

semiconductor**TODAY**

C O M P O U N D S & A D V A N C E D S I L I C O N

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NXP's RF GaN fab sold to Nokia, for conversion to InP opto production



US CHIPS Act funding for Bosch • Quintessent raises \$40m
Navitas buys Claros • SweGaN raises \$14m • ABB buys Advantics



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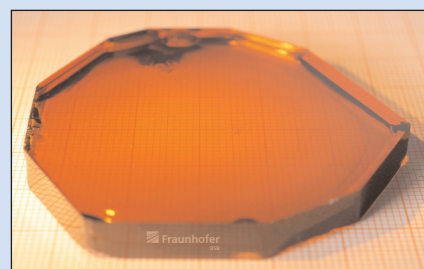


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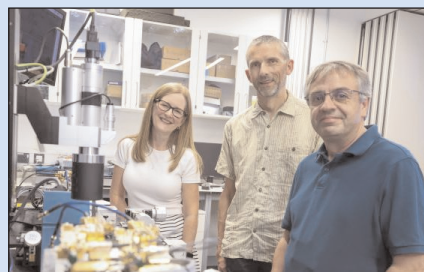
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p13 Bosch has gained \$225m in US CHIPS Act funding for the \$2bn transformation of its fab in Roseville, California for SiC production.



p39 PVA TePla and Fraunhofer IISB have established a Joint Lab for producing AlN substrates.



p52 Kubos has raised \$2.1m to accelerate the development of cubic-phase GaN for micro-LED applications.



Cover image: Nokia is acquiring NXP's RF GaN fab in Chandler, Arizona, which it will convert to producing InP-based optical communications chips. **p67**



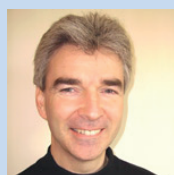
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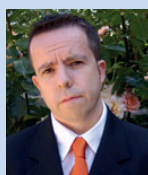
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Semiconductor Today covers the R&D and manufacturing of compound semiconductor and advanced silicon materials and devices (e.g. GaAs, InP and SiGe wafers, chips and modules for microelectronic and optoelectronic devices such as RFICs, lasers and LEDs in wireless and optical communications, etc).

Regular issues contain:

- news (funding, personnel, facilities,
- technology, applications & markets);
- feature articles (technology, markets,
- regional profiles);
- conference reports;
- event calendar and event previews;
- suppliers' directory.

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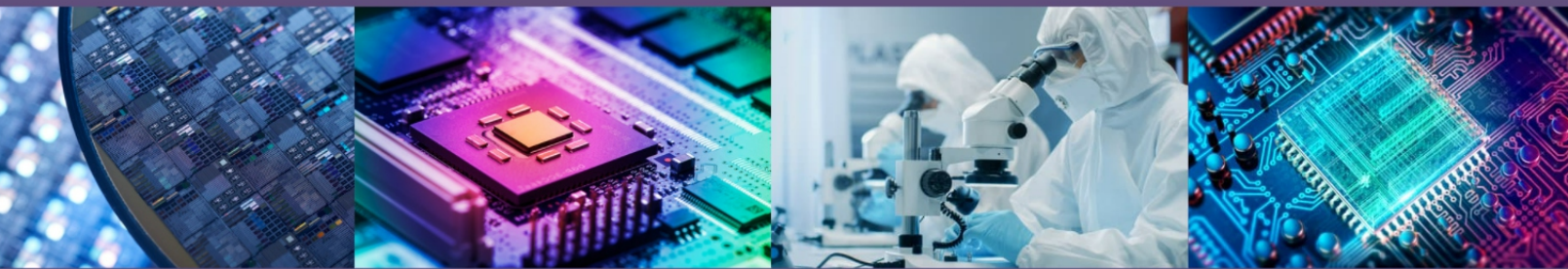
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xEV power chip market to more than double to \$14.5bn by 2031

SiC displacing silicon as batteries move from 400V to 800/1000V

Following a "reality check" in 2024–2025, when sales of hybrid electric vehicles gained ground and battery-electric vehicles growth slowed temporarily, the xEV industry is regaining momentum, notes Yole Group in its report 'Automotive Powertrain and Electrification 2026 – Focus on Power Electronics'.

The market research firm estimates that xEV production is growing at a double-digit compound annual growth rate (CAGR) during 2025–2031 to about 70% of global light vehicle production, with battery-electric vehicles (BEVs) alone accounting for 33 million units. In turn, the xEV power device market is growing at a 14% CAGR to \$14.5bn by 2031.

"China is building a power electronics supply chain that answers to no one – strong in finished systems, device packaging, and semiconductor wafers and closing the gap on front-end chip manufacturing faster than most expected,"

says Milan Rosina PhD, principal technology & market analyst, Power Electronics & Battery, at Yole.

The report provides strategic insight into the technical shift now underway inside the traction inverter, which accounts for the large majority of xEV power device revenue through 2031. In particular:

- power modules are growing at a CAGR of about 14%;
- silicon insulated-gate bipolar transistor (IGBT) modules remain dominant, reaching almost \$7bn;
- silicon carbide (SiC) MOSFETs are rapidly gaining share, growing at a 21.5% CAGR during 2025–2031, driven largely by China's BEV fleet;
- gallium nitride (GaN) HEMTs comprise the fastest-growing technology of all, at almost a 90% CAGR, although they will remain a tiny market in 2031 compared with silicon and SiC devices.

Underpinning this shift is the move from 400V to 800/1000V architectures, concentrating rising

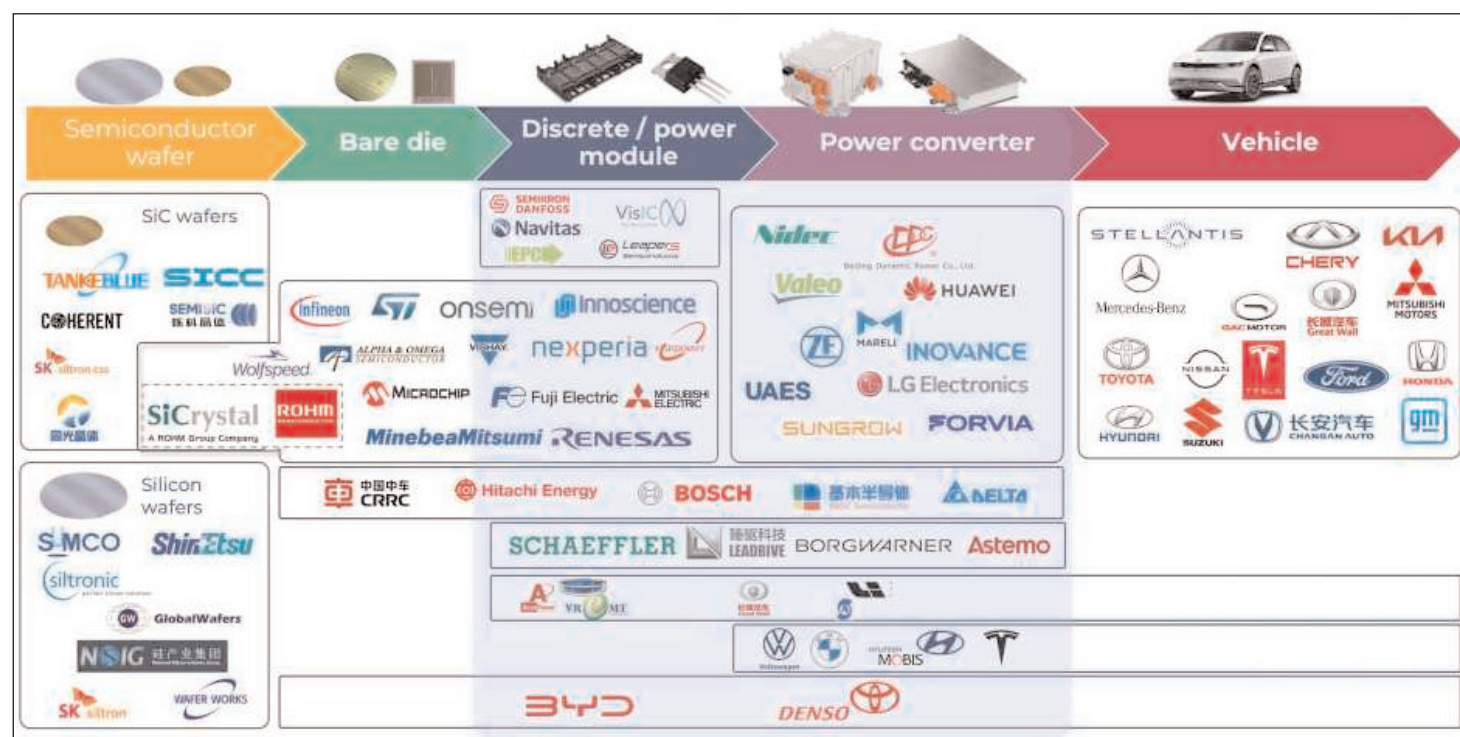
semiconductor value into higher-voltage devices — segments rated 1.2kV and above are growing at a 27.4% CAGR during 2025–2031.

Furthermore, one of the main messages delivered by Yole's analysts is the accelerating consolidation and regionalization of the xEV supply chain.

OEMs, particularly in China, are increasingly bringing traction inverter and e-axis production in-house, while tier-1 suppliers continue consolidating through mergers and acquisitions (M&As).

At the same time, Bosch, Renesas and Rohm are all reassessing their SiC manufacturing footprint amid overcapacity, and licensing and partnership deals continue multiplying as the industry shifts from technical validation to securing capacity and executing at scale.

www.yolegroup.com/product/report/automotive-powertrain-and-electrification-2026---focus-on-power-electronics



Clas-SiC gains £1.9m Scottish Enterprise Capital Grant as part of £12m investment

Funding to enable upgrade of technology and equipment, and training for production staff and apprentices

Clas-SiC Wafer Fab Ltd of Lochgelly, Fife, Scotland — which was founded in 2017 and is the UK's only commercial wafer fabrication facility dedicated to silicon carbide (SiC) — is one of the first recipients of Scottish Enterprise's new Capital Grant, which has been designed to help drive levels of business investment and productivity. As part of a £12m company investment, the £1.9m government grant will support the growth of Scotland's Critical Technologies supercluster.

The funding will enable Clas-SiC to upgrade its technology and equipment, enabling it to keep pace with growing global demand for its silicon carbide power semiconductors, used in electric vehicles and renewable energy systems. Production staff and apprentices will also receive new training as part of the expansion.

"This is a fantastic example of innovation and an ambitious Scottish business driving growth in a competitive global market," com-

ments the Scottish Government's Economy Secretary Stephen Flynn. "Scotland is home to one of the largest semiconductor clusters in the UK. Clas-SiC is a fundamental part of this ecosystem and an asset to Scotland's Critical Technologies supercluster. This supercluster generates £4.5bn turnover annually for the economy and employs over 11,000 people. The Scottish Government is supporting the industry-led ambition to grow this to £10bn with an additional 6600 jobs by 2035," he adds. "Clas-SiC's expansion will safeguard skilled jobs in Fife, strengthen our export base and support the fundamental technologies that will power our transition to a cleaner economy," Flynn says.

"Clas-SiC is investing for the future confidently in one of the most important global industries. The investment will safeguard jobs in Fife, strengthen Scotland's advanced manufacturing base and improve productivity as the

business continues to grow in international markets," says Scottish Enterprise's chief executive Adrian Gillespie. "Clas-SiC's silicon carbide semiconductor technology is making power systems used in everything from electric vehicles to renewable energy systems more efficient. Semiconductors are one of the critical technologies shaping the global economy and Scotland is well placed to make the most of the opportunities this industry presents," he adds.

"This investment is important as it helps accelerate our next generation of technology," states Clas-SiC director & CEO Jen Walls. "The additional capability will strengthen our position on the global stage and improve our ability to meet growing demand in a high-growth sector," she believes. "This funding enhances our available CapEx and maintains our place within the technology leading global supply chain."

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CSconnected unveils awardees for final call of £1m Supply Chain Development Programme

Projects span photonics, RF and power technologies for advanced manufacturing, semiconductor process development and space applications

The South Wales-based compound semiconductor cluster CSconnected Ltd has announced the successful applicants to the fourth and final funding call of its £1m Supply Chain Development Programme, delivered in partnership with Cardiff Capital Region (CCR). The program provides grants of up to £100,000 to help strengthen the compound semiconductor supply chain in South Wales by supporting capability and capacity development, increasing productivity, competitiveness and creating new commercial opportunities.

Supported by the Strength in Places Fund (UK Research and Innovation) and Cardiff Capital Region, the not-for-profit CSconnected organization is the world's first compound semiconductor cluster, and unites leading companies, research institutions and government partners to drive innovation, economic growth, and global leadership in semiconductor technology.

The Supply Chain Development Programme was established to support strategic partnerships between semiconductor companies and their suppliers and customers, helping businesses to develop new technologies, invest in advanced manufacturing capability and bring competitive products and services to market. The program focuses on enhancing the capabilities and competitiveness of businesses across the supply chain and supporting the continued growth of South Wales' compound semiconductor cluster, delivering long-term economic benefits through increased competitiveness, job creation and supply chain resilience.

The five successful projects funded through Call 4 highlight the market-driven capability development taking place across the

UK compound semiconductor ecosystem and its supply chain. The projects span photonics, RF and power technologies for advanced manufacturing, semiconductor process development and space applications.

The successful applicants, supported by CSconnected from application through to delivery, are:

● **NetZero Semiconductors Ltd — TiFLiNS (Development of a South Wales Thin Film Lithium Niobate Supply Chain)**

"The project will establish an initial manufacturing process using proprietary bonding techniques to deliver a range of thin-film lithium niobate (TFLN) wafer solutions that will provide a technology platform to enable photonic integrated circuit solutions for applications in AI connectivity, hyperscale data-center infrastructure and quantum technologies."

● **Ammbro Technologies Ltd — 200mm Electrochemical Etch Tool**

"In collaboration with Swansea University, Ammbro Technologies Ltd plan to install a custom 200mm electrochemical etch tool within the £50m Centre for Integrative Semiconductor Materials (CISM). The ability to modify silicon and compound semiconductor wafers via electrochemical etching will support innovation and market differentiation within the South Wales semiconductor cluster."

● **KuasaSemi Ltd — SPRINT (Small-signal Power & RF Analysis in TCAD)**

"This project will add validated small-signal analysis to KuasaSemi's Aquarius TCAD platform, using sinusoidal steady-state analysis, supporting both RF and power semiconductor devices. The capability enables physics-based extraction of RF parameters;

bias-dependent capacitances and gate charge for gallium nitride (GaN) and silicon carbide (SiC) devices, thus strengthening the South Wales compound semiconductor supply chain."

● **AMF Precision Engineering Ltd — UHV Precision Cleaning Capability Enhancement**

"This project will enhance AMF Precision Engineering's specialist cleaning capabilities to meet the demands of evolving and next-generation semiconductor products. Through investment in advanced cleaning and inspection equipment, the project will establish an ultrahigh-vacuum (UHV) process capability to benefit the CSconnected cluster and the wider UK semiconductor supply chain."

● **Lightricity Ltd — Automated Assembly and Encapsulation of Space Solar Cells**

"This project will drive UK space solar cell production, increasing compound semiconductor epiwafer manufacture within the cluster. Lightricity will develop and implement automated post-processing cell assembly, addressing customer capability gaps. This will increase throughput and reduce costs for more attractive commercial offerings in a very supply-constrained space solar market."

"The projects supported through this fourth and final funding call demonstrate the breadth of specialized expertise and capability within the UK's compound semiconductor supply chain and the value of connecting South Wales with complementary capabilities from across the UK," says CSconnected's business development manager Hazel Hung. "These investments will strengthen regional supply chains, create new commercial opportunities and reinforce South Wales' position ►

► as a globally competitive location for compound semiconductor innovation.”

