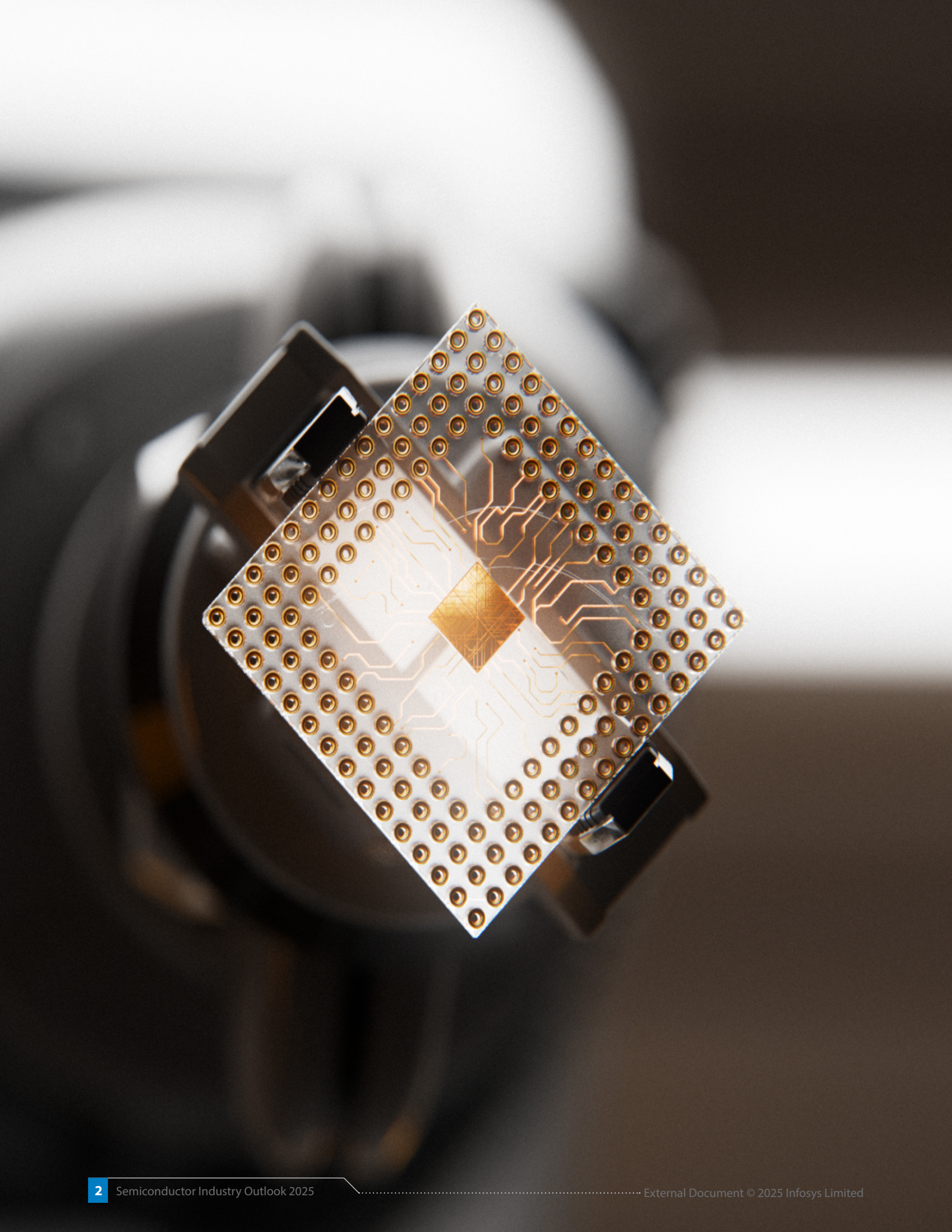


SEMICONDUCTOR INDUSTRY OUTLOOK 2025

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Executive summary

The semiconductor industry experienced strong growth in 2024, [posting a 19% increase in sales](#), driven by demand for logic and memory chips in data centers, servers, and storage. Despite macroeconomic challenges, semiconductor companies bounced back from a decline in sales a year earlier and beat expectations for 2024. This momentum is expected to continue into 2025, with market projections reaching approximately \$697 billion — a 11% year-over-year increase, according to [World Semiconductor Trade Statistics \(WSTS\)](#).

Beyond 2025, the [semiconductor market](#) is expected to grow at an annual rate of 7%–9%, reaching a \$1 trillion valuation by 2030. This expansion will be fueled by rising demand for high-performance computing, memory, and artificial intelligence (AI)-driven technologies.

To meet the increasing demand, semiconductor companies are projected to allocate about \$185 billion to capital expenditures in 2025, according to WSTS. In addition, [global semiconductor manufacturing](#) capacity is expected to expand by 7%. The industry must also navigate geopolitical challenges and [talent](#)

[shortages](#) while strengthening supply chains to ensure data security and sustained profitability. Companies with a robust talent pipeline and resilient supply chains will be best positioned to navigate these complexities and drive long-term success through 2030.

[Technological advancements](#) in materials, packaging, and chip design will continue to propel Moore's Law forward, helping address challenges such as high-power consumption in data centers and AI applications. As scaling smaller nodes becomes increasingly complex, the industry will place greater emphasis on [advanced packaging innovations](#) to drive the next generation of semiconductor breakthroughs.

Finally, AI will be a key enabler of efficiency across the semiconductor industry. [Digital twin technology](#) will enhance production and research and development (R&D), while integrated planning tools will improve supply chain management. Companies that embrace AI-driven innovations will accelerate development cycles, and as a result, gain a competitive edge.

State of the industry

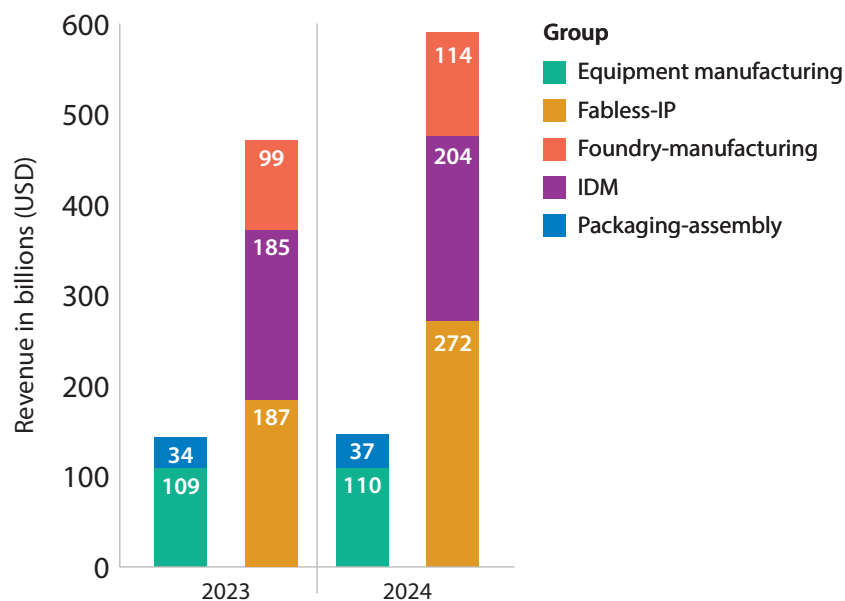
The semiconductor industry has experienced uneven growth rates across segments in 2024. Fabless and intellectual property (IP) companies, such as Nvidia and Broadcom, report strong revenue and net income growth, while foundries such as TSMC continue to scale capacity to meet demand. In contrast, integrated device manufacturers (IDMs) and equipment suppliers face potential contraction due to supply chain disruptions and cost pressures. Meanwhile, industry consolidation is accelerating, with companies such as Synopsys expanding their capabilities through strategic acquisitions. These types of deals focus on advancing semiconductor design, AI, packaging materials, and automotive solutions, positioning firms for long-term growth.

