

Press Release

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New EMD Electronics Survey Highlights Capacity Challenges in the Semiconductor Industry, Points to Expanded Sustainability Drive

- **Stronger manufacturing ecosystem required to meet AI-driven demand growth**
- **Focus on resilience vs. reshoring - avoiding single geographic or supplier dependency**
- **Sustainability is becoming an operational rather than reputational imperative**

SEMICON West - San Francisco – October 15, 2026 – EMD Electronics, the North America electronics business of Merck KGaA, Darmstadt, Germany, today released a new survey that highlights both the rapid growth in demand for semiconductors, driven by AI-related infrastructure, as well as the multiple challenges facing the industry.

"The nuances and drivers behind today's trends are often not well understood, this survey enables decision makers at IDMs, foundries and fabless companies to revisit and recalibrate their strategies to take advantage of today's opportunities as well as meet its challenges," said Katherine Hutchison, U.S. Managing Director of EMD Electronics. "For example, while it may appear AI is pervasive throughout the semiconductor ecosystem, in fact, while it is leveraged widely in chip design, yield prediction and electronic design automation (EDA), with 55%, 51% and 47% of respondents, respectively, citing it, it is much less widely incorporated into actual manufacturing processes. Just 24% state their organizations utilize AI in capacity planning and 14% in factory scheduling."



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Demand Is Outstripping the Manufacturing Ecosystem

Analyst group Gartner forecasts worldwide semiconductor revenues to reach \$1.6 trillion in 2026, a 92% increase over 2025. But building new fabs is not the primary obstacle to meeting that demand, finding a skilled workforce is; 75% of respondents state skilled workforce availability is the biggest barrier to accelerating domestic investment. Advanced packaging and testing is another bottleneck; two-thirds of respondents cited advanced packaging, driven by the need for high-bandwidth memory (HBM) and 62% listed testing as significant obstacles to more rapid infrastructure growth.

The semiconductor supply chain is increasingly dependent on specialized materials that aren't substitutable if that supply chain is disrupted. Fifty-nine percent of respondents state advanced packaging materials are the most critical to company technology roadmaps. This is followed by ultra-high-purity chemicals and solvents (42%) and ALD precursors (39%).

Resilience, Not Necessarily Reshoring, Is the Goal

The recent trend of reshoring doesn't mean globalization is dead, the underlying strategy is to make the supply chain more geographically diverse. Semiconductor companies don't necessarily need to manufacture devices domestically. They need a supply chain that can't be crippled by a single geographic or supplier dependency.

Ninety-four percent of respondents' organizations are investing or plan to invest in North America. However, investment in other regions also remains strong. Just over 50% state their organizations are also investing in Northeast Asia (Japan, South Korea and Taiwan) and 38% note investment in Europe.

Three-quarters of respondents describe their organizations' domestic supply-chain investment as immediate or near term. Just 12% state their companies have made no commitments or investment is not a priority.

Sustainability Is Now About Efficient Operations

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While certain U.S. regulations have loosened, sustainability in semiconductor manufacturing is shifting from a compliance imperative to a capacity imperative. Seventy-one percent of respondents note their organization is investing in energy-efficient processes or renewable energy.

Just under 50 percent of respondents characterize energy and water constraints as critical or significant. And two-thirds state the problem has become some or much more severe in the last 18 months, driven by the AI boom and advanced node scaling that drastically increase energy and ultra-pure-water (UPW) consumption.

To address these constraints, 64% of respondents' organizations are reducing energy usage, 43% have initiated water recycling and 42% have created lower-emission manufacturing processes. Sustainability is now a core component of energy and resource strategy.

About the Survey

EMD Electronics commissioned and executed the survey in September 2026, which included 200 respondents. IntelliSurvey, a professional market research firm that has completed more than 35,000 research projects, implemented the survey. IntelliSurvey utilized custom recruitment partners through phone-based recruitment and an expert network panel to target respondents based on their industry, title, seniority and company size.

About EMD Electronics

EMD Electronics is the U.S. and Canada Electronics business of Merck KGaA, Darmstadt, Germany. Backed by over a century of experience in the U.S. and a global innovation network, EMD Electronics is a trusted partner to the semiconductor industry.

Our broad portfolio includes specialty gases, deposition materials, planarization and patterning chemistries, along with advanced display materials. With our Materials Intelligence™ solutions, we combine deep scientific expertise with AI and data analytics to accelerate chip innovation and solve complex technical challenges.

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