The completion of Call 4 marks the conclusion of the £1m Supply Chain Development Programme. Across four funding calls, the program supports 11 projects focused on developing capabilities and capacity across the

compound semiconductor ecosystem. From specialist manufacturing equipment and production processes to technology platforms and advanced engineering capabilities, the program has helped to strengthen the competitiveness of businesses across the supply chain and enhance the sector's ability to support future growth.

Through its partnership with Cardiff Capital Region, CSconnected continues to support the long-term growth of the South Wales compound semiconductor sector, driving collaboration between industry, academia and the wider supply chain, helping businesses to innovate and scale up.

www.csconnected.com/projects

UK Semiconductor Centre leads UK delegation to Taiwan Delegation to be at UK Pavilion at SEMICON Taiwan 2026

The UK Semiconductor Centre (UKSC) will lead a delegation of UK semiconductor companies and organizations to SEMICON Taiwan 2026 at TaiNEX in Taipei (2–4 September), reinforcing its role as the gateway to the UK semiconductor ecosystem and strengthening strategic partnerships between the UK and Taiwan.

The delegation to Taiwan will showcase the breadth of UK semiconductor capability across chip design and IP, compound semiconductors, integrated photonics, advanced materials, manufacturing equipment, AI hardware and next-generation computing technologies.

The UKSC is bringing together businesses to help forge new commercial, research and investment partnerships with one of the world's most advanced semiconductor ecosystems.

The visit comes as international collaboration becomes increasingly important to the future of the global semiconductor industry, says the UKSC.

While Taiwan leads the world in



CEO Andy McLean.

semiconductor manufacturing, the UK has complementary capabilities that present significant opportunities for innovation, commercialization and supply chain resilience, it is reckoned.

“The UK and Taiwan both have a long heritage in semiconductors and bring highly complementary strengths to the global semiconductor industry,” says the UKSC’s CEO Andy McLean. “We want to connect UK innovators with Taiwan’s manufacturing expertise and supply chain depth, while helping Taiwanese companies identify technologies, partners and supply chains and create new opportunities for businesses in both markets,” he adds. “I encourage companies, investors, researchers and industry leaders to speak to us whilst we’re in Taiwan and explore how we can work together.”

The mission reflects the UK Government’s ambition to strengthen the country’s position in high-value areas of the global semiconductor value chain. The UK is home to more than 700 semiconductor-related companies generating over £10bn in annual revenue.

UKSC was established in 2025 to accelerate the development of the UK’s semiconductor sector by connecting industry, academia and government, while helping companies to access investment, skills, infrastructure and international markets.

As the UK’s gateway for international engagement, the UKSC works to build strategic partnerships that support innovation, commercial growth and a more resilient global semiconductor ecosystem.

The UKSC-led delegation will be at the UK Pavilion throughout SEMICON Taiwan 2026, where delegates can meet with representatives and explore new opportunities for collaboration between the UK and Taiwan.

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Skyworks' Mobile revenue drop offset by automotive and data-center growth

New capital allocation framework and \$2bn debt financing to support Qorvo merger

For its fiscal third-quarter 2026 (ended 3 July), Skyworks Solutions Inc of Irvine, CA, USA (which manufactures analog and mixed-signal semiconductors) has reported revenue of \$934.8m, down 1% on \$943.7m last quarter and 3.1% on \$965m a year ago, but above the mid-point of the \$900–950m guidance range.

Skyworks' largest customer (Apple) accounted for about 57% of total revenue (down from 63% a year ago, after a 20–25% loss in chip content allocation at Apple which, in February, decided to dual-source a premier RF socket for the iPhone 17).

Mobile product revenue has hence declined by low-single-digits sequentially to about \$541m, comprising 57% of total revenue (down from 62% a year ago). However, the sequential decline is less than the expected Apple-induced 20–25%, due to the content loss being offset by strength in unit-volume at Apple. "In mobile, we executed well in what is seasonally a lighter quarter, with revenue slightly ahead of our expectations, supported by healthy sell-through at our largest mobile customer and strong execution of new product ramps at our largest Android customer," says CEO & president Phil Brace.

Broad Markets product revenue (edge IoT, automotive, industrial, infrastructure, and cloud) was about \$403m, up 8% year-on-year, comprising 43% of total revenue (up from 38% a year ago).

The three growth engines (Wi-Fi, data center and automotive) again represented nearly two-thirds of Broad Markets revenue and collectively grew 15% year-on-year. In particular, data-center business is growing more quickly than Skyworks' previous guidance. This was despite being supply

constrained. "Demand for these products continues to run well ahead of what we can currently supply," notes Brace. "We are actively working to close that gap," he adds. "Offsetting that, we've seen some softness in more of the consumer-exposed [IoT] areas of the Broad Markets business."

On a non-GAAP basis, gross margin has fallen further, from 47.1% a year ago and 45% last quarter to 44.9%, as margins remain pressured by input costs rising more quickly than any cost cutting that Skyworks has been able to make in other areas.

Operating expenses were \$238m, slightly below the midpoint of the \$235–245m guidance as Skyworks continues to fund high-return R&D programs while maintaining tight control over discretionary spending.

Net income has fallen further, from \$200.4m (\$1.33 per diluted share) a year ago and \$173m (\$1.15 per diluted share) last quarter to \$163.7m (\$1.08 per diluted share, but this is above the \$1.03 guidance).

Operating cash flow was \$70.4m. Capital expenditure has risen further, from \$61.4m a year ago and \$82.3m last quarter to \$87.1m, due partly to increasing internal manufacturing capacity but mostly related to planned inventory build ahead of the September mobile ramp for Skyworks' largest customer.

Free cash flow has hence been cut from –\$32m (free cash flow margin of –3.4%) last quarter to –\$16.7m (free cash flow margin of –1.8%).

During the quarter, cash, cash equivalents and marketable securities fell from \$1436.4m to \$813.8m, mainly as a result of retiring \$500m of notes that became due. This reduced debt from \$996.6m to \$497m.

September-quarter revenue to return to growth

For the fiscal fourth-quarter 2026 (to end-September), Skyworks expects revenue to grow to \$1010–1060m.

Broad Markets is expected to grow by about 5% year-on-year, comprising about 39% of total revenue.

Mobile should grow sequentially in the high-teens range (rising to 61% of total revenue), supported by the seasonal ramp of new product launches at Skyworks' largest customer, partially offset by the firm's Android customer (which was very strong in fiscal Q3).

"Demand in Mobile remains solid as we head into the Fall launch cycle," says Brace. "Our book-to-bill is above 1. Inventory in the channel remains lean," notes chief financial officer & senior VP Philip Carter.

Gross margin should be 44–45%. "This reflects the seasonal shift in mix towards mobile as new product ramps reach full volume," says Carter.

Operating expenses should be \$235–245m, as Skyworks continues to invest in its key technology roadmaps.

The rise in input costs is expected to persist. "We are working to offset this through cost reductions and selective pricing adjustments," says Carter.

"Our guidance includes approximately \$5m in incremental net interest expense, or approximately \$0.03 per share, reflecting a partial quarter of financing costs associated with the pending Qorvo acquisition," notes Carter. Skyworks expects diluted earnings per share to increase to \$1.27.

Strong demand in data-center, automotive and Wi-Fi segments

The growth outlook is supported by strong demand in the data-center, automotive and Wi-Fi segments. ➤

Recent business highlights are:

- expanded automotive design-win pipeline, securing telematics and in-vehicle infotainment engagements with leading global OEMs;
- expanded AI data-center design-win pipeline, including precision timing for a hyperscaler switch platform and isolation solutions for 800V HVDC power architectures;
- introduced the latest power and gate-driver technologies, targeting next-generation AI data centers, electric vehicle platforms and industrial high-power applications.

"Wi-Fi 7 adoption continues as AI workloads move toward the endpoint," notes Brace. "Design engagement is strong, backlog is solid. Our early collaboration with customers on Wi-Fi 8 positions us well," he adds.

"In Automotive, the connected car and infotainment are driving growth today, with power and connectivity expanding our footprint over time. We are engaged with global OEMs and tier-one suppliers on multi-year vehicle platforms," Brace says.

"AI data center, our fastest-growing business, is tracking ahead of the 50% annual growth we outlined last quarter, even with supply constraints... We've seen definitely tightness across the board in some of those products that are growing faster," says Brace. "We're engaged with leading customers on two fronts: high-speed connectivity as the industry moves to 800Gb and 1.6Tb platforms, and power as it shifts to 400V and 800V HVDC

architectures. Rising data rates and rack density are driving demand for our precision timing and advanced power delivery solutions. Together, these engines are reshaping the mix of our Broad Markets business and validating the diversification strategy we've been executing," he adds,

Financing plan, combined leadership team, and new capital allocation framework prepared for Qorvo merger

"The balance sheet is well positioned to support the Qorvo transaction," reckons Carter.

"In connection with the transaction, we anticipate raising approximately \$2bn of debt financing in the near term, subject to market and other conditions in preparation for an earlier close," he adds.

"We continue to advance the regulatory process for our pending combination with Qorvo," notes Brace. "We are now optimistic that we can close within the calendar year, and we will be preparing to close as early as within the fiscal year."

In conjunction, Skyworks' board of directors has approved a new capital allocation framework for the combined company. Reflecting the expected robust free cash flow and adjusted EBITDA generation, the framework provides the flexibility to repurchase shares, de-lever the balance sheet, and pursue opportunistic, accretive M&A, to help continue to diversify the businesses.

Accordingly, Skyworks' board has

replaced the stock repurchase program expiring in February 2027 with a new \$2bn stock repurchase program expiring in January 2029, and the company has decided not to declare any quarterly dividends going forward, redirecting that capital toward these higher-return uses. "We expect stock repurchases to be a key vehicle for returning capital to shareholders," says Brace. "This framework returns more value to shareholders over time with far greater flexibility," he adds.

"The steps we're announcing today — our financing plans, the combined company's expected leadership team, and a new capital allocation framework — are about being ready to execute from day one," Brace summarizes.

"The strategic logic of this combination is simple: scale and diversification. In Mobile, we're creating a best-in-class RF portfolio with complementary capabilities that expands our reach across platforms and drives greater revenue stability. In Broad Markets, we're building a larger, more diversified business across defense & aerospace, edge IoT, AI data center, and automotive, a key growth platform for the combined company," says Brace.

"The same scale is what drives our cost opportunity, and we continue to make good progress in integration planning and remain confident in our ability to realize the anticipated synergies of \$500m or more."

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Skyworks and Qorvo announce expected leadership team

Skyworks Solutions Inc of Irvine, CA, USA and Qorvo Inc of Greensboro, NC, USA have announced the expected executive leadership team for the combined company, effective upon completion of the pending transaction.

This follows the firms' agreement last October to merge in a cash-and-stock transaction that values the combined enterprise at about \$22bn, creating a US-based supplier of high-performance RF, analog and mixed-signal semiconductors.

"Our expected leadership team unites deep industry expertise, proven operating experience and a shared commitment to helping customers solve their most complex challenges," says Skyworks' president & CEO Phil Brace, who will serve as chief executive officer of the combined company. "Identifying this team is an important step in

preparing us to move with clarity and conviction after close," he adds. "This group will play a critical role in bringing together the strengths of both organizations, supporting a smooth transition and positioning our combined company to realize the tremendous opportunities ahead."

The following executives are expected to report to Brace as of the closing:

- Philip Carter — chief financial officer & senior vice president;
- Philip Chesley — senior VP & president of High Performance Analog;
- Kari Durham — senior VP, Human Resources;
- J.K. Givens — senior VP & general counsel, Secretary;
- Yusuf Jamal — senior VP & general manager of RF and Mixed-Signal Intelligence Solutions;
- Reza Kasnavi — executive VP, chief operations and technology

officer;

● Joel King — senior VP & general manager of Mobile Solutions Business;

● Todd Lepinski — senior VP, sales & marketing;

● Frank Stewart — senior VP & president of Advanced Cellular.

"Today's announcement reflects the strong partnership that has shaped our integration planning efforts from the very beginning," comments Qorvo's president & CEO Bob Bruggeworth, who is expected to join the board of directors of the combined company post-close. "I am confident these leaders will help foster collaboration across our teams as we build on the engineering excellence, innovation, and customer focus that have long distinguished both organizations."

www.qorvo.com

www.skyworksin.com

Qorvo grows quarterly margin, despite 2.9% revenue drop

Double-digit year-on-year revenue growth in defense & aerospace, infrastructure and power supplement pivot to higher-value cellular

For its fiscal first-quarter 2027 (ended 27 June 2026), Qorvo Inc of Greensboro, NC, USA (which provides core technologies and RF solutions for mobile, infrastructure and defense applications) has reported revenue of \$784.8m, down 2.9% on last quarter's \$808.3m and 4.2% on \$818.8m a year ago.

By business segment, Qorvo's total revenue comprised:

- Advanced Cellular Group (ACG) \$476.6m, down 7% on last quarter's \$512.3m and 16.6% on \$571.2m a year ago.
- Connectivity & Sensors Group (CSG) \$101.9m, down 7.5% on \$110.2m a year ago after divesting the MEMS-based Sensing Solutions business, but up 9.2% on last quarter's \$93.3m.
- High-Performance Analog (HPA) \$206.3m, up 1.8% on last quarter's \$202.7m and 50.1% on \$137.4m a year ago.

Despite the overall revenue decline, there has been double-digit year-on-year revenue growth in defense & aerospace (HPA's largest business), infrastructure, and power.

This is coupled with a "successful pivot in ACG to higher-value placements," notes president & CEO Bob Bruggeworth.

On a non-GAAP basis, gross margin has hence grown further, from 44% a year ago and 52.6% last quarter to 52.8%.

"Qorvo is improving business mix within and across operating segments, reducing capital intensity, and structurally enhancing profitability," says chief financial officer Grant Brown.

Operating expenses have risen slightly from \$235m last quarter to \$236.6m, but this is still less than the \$251.8m a year ago.

Net income was \$146.6m (\$1.64 per diluted share), down from

\$156.8m (\$1.69 per diluted share) last quarter but up on \$86.5m (\$0.92 per diluted share) a year ago.

Operating cash flow was \$139.5m. Capital expenditure \$24.1m (reduced from \$37.5m a year ago). Free cash flow was hence \$115.3m.

Cash and cash equivalents has therefore risen further, from \$1165m a year ago and \$1219m last quarter to \$1329m. Long-term debt remains about \$1549m, with no near-term maturities.

Net inventory has increased again, from \$553.7m to \$592.5m, although this is still less than \$638m a year ago.

"We expect continued strong financial performance throughout fiscal 2027," says Brown. For full-year fiscal 2027, Qorvo continues to expect gross margin above 50% and now expects diluted earnings per share above \$7.00.

www.qorvo.com

Bosch gains \$225m US CHIPS funding for \$2bn transformation of Roseville fab for SiC production

Sample production begun, prior to first commercial chips on 200mm wafers this year

Following a non-binding preliminary memorandum of terms (PMT) signed in December 2024, Germany-based tier-1 automotive supplier Bosch has announced a definitive agreement with the Trump Administration for up to \$225m in direct funding from the US Department of Commerce's CHIPS Program Office to support the up to \$2bn that Bosch is investing to transform its fabrication plant in Roseville, California — acquired as silicon-based application-specific integrated circuit (ASIC) foundry TSI Semiconductors in August 2023 — for the production and testing of silicon carbide (SiC) semiconductors. The Roseville facility has nearly 40 years of experience in the production of semiconductors for automotive and industrial applications, which it will now apply to the production of SiC chips.

In addition, the Roseville site has also been awarded a \$25m California Competes Tax Credit incentive from the Governor's Office of Business & Economic Development (GO-Biz) to support redevelopment and investment in Roseville.

Also, Bosch has begun sample production in Roseville, as it intends to produce its first commercial production chips on 200mm wafers based on Bosch's SiC technology in 2026.

"The start of sample production and our agreement with the Department of Commerce is a milestone in providing our local customers with what they have requested — localized US-based manufacturing," says Paul Thomas, president & CEO of Bosch in North America. "The production of silicon carbide chips in the United States helps to support supply chain resiliency and



capitalizes on the expertise of US manufacturing associates to bring this technology to the US market in a timely manner," he adds.