Financial performance

Revenue

Fabless and IP companies saw rapid growth in 2024, driven by the proliferation of AI and the internet of things (IoT), with Nvidia and Broadcom leading the expansion (Figure 1). Foundries also experienced consistent increases, fueled by capacity expansions and technological advancements, particularly at TSMC. In contrast, revenue growth among IDMs was evenly distributed across companies, but a slowdown has emerged due to demand stagnation in several sectors, including electronics and automotive.

Figure 1. Shifting fortunes in the semiconductor industry



| Note: Data represents top 50 companies with equal proportion per segment.

Source: Refinitiv

Profitability

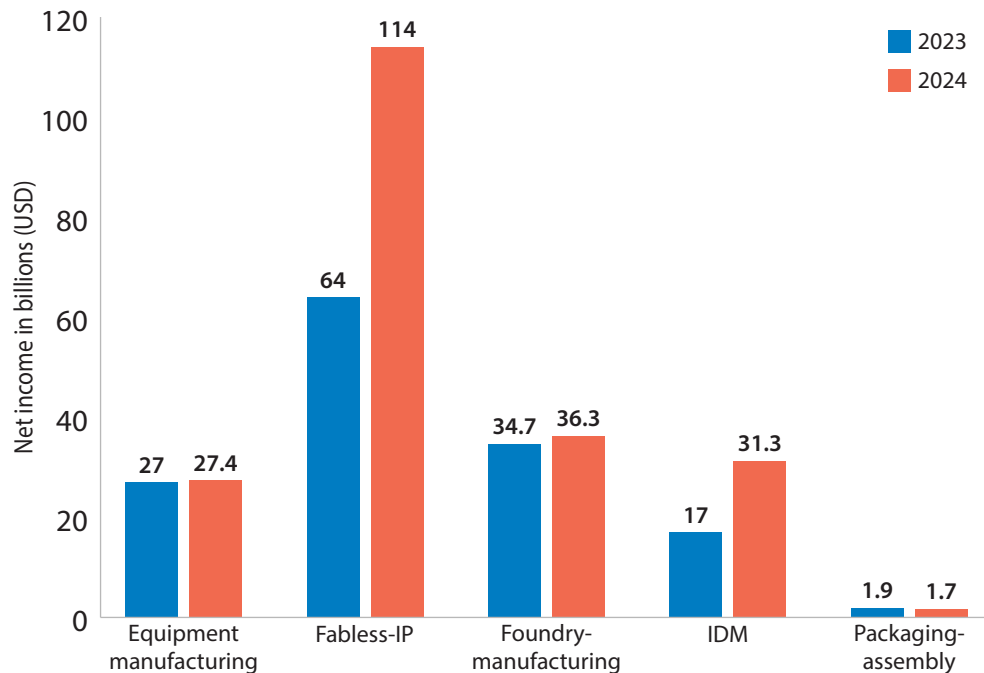
In 2024, the semiconductor industry demonstrated resilient financial performance, with average industry margins increasing from 23.5% to 28.6%, despite a challenging macroeconomic environment. However, the industry's profitability trends varied across subsegments (Figure 2).

The fabless sector rebounded, with companies such as Nvidia, AMD, and Qualcomm benefiting from increased demand for AI, automotive, 5G, and cloud technologies. While the foundry industry faced intense competition and capacity adjustments, TSMC's strong performance was a significant driver of the sector's overall net margin. In contrast, GlobalFoundries

struggled, reporting a net loss and lower margins, likely exerting downward pressure on industry profitability. However, TSMC's planned capacity expansions in North America and Europe could lead to higher operational costs, potentially lowering future profit margins.

IDMs performed well, with margins growing by 5% to 10%, driven by restructuring, cost control, and a recovery in memory prices. Equipment manufacturers, dominated by major companies such as ASML, maintained stable margins despite slower fab expansions. Meanwhile, the packaging and assembly industry, including ASE and Amkor, experienced slight margin declines of 1% to 2% due to weaker demand in consumer electronics and rising raw material costs.

Figure 2. 2024 semiconductor industry performance



Note: Data represents top 50 companies with equal proportion per segment.

Source: Refinitiv

Capital expenditure and R&D spending

Capital expenditures (CapEx) in 2024 saw a [modest 5% increase](#), reaching \$180 billion. Companies, mindful of market volatility, focused their investments on strategic initiatives, exercising caution in their spending decisions. However, the outlook for 2025 appears more optimistic, fueled by funding and investment in memory. [SK Hynix and Micron](#) are forecasting CapEx growth of 75% and 45%, respectively. This optimistic outlook suggests the industry is poised for a strong recovery to meet growing demand.

In 2024, joint ventures emerged as a key strategy to mitigate the risks associated with major semiconductor investments. Notable examples include [Apollo's \\$11 billion](#) investment for a 49% stake in a venture tied to Intel's Fab 34 in Ireland, and [Vanguard](#)

[International Semiconductor](#) partnering with NXP to form VisionPower Semiconductor Manufacturing Company for a 300mm fab in Singapore. These collaborations highlight the growing trend of strategic partnerships in high-stake semiconductor projects.

Additionally, [more than a dozen R&D centers](#) were established, focusing on crucial areas such as 12-inch wafers, extreme ultraviolet (EUV) lithography, and advanced packaging — key drivers of innovation in chip manufacturing. These investments have been bolstered by government support, including funding from the US government's CHIPS Act. For example, [Amkor received \\$400 million](#) in CHIPS Act funding to develop an advanced semiconductor packaging and testing campus in Arizona, reinforcing US efforts to strengthen the semiconductor supply chain and technological leadership.

2025 and beyond: Applications fueling industry growth

The semiconductor industry is poised to [grow at a 9% compound annual growth rate \(CAGR\)](#) from 2025 to 2030, reaching \$1 trillion by 2030. The [data center market](#), particularly for GPUs, high-bandwidth memory, SSDs, and NAND, is expected to be the primary growth driver. While demand had weakened by the end of 2024, the automotive sector is still projected to outperform the broader industry from 2025 to 2030, with an expected 8% to 9% CAGR. Consumer and industrial electronics as well as telecom sectors are projected to have a moderate growth of 6% CAGR.

With these growth applications (Figure 3), particularly in data centers, fabless companies have significant opportunities from 2025 onward, driven by the rising demand for AI processors and custom processing units (XPU). Foundries will also benefit from the expansion of data centers and the automotive sector, despite capacity constraints and slower growth in other sectors. TSMC is expected to maintain market dominance thanks to its advanced node manufacturing capabilities.

Despite significant investments, IDMs face challenges in transitioning to advanced process nodes. [Foundries and IDMs alike have struggled](#), with Intel experiencing delays in its advanced nodes and Samsung grappling with yield issues at the 3nm node. These factors are limiting their ability to compete

with TSMC and pose risks to their growth projections in 2025. As Intel outsources some of its chip manufacturing to TSMC, more IDMs might adopt the fabless foundry model, signaling a trend of leveraging specialized foundries for advanced processes, profitability, and scalability.

