Semiconductor Equipment - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-06-01 | 146 pages | Mordor Intelligence

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Report description:

Semiconductor Equipment Market Analysis

The semiconductor equipment market size was valued at USD 124.00 billion in 2025 and is forecast to reach USD 177.97 billion by 2030, at a 7.49% CAGR. Robust fab construction, record equipment backlogs, and a wave of government incentives underpin this trajectory. Foundries are accelerating capacity at 2 nm and below, while Outsourced Semiconductor Assembly and Test (OSAT) players scale advanced-package lines to serve artificial-intelligence (AI) demand. Geopolitical efforts to achieve technological sovereignty are shaping capital-spending patterns, forcing tool vendors to juggle export controls in China with subsidy-fuelled opportunities in North America, Europe, and the Middle East. Equipment makers that bundle process breadth, software analytics, and service coverage are securing multi-year purchase commitments from the sector's largest investors.

Global Semiconductor Equipment Market Trends and Insights

Surging demand for advanced consumer electronics and smartphones

Smartphones, wearables, and mixed-reality devices keep adding logic, memory, and analog content that must be built at ever-smaller nodes, pushing foundries to accelerate capacity on 28 nm-7 nm lines. Advanced packaging that miniaturizes high-bandwidth functions without raising power budgets drove a sizable share of early-2025 revenue, triggering an upgrade wave in bumping, test, and lithography equipment. Heterogeneous-integration lines stacking chiplets vertically are expanding at double-digit rates, lifting shipments of flip-chip bonders and wafer-level inspection tools. Tool makers offering modular deposition

chambers with rapid recipe switching are winning orders as consumer-product cycles tighten. Strong handset refresh rates across India and Southeast Asia keep mature-node tools running near full utilization, proving that resilient billings are achievable even during premium-device launches.

Rapid AI-, IoT- and edge-device node investments

Data-center operators seek chips that offer higher TOPS-per-watt, boosting procurement of extreme ultraviolet (EUV) scanners and atomic-layer deposition modules used at 3 nm and below. AI accelerator start-ups in the United States and Europe are signing capacity reservation agreements that tie multi-year HBM purchases to guaranteed access to leading-edge lithography, shifting demand risk from chip designers to equipment makers. Edge AI devices for factory automation and smart-city deployments accelerate 16 nm-12 nm demand, spurring fresh orders for 300 mm etch systems tailored to embedded non-volatile memory. Tool suppliers deploy AI in situ process-monitoring algorithms, shortening recipe-development cycles and improving chamber uptime. The self-reinforcing loop between AI workload growth and smarter tools bolsters the semiconductor equipment market well past 2030.

Extremely high CAPEX and long pay-back cycles

A single advanced-logic fab now costs well above USD 20 billion, making the customer base for leading-edge tools increasingly concentrated. Lengthy depreciation periods stretch procurement scrutiny, compelling toolmakers to demonstrate multi-node extendibility before purchase orders are released. Vendors respond with upgrade-ready platforms, modular vacuum geometries, and subscription-based process-control software that spreads cost over a tool's life span. Some IDMs delay capacity expansions, which defers installations and shifts revenue recognition to late project phases. Nevertheless, the relentless need for performance-per-watt keeps road maps intact, limiting the overall drag on the semiconductor equipment market.

Other drivers and restraints analyzed in the detailed report include:

Government subsidy waves are boosting the tool CAPEX / Transition to GAA and High-NA EUV necessitates new toolsets / Specialty-material supply bottlenecks are delaying tool shipments /

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Front-end wafer-processing instruments captured 83.7% of the semiconductor equipment market share in 2024, underscoring the central role of lithography, etch, and deposition in yield improvement. Within this segment, High-NA EUV scanners post a 21.1% CAGR to 2030 because they are indispensable for patterning 2 nm logic and 3-D DRAM structures; multi-system orders from fabs in Taiwan and New York already total several billion USD.