"The Trump Administration is committed to developing a secure supply chain here in the United States that will enable continued innovation and competitive leadership in industries of national and economic security importance," says Secretary of Commerce Howard Lutnick.

As part of its investment into US manufacturing at the Roseville site, Bosch has developed a new clean-room space and high-tech manufacturing line for production of SiC chips. Bosch says that it has accelerated its time-to-market through investment into a long-standing US-based manufacturing facility with US-based associates who bring specific semiconductor experience.

Bosch plans to invest up to \$7.5bn over the next five years across its operations in the USA as it heads towards its 125th anniversary of US operations in 2031. "We are focused on growth and investment in the United States in order to increase the share of our global portfolio that is represented by North America and the US specifically," Thomas says.

Silicon carbide essential for future mobility & efficiency

"Silicon carbide semiconductors are the enabling technology behind the electrification in multiple critical industries including energy, automotive, and defense. The

CHIPS Program incentive supports Bosch's effort to onshore silicon carbide technology that will bolster supply chain resiliency for our country," says Bill Frauenhofer, executive director for Semiconductor Innovation and Investment at the Department of Commerce.

The Roseville site represents the first semiconductor production site in the USA for Bosch and is one of 20 facilities with manufacturing operations in the USA across the company's broad portfolio. Bosch has about 10,000 staff in manufacturing operations in the USA.

The Roseville site has more than 300 staff, with potential to grow in the future based on market development. Bosch is making local investments to strengthen future semiconductor talent in the USA. Beginning in 2026, it plans to invest more than \$100,000 per year in the Roseville community through the Bosch Community Fund (the regional foundation for Bosch in North America) which, since 2024, has invested \$200,000 in grant awards to schools and non-profits in support of science, technology, engineering, and math (STEM) education initiatives, impacting nearly 1500 students and teachers in the Roseville area.

www.bosch.com

ABB buying SiC-based power conversion firm Advantics

Addition to DC portfolio targets energy expansion & data-center growth

Electrification and automation technology firm ABB of Zurich, Switzerland is acquiring Advantics of Saint-Genis-Pouilly, France, which provides silicon carbide-based power conversion solutions (integrating hardware, firmware and software to optimize performance across demanding applications including data centers, industrial microgrids, power generation and EV infrastructure).

The acquisition expands ABB's direct current (DC) portfolio and positions it to serve accelerating demand for efficient DC solutions. The transaction is expected to close by fourth-quarter 2026.

The IEA expects electricity's share of final energy consumption to rise from 20% now to about 36% by 2035. ABB says that, by using advanced semiconductor technology to control more of this electrical power, its DC solutions minimize

repeated AC/DC conversion and maximize efficiency.

ABB says that the acquisition of Advantics adds a high-efficiency silicon carbide power conversion technology to its broader DC portfolio, strengthening the building blocks needed to design, protect, convert, distribute and manage power in new electrical architectures with higher power density, resilience and efficiency. ABB adds that, combined with its expertise in protection, distribution, digital control and system-level engineering, the acquisition supports the development of DC systems that maximize efficiency, energy storage and flexible power sources.

"We invest continuously in technology and talent to support global energy expansion," says Massimiliano Cifalitti, president of ABB's Smart Power division. "ABB offers industry-leading direct

current solutions, and Advantics' power converter technology and world-class engineering talent are a perfect match, adding compact, high-efficiency capabilities that will strengthen our offering for data centers, industrial microgrids, and EV infrastructure. Together, we will accelerate the development and delivery of next-generation DC solutions," he adds.

"Advantics has proven that silicon carbide technology can deliver breakthrough performance," says Advantics' founder & CEO Michal Elias. The firm's power converter modules are said to deliver up to 99% efficiency. "As the world electrifies, the opportunities for innovation are unprecedented and demand for efficient, intelligent power conversion is accelerating faster than ever before," he adds.

www.advantics.fr

www.abb.com

Infineon CoolSiC MOSFETs & gate drivers for Advantics

Infineon Technologies AG of Munich, Germany is supplying CoolSiC MOSFETs 1200V and matching dual-channel EiceDRIVER 2EDB9259Y gate drivers to silicon carbide (SiC) power electronics and control systems provider Advantics of Saint-Genis-Pouilly, France for its new line of liquid-cooled power converters. The solutions enhance efficiency, power density and reliability in applications such as megawatt charging systems (MCS) for heavy-duty vehicles and vessels, as well as energy storage systems and DC microgrids for data centers. The collaboration helps to address the need for faster charging, robust grid infrastructure and more efficient power conversion.

The electrification of heavy-duty vehicles and vessels could have a great impact on reducing global emissions, yet existing charging infrastructure is often too slow for many industrial vehicles and their



Advantics' power conversion platform.

operational range. Megawatt charging systems address these challenges by offering almost ten times faster charging to accelerate the transition to electric mobility in heavy trucking, mining and marine. Through their collaboration, Infineon and Advantics aim to drive the development of MCS, supporting the electrification of sectors considered difficult to decarbonize.

"We are helping accelerate the deployment of megawatt charging infrastructure," says Rodrigo Marquina, application manager Power Supply and EV Charging at Infineon.

"Our technologies enable more efficient and compact power conversion systems, supporting the next generation of electric transport applications," he adds.

"SiC is the future of high-power conversion," says Advantics' co-founder and director of R&D Anders Mikkelsen. "With almost a decade of experience bringing SiC-based power converters to market, our belief in this technology is stronger than ever. Infineon is an important partner for us on this path."

Advantics' liquid-cooled power conversion platform is based on modular 100kW building blocks, enabling scalable systems up to the megawatt range. They offer bidirectional operation, a wide voltage range up to 1500V and peak efficiency of up to 98.5%, enabling flexible integration with grids, batteries and high-power charging infrastructure.

www.infineon.com/coolSiC

Wolfspeed and LITEON partner on 800VDC power solutions for hyperscale AI data centers

Wolfspeed's silicon carbide technology to be deployed in LITEON's 800VDC power sidecar and compute rack PSU platforms

Wolfspeed Inc of Durham, NC, USA — which makes silicon carbide (SiC) materials and power semiconductor devices — and AI power solutions provider LITEON Technology Corp of Hsinchu, Taiwan have announced a strategic partnership and the qualification of Wolfspeed's silicon carbide technology for deployment within LITEON's 800VDC power sidecar and compute rack PSU platforms. These platforms are designed to support next-generation AI data centers for leading hyperscale customers, with the potential for broader adoption across multiple cloud service provider (CSP) platforms and future deployments.

AI-driven growth is accelerating the industry's transition to 800VDC power architectures as data centers prioritize energy efficiency, power density, scalability, and total cost of ownership in critical applications such as power supply units (PSUs) and battery backup units (BBUs).

Wolfspeed says that its family of silicon carbide MOSFETs enables more efficient power delivery across a wide range of operating conditions, helping power system designers to maximize efficiency while reducing bill-of-materials (BOM) costs and simplifying procurement.

LITEON is collaborating with Wolfspeed to leverage silicon carbide technology and its 200mm SiC manufacturing platform, in support of hyperscale AI infrastructure deployments. The partnership reflects both companies' commitment to delivering highly reliable 800VDC power solutions that can be rapidly deployed at scale while meeting the demanding performance and durability requirements of next-generation AI data centers.

"Our partnership with LITEON demonstrates Wolfspeed's commitment to enabling the rapidly growing AI data-center market through

advanced silicon carbide technology and a robust, scalable supply chain," says Wolfspeed's CEO Robert Feurle. "As hyperscale customers accelerate investments in AI infrastructure, Wolfspeed is uniquely positioned to support the industry's transition to higher-efficiency power architectures," he reckons.

"Integrating Wolfspeed's silicon carbide technology into our 800VDC power architecture strengthens LITEON's ability to meet the performance, efficiency and reliability requirements of next-generation AI infrastructure," says John Chang, general manager, Cloud Infrastructure Platform & Solution SBG, LITEON Technology. "As demand for AI infrastructure continues to accelerate, this collaboration strengthens our ability to support next-generation data-center platforms."

www.liteon.com/en

www.wolfspeed.com

Wolfspeed adds Andy W. Mattes to board

Semiconductor and technology executive brings record of leading global public companies through transformation and growth

Wolfspeed has appointed Andy W. Mattes to its board of directors.

Mattes is a technology executive with more than 40 years of leadership experience in the semiconductor and advanced technology industries.

He previously served as public-company CEO of Coherent and Diebold Nixdorf and has held senior leadership roles at Hewlett Packard, Siemens and McKinsey & Company.

Mattes also has more than two decades of public-company board experience and currently serves on the board of AT&S AG, ams OSRAM AG and Cohu Inc.

Throughout his career, Mattes has built a strong record of strategic leadership, operational excellence and industry relationships, says Wolfspeed. His experience in technology, operations and corporate governance will support its focus on disciplined execution and long-term growth.

"Andy Mattes is a distinguished global technology leader whose experience and strategic perspective will be a tremendous asset to our board," believes CEO Robert Feurle. "His proven leadership and industry expertise will be invaluable during this transformative period for the company as it executes its strategic priorities, reinforces its

market leadership in silicon carbide, and capitalizes on compelling long-term opportunities," he adds.

"Wolfspeed's leadership in silicon carbide addresses critical needs across power electronics, electrification, energy efficiency and advanced industrial applications," comments Mattes. "Robert Feurle and the management team have taken foundational steps over the past year to position the company for continued progress, and I look forward to partnering with the board and leadership team as Wolfspeed advances its strategy and creates long-term value for all stakeholders."

www.wolfspeed.com

Wolfspeed’s device revenue rebound driven by AI data center business

Doubling of full-year AI data center revenue offsets automotive softness

For fiscal fourth-quarter 2026, Wolfspeed Inc of Durham, NC, USA — which makes silicon carbide (SiC) materials and power semiconductor devices — has reported revenue of \$149.6m, roughly level with \$150.2m last quarter but down 24% on \$197m a year ago.

Materials Products revenue has fallen further, by 45% from \$78.4m a year ago and by 13.6% from \$50.1m last quarter to \$43.3m (driven largely by a tightening demand environment and increased competition in the market).

Power Products revenue was \$106.3m, down 10.4% on \$118.6m a year ago but rebounding by 6% from \$100.1m last quarter. This was due to revenue for AI data centers growing 20% sequentially (and more than doubling for the full year, from fiscal 2025 to fiscal 2026), demonstrating the long-term potential of this moderate but growing opportunity. This helped to compensate for softer revenue from the automotive sector.

Business highlights during the quarter included:

- launching fifth-generation SiC MOSFET (running in the 20mm-wafer Mohawk Valley fab after rapid conversion from design-in to volume production), which enables more compact traction inverters, extended electric vehicle (EV) driving range, right-sized battery systems and improved EV charging infrastructure, as well as addressing industrial power supply applications that demand leading edge performance (including AI data-center power supplies, solid-state transformers, and renewable energy conversion);
- announcing a memorandum of understanding with GE Aerospace to collaborate on accelerating

the adoption across industrial, aerospace and defense markets of high-voltage silicon carbide, including Wolfspeed supplying the industry’s first commercially available 10kV SiC MOSFET, which was named ‘Top Innovation’ at the Power Conversion and Intelligent Motion (PCIM 2026) conference;

- deepened and diversified strategic automotive customer relationships, including partnering with a leading European tier-1 supplier and Toyota;

- started shipping engineering samples of 300mm substrates to initial customers.

Margins and cash burn improved Compared with –1% a year ago, gross margin (on a non-GAAP basis) was –19.9% in fiscal Q4/2026. However, this is a further rebound from –34% in fiscal Q2 then –20.6% in fiscal Q3, driven primarily by a more favorable product mix, including higher industrial & energy (I&E) sales in Power and higher RF sales in Materials. “Under-utilization continues to be the primary driver of our gross margin profile, and improving factory utilization remains one of the most important levers to drive margin expansion,” notes chief financial officer Gregor van Issum.

“We have also made great strides with our operational excellence initiatives,” says van Issum. “We continue to focus on producing the same revenue with less capacity consumed. These continued efforts position us to keep expanding our earnings potential per dollar of invested capital, even if it makes the reported under-utilization appear larger.”

Operating expenses were \$62.3m, cut from \$92.6m a year ago, but up slightly on \$61m last quarter due largely to continued investment in R&D and marketing-related expenses.

Net loss has been cut further, from \$128.2m last quarter to \$116.9m (\$2.26 per diluted share), below the \$119.8m (\$0.77 per diluted share) a year ago.

Operating cash flow has improved further, from –\$242.5m a year ago and –\$83.8m last quarter to –\$54m, which included a \$41m benefit from a further reduction in inventory levels.

Capital expenditure was only \$5m, cut from \$38m last quarter and \$210.1m a year ago.

Free cash flow has therefore improved further, from –\$454m a year ago and –\$90m last quarter to –\$60.9m.

FISCAL 4Q26 HIGHLIGHTS

	Delivered FY26 Q4 revenue of \$150 million, in line with guidance midpoint
	AI data center revenue more than doubled year on year and increased ~20% sequentially
	Launched fifth-generation SiC MOSFET
	10kV MOSFET named “Top Innovation” at PCIM and Memorandum of Understanding with GE Aerospace
	Initiated 300mm substrate engineering samples to customers
	Deepened and diversified strategic automotive customer relationships; partnering with a leading European tier 1 supplier and Toyota
	Appointed Andy Mattes to the Board of Directors and launched dedicated data center solutions team in Silicon Valley

FY26 Q4

FINANCIAL HIGHLIGHTS*Financial discipline while investing in technology leadership*

Income Statement & Cash Flow	Revenue \$150M	Adj. EBITDA ¹ \$(62)M	Op. Cash Flow \$(54)M
Balance Sheet	Cash \$1.1B	Gross CapEx \$5M	Net Debt ~\$600M

Driven primarily by the continued reduction of inventory levels, changes in working capital contributed about \$23m to cash.

During the quarter, cash, cash equivalents and short-term investments overall fell further, from \$1165m to \$1088m. However, this is still an improvement on \$955.4m a year previously.

"We are aggressively targeting initiatives to further reduce our debt and cost of capital as well as enhance our financial positioning," says van Issum. During the quarter, Wolfspeed's capital structure further improved as holders of \$46m of the firm's 2L convertible notes exercised a voluntary conversion of their debt to equity. This debt principle decrease resulted in \$1m of annual interest expense savings. Net debt was about \$600m at the end of the quarter.

September-quarter outlook

For fiscal first-quarter 2027 (to end-September 2026), Wolfspeed expects revenue of \$140–160m, driven by continued growth in the device business.

Gross margin is expected to remain negative. Operating expenses should be \$62–66m.

"We continued to expand our device business, highlighted by strong growth in AI data-center applications and the launch of our fifth-generation SiC MOSFET," says CEO Robert Feurle. "These achievements strengthen our technology leadership and confidence in our long-term growth opportunities."

In early June Wolfspeed launched a dedicated data-center solutions team, based in Silicon Valley, to capitalize on and supplement growth in the fastest-growing

end-market and a strategic collaboration with LITEON Technology.

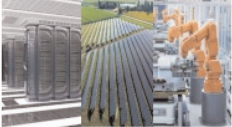
"Our investment and focus on AI data-center applications is gaining momentum, reflected in both revenue growth and expanding customer traction," says Feurle. "We continue to see encouraging progress as new design wins ramp at leading power supply companies, including LITEON, MACOM, and others, to support multiple hyper-scaler customers. These wins span both established and emerging HVDC AI architectures," he adds.

"Transition to 800V architectures is increasing silicon carbide content across the data-center power ecosystem. As these next-generation power architectures become a critical enabler of AI infrastructure, hyperscaler customers are placing greater emphasis on system efficiency, quality and supply assurance. Beyond AC/DC power supplies, we are seeing opportunities emerge across battery backup units, super-capacitors, eFuses, and high-voltage DC-to-DC conversion," Feurle continues.