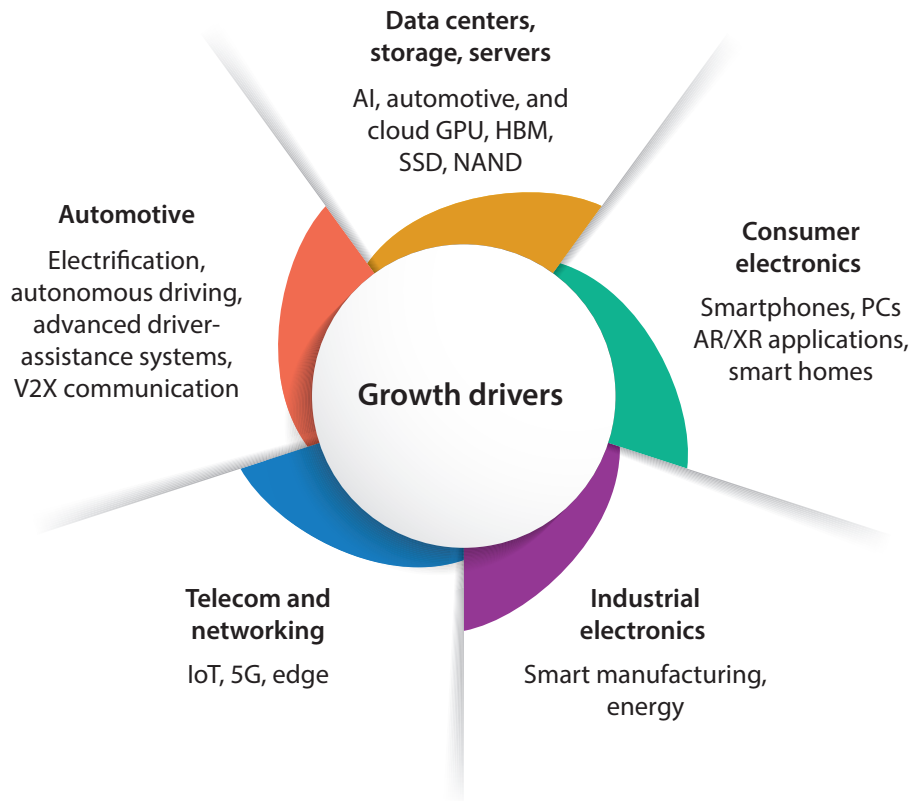
Data centers, servers, and storage

Data centers are the primary beneficiaries of AI advancements. Semiconductor sales in this market are projected to grow at an [18% CAGR](#), increasing from \$156 billion in 2025 to \$361 billion by 2030.

The [non-memory data center chip market](#), valued at \$13.5 billion in 2023, is expected to grow at a 7.4% CAGR through 2032. Meanwhile, the GPU market, valued at [\\$27 billion in 2024](#), is expected to grow at a 10% CAGR from 2025 to 2033. Nvidia continues to lead the market through its data center division, which produces the GPUs powering the majority of generative AI models and driving [\\$35.6 billion in revenue](#). However, DeepSeek and other alternative AI models are expected to increase demand for XPU tailored for specific AI tasks and potentially competing with Nvidia GPUs. This shift might also prompt cloud providers to explore alternative AI infrastructure.

WSTS forecasts that the logic and memory sectors will surpass \$400 billion in 2025,

Figure 3. Applications fueling the semiconductor industry



Source: Infosys Knowledge Institute

with logic expected to grow by more than 17% and memory by 13%. AI is driving the demand for [high-bandwidth memory \(HBM\)](#), which grew [200% in 2024](#) and is expected to increase by 70% in 2025, led by companies like [Samsung](#), [Micron](#), and [SK Hynix](#).

Micron and SK Hynix are benefiting from the increased demand for DRAM and NAND in cloud computing, AI, and the automotive sector. [The SSD market is projected](#) to reach \$77 billion by 2025 and \$173 billion by 2030, growing at a 17.6% CAGR. However, memory price instability, oversupply, or underperformance could disrupt chip

availability and pricing in various sectors — including smartphones, servers, and consumer electronics — potentially stalling broader industry growth.

Smart phones, PCs, and consumer electronics

The smartphone and PC markets are mature, with limited growth potential through 2030. The semiconductor smartphone market is expected to grow at about 5% CAGR over the next five years, increasing from \$149 billion in 2025 to \$192 billion in 2030. Meanwhile, the PC semiconductor market is expected

to increase at a 4% CAGR from \$92 billion in 2025 to \$112 billion in 2030.

In contrast, consumer electronics are projected to grow at a rate of 8% to 9%, primarily driven by augmented reality and extended reality applications. This trend fuels the demand for advanced sensors and low-power chips. Additionally, the smart home market's use of ambient computing — where devices operate in the background through AI and low-power chips — is emerging as a key growth area. This creates new opportunities for chips in energy-efficient edge devices, voice assistants, and home automation systems.

Industrial electronics

The [industrial electronics](#) market is expected to grow from \$84 billion in 2025 to \$120 billion by 2030 — a CAGR of 7%. As industries accelerate automation and the adoption of advanced technologies, the demand for specialized industrial chips is expected to grow significantly. This market's notable expansion has been fueled by growth in manufacturing, automotive, and energy — all of which require high-performance chips to power their increasingly sophisticated systems and processes.

Telecom and networking chips

The market for telecom chips is expected to grow from \$53 billion in 2025 to \$70 billion by 2030 — a CAGR of 6%. The proliferation of IoT and 5G chipsets continues to drive growth and innovation in the semiconductor industry. The deployment

of 6G infrastructure, including base stations and network components, is expected to eventually increase demand for advanced semiconductors. However, whether 6G adoption will occur before 2030 and contribute to the expected growth remains uncertain, given its current stage of deployment.

The cellular IoT chip market is projected to grow from \$12.77 billion in 2024 to \$78.73 billion by 2032, at a CAGR of 25.5%. Established companies, such as Qualcomm, Intel, and MediaTek, currently lead the 5G chipset market, while the Asia-Pacific region is poised to lead the IoT chip market. This could lower costs and increase the availability of IoT technologies. But the rapid growth may also exacerbate talent shortages and strain the semiconductor supply chain, particularly in sourcing critical materials and managing production capacity.