Backend complexity fuels innovations such as thermo-compression bonders with sub-2 ?m alignment accuracy and fan-out wafer-level packaging that leverages front-end lithographic precision. Vendors that combine lithography optics, placement robotics, and high-frequency test modules into unified platforms are capturing a growing share of advanced-package budgets, extending lithography-grade investments further down the supply chain.

Foundries accounted for 52.2% of semiconductor equipment market revenue in 2024 as fabless chip firms concentrate orders on TSMC, Samsung Foundry, and GlobalFoundries. Mega-projects in Arizona, Dresden, and Kaohsiung each feature clusters of EUV scanners, multi-chamber etch stacks, and atomic-layer deposition tools configured for rapid recipe swaps, reflecting the foundry model's need to host diverse customer process flows. Strict uptime commitments drive bundled service contracts that now equal

25-30% of tool acquisition value, creating annuity streams for equipment suppliers.

OSAT houses emerge as the fastest-growing customer category at a 12.2% CAGR, propelled by 2.5-D and 3-D package architectures required for AI accelerators and automotive domain controllers. New capex lines include laser-drilling for through-silicon vias, high-density flip-chip bonders, and molded-underfill dispense systems. Integrated device manufacturers (IDMs) retain a sizeable but declining share as they pursue fab-lite strategies that outsource leading-edge logic while investing selectively in power, analog, and sensor lines.

Semiconductor Equipment Market is Segmented by Equipment Type (Front-End Equipment, and Back-End Equipment), Supply Chain Participant (IDM, Foundry, and OSAT), Wafer Size (300 Mm, 200 Mm, and ?150 Mm), Fab Technology Node (?28 Nm, 16/14 Nm, and More), End-User Industry (Computing and Data-Center, Communications (5G, RF), and More), and Geography (North America, South America, Europe, Asia-Pacific, and Middle East and Africa).

Geography Analysis

Asia-Pacific retained 72.2% semiconductor equipment market share in 2024, powered by dense ecosystems in Taiwan, South Korea, and mainland China; Taiwan's foundry cluster alone ran above 90% utilization, sustaining EUV and metrology orders. South Korea intensified spending on 1-beta DRAM and gate-all-around logic, while China's drive for self-reliance lifted domestic etcher and deposition installations even under export-control pressure.

North America's renaissance stems from CHIPS Act grants; Albany NanoTech took delivery of the world's first High-NA EUV tool, creating a cornerstone for a domestic lithography ecosystem. Simultaneous investments by TSMC and Intel in Arizona form a corridor stretching from equipment assembly in Oregon to materials supply in Texas, re-balancing regional demand.

Europe sharpened its specialty-technology focus-automotive power devices, RF front-ends, and advanced sensors-using the European Chips Act to target a doubling of regional capacity by 2030; Saxony's dual 300 mm lines already combine logic, analog, and power processing.

The Middle East and Africa logged the fastest growth at 9.9% CAGR, fuelled by Saudi Arabia's USD 9 billion fab plan and UAE feasibility studies, which require turnkey tool-support contracts spanning training, refurbishment, and logistics. South America remains niche; Brazil is investing selectively in automotive and industrial chips that rely on mature-node 200 mm tools.

List of Companies Covered in this Report:

Applied Materials Inc. / ASML Holding NV / Tokyo Electron Ltd. / Lam Research Corp. / KLA Corp. / Screen Holdings Co. Ltd. / Teradyne Inc. / Hitachi High-Tech Corp. / Veeco Instruments Inc. / ASM International NV / Canon Inc. / Nikon Corp. / Onto Innovation Inc. / Nova Ltd. / Advantest Corp. / Hanmi Semiconductor Co. Ltd. / Disco Corp. / BESI (BE Semiconductor Industries) / Kulicke & Soffa Industries Inc. / FormFactor Inc. / Plasma-Therm LLC / SUSS MicroTec SE / Kokusai Electric Corp. / AMEC (Advanced Micro-Fabrication Equipment Inc.) / Naura Technology Group Co. Ltd. /

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