Opening Message from MIT

Dear SEMI Members and Industry Peers,

Welcome to the Q4'23 edition of the SEMI market intelligence newsletter, where we provide you with the latest insights and forecasts on industry trends and developments.

In this issue, we will be discussing some semiconductor industry data points that have shown mixed results in recent times. While certain segments have shown signs of recovery and growth, others have continued to face challenges and have contributed to softening demand. We will focus on the trends and drivers of equipment billings, which have exceeded expectations in spite of the industry correction this year. Furthermore, we will provide a positive outlook for 2024 and 2025 growth based on our forecasts and projections.

We want to take the opportunity to highlight some recent findings in this newsletter:

- Electronics and IC sales are anticipated to show sequential recovery in the second half of 2023 as end demand improves and inventory normalizes. Yearly growth is expected to return positive in 4Q 2023.
- Despite the improvement in electronics and IC sales, semiconductor manufacturing indicators remain soft. Wafer shipment, Fab utilization, and capital expenditures continue to decline in the second half of this year.
- On an annual basis, wafer fab equipment sales are projected to dip 3.7% to $91.0 billion in 2023, following a record $94.5 billion in 2022. Growth returns in 2025, reaching $110 billion. Back-end equipment sales are expected to continue the declining trend in 2023 but rebound strongly in 2024 and 2025.
- China will remain the top destination for equipment spending, surpassing $30 billion in 2023. The 2024 contraction in China is expected next year after heavy investments in 2023.

We hope you find this newsletter informative and useful for your business decisions. The SEMI Market Intelligence Team (MIT) aims to provide you with timely and relevant market data and forecasts to help make better-informed business decisions. As always, we welcome your feedback and suggestions on improving our service offerings and content. Please feel free to reach out for a demo of recent report publications and events SEMI has planned for the community.

Sincerely,
Clark Tseng
Sr Director, Market Intelligence Team

New & Recently Updated Reports

Worldwide Semiconductor Equipment Market Statistics (WWSEMS) Report (November 2023)

- Global semiconductor equipment billings contracted 11% year-over-year to US $25.6 billion in the third quarter of 2023, while quarter-over-quarter billings slipped 1%.
- China's spending stands out not only in terms of the amount spent but also in terms of growth. China was the only region with growth in year-over-year (YoY) and quarter-over-quarter (QoQ) comparisons.



- Wafer fab equipment sales will decrease by 3.7% in 2023 and then increase by 3% in 2024 and 12% in 2025. Back-end equipment sales are also expected to decline in 2023 but rebound in 2024 and 2025.
- Sales of foundry and logic equipment are expected to increase by 6% in 2023, drop by 2% in 2024, and then grow by 15% in 2025. On the other hand, sales of memory equipment are expected to decline sharply in 2023, with NAND sales dropping by 49% and DRAM sales by 1%. However, both segments are forecasted to recover significantly in 2024 and 2025.
- Key drivers: strong equipment spending by China; increased capacity expansion in foundry and logic; continuous memory technology migration; and expanding demand for HBM.





World Fab Forecast (4Q 2023; Published Dec 2023)

- The report lists a total of 1,500 facilities/lines, including 171 future facilities/lines with various probabilities that will start volume production in 2024 or later.
- The report tracks active investments (combination of construction and equipment) in the report time frame of 2022 to 2024 of 691 facilities and lines.
- Since the last publication on September 7, 2023, we made 262 changes to 237 fabs/lines. We added 19 new fabs/lines.
- Out of 106 total ongoing construction projects in 2023, there are 24 new fab construction projects (greenfields and shells, using "Crunrfab") with high probability for volume fabs. The number is higher if we include all probabilities.
- Out of a total of 112 ongoing construction projects in 2024, there are 30 new fab construction projects (greenfields and shells, using "Cruenfab") with a high probability for volume fabs. The number is higher if we include all probabilities.





Semiconductor Manufacturing Monitor report (3Q 2023; Published Oct 2023)

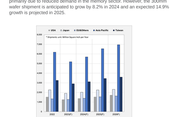
- The global semiconductor manufacturing industry is on track for recovery in the fourth quarter of 2023, setting the stage for continued growth in 2024.
- Electronic sales are predicted to register a robust 22% quarter-over-quarter increase in 4Q 2023. Similarly, IC sales are expected in Q4 2023. IC sales are expected to rise 4% sequentially after improving 3% in Q3 2023 as end demand improves and inventories normalize.
- Fab utilization rates and capital expenditures continue to decline in the second half of this year. Overall, CapEx on non-memory is expected to outperform memory in 2023, but even spending in the semiconductor segments has begun to weaken. Total capital expenditures in Q4 2023 are hovering at the levels seen in Q4 2020.
- While overall semiconductor capital equipment sales are declining in line with capital expenditures, the contraction in wafer fab equipment spending has continued to be much shallower than expected. Furthermore, back-end equipment billings are projected to increase in Q4 2023.