"We are also pursuing opportunities on the secondary side of high-voltage DC-to-DC conversion systems, which could further expand our addressable market over time. While the market remains in its early stages, we believe our technology leadership and available manufacturing capacity position us well to participate in this long-term growth opportunity. With industry-leading SiC technology and differentiated vertically integrated 200mm manufacturing capability, we are well positioned to support this transition as AI data-center adoption continues to scale."

www.wolfspeed.com

APPLICATION-FOCUSED GO-TO-MARKET**GAINING TRACTION***Positioning Wolfspeed for growth as end-market demand accelerates*

Automotive	Industrial & Energy	Aerospace & Defense	Materials
✓ Awarded business from tier 1 European supplier, supporting OBC for large German OEM ✓ Deepening Toyota partnership ✓ Gen 5 MOSFET addresses cost and efficiency pressures faced by auto OEMs ✓ Clear competitive advantages as auto applications shift to higher voltage architectures (800V+)	✓ Grew AI data center revenue 20% QoQ and doubled during FY26 ✓ Announced strategic collaboration with LITEON Technology ✓ Gen 5 MOSFET delivers leading edge performance ✓ TOLT portfolio purpose built for AI and AI adjacent infrastructure	✓ Growth supported by electrification and increasing demand for secure, domestic supply chains ✓ Partnering with GE Aerospace to supply 10kV SiC MOSFET ✓ Working with a leading eVTOL manufacturer to power next-gen electric aviation platforms	✓ Continuing to qualify customers on 200mm, supporting transition away from 150mm as AI data center adoption scales ✓ Shipping 300mm samples to customers for potential use in next-gen AI and HPC packaging
			

NoMIS demos 6.5kV large-die SiC MOSFET

Progress made on high-voltage roadmap to 10kV SiC MOSFETs and 20kV SiC IGBTs

NoMIS Power Corp of Albany, NY, USA — which was spun off from State University of New York Polytechnic Institute (SUNY Poly) in 2020, and develops silicon carbide (SiC) technologies for medium- and high-voltage power conversion — has demonstrated its first 6.5kV large-die SiC MOSFET. The device was measured at over 8kV blocking, 90mΩ on-resistance, and 55A drain current. The result extends NoMIS Power's proven planar SiC device technology from its established 3.3kV devices into the high-voltage class, and establishes a demonstrated path toward its forthcoming 10kV MOSFETs and 20kV SiC IGBTs.

US-designed SiC roadmap: shipping today and demonstrated for tomorrow

NoMIS Power's high-voltage SiC roadmap spans three stages — 3.3kV in production and 6.5kV sampling, with 10kV in development:

● 3.3kV — available now.

The complete 3.3kV SiC MOSFET family is in production, spanning 80mΩ (34A), 50mΩ (55A) and 25mΩ (105A) devices in TO-247-4L-HC and bare die, complemented by 50–160mΩ SiC bi-directional switches and a 500A half-bridge power module.

● 6.5kV — sampling now to US-based customers.

The demonstrated large-die SiC MOSFET is sampling now for evaluation and anchors an expanding 6.5kV line, adding on-resistance

variants, small-die devices, hybrid junction-barrier Schottky FET (JBSFET) devices, and standalone diodes. JBSFET construction prevents body diode degradation issues, making it very robust for critical applications. Target applications include high-voltage direct current (HVDC), solid-state transformers, pulsed power, rail traction, and MW-scale EV charging. Standard production 6.5kV parts are scheduled for fourth-quarter 2026 and will be available to commercial customers.

● 10kV and above — in development, sampling in Q4/2026.

The pipeline includes MOSFETs, diodes, hybrid (JBSFET) devices, and SiC insulated-gate bipolar transistors (IGBTs) targeting grid-scale HVDC, next-generation traction, and advanced pulsed power, extending the roadmap toward 20kV.

"Demonstrating 6.5kV blocking to over 8kV proves our planar SiC platform scales cleanly from the 3.3kV devices shipping today into the high-voltage class," says co-founder & CEO Dr Adam Morgan. "High-voltage SiC is becoming foundational to data-center, grid, aerospace and defense power systems, and it should be built at home — we're building the domestic source the industry can qualify against, from 3.3kV and 6.5kV today to 10kV MOSFETs and 20kV SiC IGBTs on our roadmap."

US-based, domestic source of high-voltage SiC

For programs dependent on a single supplier of high-voltage SiC, NoMIS offers a domestic alternative.

The firm's devices are US-designed, ITAR- and DFARS-aware, and available through various foundry options, and its SiC is already specified into US government-funded programs such as US Department of Energy and Department of War programs. The company supports device qualification and design-in — including form-fit-function-compatible devices and support for existing high-voltage SiC platforms — to reduce single-source risk and strengthen continuity of supply for mission-critical programs. NoMIS designs SiC devices, packaging and power modules at its facility within the Albany Nanotech Complex in Albany, New York.

Availability and engagement

The 6.5kV large-die SiC MOSFET is sampling now to US-based customers for evaluation, with standard production parts scheduled for Q4/2026. NoMIS is engaging system developers on design-in, custom current ratings, and packaging. Teams evaluating high-voltage SiC for HVDC, solid-state transformers, pulsed power, traction, high-power charging, or aerospace & defense platforms can contact NoMIS Power to align to the 6.5kV, 10kV and 20kV roadmap.

www.nomispower.com

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WeEn launches 1200–2300V SiC power modules

WMSC family offers enhanced efficiency, reliability and flexibility for PFC and DC–DC SSTs applications

WeEn Semiconductors of Shanghai, China — a joint venture company formed by NXP Semiconductors and Beijing JianGuang Asset Management Co Ltd (JAC Capital) in 2015 that develops and manufactures bipolar power semiconductor products — has launched a new family of AC–DC and DC–DC silicon carbide (SiC) power modules to target the growing range of solid-state transformer (SST) applications, as well as electric vehicle (EV) super-chargers and smart-grid/renewable applications.

SSTs offer conversion efficiencies in the region of 98%, and over 20 high-efficiency, high-reliability modules have been developed at the time of launch. These are available in an array of packages and with voltages ranging from 1200V to 2300V, $R_{DS(on)}$ values as low as $1.5m\Omega$, and customer-specific configurations can also be created.

Module configurations have been created to cater for a huge array of SST applications, including grid PFC for the latest generation of AI racks, enabling conversion from 35kVAC to 800VDC in a single stage. This



includes 3-level topology modules for enhanced EMI performance (e.g. WMSC5R0N17B3T) and 2-level devices for easier control and smaller footprints (e.g. WMSC5R0F23B3T).

Similarly, a wide range of half-bridge modules for LLC/DAB primary and secondary applications has also been announced, with packaging options that include B2, B3 and 62mm screw-mount housing.

All modules in the family offer low inductance and have been developed with both design flexibility and layout simplicity in mind. They feature a pin order that both leaves space for the gate driving circuit while also considering device integ-

ration and electrical safety.

A range of options for the modules is also available, including for the direct bonded copper, case, and silicon-gel material, as well as the mount, pin type, plating and thermal-interface material pre-application service. These

are available via the company's collaborative custom design team.

"The new WMSC modules cover roughly 90% of all SST applications, and these are also ideally suited to the smart grid, renewables and other high-voltage systems," says president Kevin Shen.

"They are a significant breakthrough for the industry and offer higher switching speeds and higher breakdown voltages, which in turn allows for direct connection to the medium-voltage grid as well as reduced magnetics, higher efficiencies and simplified cooling."

All modules are available for sampling and in production quantities.

www.ween-semi.com/en

Munich Court bars Innoscience from importing products into Germany that infringe Infineon's patent

Innoscience ordered to pay damages to Infineon

The District Court Munich (Landgericht München I) has ruled in favor of Infineon in another patent infringement case concerning gallium nitride (GaN) technology between it and China-based Innoscience (Suzhou) Technology Holding Co Ltd (which manufactures GaN-on-silicon power chips on 8" silicon wafers).

The case concerns what is claimed to be the unauthorized use of Infineon's patented GaN technologies by Innoscience. With the latest rulings, the court prohibits

Innoscience from importing, selling and marketing patent-infringing products in Germany. Furthermore, the court has ordered Innoscience to pay damages to Infineon.

Infineon says that the judgement marks another legal defeat for Innoscience in a series of court cases, each of which found that Innoscience's products infringe Infineon's patents.

Courts and authorities in both Germany and the USA have repeatedly concluded that Innoscience's products infringe Infineon's

intellectual property rights.

Prior rulings include the decisions against Innoscience recently on 18 June, and previously on 1 August 2025, in earlier German proceedings. Furthermore, on 7 May, the Full Commission of the US International Trade Commission (ITC) found that Innoscience had infringed an Infineon patent in the field of GaN technology. Additional proceedings regarding the infringement of other Infineon patents are pending in the USA.

www.infineon.com

Navitas to acquire power management firm Claros

Vertical power delivery and integrated voltage regulator technology to complete grid-to-xPU high-power portfolio for AI infrastructure

Gallium nitride (GaN) power IC and silicon carbide (SiC) technology firm Navitas Semiconductor Corp of Torrance, CA, USA has signed a definitive agreement to acquire power management solutions company Claros Inc of McLean, VA, USA — which is developing vertical power delivery (VPD) and integrated voltage regulator (IVR) technology for next-generation AI data centers — in a transaction valued at up to about \$232.8m, based on the per-share closing price of Navitas' stock on 21 August.

Claros was founded in 2024 and is backed by Red Cell Partners, General Catalyst, Systemiq Capital, VIPC, and other investors.

The acquisition would extend Navitas' AI infrastructure portfolio from the grid all the way to the xPU by bringing VPD and IVR capabilities that can directly power the high-current, high-speed processors at the heart of modern AI systems.

Today's most advanced AI xPUs, GPUs, CPUs, TPUs, NPU's and other accelerators are running into a fundamental limit, notes Navitas. Compute itself is not the bottleneck; it is the power delivery.

Paving the way for accelerated replacement of silicon by GaN and SiC high-power technologies (the core focus of Navitas 2.0), the new 800V high-voltage direct current (HVDC) architecture has started to address this problem, enabling higher-density power architecture and racks. However, on the last step, traditional voltage regulator modules (VRMs) push power sideways across the board and, as xPUs demand thousands of amps and near-instant response times, this lateral approach hits what Navitas refers to as a 'power wall'. Bandwidth and compute performance are constrained by the limitations of existing power delivery systems.

Through the combination of Navitas and Claros, the firm

expects to break through that wall all the way from grid-to-xPU. Claros' VPD and IVR technologies stack power conversion, drive, control and passives into a single, compact package. By placing this solution directly beneath or inside the chip package or printed circuit board, power travels only millimeters instead of inches. The result is ultra-fast transient response, dramatically lower impedance, higher efficiency at sub-volt levels, and the power density required for the next generation of AI compute, says Navitas.

Navitas reckons this technology solution will be highly complementary to its GaN and high-voltage and ultra-high voltage SiC portfolio, which enables the new 800V HVDC architecture, extending the high-density AI rack architecture in the first steps of the power conversion all the way to the core.

"The future of AI depends on delivering thousands of amps to increasingly power-hungry processors with unprecedented speed and precision," says Navitas' president & CEO Chris Allexandre. "The 'power wall' currently restricts next-gen xPUs in megawatt-scale server racks from achieving the next wave of AI performance.

Combining Claros' VPD and IVR technologies with Navitas' GaN and high-voltage and ultra-high-voltage SiC portfolio, we break the AI

infrastructure power wall, advancing the entire power chain from grid-to-xPU," he adds. "This acquisition follows our Navitas 2.0 transformation and significantly expands our addressable market, deepens our engagement with hyperscalers and AI power platform providers, as well as strengthens our leadership in AI infrastructure in terms of both capabilities and product solutions offering. As AI power demand accelerates, we are uniquely positioned to deliver greater value for our customers, while driving sustainable long-term growth," Allexandre continues.

"Since we launched Claros in 2024, we've moved to rapidly redefine the AI data-center power system," says Claros' co-founder & CEO Dan Kultran. "Navitas is an ideal partner to enable a complete grid-to-xPU power portfolio, deepen and expand our engagement with leading xPU and power customers, and accelerate our next phase of growth. Our companies share a fast-paced, highly innovative culture and a commitment to advancing breakthrough power technologies for years to come," he adds. .

"Our integrated voltage regulator technology brings power conversion millimeters from the xPU, reducing board-level distribution losses, lowering heat generation, and improving the efficiency of processor-level power delivery. For AI accelerators and high-performance processors, this close-to-chip approach, with Claros' IP in VPD array architecture, can enable higher compute density, lower operating costs, and more efficient deployment of next-generation AI infrastructure."

Together, Claros' VPD and IVR technologies also broaden Navitas' technology, engineering and IP capabilities with deep expertise in digital control, passive integration, advanced 2D/3D packaging, and

Our integrated voltage regulator technology brings power conversion millimeters from the xPU, reducing board-level distribution losses, lowering heat generation, and improving the efficiency of processor-level power delivery

what is claimed to be leading-edge power and analog mixed-signal technologies, while also adding standalone digital and controller solutions that complement Navitas' GaN portfolio.

When completed, the acquisition is expected to more than double Navitas' identified 2030 serviceable available market (SAM) to over \$8bn, adding at least \$3.5bn from the rapidly growing VPD and IVR markets. Combined with Navitas' existing \$3.5bn SAM for GaN and HV/UHV SiC and about \$1bn from new junction field-effect transistor (JFET) technology, the acquisition is expected to significantly expand Navitas' opportunity across the complete grid-to-xPU power chain.

Navitas says that its current short- to mid-term financial model and strategy, under its Navitas 2.0

transformation, remain unchanged. Claros' VPD and IVR technologies provide an additional growth accelerator from 2028/2029 onward alongside Navitas' organic 800V HVDC GaN and SiC growth in AI infrastructure. Navitas adds that it remains committed to its path toward profitability and does not expect a material change from its previous timeline.

Transaction structure

The transaction value of up to about \$232.8m comprises about \$216m to be paid at closing in a combination of cash and shares of Navitas' Class A common stock, par value \$0.0001 per share, with the remainder to be paid in shares of common stock on the achievement of certain business milestones during the two years following the closing date. The value of shares comprising

the merger consideration was determined based on the closing share price on 21 August, which was \$12.97 (the reference price).

In addition, certain continuing Claros employees will be eligible to receive performance-based compensation under Navitas' equity incentive plan, payable in shares of common stock, having a value of about \$28.9m based on the reference price, and based on the achievement of these same business milestones. The transaction has been unanimously approved by the boards of directors of both companies and is expected to close before year-end, subject to customary closing conditions, including applicable regulatory approvals.

<https://claros.tech/>
www.navitassemi.com

Navitas and Magnachip partner to accelerate high-voltage and ultra-high-voltage silicon carbide adoption

GeneSiC Gen 4 and Gen 5 SiC license spans 1200V, 2300V, 3300V and higher voltages

Gallium nitride (GaN) power IC and silicon carbide (SiC) technology firm Navitas Semiconductor Corp of Torrance, CA, USA and South Korea-based Magnachip Semiconductor Corp (which designs and manufactures of analog and mixed-signal power semiconductor platform solutions) have announced a strategic partnership to accelerate adoption of SiC technologies in high-voltage (HV) and ultra-high-voltage (UHV) power markets.

Magnachip will license Navitas' GeneSiC Trench-Assisted Planar (TAP) technology to enter the HV and UHV SiC markets. The license spans 1200V, 2300V, 3300V and higher-voltage GeneSiC Gen 4 and Gen 5 technologies, enabling Magnachip to build on Navitas' proven SiC device platforms for next-generation power conversion applications.

It will also gain access to Navitas' SiC supply chain and materials

ecosystem, supporting faster market entry. At the same time, the technology is planned to be ported, qualified and internalized at Magnachip's fab.

The firms expect this approach to help accelerate Magnachip's entry into SiC while maintaining continuity with Navitas' established technology and materials base. The licensed technologies are expected to support next-generation applications including energy and grid infrastructure, energy storage, industrial electrification, automotive and other high-power systems.