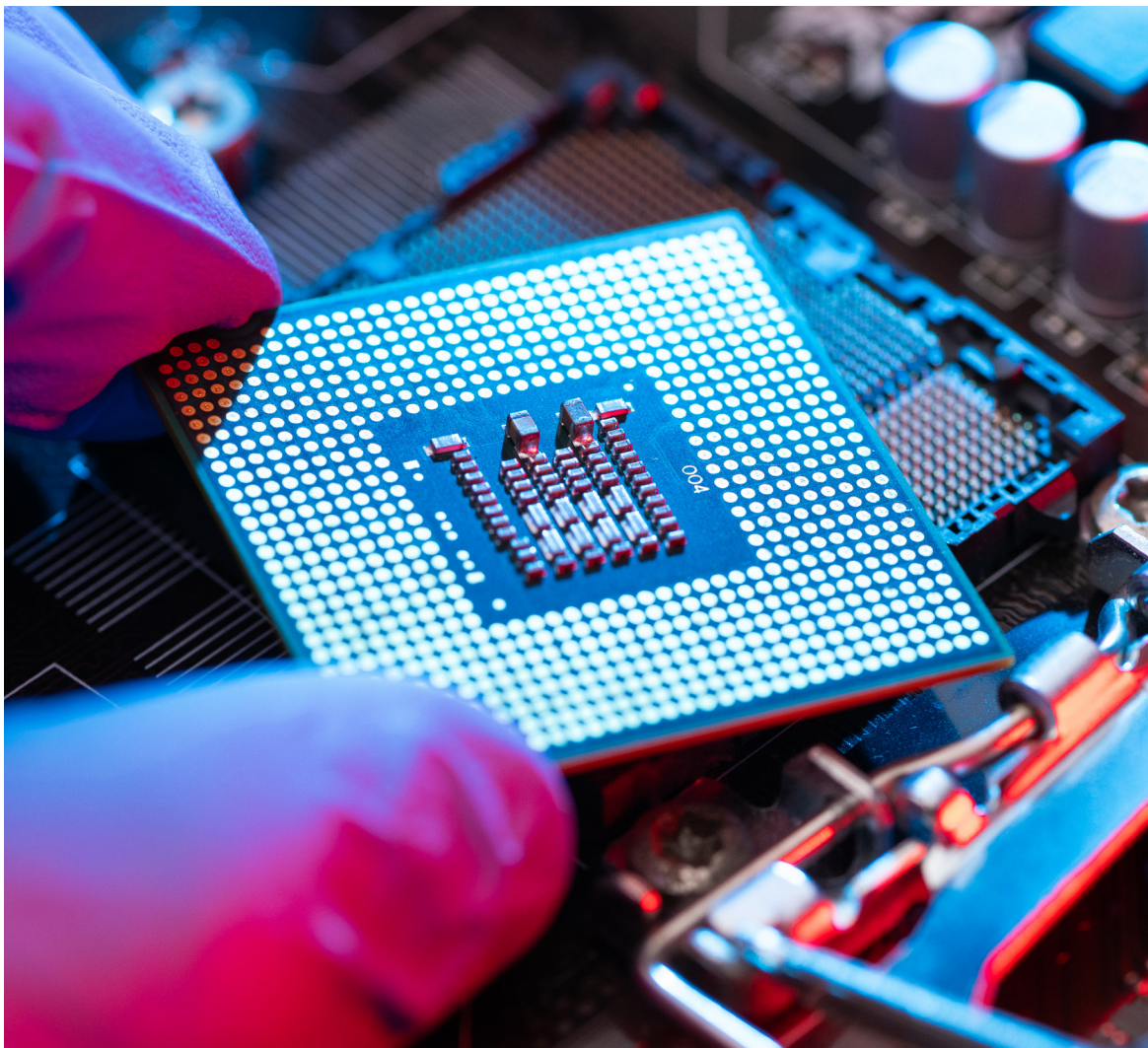
Automotive

The automotive semiconductor market slowed at the end of 2024 but is projected to grow with electric vehicles (EVs), energy storage systems, and charging stations emerging as major consumers of semiconductors. The EV semiconductor devices market is projected to grow at a 30% CAGR from 2025 to 2030, boosted by innovations in power management, charging infrastructure, and energy efficiency.

In addition, the global automotive semiconductor market is expected to grow from \$51 billion in 2025 to \$102 billion by 2034, at a CAGR of 8%. This growth is

propelled by electrification, autonomous driving, and advanced driver-assistance systems. However, since market growth is heavily dependent on EV demand and infrastructure, any slowdowns or regulatory delays could negatively impact chip demand — particularly for companies such as NXP and STMicroelectronics, which are heavily reliant on the automotive sector.

An up-and-coming growth area is vehicle-to-everything communication, which requires low-latency, high-bandwidth chips. 5G-enabled automotive chips that facilitate real-time communication between vehicles and infrastructure, such as traffic lights and road signs, are expected to see exponential growth but remain underrecognized in mainstream semiconductor forecasts.



Market challenges

The semiconductor industry is facing multiple challenges shaped by geopolitics, sustainability efforts, talent shortages, and cybersecurity concerns. Below are key factors influencing the industry's evolution and resilience (Figure 4).

Geopolitics

Geopolitical tensions, particularly between the US and China, are reshaping global trade and semiconductor supply chains. China's push for technological self-reliance and [US export controls](#) on advanced technologies are increasing supply chain risks. Analysts predict that semiconductor [investments could shift toward the US](#), with \$190 billion expected for fabrication plants by 2030. Tensions have also escalated further as [China bans certain chip materials](#) in retaliation to US restrictions on Chinese AI chips. China's recent military exercises near Taiwan are also a cause for international concern, given Taiwan's pivotal role as a leading semiconductor producer. In response, countries are ramping up efforts to expand domestic semiconductor production, a move that promises economic growth but also introduces challenges such as high costs and workforce shortages.

Despite these obstacles, the push for self-sufficiency is reshaping the industry. In 2025, investment in reshoring and diversification will continue, alongside geopolitical risks

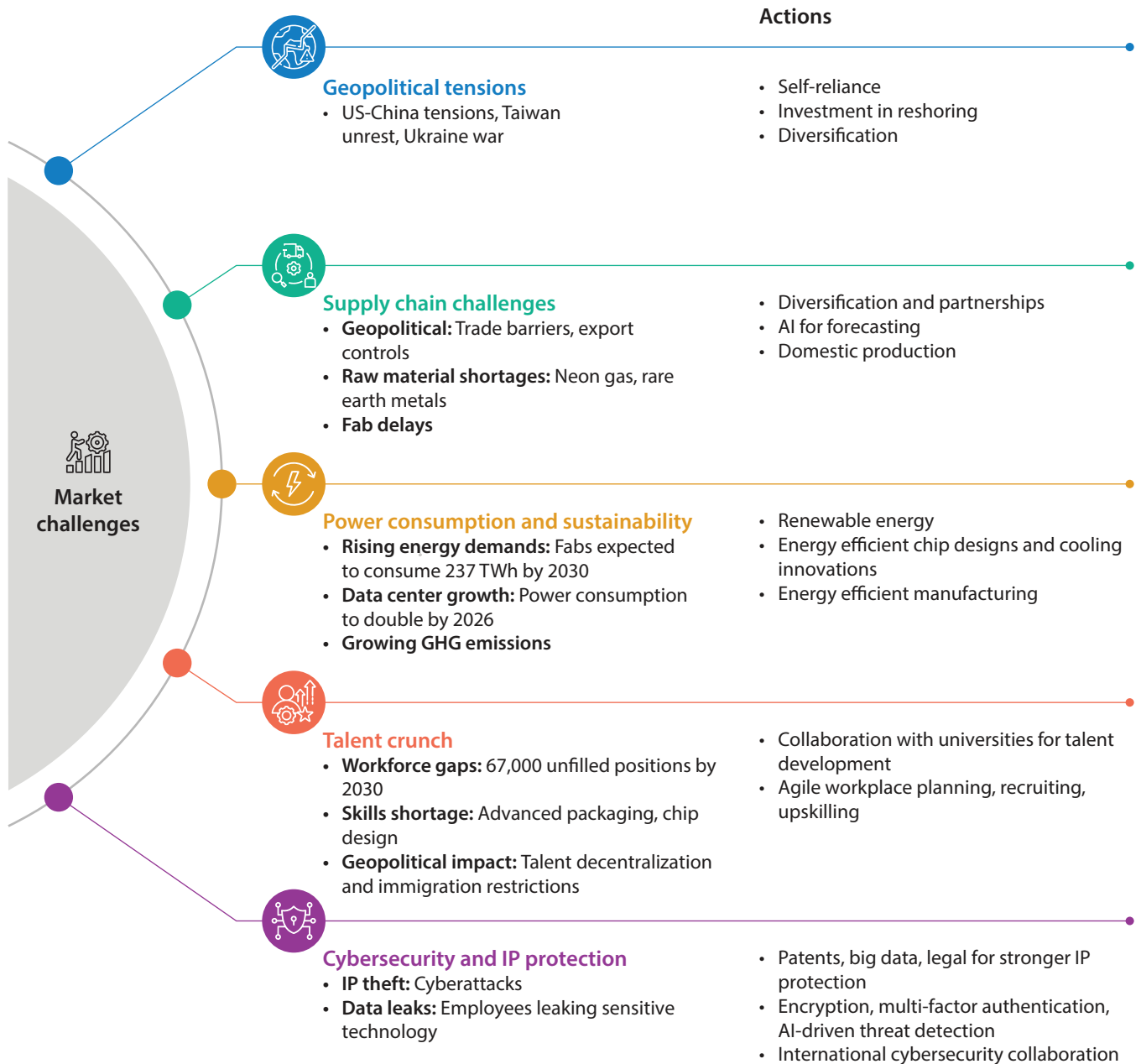
— particularly related to US-China relations and Taiwan. While these complexities pose short-term uncertainties, long-term stability is expected as new production centers develop.