Silicon Wafer Market Monitor (3Q 2023; Published Oct 2023)

- In 2Q23, there was a QoQ decrease in shipments in all regions except for Japan and Taiwan. The United States experienced a 3.1% drop, EU & Others saw a decline of 7.6%, and the AP region had a 3.9% decrease, compared to the previous quarter.
- In 2023, all regions except for EU & Others are expected to experience a double-digit decline in shipment growth rate. The Asia Pacific market, which currently holds the largest share of 300mm polished wafer shipments, is forecasted to exhibit a negative growth rate of 16.1%.
- There is an expected 11.0% decrease in 300mm wafer shipment for this year, primarily due to reduced demand in the memory sector. However, the 300mm wafer shipment is anticipated to grow by 8.2% in 2024 and an expected 14.9% growth is projected in 2025.





SEMI offers more than 20 market reports focusing on Semiconductor Fabs, Equipment, Materials, Packaging, Electronic Design, and components. To learn more about our report offerings, please visit the SEMI website. To purchase any of these reports, please visit the SEMI Online Store.

SEMI also produces customized (one-time) reports depending on certain customer requirements. To request a custom report, please reach out to David Ghodsizadeh (dghodsizadeh@semi.org).

Upcoming Report Releases

Please refer to the updated release schedule of SEMI Market Intelligence reports.

Noteworthy reports to be released in the next 3 months:

- Worldwide Assembly & Test Facility Database 2024 Edition (January)
- Silicon Wafer Market Monitor (January)
- Equipment Market Data Subscription (January)
- Semiconductor Manufacturing Monitor (January)
- Electronic Design Market Data (January)
- All fab reports (March)
- Materials Market Data Subscription (March)

Now Requesting Customer Testimonials

SEMI is committed to producing the highest quality reports for its subscribers and industry peers. Customers across the electronics manufacturing and design ecosystem rely upon these assessments to ensure they purchase the best product possible. To bring additional awareness to our offerings, we offer you to participate by sharing a testimonial that would be showcased across our digital assets (e.g., website) and hard copy collateral.

Please use this link to submit your testimonial.

MIT Podcast

In partnership with 3D InCites, our Market Intelligence Team recently introduced a podcast series providing semiconductor manufacturing updates across the wafer fab, equipment, materials, and assembly, packaging and test markets to help companies and industry peers make more informed business decisions. Explore the following blog recaps and listen to the four podcast episodes:

- Podcast: Electronic System Design Market Update from ESD Alliance (May 16, 2023)
- Podcast: Tracking the Chip Manufacturing Market at SEMI ISS 2023 (January 23, 2023)
- Podcast: Tracking Historic Fab Investments with SEMI Market Intelligence Team and 3D InCites (October 17, 2022)
- Podcast Debut: SEMI Market Intelligence Team Discusses Semiconductor Equipment Outlook with 3D InCites (June 28, 2022)

Noteworthy Press Releases and Articles

- Q3 2023 Global Semiconductor Equipment Billings Drop 11% Year-over-Year, SEMI Reports (Nov 30, 2023)
- Global Semiconductor Manufacturing Industry Set for Q4 2023 Recover, SEMI Reports (Nov 13, 2023)
- Worldwide Silicon Wafer Shipments Fall in Q3 2023, SEMI Reports (Nov 1, 2023)
- Global Silicon Wafer Shipment Growth to Bounce Back in 2024 after 2023 Decline, SEMI Reports (Oct 26, 2023)
- Electronic System Design Industry Posts $4 Billion in Revenue in Q2 2023, ESD Alliance Reports (Oct 16, 2023)
- Global 200mm Fabs to Reach Record High Capacity by 2026, SEMI Reports (Sep 19, 2023)

Take Advantage of New Courses on SEMI University

The SEMI University online learning platform stimulates your workforce with leading technical semiconductor education and business training in an efficient, flexible format that saves time and resources.



Tailored with expertise from Malcolm Penn of Future Horizons, this training is designed to equip you with a comprehensive understanding of the semiconductor industry.

All the courses can be found in the Silicon Chip Industry Awareness Training bundle

Silicon Chip Industry Awareness Training

The curriculum includes the following courses:

- Introduction to the Silicon Chip
- Electronic Basics
- Semiconductor Manufacture
- Economics of IC Manufacture
- IC Market Overview
- The IT Revolution

Market Data Related Events



Industry Strategy Symposium | In-Person | January 7 – 10, 2024 –

The range of expertise and insight at ISS is legendary. Speakers typically include industry leaders, economists, technologists, investors, and government officials—all bringing insight and unique perspectives to challenge your thinking and sharpen your focus. The speakers at this year's ISS will focus their expertise on the "Roaring 20s" and what it means for the future of our industry. Learn how to fully capitalize on investments and opportunities, with emphasis on tailwinds and headwinds and how these can either accelerate or impede growth. Key topics on the successful implementation of regional and global investments, private and public partnerships, market drivers and technologies uniting to drive us forward over the next five years will be presented.

See Agenda