The agreement also encompasses broader engagement beyond SiC. Additional areas of partnership are expected to be detailed and announced later.

"This strategic partnership with Magnachip reflects our long-term vision to broaden GeneSiC adoption across high-voltage and ultra-high-voltage power markets,"

says Navitas' president & CEO Chris Allexandre. "By licensing our proven GeneSiC technologies and supporting Magnachip through our supply chain and materials ecosystem, we are creating a path to scale advanced SiC solutions more rapidly while enabling a deeper, long-term collaboration between our companies," he adds.

"This agreement opens an important new market opportunity for Magnachip in high-voltage and ultra-high-voltage SiC," says Magnachip's CEO Chae Lee. "The addition of GeneSiC technology complements our existing MOSFET and power semiconductor portfolio and positions Magnachip to serve customers that require higher efficiency, higher voltage capability and more reliable power conversion solutions," Lee concludes.

www.magnachip.com
www.navitassemi.com

Navitas' Q2 revenue grows 22% sequentially as high-power sector rises 50% year-on-year

For second-quarter 2026, gallium nitride (GaN) power IC and silicon carbide (SiC) technology firm Navitas Semiconductor Corp of Torrance, CA, USA has reported revenue of \$10.5m, down on \$14.5m a year ago but up 22% on \$8.6m last quarter, and at the upper end of the \$9.5–10.5m guidance range.

"Our second quarter results reflect the company's continued strong momentum and growth in high-power markets," says chief financial officer Tonya Stevens. Revenue from high-power markets grew over 50% year-on-year, driving gross margin expansion.

On a non-GAAP basis, gross margin has grown further, from 38.5% a year ago and 39% last quarter to 39.5%.

Operating expenses have been cut from \$16.1m a year ago to \$15.5m.

Net loss has been cut from \$9.8m both a year ago and last quarter to \$9.3m.

Cash and cash equivalents have been boosted from \$236.9m at the end of 2025 and \$221m at the end of March to \$557.4m at the end of June after raising about \$373m in capital during Q2/2026.

"Our strong second quarter results and expectations for continued double-digit quarterly growth in the second half of the year demonstrate the increasing traction of our strategic shift to Navitas 2.0 and focus exclusively on high-power markets," says president & CEO Chris Allexandre.

Recent business, customer and technology highlights are cited as:

- introducing the isolated TO product family, purpose-built for 1.2kV to 3.3kV SiC MOSFETs, enabling direct-cooled thermal management and delivering module-like performance in a compact discrete form factor;

- expanding the existing SiC portfolio with newly introduced 1.2kV JFET product line, to be released by early 2027 — initially targeting AI data centers, solid-state transformer and

energy grid infrastructure applications, which are estimated to represent an incremental \$1bn serviceable available market (SAM);

- deepened collaboration with NVIDIA's MGX Ecosystem in support of accelerating 800V DC rack architectures for next-generation AI data centers with the demonstration of a 800V-to-6V DC-DC power delivery board at COMPUTEX 2026;
- continued advancement of growing engagements for both SiC- and GaN-based high-power solutions in support of numerous customers' design programs and architectures across AI infrastructure, including next-generation applications in AI data centers and grid and energy infrastructure.

"With the rapid adoption of AI, we are seeing accelerated market demand to overcome critical power bottlenecks in AI infrastructure, both within AI data centers as well as the requisite grid and energy infrastructure needed to power them," says Allexandre. "By the end of the year, Navitas will complete its transition with revenue from mobile and low-end consumer being insignificant and nearly all sales coming from high-power markets," he adds.

"Underpinning our growing momentum is Navitas' unique ability to deliver high-power products with both GaN and high-voltage SiC technologies, enabling the distinct power requirements across AI infrastructure applications. We are seeing an expanding backlog, record level book-to-bill, and shipping volume production samples of our GaN- and SiC-based solutions in support of multiple customer new program ramps. These production samples across GaN, HV SiC and UHV SiC include shipments in support of existing customer engagements for next-generation AI data centers targeting 800V architectures. We expect selected hyperscalers and XPU platforms to ramp in 2027 as well as accelerated uptake of new grid infrastructure

products. As we execute toward a series of inflection points that will drive explosive GaN and SiC content growth in years to come, we are confident in Navitas' ability to capitalize on the substantial and growing market opportunity for high-power solutions," Allexandre says.

"We capitalized on the opportunity to further strengthen the balance sheet — ending the quarter with \$557m in cash, increasing our flexibility to make focused strategic investments in our portfolio and capacity expansion as well as support accelerated market penetration across AI infrastructure," notes Stevens. "We expect to deliver continued double-digit sequential growth in the third quarter, which will also represent a return to year-over-year revenue growth as well as position the company to achieve mid-single-digit revenue growth for the full year, highlighting the completed transformation to Navitas 2.0 as a high-power company."

Third-quarter 2026 revenue to grow 28%

Navitas expects third-quarter 2026 revenue to grow to \$13.5m ± \$0.5m (up 28% sequentially at the mid-point). Gross margin should rise to 39.7% ± 100 basis points (up 20 basis point at the mid-point). Operating expenses are expected to be \$15.5–17.5m.

The strong order backlog and demand also support continued double-digit revenue growth in Q4, contributing to expected mid-single-digit revenue growth for full-year 2026, while simultaneously having substantially exited the mobile market and completing the Navitas 2.0 transition to a high-power company.

In particular, AI infrastructure markets (including AI data centers and grid and energy infrastructure) will represent more than a third of revenue by year-end, and generate strong momentum into 2027, reckons Navitas.

www.navitassemi.com

Navitas files patent infringement lawsuit against Renesas

Renesas' major GaN product lines alleged to infringe four Navitas patents

Gallium nitride (GaN) power IC and silicon carbide (SiC) technology firm Navitas Semiconductor Corp of Torrance, CA, USA has filed a patent infringement lawsuit against Renesas Electronics Corp of Tokyo, Japan in the US District Court for the Eastern District of Texas.

"Navitas is an early GaN innovator and leader that is successfully capitalizing on the substantial and growing market opportunity for high-powered solutions," says Navitas' president & CEO Chris Alexandre. "We pioneered bringing GaN technology to scale. We've heavily invested in R&D in both GaN and high-voltage SiC and have protected our proprietary innovations through robust intellectual property," he adds. "We respect valid intellectual property rights and we expect our

competitors to do likewise."

The lawsuit asserts that Renesas' major GaN product lines, including its SuperGaN power semiconductors, infringe Navitas' GaN patent portfolio, including US Patent Nos. 9,929,079; 11,545,838; 11,770,010; and 11,862,996.

Navitas says that its momentum in delivering high-power products for AI infrastructures, composed of AI data centers and the energy grid infrastructure that powers them, recently led to its strong second-quarter 2026 results, with revenue growth expected to accelerate in the third quarter as the company pivots towards its Navitas 2.0 vision.

Navitas claims that it built its business through independent research, engineering excellence and investment — developing tech-

nologies backed by a robust global intellectual property portfolio of more than 300 patents issued or pending.

Since its founding in 2014, Navitas has developed wide-bandgap technologies with applications spanning AI data centers, energy and grid infrastructure, performance computing, and industrial electrification.

"By bringing this action to defend our intellectual property, we are standing up for our employees, customers and partners, as well as the principles of fair competition and rewarding innovation that are critical to the power semiconductor market as a whole," Alexandre says.

www.renesas.com/power
www.navitassemi.com

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V-GaN Tech Hub opens new test and characterization facility to accelerate microelectronics from lab to fab

Facility to provide access to advanced testing and expert support

On 23 July, the Vermont Gallium-Nitride (V-GaN) Tech Hub hosted an open house to showcase its new Test and Characterization Facility (TCL), which is described as a critical resource for accelerating the transition of advanced semiconductor technologies from development to commercial deployment.

The open house provided industry leaders, innovators, government stakeholders, and community members with an opportunity to tour the facility, see equipment demonstrations, and learn how the V-GaN Tech Hub is strengthening the USA's semiconductor ecosystem.

Located at 435 Community Drive in South Burlington, the facility fills a key gap in the USA's microelectronics infrastructure by providing companies with access to the specialized equipment, technical expertise, and validation services needed to move cutting-edge technologies from the lab, to manufacturing, and ultimately into real-world applications.

The V-GaN Tech Hub is a federally designated Economic Development Administration (EDA) Tech Hub founded in 2023 by the University of Vermont, the State of Vermont, and GlobalFoundries. Its mission is to accelerate the commercialization of gallium nitride (GaN) technologies and establish the Northeastern USA as a leading destination for next-generation microelectronics innovation.

"This facility was designed with input from semiconductor developers across our region to provide resources for high-power testing capabilities that are currently inaccessible to innovators," says the Tech Hub's regional innovation officer Doug Merrill. "We expect the lab to accelerate the application and innovation of wide-bandgap microelectronics across the nation," he adds.



V-GaN Tech Hub's regional innovation officer Doug Merrill.

Emerging GaN applications include advanced motor controllers, data-center power systems, battery management technologies, electric power inverters, radar systems, wireless communications infrastructure, and next-generation satellite communications devices.

The Test and Characterization facility is funded by the Northeast Microelectronics Coalition (NEMC), a division of the Massachusetts Technology Collaborative (MassTech) and one of eight regional hubs within the Microelectronics Commons program. The facility will provide access to advanced testing capabilities and expert support that are often beyond the reach of both emerging and larger technology companies.

"No single organization can address the region's microelectronics challenges alone," says NEMC director Mark Halfman. "The opening of the V-GaN Test and Characterization Facility demonstrates what can be accomplished when regional coalitions jointly collaborate with industry, academia and government," he adds. "This facility adds critical capabilities to our network, enabling innovators to transition high-power and RF innovations faster from prototype to production."

As demand for these technologies grows, developers face increasing challenges in validating performance, reliability and compliance before products can enter the market. As the first publicly accessible facility in the USA, the TCL was specifically designed to address this need.

The TCL will offer V-GaN Tech Hub and NEMC members access to both state-of-the-art equipment and dedicated engineering expertise. Companies will work directly with facility staff to define objectives, develop test plans, conduct evaluations, and interpret results, enabling faster and more informed product development decisions.

High-power device testing equipment is already on site; the facilities services will be available to members beginning in August. High-frequency testing capabilities are scheduled to come online in early 2027, expanding support for advanced communications, radar, and other radio-frequency applications.

The facility is staffed by a full-time test engineer and is intended to lower barriers to access for firms working to bring breakthrough microelectronics technologies to market.

www.vgan.tech
www.nemicroelectronics.org
www.masstech.org

Power Integrations demonstrates first 2200V GaN technology for high-voltage power systems

First 2200V PowiGaN technology enables higher power density, greater efficiency and safer and simpler system architectures

Power Integrations Inc of San Jose, CA, USA (which provides high-voltage integrated circuits for energy-efficient power conversion) says that PowiGaN gallium nitride (GaN) technology is now rated at up to 2200V, far exceeding the voltage capabilities of all other commercially available GaN technologies, it is claimed. This positions PowiGaN as the leading technology solution for high-voltage data centers, electric vehicles (EVs), renewable energy and HVDC infrastructure as they leverage higher-voltage bus architectures in search of greater power density, the firm adds.

"Our 2200V PowiGaN technology provides substantial voltage margin for emerging high-voltage power systems while enabling the high switching frequencies required to maximize power density," says president & CEO Jennifer Lloyd. "Emerging applications include next-generation AI data centers, where industry roadmaps point toward 1500 V distribution architectures, as well as future EV battery and auxiliary power systems operating at increasingly higher output voltages (48V)," she adds. "This milestone breakthrough extends the reach of GaN into voltage ranges traditionally served by SiC [silicon carbide], enabling a compelling high-frequency alternative for applications such as solar, HVDC and advanced industrial power conversion."

Due to their higher efficiency and switching frequencies, GaN power switches are steadily supplanting silicon transistors in a wide range of power conversion applications, notes the firm. However, GaN technology must keep pace with data center, EV, renewables and HVDC

infrastructure roadmaps calling for higher voltages and greater power density. Alternatives include lower-frequency silicon carbide or arrays of stacked, lower-voltage GaN devices that require compromises on power density, complexity and reliability.

PowiGaN ICs rated at 1700V are already being designed into single-stage data-center auxiliary power applications, while 1250V PowiGaN offers a simpler alternative to stacked solutions in the main power path in 800VDC data centers. The introduction of 2200V PowiGaN technology means that even higher bus architectures can be supported, future-proofing power designs not only for data centers but also for EVs, photovoltaic inverters and battery-energy storage systems.

"The shift to 800VDC bus architectures in AI data centers is reshaping power semiconductors," says Roy Dagher PhD, technology and market analyst, Compound Semiconductors at Yole Group. "GaN's voltage ceiling has kept it out of the main power path, ceding that ground to SiC. A 2200V rating changes this, giving margin for single-stage topologies and future-proofing emerging 1500V data-center and EV designs," he adds.

"We expect the power GaN device market to reach \$3.5 billion by 2031, and extending GaN into these higher-voltage applications is an important part of that growth."

www.yolegroup.com/product/report/power-gan-2026
<https://nvdam.nvidia.com/assets/share/asset/zlg5snufeo>
www.power.com/design-support/whitepapers/1250-v-1700-v-powigan-800-vdc-ai-data-center-architecture

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GaN epilayers grown on TekSiC's semi-insulating silicon carbide wafers

Key milestones toward Europe's first domestic commercially available semi-insulating SiC wafer supply for space, defence and RF applications

Silicon carbide wafer manufacturing technology firm TekSiC AB of Linköping, Sweden has announced progress in its development of semi-insulating silicon carbide (SI-SiC), which Europe currently lacks the domestic capability to manufacture commercially. The material underpins some of the most demanding RF and power electronics used in space, defence, and next-generation communications. SI-SiC has also recently been identified as critical for next-generation AI chip, AI-data centers and AR glasses.

Semi-insulating SiC

Unlike electrically conductive n-type SiC widely used in automotive power electronics, SI-SiC is a high-resistivity substrate material critical for gallium nitride (GaN) high-electron-mobility transistors (HEMTs), RF amplifiers, satellite communications, radar, electronic warfare systems, and advanced sensors. It enables components to operate at very high power, very high frequencies with low noise and low loss. SI-SiC's properties make it the chosen substrate for GaN-based RF components across European Space Agency (ESA) programs, defence systems, satellite platforms, 5G/6G base stations, and radar.

Building full control of the value chain

Founded in 2021, TekSiC set out to secure full control of the SI-SiC supply chain and process optimization from the start, beginning with the development of its own physical vapor transport (PVT) growth reactor, Xforge — now industrialized and sold to customers globally. That same principle of vertical control now extends to wafer manufacturing itself, with the aim of securing full European independence in SI-SiC wafer production.

TekSiC has established an in-house wafer pilot lab covering slicing, polishing and characterization, alongside its crystal growth process. This allows it to iterate its growth process, from graphite machining to wafer characterization, entirely in-house, accelerating process optimization from simulation and modelling to finished wafers.

Government-backed consortium and recent milestones

TekSiC's SI-SiC development is backed by Swedish government funding through the 'Semiconductor, A Swedish Value Chain' project, launched in March 2025 to demonstrate a full domestic value chain from powder to device based on SI-SiC and GaN.

Within the consortium, TekSiC is responsible for demonstrating SI-SiC wafers, which are then processed with GaN epitaxy by Linköping-based epiwafer foundry SweGaN AB, and further developed into power and RF HEMT devices by Chalmers University of Technology. The SiC/GaN wafers will also be validated and used for micro-LED devices by Polar Light Technologies.

The project is owned and run by innovation cluster Innovative Materials Arena in a neutral coordinating role.

Earlier this year, TekSiC demonstrated high-resistivity properties in its SI-SiC wafers. A project partner has since successfully grown GaN epitaxial layers on TekSiC's wafers, a key milestone that enabled Chalmers University of Technology to begin processing the epiwafers into RF and power HEMT device structures.