Supply chain

Geopolitical tensions are disrupting global supply chains, introducing trade barriers, export controls, and shifting production priorities, which in turn create uncertain and rising costs. Upstream challenges, such as shortages of neon gas and rare earth metals, are worsened by geopolitical risks — from the war in [Ukraine](#) to China's export restrictions. Additionally, delays in [new fab construction](#), such as TSMC's Arizona facility that is now rescheduled for 2028, have intensified supply concerns.

As a result, efforts to mitigate these disruptions are accelerating. Companies are diversifying supply chains, [forming strategic partnerships](#), and leveraging AI-driven forecasting. At the same time, the focus on domestic semiconductor production is increasing. While this shift offers opportunities for resilience and innovation, it also introduces risks of fragmentation and geopolitical tensions. Given that the [semiconductor value chain spans 25 countries](#), the question remains: Can true self-reliance ever be achieved in this globalized industry?

Figure 4. Factors influencing the semiconductor industry



Source: Infosys Knowledge Institute

Power consumption and sustainability efforts

The semiconductor industry is resource-intensive, with fabrication plants consuming significant amounts of energy and water. Electricity demand is expected to reach 237 terawatt-hours globally by 2030, contributing to rising greenhouse gas (GHG) emissions. In 2024, electricity consumption grew 2%, with similar growth forecasts for 2025 and 2026. TSMC, Intel, and Samsung are committing to 100% renewable energy, but targets might not be reached until 2030-2040. In addition, Onsemi aims to reduce GHG emissions by 59% (scope 1 and 2) and 35% (scope 3) by 2034.

The rising demand for AI and data centers is further straining electricity resources, with data center consumption set to double to more than 1,000 TWh by 2026. Microsoft CEO Satya Nadella recently emphasized that his company is no longer constrained by chip supply but instead faces power constraints, underscoring the growing challenges of energy consumption in AI workloads. This signals the need for sustainable technologies, energy efficient designs, renewable energy, and innovations in cooling systems and hardware to manage growing power consumption and reduce carbon footprints.

Talent crunch

The semiconductor industry's workforce is projected to grow from about 345,000 today to about 460,000 by the end of the decade, a 33% increase. However, approximately 67,000 of these new jobs (58% of total new

jobs and 80% of new technical roles) may remain unfilled due to low completion rates in technical degrees.

The talent shortage affects established regions, such as the US and Taiwan, as well as emerging markets, such as India and Malaysia, where demand is increasing for skilled workers in advanced packaging, chip design, and manufacturing. Companies are responding to the talent shortage with agile workforce planning, recruitment, and talent development, including the use of generative AI to reduce bias in hiring. In the US, Arizona is collaborating with educational institutions to train students in semiconductor-focused education while Arm, a leading semiconductor company partners with universities to develop industry-relevant training programs, helping build a skilled talent pipeline.

The decentralization of semiconductor design, manufacturing, and operations, driven by geopolitical factors, will require new regions to cultivate and supply specialized talent. To bridge this gap, leveraging global talent and revising immigration policies will be essential for facilitating the movement of skilled professionals. However, shifting geopolitical dynamics and evolving immigration laws could further exacerbate the talent shortage, adding complexity to workforce planning and industry growth.

Cybersecurity and IP protection

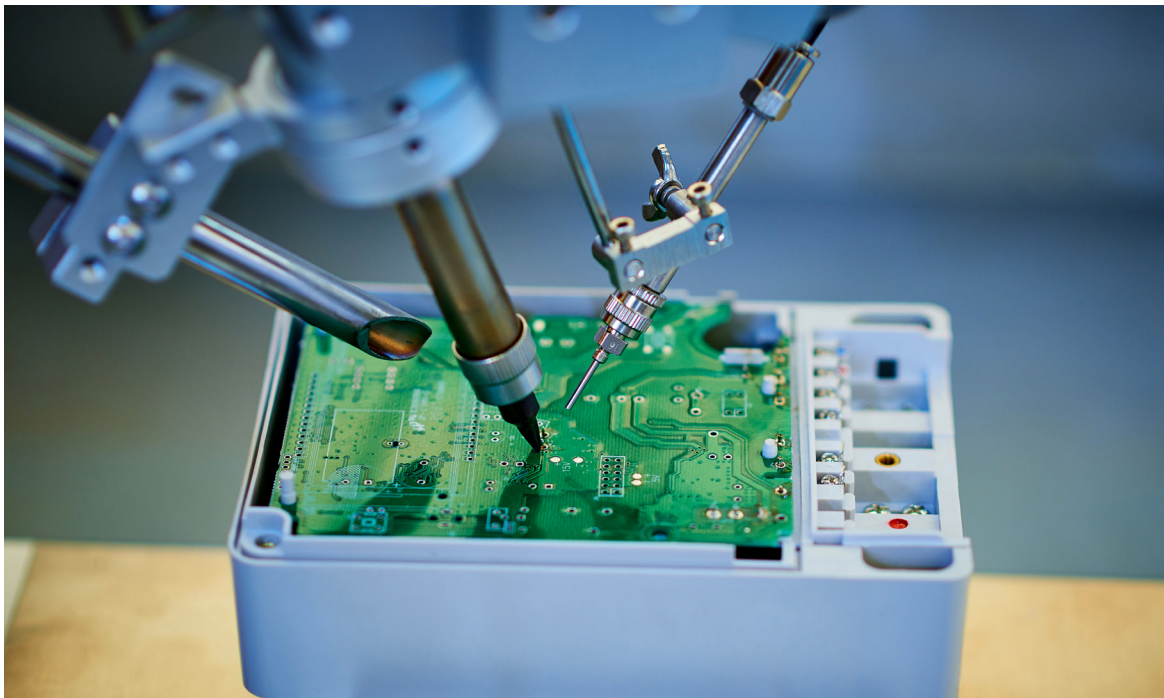
IP protection is critical in the semiconductor industry, given the billions of dollars invested in R&D and the potential national security

implications at stake. The standard method of protecting IP is through traditional patenting, which allows companies to monetize designs and technologies while securing their market positions.

