amkor announced it will open a new advanced packaging factory in Vietnam next week. The company plans to spend $1.6B to build its first two phases, focusing on expanding CoWoS capacity.

AMD – AMD announced plans to buy the open AI software firm Nod.ai. Financial terms were not disclosed.

Coherent – Coherent announced Denso and Mitsubishi Electric will invest $1B in the company's silicone carbide business ($500M each) in exchange for 12.5% non-controlling ownership interest.

onsemi – onsemi announced Hyperlux LP image sensor family for industrial, commercial cameras, AR/VR, machine vision and video conferencing applications. The line includes 5-MP, 8 MP, and 20 MP options.

Littelfuse – Littelfuse announced the release the first IXYS branded automotive-grade high voltage PolarP™ P-Channel Power MOSFET with low conduction loss and AEC-Q101 qual, making it ideal for stringent automotive applications such as Automotive ECUs, Auto sensors, high-grade switches and current regulation.

Microchip – Microchip announced a new family of PIC 32-bit MCUs with an integrated Hardware Security Module for added security. The new family targets consumer and industrial applications.

US Export Restrictions – On Monday, South Korea's government said Samsung and SK Hynix were designated as "validated end users," which will allow them to import American chipmaking equipment for their existing China-based facilities without having to seek separate U.S. approval. The designation doesn't carry an end date, said in the announcement. Conversely, TSMC is expected to be granted another one-year waiver such as the one it received last year, according to people familiar with the U.S. government's moves. Washington has told the company that it can maintain its operations in China for the foreseeable future so long as it doesn't make significant technological upgrades.

Kioxia/WDC – Japanese chipmaker Kioxia Holdings Corp. and its U.S. peer Western Digital Corp. are expected to agree on a merger as early as this month reports the Japanese Kyodo News. The two companies plan to set up a holding company to integrate their operations producing NAND with the aim of listing the new company on the Nasdaq.

Nexchip – Nexchip Semiconductor, a Chinese mature-node IC foundry, has disclosed plans to produce an additional 10,000 wafers each month, according to DigiTimes.

Supply Chains – The war in Israel creates risk to global supply chains including the production of semiconductors. Tower Semiconductor has two factories with a monthly capacity of 50,000 wafers predominately for analog and mixed-signal ICs, mainly for automotive and consumer applications; Tower said it currently operates as usual. Intel has three development centers in Israel, open operational fab producing 7nm process ICs and one fab under construction. Reports indicate that the Gaza blockade is causing disruption to local transportation and logistics. Several global logistics firms including FedEx and UPS have also suspended flights to Israel due to the conflict.

Samsung – Samsung announced preliminary 3Q results. Sep-Q sales declined 13% Y/Y in-line with expectations while profits declined 78% which was seen as better than feared.

Vishay – Vishay and Key Foundry, a South Korean 8-inch foundry announced signing a LTSA for several power MOSFET products. Mass production is scheduled to start in 2024.

Qualcomm – Qualcomm is planning to eliminate 1258 positions in California, according to submissions to the California Employment Development Department. More than 750 of the positions being eliminated are from Qualcomm's engineering ranks, including at levels from director down to technician. The rest of the cuts will come from a broad range of roles such as internal technical staff and accounting.

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TSMC – TSMC is expected to see 4-6% of its overall sales in 2023 come from its N3 (3nm) manufacturing, thanks to orders from Apple for making processors running its iPhone 15 devices, according to DigitTimes.

Consumer/EMS/Distribution

Apple – According to Omdia, Apple is planning to revamp is iPad product line in 2024 with the introduction of OLED displays.

Farnell – Farnell announced a partnership with Mean Well to offer Mean's power suppliers for a range of industrial, automation, telco and medical equipment, and LED lighting applications.

PC – Global 3Q PC shipments declined 8% Y/Y according to IDC and 9% Y/Y according to Gartner. Sequentially 3Q PC shipments increased 11%. IDC notes PC inventory in the channels has become leaner in the past few months reaching nearly healthy levels in most geos. IDC notes, however, that downward pressure on pricing persists and will likely remain an issue within the consumer and business sectors. TrendForce estimates the PC market to grow 2-5% in 2024 after two years of channel inventory adjustments and weak consumer demand. Notebook ODMs saw their shipments increase in September, but their outlook for the fourth quarter remains conservative. Both Wistron's and Inventec's evaluations stated that shipments in 4Q23 would remain flat or decline compared to 3Q23.

Huawei – Huawei plans to double its smartphone shipments in 2024 to 60-70M units according to reports from Japan. The report adds that Huawei has asked Qualcomm to complete the delivery of a year worth of orders by June 2024.

Quanta – Quanta plans to spend $77M to increase capacity at three N.A factories targeting higher AI server assembly according to reports from Asia.

Taiwan Distribution – Major Taiwan-based IC distributors have reported double-digit sequential revenue growth for 3Q23, as inventory replenishment for mobile and several other device applications has accelerated.

Wywinn – On October 12, Wiwynn held the opening ceremony for its phase 1 server unit assembly factory at Senai Airport City in Johor, Malaysia. Phase 2, a motherboard production line, is also expected to be completed and enter mass production in 2H24, according to DigiTimes.

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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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