Initial development is focused on 100mm SiC substrates, with the growth process already prepared to scale to 150mm.

Technology and roadmap

The next milestone on TekSiC's roadmap is the demonstration of power and RF HEMT structures based on its substrates. In parallel, the firm continues to optimize its crystal growth process for production-grade quality and yield through its proprietary AHM technology, enabling higher-quality crystal growth, reduced wafer cost, and a significantly lower CO₂ footprint per wafer.

TekSiC aims to support Europe's need for semi-insulating SiC, with a primary focus on securing critical supply for the space, defence and aerospace industries, alongside emerging industries adopting semi-insulating SiC. Wafers for customer validation are planned to be available by mid-2027 with industrialization and production scale-up planned to begin at the end of 2027.

TekSiC recently closed its first investment round led by Turbine Capital, bringing in new shareholders with relevant industry competences and connections. The funding accelerates the firm's ongoing development and validation work. A second investment round, planned for mid-2027, will fund industrialization and scale up of TekSiC's value-chain-controlled wafer manufacturing.

"By controlling our entire value chain — from consumable materials to our proprietary, industrialized PVT reactors — TekSiC is uniquely positioned to secure critical semiconductor supply for Europe," says CEO Joachim Tollstoy. "Our scientists and engineers will keep pushing the limits to deliver industry-leading materials and systems, supporting both European self-reliance and global market demand."

www.teksic.com

SweGaN raises \$14m in Series B financing

SweGaN AB of Linköping, Sweden — which designs, develops and makes custom gallium nitride on silicon carbide (GaN-on-SiC) epitaxial wafers, based on proprietary growth technology — has closed a US\$14m Series B round of financing led by Swedish investor Thisbe AB (part of the Wallenberg Investments ecosystem), Copenhagen-based venture capital firm North Ventures and existing shareholders. This brings total funding to US\$41m.

"Completing this financing as an up-round is a strong endorsement of SweGaN's progress and long-term potential," says chief financial officer Stefan Axelsson. "The support from both new and existing investors strengthens our balance sheet and provides the resources needed to scale responsibly while continuing to invest in innovation, operational excellence, and global growth," he adds. "We are entering our next phase from a position of financial strength."

SweGaN says that the financing follows a period of strong execution and growth, marked by an expanding customer base, new strategic partnerships, and the achievement of key customer qualification milestones.

"SweGaN has built a differentiated technology platform in a strategically important semiconductor market," comments Thisbe's CEO Fredrik Nordh. "We are impressed by the team's execution, customer momentum, and growth potential."

SweGaN says that, as global demand for higher-frequency, higher-power and more energy-efficient semiconductor solutions continues to grow, it is positioning itself to meet increasing customer needs through its proprietary epitaxial technology.

"SweGaN has turned deep technical expertise into clear commercial progress in a strategically important market," notes North Ventures'

investment manager Mikkel Strandkjær. "As the company scales production, we believe it is well positioned to become an increasingly important European supplier of GaN-on-SiC materials and help strengthen Europe's technological sovereignty."

The proceeds will be used to:

- expand production capacity to meet increasing customer demand;
- strengthen commercial presence in key global markets;
- invest in talent and infrastructure to support future expansion; and
- accelerate R&D of next-generation GaN-on-SiC materials.

"This financing is a strong validation of our technology, team, and strategy," says CEO Jr-Tai Chen. "It enables us to expand production, accelerate innovation, and better serve customers worldwide as demand for high-performance GaN materials continues to grow."

www.swegan.se

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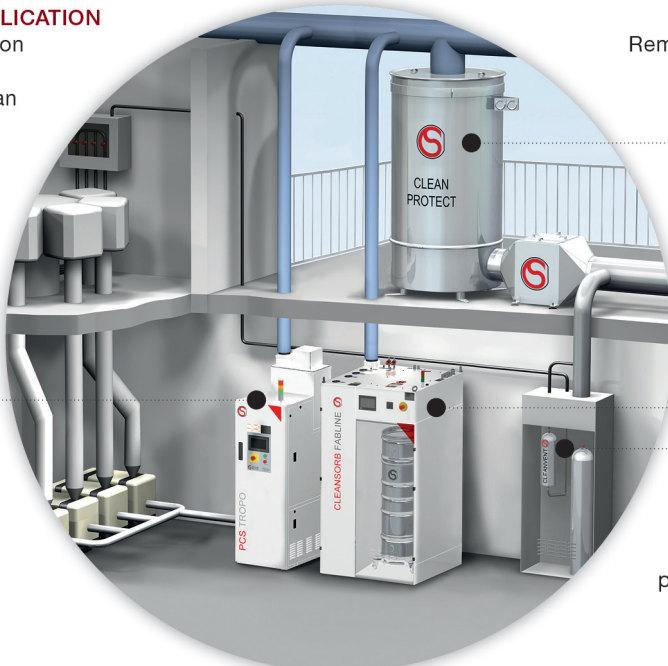
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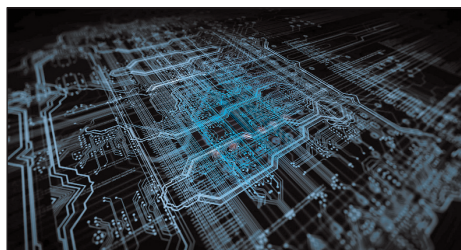
BAE Systems advances to Phase 2 of DARPA's THREADS program

Technologies for Heat Removal in Electronics at the Device Scale addressing temperature limitations in advanced RF electronics

BAE Systems Inc says that its FAST Labs research, development and production organization of Nashua, NH, USA has completed Phase 1 of the US Defense Advanced Research Projects Agency's (DARPA) program Technologies for Heat Removal in Electronics at the Device Scale (THREADS) and has been awarded continued support to move into Phase 2.

The THREADS program aims to overcome temperature limitations in high-performance radio frequency (RF) electronics, specifically in gallium nitride (GaN) devices. Overcoming these limitations will significantly increase the power and range of vital military systems.

"The progress we've made during



Phase 1 validates our approach to material and process enhancements and brings us closer to unlocking the full potential of RF-based systems for our warfighters," says Isaac Wildeson, principal investigator at BAE Systems' FAST Labs.

Successful thermal management developed through this program is expected to nearly triple the range of RF systems, enhancing the

safety and engagement distances for military personnel. BAE Systems' work on THREADS is being conducted at its Microelectronics Center (MEC) in Nashua, NH, USA, a Department of War (DoW) Category 1A Trusted Supplier, leveraging its established expertise in the development and manufacturing of GaN and gallium arsenide integrated circuits.

To accelerate the development of this critical technology, BAE Systems' work on the THREADS program includes collaboration with Modern Microsystems, Penn State University, Stanford University, the University of Notre Dame, and the University of Texas at Dallas.

www.baesystems.com

Soctera raises \$4m in seed funding round

Funds to aid development of thermally optimized III-nitride millimeter-wave power amplifiers

Soctera of Ithaca, NY USA has closed a \$4m in seed funding round backed by Anorak Ventures and Multiball Capital, with additional participation from 9Yards Capital, Mana Ventures, and Red Bear Ventures. The firm will use the funding to develop its thermally optimized III-nitride millimeter-wave power amplifiers.

When a power amplifier overheats, the system it powers goes with it. Range collapses and signals distort. The increasing demands of modern systems have made heat the fundamental constraint on wireless performance. Soctera says that it attacks that constraint at the semiconductor level, enabling longer-range detection and communication, clearer signals, and hardware that lasts.

"By co-optimizing the semiconductor stack electrically and thermally,

we reduce the gallium nitride (GaN) content in each device by 20x and halve thermal resistance," says co-founder & chief technology officer Reet Chaudhuri. "We are now turning our materials-level advantage into qualified power amplifiers," he adds.

"The people building next-generation radar and satellites are already asking for more than any amplifier can deliver," says co-founder & CEO Austin Hickman. "This raise lets us answer them, scaling the team and the manufacturing to put that hardware in their hands."

Soctera was spun out of Cornell University's Jena-Xing group, a research lab in the field of wide bandgap electronics. Prior to the seed funding round, Soctera won over \$4.2m in non-dilutive grant funding from the US National Science Foundation, US Army,

US Air Force, and the CHIPS Act to develop and demonstrate its core technology. As defense and space systems take on harder jobs at longer distances, the reach and reliability of every signal increasingly decides what those systems can do.

"The ability to immediately detect threats at greater range with improved fidelity is increasingly becoming a key advantage for the modern warfighter," notes Greg Castle, managing partner at Anorak Ventures. "The shift towards autonomous systems is accelerating the need for improved signal handling. Soctera's technology will give the US and our allies a key advantage for communication and detection both on and off the battlefield," he believes.

www.soctera.com

HexSeed raises over £600,000 in early-stage funding

Funding to be used to demonstrate diamond coating process on commercial GaN power devices and support engaging pilot customers

HexSeed Technology Ltd of Banchory, near Aberdeen, Scotland, UK has raised more than £600,000 in an early-stage funding round led by Carbon13, with participation from Net Zero Technology Centre and Vento Ventures. The cumulative investment unlocks a Partnership Grant from overnment agency Innovate UK (part of UK Research and Innovation), awarded on a provisional basis earlier this year.

HexSeed was founded in late 2025 by CEO Mark Tandy (Oxford MBA), chief technology officer Dr Leonardo Santoni (PhD in chemistry from University College London) and chief operating officer Dr Michael Glerum (PhD in Engineering from Cambridge).

Together with University of Bristol



HexSeed's founders (left to right) Leonardo Santoni, Mark Tandy and Michael Glerum.

researchers including professors Paul May (an expert in diamond materials) and Martin Kuball (a specialist in semiconductor devices and heat management), HexSeed is developing a low-carbon, low-temperature microwave plasma process that grows diamond coatings directly on finished gallium nitride devices without damaging them,

pulling heat away from the active regions so that they run harder, last longer, and use less energy.

The funding will be used to demonstrate the coating process on commercial GaN power devices and progress toward pilot customer engagements, with data-center power conversion hardware as the initial target market.

"Data centers are on track to consume a significant share of UK grid capacity within the decade, and a large proportion of that energy is lost as heat in power conversion," says Tandy. "This funding will allow us to take our low-temperature diamond coating technology which we are developing from laboratory demonstration to working GaN devices."

www.hexseedtechnology.com

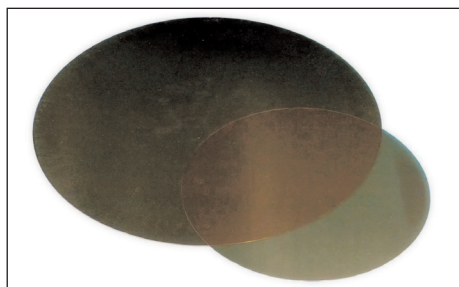
Coherent sampling 300mm high-thermal-conductivity silicon carbide

Substrates target thermal management requirements for AI and HPC

Materials, networking and laser technology firm Coherent Corp of Saxonburg, PA, USA has begun sampling its 300mm high-thermal-conductivity silicon carbide substrates to leading AI semiconductor partners, advancing its scalable materials platform for the growing thermal management requirements of artificial intelligence (AI) and high-performance computing (HPC) systems.

As AI processors move toward higher power densities, effective heat removal is becoming a primary constraint on system performance, reliability, and data-center efficiency. Customer sampling moves Coherent's 300mm SiC platform from internal development to customer evaluation across the AI semiconductor ecosystem.

Silicon carbide combines high thermal conductivity, mechanical strength, and thermal stability for



next-generation heat spreaders and related packaging solutions. Coherent says that its vertically integrated capabilities in SiC crystal growth, wafering, polishing, and characterization provide control across the production process and support progression toward future high-volume manufacturing. The high-thermal-conductivity substrates are engineered to improve heat spreading by up to 25% more than current solutions while maintaining compatibility with existing semiconductor manufacturing platforms.

"AI performance is increasingly constrained by the industry's ability to remove heat from next-generation processors," says Craig Mullaney, senior VP & general manager at Coherent. "Advanced SiC thermal management materials can play an important role in addressing that challenge. By combining decades of silicon carbide expertise with a scalable 300mm manufacturing platform, Coherent is helping build the materials foundation for future AI infrastructure."

This milestone marks the next step in Coherent's roadmap to expand its 300mm SiC platform for AI and high-performance computing. By combining customer engagement, vertically integrated materials expertise, and a scalable manufacturing strategy, the firm is positioning its SiC capabilities to support successive generations of AI infrastructure.

www.coherent.com

NextGO Epi raises €2m in pre-seed funding

Europe's only gallium oxide semiconductor producer to accelerate product development, grow team, and strengthen commercial presence

NextGO Epi of Berlin, Germany has secured a €2m pre-seed funding round led by Vireo Ventures, with participation from Ultratech Capital Partners, IBB Ventures, and angel investor Boris Habets.

Spun off in 2025 from Berlin-based Leibniz-Institut für Kristallzüchtung (IKZ) and supported also by Investitionsbank Berlin, INAM and Siltronic, NextGO Epi produces gallium oxide epitaxial wafers for next-generation power semiconductor devices.

Just one week after the European Commission unveiled Chips Act 2.0, the funding for NextGO Epi marks the first institutional backing for what is reckoned to be the only European company producing industrial-quality gallium oxide epitaxial wafers with diameters up to 4-inches.

Gallium oxide comes with a major efficiency improvement over the currently used silicon carbide: it is 10x more power-efficient, handles up to 6x higher voltage density, and can be produced for up to 75% less.

"Ultrawide-bandgap semiconductors are emerging as a critical enabling technology for next-generation high-voltage power electronics, and gallium oxide leads that field," comments Vireo Ventures' co-founder & managing partner Mischa Wetzel. "No other material can match its performance envelope." Gallium oxide-based electronic devices can withstand higher voltages and are more efficient than existing silicon carbide or gallium nitride.

The most immediate application is EV charging. An EV charging station containing devices built with NextGO Epi's product could charge a vehicle fully in 10 minutes (down from today's 60 minutes) and reliably in winter (when lithium batteries typically perform worst). Beyond EVs, gallium oxide can



The NextGO Epi team (from left to right): Dr Andreas Fiedler, Dr Ta Shun Chou, and Dr Andreas Popp. (Photo courtesy of IKZ.)

improve the efficiency of renewable energy inverters, AI data-center infrastructure power supplies, grid transformer electronics, and defense equipment such as missile tracking systems.

"Gallium oxide is to power electronics what silicon was to compute, and Europe should own that value chain," says NextGO Epi's CEO & co-founder Dr Ta-Shun Chou. "We're building the material layer that makes the next energy revolution possible," he adds.

With support from IKZ, NextGO Epi's founding team (Dr Ta-Shun Chou, Dr Andreas Popp and Dr Andreas Fiedler) has more than 10 years of combined experience in gallium oxide research and epitaxy, developing defect-free industrial-quality gallium oxide, underpinned by two international patents and 30+ scientific publications. The firm is further supported by Dr Jochen Linck, former chief operating officer of Aixtron, who has joined as operating partner to help guide NextGO Epi's growth and commercial scale-up.

From lab to production: already delivering to customers

The company is already in production, generating revenue, and serving

customers across three continents. "What sets NextGO Epi apart is that they're not a research project: they're already in production, already delivering to customers, and virtually nobody else in the world can do what they do," says Wetzel. "Their position, built on years of world-class research at IKZ, makes them a uniquely strong candidate to become a key supplier to this industry."

The new capital for NextGO Epi should accelerate product development, grow the team, and strengthen the firm's commercial presence across Europe and global markets.