However, patenting alone does not eliminate the risk of IP theft as cyber attackers increasingly target semiconductor firms. A recent [cyberattack on AMD](#), the company's second in 2024, compromised sensitive employee data and internal communications. In another case, a South Korean executive was accused of [leaking Samsung Electronics' semiconductor technology](#). In response, South Korea has implemented [stringent security measures](#), including big data analysis to detect leaks, expanded legal

frameworks with tougher penalties for trade secret violations, and the introduction of an evidence collection system to assist in investigations.

This growing threat necessitates advanced cybersecurity measures, such as end-to-end encryption, multifactor authentication, AI-driven threat detection systems, and blockchain-based supply chain security. Additionally, stronger international cooperation is also essential to safeguard valuable intellectual assets and prevent IP theft. Implementing multilayered security protocols, comprehensive employee training, and active risk management will be critical in defending against cyberthreats and mitigating breaches caused by human error.



Key technologies shaping the semiconductor industry

The semiconductor industry is undergoing significant transformation driven by innovations in advanced packaging, new materials, and AI-enabled manufacturing and design (Figure 5). These developments are enhancing performance, energy efficiency, and manufacturing precision, addressing the growing demands of AI, high-performance computing, and emerging technologies. Below, we explore key advancements shaping the future of semiconductor technology.

Advanced packaging

As highlighted in the Infosys [Semiconductor Outlook 2024](#), advanced packaging continues to gain importance. Techniques such as 3D stacking, system-in-package, and fan-out wafer-level packaging continue to lead the segment, offering greater heat dissipation, higher bandwidth, and better density without the need to shrink transistors. These advances, which provide better semiconductor performance and energy efficiency, have proved essential for applications such as AI, high-performance computing, 5G, autonomous vehicles, and IoT.

Traditional packaging struggles to meet many of these demands and creates an opportunity for advanced packaging solutions. [Broadcom and TSMC](#) have collaborated to introduce [3.5D F2F packaging](#) for AI computing, while TSMC, Samsung, ASE, and Intel are actively advancing similar technologies. As the

demand for more compact, powerful devices increases, advanced packaging is becoming essential to overcome performance and integration challenges in the semiconductor industry. Looking ahead, advanced chip designs, including AI chips, multi-die architectures, and low-power techniques, will be key to improving efficiency while maintaining performance. Advanced packaging will play an increasingly vital role in the next generation of semiconductor technology breakthroughs, a shift from the pre-2020 era when achieving leading-edge nodes (2nm, 3nm, and 5nm) was more important.

New materials

Silicon carbide and gallium nitride have revolutionized power electronics and high-frequency applications. Technology innovations in graphene and [III-V semiconductors](#) are being explored for their potential to improve speed, energy efficiency, and communication. In AI, the need for low-power, high-performance chips is driving material advancements. [Superconducting materials](#) are gaining attention for their ability to reduce power loss and improve efficiency in AI hardware. Intel and [Graphene Flagship](#) are investigating graphene for its potential to create faster transistors, while [ASML advances photonic and EUV lithography](#).

[Recent research](#) has also identified three new materials with superconductive properties,

potentially paving the way for lossless power grids and magnetically levitating vehicles. Although still experimental, superconducting materials promise faster processing, reduced energy use, and less heat generation for AI workloads.

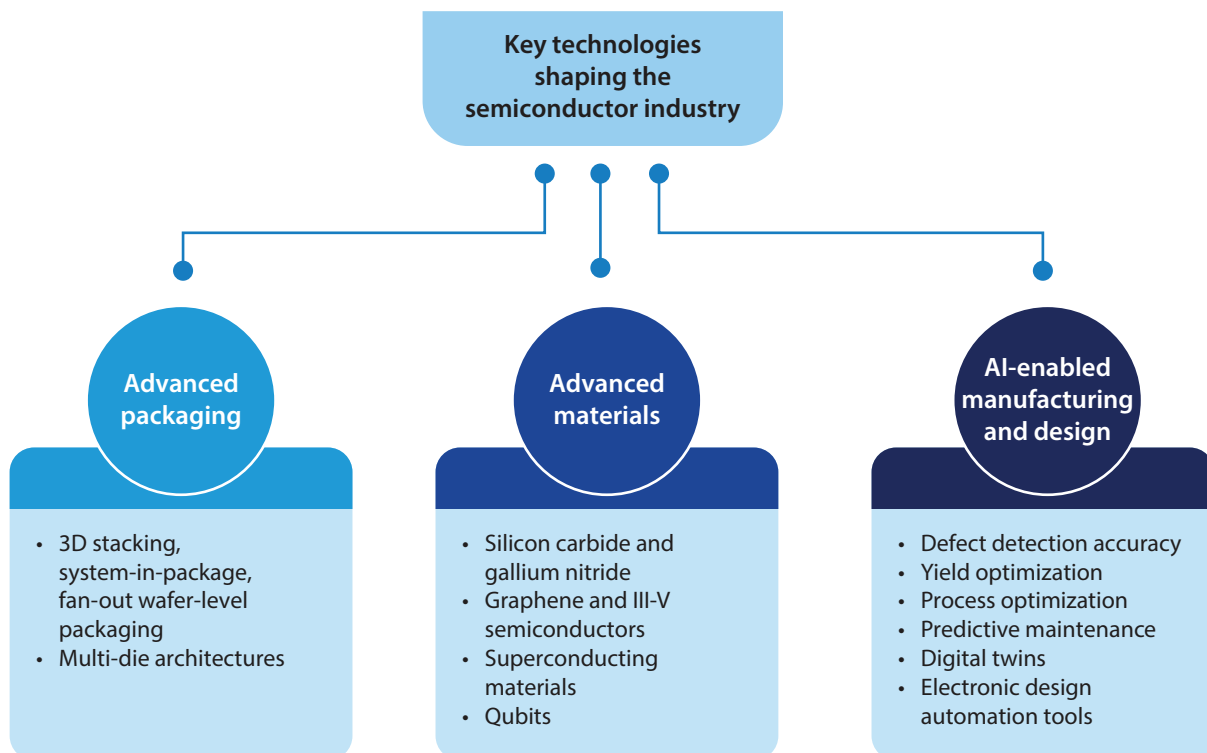
AI-enabled manufacturing and design

Research is advancing in the use of AI and machine learning (ML) to improve defect detection accuracy, speed, and yield optimization in semiconductor manufacturing. Real-time process optimization and predictive maintenance further ensure more efficient production,

minimizing downtime. Semiconductor fabricators are expected to deploy ML more efficiently in 2025. In addition, [integration with digital twins](#) allows for real-time adjustments and optimized workflows.

Beyond manufacturing, AI is transforming electronic design automation tools, driving efficiency, accuracy, and speed in semiconductor design by optimizing critical tasks, including timing analysis, layout routing, and defect detection. This enables a faster transition from concept to prototype. As AI continues to evolve, the industry is poised for further [chip design innovations](#) from electronic design automation tool developers such as Cadence, Synopsys, and Ansys.

Figure 5. Innovations shaping the semiconductor industry



Source: Infosys Knowledge Institute

Strategic imperatives

The semiconductor industry is on track to reach \$1 trillion by 2030, driven by AI, automotive electronics, and 5G expansion. However, geopolitical tensions, cybersecurity threats, and talent shortages pose significant challenges. Despite these hurdles, AI will play a transformative role, enhancing R&D efficiency, optimizing production with digital twin technology, and improving supply chain management through advanced integrated planning.

To drive continued value, semiconductor companies should address five strategic imperatives.

