



Monthly Market Insights

November Issue 2024



General Market Insights	1-3
Market Specific Updates	4-5





General Market Updates

U.S. Invests \$300 Million to Advance Semiconductor Packaging Leadership

The Biden-Harris Administration announced up to \$300 million in funding for advanced semiconductor packaging projects in Georgia, California, and Arizona to bolster U.S. innovation in critical industries like AI and high-performance computing. The projects, led by Absolics Inc., Applied Materials Inc., and Arizona State University, aim to develop next-generation substrate technologies essential for modern microelectronics. Paired with private sector contributions, this \$470 million investment will drive breakthroughs in manufacturing, strengthen the domestic supply chain, and support workforce development, ensuring the U.S. maintains its edge in global semiconductor leadership.

Global Semiconductor Investments Surge Amid Growing Industry Demand

The global semiconductor industry is booming, with Q3 2024 sales rising 23.2% year-over-year, driven by fields like AI, big data, and new energy vehicles. Nations worldwide, including Japan, the EU, and South Korea, are investing heavily to secure leadership in chip manufacturing and innovation. Japan plans to invest ¥10 trillion (\$65 billion) by 2030 to support semiconductor and AI sectors, the EU is channeling €133 million into photonic chip development, and South Korea is advancing a Semiconductor Special Act to enhance competitiveness and stabilize its supply chain.

NAND Flash Prices Set to Decline in Q4 2024 Amid Persistent Market Weakness

Despite strong demand from enterprise SSDs used in AI applications, the NAND flash memory market is facing continued pressure, with prices expected to drop between 3% and 10% over the fourth quarter of 2024. Excess inventory and flat consumer demand, particularly in the Chinese market, have led to cautious procurement strategies and reduced wafer contract prices. Factors such as inflation, limited practical use cases for AI, and delayed deployment of AI applications are further inhibiting significant upgrade cycles, resulting in a challenging environment for memory suppliers. While enterprise SSDs may see modest growth, the overall memory sector grapples with sluggish consumer markets and constrained price increases.

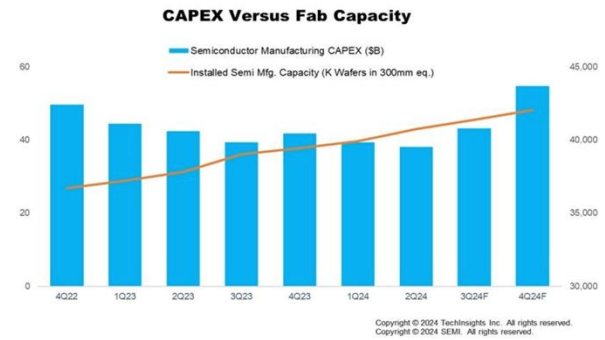
Global Semiconductor Sales Surge 23.2% Year-on-Year in Q3 2024

Global semiconductor sales reached \$166.0 billion in Q3 2024, up 23.2% from Q3 2023 and 10.7% from Q2 2024, marking the largest quarterly growth since 2016. September sales hit a record \$55.3 billion, with significant year-over-year growth in the Americas (46.3%), China (22.9%), and Asia Pacific (18.4%), though Europe saw an 8.2% decline. The robust performance reflects strong regional demand and record-breaking monthly sales in September.



General Market Updates

Global Semiconductor Manufacturing Industry Shows Strong Q3 2024 Growth

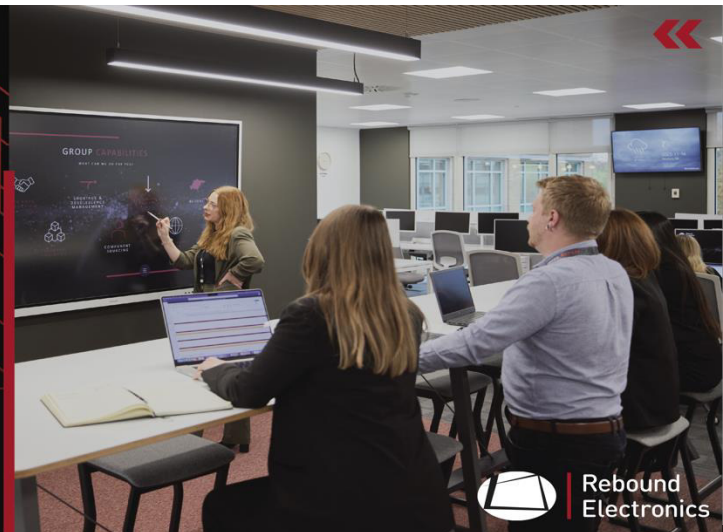


Source: Taiwan News & Tech Insights

The global semiconductor manufacturing industry showed significant growth in Q3 2024, as revealed in the SEMI Semiconductor Manufacturing Monitor report. Integrated Circuit (IC) sales grew 12% quarter-over-quarter (QoQ), with projections of an additional 10% growth in Q4, driven by strong memory demand and pricing improvements. Capital expenditures (CapEx) reversed a first-half decline, surging 34% QoQ in memory-related investments and contributing to an expected 27% overall CapEx increase in Q4. Wafer fab capacity reached 41.4 million wafers per quarter in Q3, with notable expansions in the foundry and logic segments (2.0% QoQ growth) due to advancements in both mature and advanced process nodes. AI-driven demand for high-bandwidth memory and advanced packaging, alongside China’s substantial investment in semiconductor technology, further supported growth across the industry.