Reducing Europe's overdependence on Asian and US suppliers

Unveiled in June, Brussels' new Chips Act 2.0 explicitly targets reducing Europe's overdependence on Asian and US suppliers for the semiconductor materials that power EVs, AI servers, and the clean energy grid. NextGO Epi says that it is the type of company that the policy is designed to create, building the foundational supply chain that Europe needs to lead the next wave of energy and mobility transition.

www.nextgoepi.com

www.ikz-berlin.de

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Volta acquires remaining 20% stake in Springer

Volta Metals Ltd of Toronto, Canada (which owns, has optioned and is currently exploring a critical minerals portfolio of rare-earths, gallium, lithium, cesium and tantalum projects in Ontario) has closed its acquisition (agreed on 21 July with RZJ Capital Management LLC) of the remaining 20% interest in the Springer Rare Earth Element and Gallium deposit, which spans 4750-

hectares on the traditional territory of the Nipissing First Nations in Sturgeon Falls, about 70km east of Sudbury, Ontario. This is in exchange for \$1m in cash and 10,000,000 common shares (of which 5,000,000 were issued on closing). Volta agreed to buy the initial 80% in June 2025.

Also, pursuant to an agreement of 10 July with an arm's-length vendor, Volta has closed the acquisition of a

mineral claim contiguous with the eastern boundary of the property, in exchange for issuing 600,000 shares.

The shares issued for both the purchase agreement and the claim agreement are subject to a hold period of four months and one day from the date of issuance under applicable Canadian securities laws.

www.voltametals.ca

METLEN signs long-term gallium supply agreement

About 25% of annual production from planned facility to go to US firm

Multi-national industrial and energy firm METLEN Energy & Metals S.A. of Athens, Greece — which operates the only vertically integrated bauxite, alumina and primary aluminium production in the European Union (EU) with privately owned port facilities — has announced a long-term commercial agreement for the supply of about 25% of the annual gallium production from its planned production facility in Greece.

This is the first major commercial gallium supply agreement between a European producer and a leading US technology company and constitutes a strategic milestone for Europe's efforts to strengthen the resilience of its critical raw materials

supply chain.

METLEN is the first company in Europe to establish integrated gallium production and the first to secure a commercial agreement for European-produced gallium.

This results from the long-standing research and innovation efforts of the company's in-house R&D teams, located in the historic Aluminium of Greece industrial plant, alongside the newly established Critical & Rare Metals sub-sector of M Metals.

"For the first time in METLEN's history, one of our metallurgical products has attracted such strong interest from leading industrial economies worldwide," notes METLEN's executive chairman

Evangelos Mytilineos. "This reflects both the strategic importance of gallium and the confidence of global technology leaders in the quality and reliability of our material, which has already undergone extensive qualification testing."

METLEN's flagship investment for gallium production was officially recognized by the European Commission as a Strategic Project under the Critical Raw Materials Act (CRMA). The strategic importance of the project has also been recognized by the European Investment Bank (EIB), which approved financing under the REPowerEU framework.

www.metlengroup.com

Australia, Japan, the USA and Alcoa investing in gallium project in Western Australia

Gallium plant to be co-located at Alcoa's Wagerup alumina refinery

The governments and industry partners of Australia, Japan and the USA, together with Alcoa Corp (which provides bauxite, alumina and aluminium products), have reached a final investment decision for a gallium production plant to be co-located at Alcoa's Wagerup alumina refinery in Western Australia.

The gallium plant will be constructed and operated by Alcoa, leveraging its long-standing experience in alumina refining and advanced mineral processing. The facility will

create a new, reliable source of gallium to support partner governments' efforts to strengthen critical mineral supply chains.

"This final investment decision reflects a shared commitment by governments and industry to strengthen critical mineral supply chains among the partners," says Alcoa's president & CEO William F. Oplinger. "The project underscores the strategic importance of Western Australia and the role Alcoa's operations play in delivering

critical materials essential to the global economy." The project represents a collaborative effort to diversify supply and enhance resilience across key industries.

Construction activities are expected to commence following final site preparations. Alcoa's participation in the joint venture, including its role as construction and operating manager, is not expected to have a material impact on the company's financial position or results of operations.

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ReElement awarded \$25m from Industrial Base Fund to expand US critical mineral refining capacity

Accelerated commercial expansion of Marion Advanced Technology Center to strengthen USA's domestic critical mineral supply chain

The US Department of War's Economic Defense Unit (EDU), in partnership with the Office of the Under Secretary of War for Acquisition and Sustainment (OUSW(A&S)), has awarded \$25m through the Industrial Base Fund to American Resources Corp to expand capacity at the Marion Advanced Technology Center refining campus in Indiana of its affiliated minority holding ReElement Technologies Corp (a refiner of rare-earth elements and other defense-critical minerals).

The investment will fund additional refining equipment, production line installation and working capital to accelerate commercial production of high-purity rare-earth elements and other defense-critical minerals. The expanded capacity will process both primary and recycled feedstocks (including end-of-life permanent magnets and other strategic materials) to produce high-purity rare-earth oxides and specialty critical minerals such as yttrium, gadolinium, germanium and gallium for semiconductors, advanced defense systems, aerospace components, secure communications, and other strategic applications.

"This investment reflects the growing importance of secure, domestic refining capacity to America's national security and industrial resilience," says ReElement's CEO Mark Jensen. "This support accelerates our ability to deliver the high-purity rare-earth and critical mineral products needed to strengthen our defense industrial base while reinforcing America's long-term economic and national security."

Unlike conventional refining projects that are typically developed around a single mine, feedstock or commodity, ReElement has developed a refining-first platform designed to process multiple

primary and recycled feedstock sources into a broad portfolio of high-purity rare-earth elements and critical minerals. Its modular, demand-aligned refining architecture enables production capacity to be sequenced alongside customer demand, allowing capital deployment to remain closely aligned with commercial growth while reducing

dependence on any single upstream resource or geography.

ReElement says that its technology platform is designed to economically separate, purify and refine multiple critical materials using proprietary chromatographic separation technology. The platform is capable of producing products at purities ranging from about 99.5% to 99.999% and is designed to support multiple supply chains through a common refining infrastructure. This multi-element, multi-feedstock approach provides the flexibility to process a diverse range of primary mineral concentrates, industrial byproducts and recycled materials — including from permanent magnets, lithium-ion batteries, and industrial, defense, and technology waste streams, as well as mined ores, brines, and coal-based byproducts — while supplying customers across defense, aerospace, advanced manufacturing, semiconductors, permanent magnets,

Investment will fund additional refining equipment, production line installation and working capital to accelerate commercial production of high-purity rare-earth elements and other defense-critical minerals

battery materials and other strategic industries.

The investment by EDU and OUSW(A&S) joins other previous investments in 2026 from Transition Equity Partners LLC and a strategic investment by Mitsubishi Materials Corp.

Since commercializing its technology, ReElement has demonstrated the production of more than a dozen rare-earth and critical mineral products, including germanium (Ge), yttrium (Y), gadolinium (Gd), dysprosium (Dy), terbium (Tb), samarium (Sm), neodymium (Nd), praseodymium (Pr), lithium (Li) and tungsten (W). The Indiana Commercial Validation Facility in Noblesville has validated products and refining processes across multiple feedstocks and end markets while supplying initial commercial production into markets experiencing significant global supply constraints.

The Marion refining campus represents the next phase of ReElement's commercial expansion and is being developed using a modular approach that enables individual production lines to be commissioned based on customer demand. The facility is expected to support the commercial production of multiple rare-earth and critical mineral products while serving as a cornerstone of the USA's growing domestic refining infrastructure.

The Department of War's investment further reinforces the growing importance of establishing secure, domestic refining capacity as governments and industry work together to build resilient allied supply chains for critical minerals essential to national security and advanced manufacturing.

www.acq.osd.mil

www.reelementtech.com

www.americanresourcescorp.com

Teck, Canada Growth Fund and Canada Critical Minerals Accelerator to support strategic metals production

Vancouver-based Teck Resources Ltd, Canada Growth Fund Inc (CGF) and Natural Resources Canada (NRCan)'s \$2bn Canada Critical Minerals Accelerator (formerly the Critical Minerals Sovereign Fund) have signed a strategic investment deal to support expanding production capacity for germanium, gallium and antimony at Teck's Trail Operations smelting and refining complex in British Columbia.

Canada Growth Fund is a \$15bn arm's-length investment vehicle designed to attract private capital to build Canada's clean economy. It uses investment instruments that absorb certain risks to catalyze private investment in low-carbon projects, technologies, businesses, and supply chains.

Trail is one of the world's largest fully integrated polymetallic smelting and refining complexes. It produces 19 products and has a long history of critical minerals production.

The deal establishes the commercial framework for an equity-like investment by CGF of up to \$400m directly into the facility, as part of an up to \$850m potential total investment by Teck to sustain and enhance critical minerals processing capacity at Trail Operations from a portfolio of feed sources. It also provides for the establishment of an offtake structure with the Government of Canada, including offtake rights for a portion of future germanium, antimony and gallium produced by Trail, that will build on Canada's position as a critical minerals supplier to global partners.

The deal reflects the intent of both parties to work towards an investment by CGF to unlock the advancement of Trail's Strategic Metals Initiative that could double Trail's existing production capacity for germanium and antimony, and potentially add new gallium production capacity. The arrangements between Teck and the Government of Canada would also constitute the

inaugural transaction under Canada's newly launched Canada Critical Minerals Accelerator (introduced by the Government of Canada in Budget 2025 to make strategic investments in critical mineral projects and companies through equity investments, debt instruments, and offtake contracts). The Canada Critical Minerals Accelerator is an initiative of NRCan, managed by Export Development Canada (EDC, a financial Crown corporation).

Expanding the reliable supply of germanium, antimony and gallium is thought to be key to Canada's economic and national security, as well as clean technology and the energy transition.

The Province of British Columbia has also named the Trail Strategic Metals Initiative as one of 18 priority resource projects and is working with Teck on opportunities to support the initiative's advancement.

Canada is moving to unlock critical minerals that will strengthen its economy and security, enhance global supply chains, and grow Canadian industry. This project will leverage Trail's Canadian expertise in strategic metals production; access to long-term, high-quality metals feedstock; and proven ability to adapt quickly to evolving market demands to achieve success.

"Canada has what the world wants, and we are moving decisively to catalyze private investments, secure our supply chains, and get projects built faster so we can provide for ourselves and our global partners," says the Honourable Tim Hodgson, Minister of Energy and Natural Resources. "Our new Canada Critical Minerals Accelerator is about turning Canadian resource abundance into real projects by giving industry the certainty they need to invest and grow, even in a volatile global market. By working with companies like Teck and partnering with Canada Growth Fund and Export Development Canada, we

are using every tool in our toolbox to build Canada Strong," he adds.

"Leveraging its unique expertise and ability to implement bespoke structured financial instruments, CGF's investment will support the advancement of the expansion of Canada's only germanium-producing smelter, a critical mineral essential to applications related to national security," says CGFIM's president & CEO Yannick Beaudoin. "CGFIM is pleased to once again put its experience to work in support of the Government of Canada's establishment of a third offtake agreement that positions Canada as a reliable partner of choice for global partners seeking access to important critical minerals," he adds.

"Teck's Trail Operations is a cornerstone of North America's critical minerals ecosystem. Collaboration with CGF and the Canada Critical Minerals Accelerator will help advance the opportunity we have to quickly and significantly increase production capacity for key strategic metals and help strengthen secure, responsible supply chains," says Teck's president & CEO Jonathan Price. "By leveraging Trail's existing infrastructure and expertise, this initiative has the potential to deliver new supply of strategic metals while providing strong returns for Teck shareholders," he adds.

"EDC is focused on helping strengthen Canada's role as a reliable supplier of critical minerals to global markets," notes its president & CEO Alison Nankivell. "These materials play an essential role in defence, security and advanced technologies. By leveraging EDC's financing expertise and supporting projects like Trail, in collaboration with Teck, Natural Resources Canada and the Canada Growth Fund, we can help expand production capacity here in Canada and build more secure and resilient supply chains for our partners."

www.teck.com

AXT returns to profit, driven by record revenue from InP AI data-center demand accelerates indium phosphide capacity expansion

For second-quarter 2026, AXT Inc of Fremont, CA, USA — which makes gallium arsenide (GaAs), indium phosphide (InP) and germanium (Ge) substrates and raw materials at plants in China — has reported record revenue of \$47.6m (up 77% on \$26.9m last quarter and 164% on \$18m a year ago), greatly exceeding the expected \$34m.

Indium phosphide revenue has continued its rebound, from just \$3.6m (a fifth of total revenue) a year ago, then (after being granted the first InP export permits from China in late June 2025) \$13.6m last quarter (just over half of total revenue) to a record \$30.7m in Q2/2026 (almost two-thirds of total revenue), far exceeding the forecasted \$17m. This is driven mainly by a surge in demand for high-speed optical data transmission devices for AI-focused data-center infrastructure. In particular, revenue from China's InP-based laser sector more than doubled sequentially for a second consecutive quarter, boosting China to over 50% of total revenue.

"We have reached an inflection point in our business where strong customer demand for data-center optical connectivity coupled with our continued success in adding manufacturing capacity and improving productivity are driving a step-function increase in our revenue," says CEO Morris Young.

Gallium arsenide has rebounded from \$5.4m (a fifth of revenue) last quarter to \$6.6m (above the \$6.2m a year ago). This reflects growth in semiconducting wafers for industrial robotics and data-center laser applications, as well as continued demand for semi-insulating wafers for wireless RF devices.

Germanium substrate revenue was \$272,000, up on \$200,000 last quarter but down on \$1.5m a year ago and \$2.9m two years ago.

After falling to \$6.7m a year ago, revenue has grown further from

\$7.6m last quarter to a record \$10m for AXT's two consolidated raw material joint venture companies: BoYu (which makes high-temperature pyrolytic boron nitride crucibles and pBN-based tools for organic light-emitting diodes) and JinMei (which supplies high-purity materials including gallium and germanium, as well as InP poly and other materials).

As announced last quarter, Jingmei is now refining high-purity indium, giving AXT direct control of a guaranteed supply of another critical material for InP substrates. "We are also investing to help to expand their capabilities so that when AXT's demand for poly material grows, Jingmei will continue to provide a meaningful portion of our raw material requirements," says Young.

On a non-GAAP basis, gross margin has improved further, from just 8.2% a year ago and 29.9% last quarter to 45%. This is driven mainly by higher total volume and the high proportion in the product mix of InP, which has higher margin than AXT's other businesses.

Operating expenses have increased further, from \$7.59m a year ago and \$8.59m last quarter to \$10.25m, above the expected \$9.3m.

Nevertheless, AXT has returned to profitability. Net income was \$11.9m (\$0.19 per share, far exceeding the expected \$0.06–0.08 per share), compared with a net loss of \$0.6m (\$0.01 per share) last quarter and \$6.4m (\$0.15 per share) a year ago.

During the quarter, cash, cash equivalents and investments rose by \$626m, from \$123m to \$749m. This was due mainly to the secondary public offering of common stock that closed on 22 April, generating about \$632m before expenses, in order to support InP capacity expansion at AXT's China-based wafer manufacturing subsidiary Beijing Tongmei Xtal Technology Co

Ltd as well as R&D investment in new products like larger-diameter, 6-inch InP wafers.

"The investments we are making today — in capacity, in technology, and in our uniquely integrated supply chain — position us to meet the extraordinary demand we see building across the optical and AI infrastructure markets," says Young.

Order backlog well over \$100m

As customer demand continues to outpace AXT's ability to increase manufacturing capacity, order backlog is now well over \$100m, extending through 2026 into 2027. "The backlog exceeds two quarters of projected revenue and could be significantly larger if the company accepted all available orders," says Young.

"We are working closely with our direct customers as well as major end-customers to understand their expected demand and roadmaps," says Young.

During Q2, AXT signed long-term supply agreements with both China-based Casella and US-based Coherent, receiving pre-payments for wafers of \$22.3m and \$25.4m respectively. Subsequently, in late July, US-based Lumentum agreed to pay the first of two \$43.5m deposits to reserve InP wafer production capacity. "These type of agreements with significant upfront cash are an additional signpost regarding the important use of InP for high-speed optical data transmission required in AI data centers," says chief financial officer Gary L. Fischer. "Long term supply agreements [LTSAs] take us out into 2027 and beyond," notes VP of business development Timothy J. Bettles.