1. Scale AI to reduce R&D and production costs

AI and digital twins enable complex simulations of semiconductor properties, accelerating development by 30%. AI integration in design, testing, and production optimizes semiconductor development and yield management. AI-driven design tools automate processes, improving accuracy and speeding up chip innovation.

AI testing algorithms enhance defect detection and predictive analytics, reducing time to market. During production, AI enables real-time process optimization, improving defect detection and minimizing waste. Companies such as Intel and TSMC are leveraging AI to boost operational efficiency, lower costs, and accelerate product

cycles. AI integration is critical for sustaining commercial growth, staying competitive, and addressing the growing demand for advanced chips.

2. Strengthen and smarten global supply chains

AI and ML technologies are essential for creating intelligent, integrated supply chain planning in the semiconductor industry. By improving demand forecasting, inventory management, and production optimization, these technologies help build more resilient supply chains. AI models and data analytics enhance demand forecasting accuracy, minimizing risks of overstocking or stockouts.

Real-time data integration across suppliers, foundries, and assembly lines improves visibility and agility, enabling faster responses to demand shifts. Predictive maintenance and smart inventory management optimize production cycles, reducing lead times and costs. As global demand grows, intelligent supply chains will support scalability, efficiency, and resilience against disruptions.

3. Targeted and enhanced talent development

To accelerate talent development amid current geopolitical challenges, semiconductor companies can expand their talent pools by partnering with global

universities and professional associations. They can also enhance their employee value proposition by emphasizing career development, diversity, equity, and inclusion initiatives, and continuous training while leveraging AI for efficient hiring.

Additionally, fostering a supportive work culture with flexible arrangements, mental health support, and global collaborations through joint ventures and research partnerships can help attract and retain talent. These strategies can help ensure a robust talent pipeline and mitigate geopolitical risks.

4. Enhance data and IP security

To enhance data and IP security, semiconductor companies should implement robust cybersecurity measures such as advanced encryption and multifactor authentication. They should also secure their supply chains by enforcing strict partner protocols, investing in regular employee training, and adopting secure-by-design principles during product development.

Additionally, monitoring threats with advanced detection systems, establishing incident response plans, and collaborating with industry partners to share threat intelligence can further strengthen security.

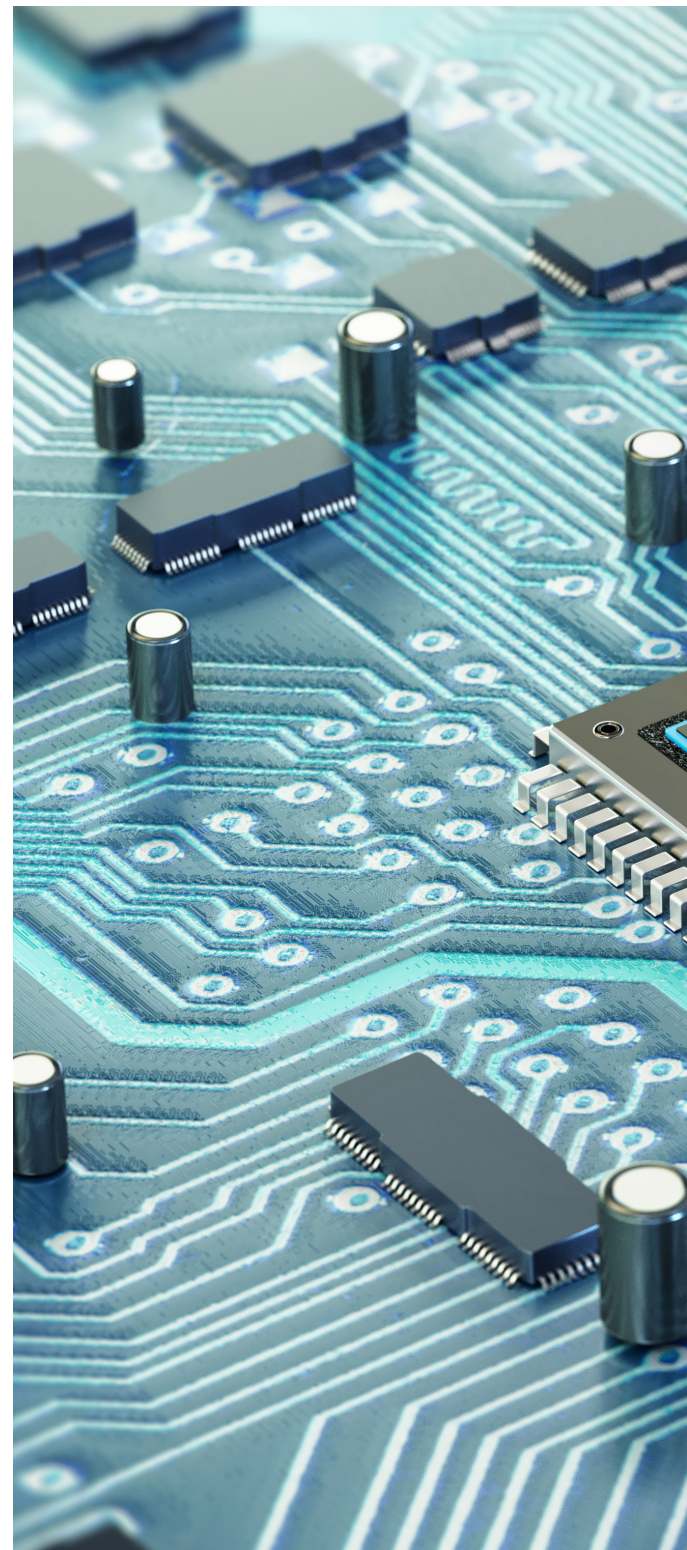
5. Embrace sustainability and enable low power consumption