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- > Shortage Management





General Market Updates

Semiconductor Supply Chain November 2024 Overview

As of November 2024, the semiconductor supply chain remains dynamic, influenced by technological advancements, geopolitical factors, and increasing demand for advanced chips.

Technological and Market Trends:

- The industry is seeing significant investments in advanced technologies like extreme ultraviolet (EUV) lithography for smaller, more powerful chips. Integration of AI and IoT into manufacturing is enhancing efficiency and production management.
- Demand for semiconductors continues to rise, especially for applications in AI, autonomous vehicles, and 5G technology. Global semiconductor sales are rebounding from a cyclical downturn and are projected to experience double-digit growth in 2024.

Geopolitical Factors and Policies:

- The U.S. CHIPS and Science Act has spurred domestic semiconductor manufacturing, with over \$450 billion in investments announced across the country, aiming to secure a larger share of global production. However, challenges such as workforce shortages persist, with a projected deficit of engineers and technicians by 2030.
- Export controls on advanced semiconductors and related equipment, particularly targeting China, are reshaping global supply chain dynamics. Meanwhile, China continues to invest heavily in achieving self-sufficiency in chip production.

Global Supply Chain Shifts:

- Companies are diversifying their manufacturing bases, adopting a "China+1" strategy by expanding production in countries like India and Vietnam. These regions are becoming attractive due to cost advantages and government incentives.
- Taiwan and South Korea remain pivotal in advanced chip manufacturing and testing, while Japan and Europe specialize in semiconductor equipment and materials.

The global semiconductor industry is poised for significant growth, driven by innovation and strategic policy actions, but also faces challenges such as geopolitical tensions and supply chain vulnerabilities.



Market Specific Updates



AMD

- AMD will reportedly launch its Ryzen 9 9950X3D (16-core) and 9900X3D (12-core) 3D V-Cache CPUs in late January 2025, following their debut at CES 2025
- AMD is entering the smartphone market with AI-ready Ryzen processors, while Elon Musk's xAI secures \$6 billion to build an NVIDIA-powered supercomputer amidst shifting U.S. tech policies.
- AMD is laying off 4% of its workforce to realign resources for growth areas like AI chips, despite mixed Q3 results, including strong data center gains and struggles in gaming and embedded sectors.



Infineon

- Infineon Technologies AG has introduced FreeRTOS support for its AURIX™ TC3x microcontrollers, enabling developers to build efficient and reliable real-time applications while simplifying hardware abstraction and reducing development time for automotive and industrial markets.
- Quantinuum and Infineon partner to advance ion-trap quantum computers, targeting breakthroughs in AI, material science, and chemistry.
- Infineon and Stellantis partner to innovate EV power systems, focusing on efficiency, range, and smart architectures using advanced semiconductors.



Panasonic

- Panasonic's stock surged 26% but still trades at a low P/E of 10.5, reflecting investor skepticism despite solid growth forecasts and a recovering share price.
- In its first FRAND ruling, Mannheim's UPC local division banned Oppo from selling certain 4G-enabled devices in multiple countries, finding Oppo infringed Panasonic's SEP and rejecting Oppo's FRAND counterclaim despite a pending settlement.
- Panasonic's new Wakayama plant will mass-produce 4680 EV battery cells, offering five times the capacity of current models, aiming to cut costs, boost range, and promote sustainability with near-zero emissions.



Onsemi

- Onsemi unveils Treo, a modular analog and mixed-signal SoC platform using advanced 65-nm BCD technology, enabling high-density integration, wide voltage ranges, and noise isolation for applications in automotive, medical, and industrial sectors.
- Onsemi beat Q3 earnings estimates despite a 20% revenue drop, but weak guidance and declining sales across all units reflect ongoing challenges as the company invests to address rising power demands.
- Onsemi advances AI hardware with innovative power solutions but faces stronger competition for rapid returns.



Market Specific Updates



Vishay

- Vishay's SiR55700DP MOSFET delivers industry-leading efficiency with ultra-low on-resistance and enhanced power density for next-gen power systems.
- Vishay (VSH) missed Q3 earnings and revenue estimates, reporting \$0.08 EPS and \$735.35M revenue, with shares down 28.9% YTD.
- Vishay Intertechnology will acquire Birkelbach for €17M to secure supply for high-voltage capacitor materials, enhancing its smart grid offerings.



Texas Instruments

- Texas Instruments (NASDAQ:TXN) faces concerns as its Return on Capital Employed (ROCE) has dropped from 37% five years ago to 17% currently, signaling potential challenges in efficiently allocating increased capital despite past strong stock performance.
- Texas Instruments (TXN) faces near-term challenges, with Q3 revenue and earnings beating estimates but showing year-over-year declines. Analysts are cautious due to lowered guidance and downward estimate revisions, signaling potential headwinds despite strong historical performance.



TDK

- TDK Ventures launched its India innovation hub in Bengaluru, led by Ravi Jain and Vasanth Churchill, to support transformative deep-tech startups.



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Jenny Orilla
Senior Commercial Analyst

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