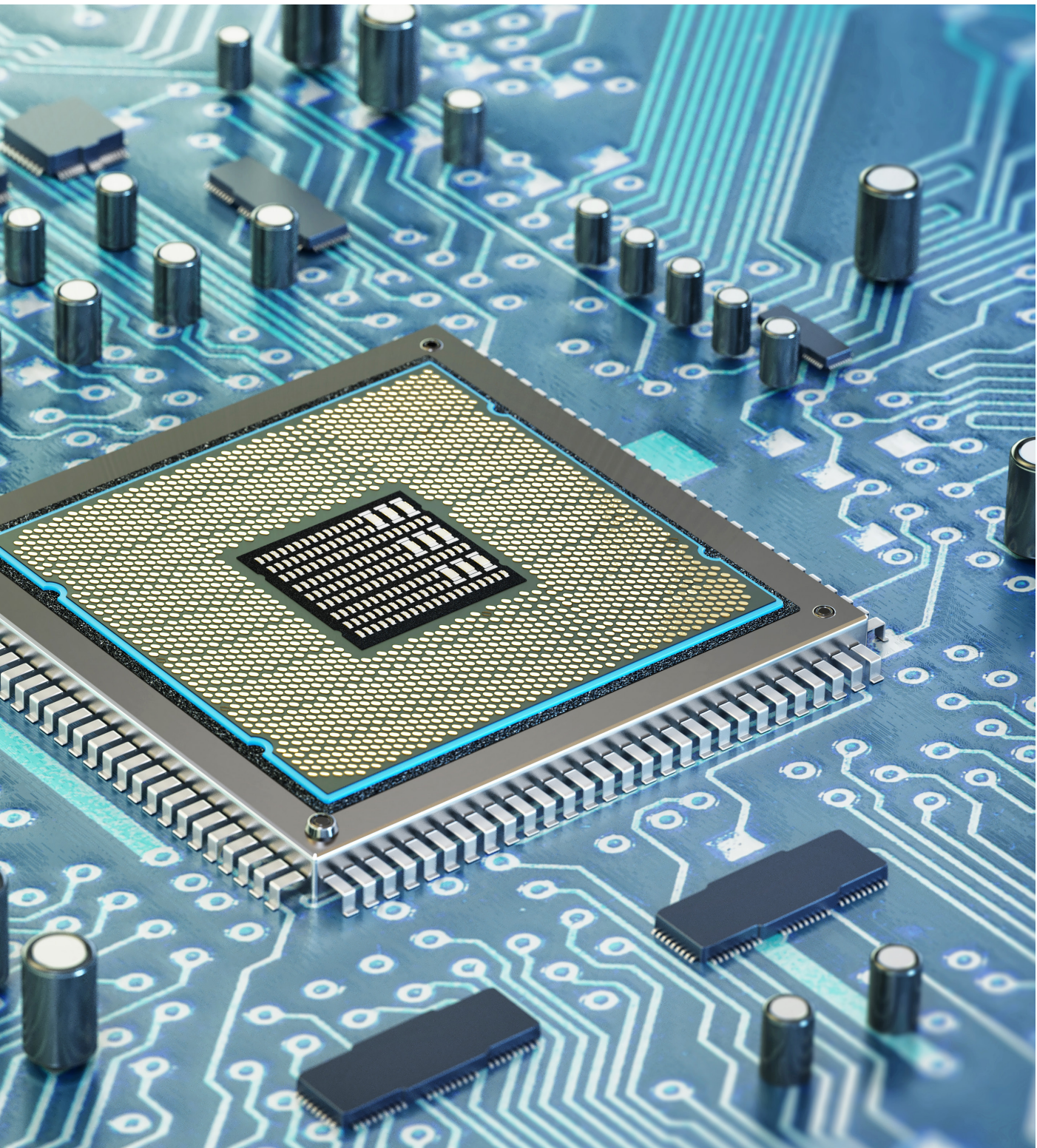
Driving more efficient energy consumption across upstream and downstream operations and reducing process gas emissions should remain a strategic focus to achieve the net-zero sustainability targets the industry has set. Semiconductor companies should invest in renewable energy sources for their operations and embrace sustainable manufacturing practices, including reducing GHG emissions, water and chemical usage.

Also, companies can enhance sustainability efforts by optimizing supply chains to minimize environmental impact. Low-power design techniques such as power gating, voltage scaling, and clock gating can significantly reduce the power consumption of chips.

Key takeaways

- **2024 recovery:** The semiconductor industry grew by 19% in 2024, driven by demand for memory and logic chips in AI and cloud computing. Fabless and IP companies saw 20% growth. Profitability dropped by 5% to 10% due to higher costs and investment decreased by 2%.
- **2025 and beyond outlook:** The industry is set for 11% growth in 2025, driven by AI and cloud computing. Post 2025, the sector is projected to grow 7% to 9% annually, reaching \$1 trillion by 2030, with AI and automotive being key growth drivers.
- **Geopolitics and talent:** Geopolitical tensions are pushing onshore investments, with \$1 trillion expected between 2025 to 2030. Supply chain challenges and a talent shortage (25,000 open positions in 2024) require semiconductor companies to adapt and secure a diverse talent pipeline.
- **Advanced materials and packaging:** Graphene, III-V semiconductors, 3D stacking, and AI chips are key to enhancing efficiency and performance. Advanced packaging will play a crucial role in future technology breakthroughs.
- **AI for efficiency:** AI and digital twins can accelerate research and development by 30%, improving design and yield management. AI in supply chain planning will optimize forecasting, inventory, and production, making the semiconductor industry more resilient and energy efficient.





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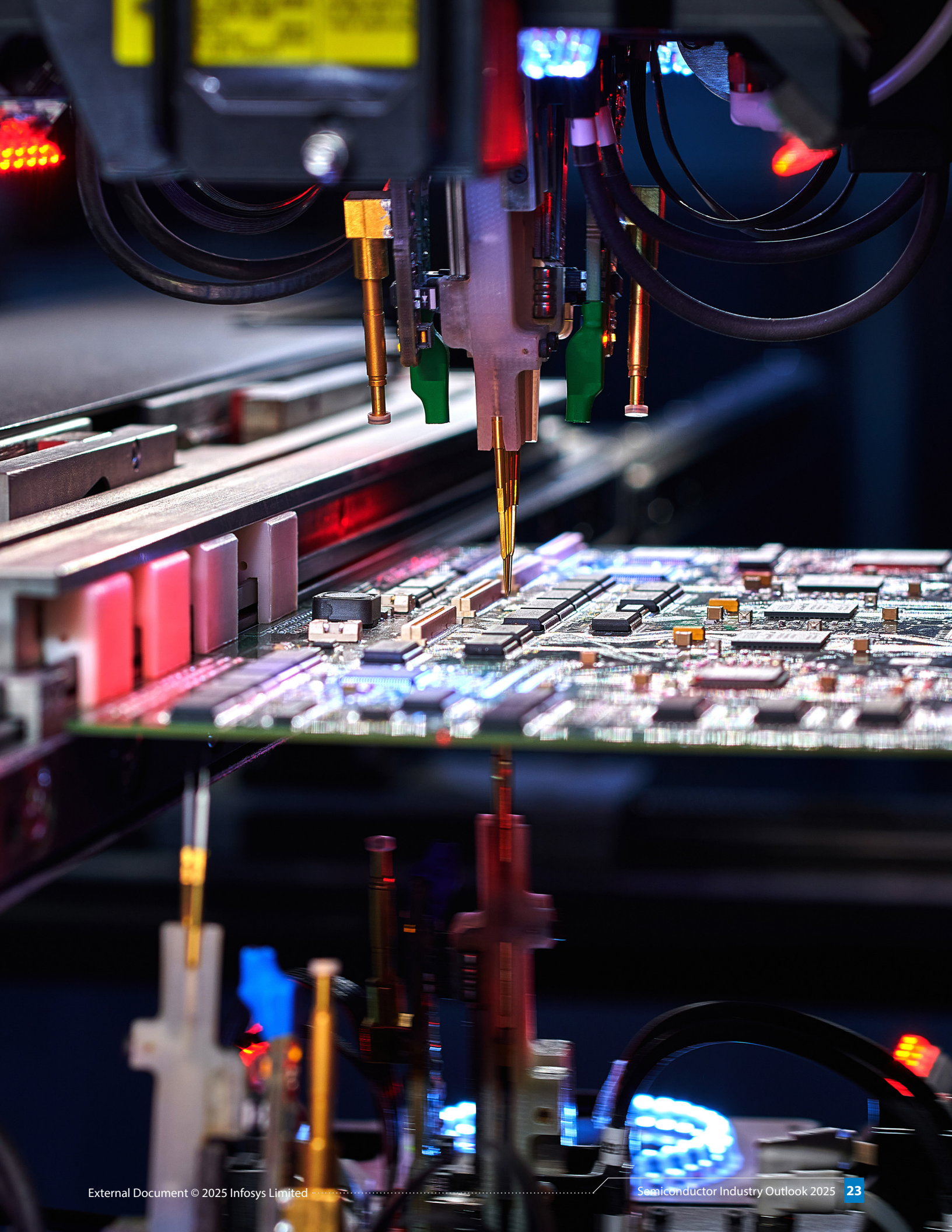
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