"The deployment of optical connectivity in AI data center is accelerating as hyperscalers scale GPU dense architectures and look for higher-speed, lower-power photonics to move data more efficiently," says Young. "In the near

term, we are seeing high demand from the industry migration to 100G and 1.6T transceiver modules, for which InP-based lasers and detectors are essential for higher-performance optical links. Longer term, hyperscalers are advancing towards near-packaged optics [NPO] and co-packaged optics [CPO], which will continue to drive increasing demand for our material. Overall, these trends point to a durable long-term build out of denser optical infrastructure and a multi-year demand cycle for our indium phosphide."

"The massive AI infrastructure build-out and the planned capacity CapEx spending by cloud services and AI platform providers in the USA is the primary driver for EML [electro-absorption modulated lasers] and silicon photonics-based optical transceivers as well as high-speed photodetectors," says Young. "Our material is being used in multiple US hyperscalers, and we expect that end-customer use will continue to broaden," he adds.

"We are also seeing huge growth in China, as China moves to accelerate its capability throughout the AI supply chain," notes Young. "This highlights China's increasing investment in the AI infrastructure supply chain for the global market. This is a great opportunity for AXT as there is no permit required to ship our product within China," he adds. "I would anticipate that we would see a revenue split moving forward somewhere in that 40–60% range [non-China versus China] as we build up both capacity and long-term supply agreements both within China and throughout the rest of the world," says Bettles.

Q3 to exceed \$66m in revenue; capacity expansion accelerating

AXT has about \$66m in revenue that can be realized in third-quarter 2026, for which it either already has an export permit or for which an export permit is not required, i.e. continued strong growth in the InP-based laser market in China, highlighting China's increasing investment in the AI infrastructure supply chain for the global market. "We could see upside, even significant upside, to this number in Q3 should we receive permits for additional orders which we have the inventory to support," says Fischer.

In Q3, gross margin is expected to rise further, depending on a number of factors including product mix, absorption of fixed costs, and AXT's ability to continue to drive better manufacturing efficiency, including migrating toward larger-diameter substrates (e.g. 6-inch InP).

Despite operating expenses rising slightly to about \$10.5m in Q3, net income should grow to \$0.30–0.32.

Quarterly indium phosphide manufacturing capacity is expected to almost double from the original targeted \$20m to \$35–40m in Q3. It should then reach \$60m by end-2026 (tripling during the year, ahead of schedule compared with the originally planned doubling), and more than double again to \$130m by end-2027 (compared with the originally targeted \$70m).

"This is happening as a result of (1) being able to expand capacity at a faster rate than we expected; (2) making significant strides in driving manufacturing productivity with new crystal growth furnace designs and increase our output; and (3) customers moving to larger-

diameter substrates and higher-value products, resulting in favorable pricing trends," says Young.

"We are gaining capacity through other factors rather than just hardware deployment. It means that we can gain capacity without huge additional CapEx spend [versus the originally planned \$14m in 2026 and \$100m in 2027]," notes Bettles.

Tongmei listing effort transferred from Shanghai's STAR market to Hong Kong Exchange

On 26 June, AXT's China-based wafer manufacturing subsidiary Beijing Tongmei Xtal Technology Co Ltd notified the Shanghai Stock Exchange that it was removing its application for an initial public offering on its Science and Technology Innovation board (STAR Market). This was accepted in July. AXT and Tongmei will now instead transfer their efforts towards listing on the Hong Kong Exchange, which will likely take about a year to complete.

"An IPO in China is highly beneficial in expanding our capacity in China and is the most efficient and effective way to support the rapidly evolving AI infrastructure build out," says Fischer. "This contributes to China's development of its semiconductor supply chain to meet increased China-based demand for InP substrates," he adds.

"Tongmei's move to the Hong Kong Stock Exchange creates a redemption right for the \$49m invested by the private equity funds back in 2021. However, they all wish to continue their investment and not be redeemed. We have sufficient cash to redeem investments should they be requested," Fischer notes.

www.axt.com

AXT adds Jia-Bin Duh to board

AXT has appointed Jia-Bin Duh to its board, increasing the number of directors to six.

Duh has more than 30 years of senior executive leadership and investor experience across the technology and consumer sectors,

with expertise in international business operations, strategic growth, and Greater China markets. He has held senior leadership positions at Hewlett-Packard, Microsoft, and Cisco Systems, where he led business expansion

and operations throughout China. AXT reckons that his executive experience operating in the region, together with his understanding of its commercial and regulatory environment, will provide valuable perspective.

IQE's greater-than-expected £64m first-half 2026 revenue driven by InP demand

Guidance for full-year revenue growth raised from 20%+ to 30%+

Epiwafer and substrate maker IQE plc of Cardiff, Wales, UK says that greater-than-expected trading in first-half 2026, with strong demand across all core segments, should yield revenue of at least £64m.

Demand for IQE's indium phosphide (InP) solutions is continuing to accelerate due to their critical role in enabling optical photonics products for data centers and AI infrastructure. Revenue growth was also

supported by ongoing strength in aerospace and defence segments, as well as robust demand for both 3D sensing and wireless products.

This momentum is expected to continue throughout 2026. So, IQE has now raised its forecast for full-year revenue growth from more than 20% to over 30%, resulting in low-teens £m adjusted EBITDA (earnings before interest, tax, depreciation and amortization).

IQE says that it remains bank-debt free with a cash position at end-June of £41.6m.

"Our long-established leadership in InP and other key material systems means we are critically embedded in supply chains enabling industry trends that will continue to deliver further progress in second-half 2026," says CEO Jutta Meier.

www.iqep.com

IQE wins \$14m production order with strategic global technology customer for AI and data-center markets

IQE has secured a multi-year production order worth \$14m from a strategic global technology customer.

The order, which is to be manufactured at IQE's Newport foundry, supports applications serving AI and data-center markets, where increasing data generation and hyperscale infrastructure requirements are driving demand for high-performance storage technologies.

In addition to the production order, IQE continues to engage with the customer on future opportunities, including the development of next-generation technologies supporting multiple stages of the customer's data life-cycle.

"We are pleased to have secured this production order with a strategic global technology leader, supporting the rapid growth of AI and data-center markets from IQE's volume manufacturing facility at

Newport and expected to build over the coming years," says CEO Jutta Meier. "This highlights the role IQE plays supporting high-performance infrastructure from the data center to the edge, enabled by our differentiated epitaxy portfolio, which also includes indium phosphide optical communications, silicon photonics and gallium arsenide VCSEL [vertical-cavity surface-emitting laser]-based datacom applications."

IQE appoints Robert Dennehy and David O'Carroll as non-executive directors

COO and VP of customer MACOM represent 11.5% shareholder

At the beginning of July, epiwafer and substrate maker IQE plc of Cardiff, Wales, UK appointed Robert Dennehy and David O'Carroll as non-executive directors, representative of MACOM Technology Solutions Inc of Lowell, MA, USA under the board appointment agreement between the two firms announced on 28 May. MACOM has a beneficial interest in IQE, representing 11.5% of IQE's issued share capital.

Dennehy has over 30 years of experience at MACOM, spanning product management, operations

leadership and general management across the USA and Europe. He has served as MACOM's senior VP & chief operating officer since November 2025, having previously held the roles of senior VP operations, VP operations & managing director of MACOM's Cork, Ireland subsidiary. Dennehy holds an Associate's degree in Electronic Engineering and a Diploma in Business Administration from Henley Business School, London.

O'Carroll has over 10 years of experience at MACOM, with particular expertise in international

operations, finance, and government relations across Europe and Asia. He has served as MACOM's vice president since October 2023, managing facilities in France, Japan and Ireland and overseeing MACOM's Asian operations. O'Carroll previously held the roles of senior director of global accounting operations and international finance director. He is the president of the MACOM group's French subsidiary. He is also a director on the board of several international subsidiaries within the MACOM group.

www.iqep.com

PVA TePla and Fraunhofer IISB establish Joint Lab for aluminium nitride substrates

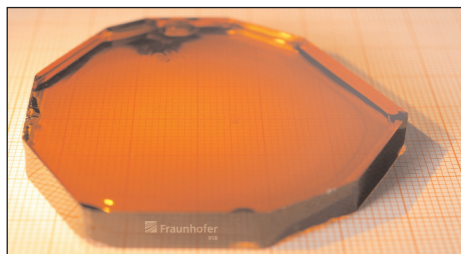
Small-batch production of 2-inch monocrystalline AlN for R&D to precede 4- and 6-inch development

Erlangen-based Fraunhofer IISB (Institute for Integrated Systems and Device Technology) and Wetzlar-based microwave & radio frequency plasma system maker PVA TePla AG are pooling their expertise in a Joint Lab for the production of aluminium nitride (AlN) crystals.

As a European first, the partnership enables industrially supported small-batch production of monocrystalline AlN substrates with a diameter of 2-inches for R&D purposes. This significantly improves the availability of AlN substrates in Europe, which in turn accelerates the development of AlN-based devices and systems and their transition to industrial applications.

Aluminium nitride is one of the most promising materials for the next generation of high-performance electronics. As an ultrawide-bandgap (UWBG) semiconductor, AlN opens up new possibilities in photonics, power electronics, high-frequency electronics, and electronics operating under extreme conditions. To date, the shortage of high-quality, large-area and cost-effective AlN substrates has been holding back the development of AlN-based electronic systems.

"With the Joint Lab, we are laying the groundwork to ensure a reliable supply of AlN substrates from Europe, thereby opening up new prospects for the next generation of high-performance AlN devices," says Dr Sven Besendörfer, group leader for nitride materials and responsible for AlN material development at Fraunhofer IISB. "Together with PVA TePla, we are contributing our expertise in industrial crystal growth, thereby creating the prerequisites for the transfer to concrete applications," he adds.



AlN crystal with 2-inch diameter, grown in the Joint Lab of Fraunhofer IISB and PVA TePla.

Proven equipment technology meets proprietary process know-how

In the joint lab, Fraunhofer IISB is using its proprietary PVT (physical vapor transport) process technology to produce 2-inch AlN bulk crystals. AlN powder is vaporized in a crucible at temperatures well above 2000°C and deposited onto a seed crystal. PVA TePla provides PVT systems for this purpose, which are already in use worldwide for 8-inch-diameter silicon carbide (SiC) crystals and have now been specially adapted for the growth of 2-inch AlN crystals.

Due to the process expertise contributed by Fraunhofer IISB, the PVA TePla team was quickly able to produce AlN crystals of comparable quality in its own facilities. The Joint Lab focuses on the stable small-batch production of 2-inch AlN crystals. Production is now being ramped up gradually to systematically optimize process stability, reproducibility, yield and cost structures.

"With aluminium nitride, we are actively shaping the next generation of technology following SiC," says Dr Jan Pfeiffer, vice president of R&D at PVA TePla. "Through the Joint Lab, we can directly combine our equipment expertise with the process know-how of Fraunhofer IISB, enabling us to offer market-oriented solutions to our global customers at an early stage," he adds. "Our shared goal is to stimulate

market development in the AlN sector through suitable substrates and to support companies looking to enter this field as technology partners with the right equipment and corresponding process expertise."

Strengthening European technological sovereignty through industrial scaling

The AlN crystals produced in the Joint Lab are further processed at Fraunhofer IISB into epi-ready AlN substrates and, through Erlangen-based research & product development firm LZE GmbH, specifically transferred into industrial development and scaling processes. "For Europe's semiconductor sovereignty, it is crucial that new key materials are not only developed but also rapidly transferred into industrial applications and scalable value creation," says LZE's managing director Dr Christian Forster. "With its marketplace for cutting-edge technologies, LZE GmbH provides companies and research institutions with globally unique and open access to AlN substrates. In this way, we help ensure that promising applications for high-volume industrial markets are brought to market more quickly."

At the same time, Fraunhofer IISB is driving forward the development of 4-inch and, in the future, 6-inch AlN technology. The Joint Lab is thus laying the foundation for medium- to long-term scaling of substrate sizes. The partnership also pursues the strategic goal of pooling expertise in ultrawide-bandgap technology in Europe, reducing dependencies on key materials, and sustainably strengthening Europe's technological sovereignty in the semiconductor sector.

www.lze-innovation.de/en
www.pvatepla.com/en/products/crystal-growing-systems
www.iisb.fraunhofer.de

Veeco's Q2 results exceed guidance

Order visibility into 2027 driving doubling of capacity for advanced packaging and silicon photonics

For second-quarter 2026, epitaxial deposition and process equipment maker Veeco Instruments Inc of Plainview, NY, USA has reported revenue of \$193.5m, up 22% on \$158.3m last quarter and 16.5% on \$166.1m a year ago, and exceeding the \$170–190m guidance.

- The Semiconductor segment (Front-End and Back-End, as well as EUV Mask Blank systems and Advanced Packaging) grew by 20% from \$109m last quarter to \$131m (68% of revenue), exceeding the \$124m a year ago. This was driven largely by laser annealing systems for leading-edge foundry logic and memory customers, and wet processing systems for advanced packaging.

- The Compound Semiconductor segment (Power Electronics, RF Filter & Device applications, and Photonics including specialty, mini- and micro-LEDs, VCSELs, laser diodes) has grown further, by 50% from \$14m a year ago and by 9% from \$19m last quarter to \$21m (11% of revenue).

- The Data Storage segment (equipment for thin-film magnetic head manufacturing) more than doubled, from \$10m last quarter to \$22m (11% of revenue), up on \$12m a year ago.

- The Scientific & Other segment (research institutions and other applications) was level with last quarter at \$20m (10% of revenue), up 25% on \$16m a year ago.

By region, the USA has grown further, from \$22m (13% of revenue) a year ago and \$32m (20% of revenue) last quarter to \$59m (31% of revenue), due primarily to advanced semiconductor customers. China has rebounded by more than doubling from just \$20m last quarter to \$48m (25% of revenue), up on \$27m a year ago. In contrast, The Asia-Pacific region (excluding China) has fallen further,

from \$98m (59% of revenue) a year ago and \$90m (57% of revenue) last quarter to \$70m (just 36% of revenue). Europe, Middle-East & Africa (EMEA) & the Rest of the World was \$16m (10% of revenue), level with last quarter, after falling from \$18m a year ago.

On a non-GAAP basis, gross margin was 39.5%, down on 42.6% a year ago but rebounding from 36.2% last quarter, and towards the top end of the 38–40% guidance range.

Operating expenses have risen further, from \$47.6m a year ago and \$48.8m last quarter to \$53.3m.

Despite that, operating income was \$23.1m, recovering from \$8.6m last quarter and back level with a year ago, and exceeding the \$13–22m guidance.

Net income was \$21.8m (\$0.33 per diluted share), recovering from \$8.9m (\$0.14 per diluted share) last quarter and up on \$21.5m (\$0.36 per diluted share) a year ago, and beating the guidance of \$12–21m (\$0.20–0.32 per diluted share).

Cash flow from operations was \$51m (up from just \$8m last quarter). Capital expenditure was \$4m. During the quarter, cash and short-term investments hence rose by \$46m, from \$383m to \$429m. Long-term debt remains \$227m.

"Veeco delivered strong quarterly results, exceeding market expectations while continuing to build momentum across our business," says CEO Bill Miller Ph.D. "The rapid expansion of AI is driving increased demand across our broad portfolio of advanced technologies, resulting in robust order activity and deeper customer engagement throughout our markets," he adds.

Full-year 2026 guidance raised

For third-quarter 2026, Veeco expects revenue to grow to \$200–220m.

Gross margin should rise to 41–42%.

Despite operating expenses rising to \$57–58m, the firm expects rises in operating income to \$25–35m and net income to \$23–33m (\$0.35–0.49 per diluted share).

"Given the strength of our order momentum, improved customer visibility, and actions we are taking to support future growth, we are updating our full year 2026 non-GAAP outlook," says Miller.

For full-year 2026, Veeco has now raised its revenue guidance by \$25m at the mid-point, from \$740–800m to \$780–810m.

In particular, Semiconductor revenue is expected to grow by more than 10% year-on-year, driven primarily by additional sales to leading memory, foundry logic, and EUV customers serving AI and high-performance computing applications.

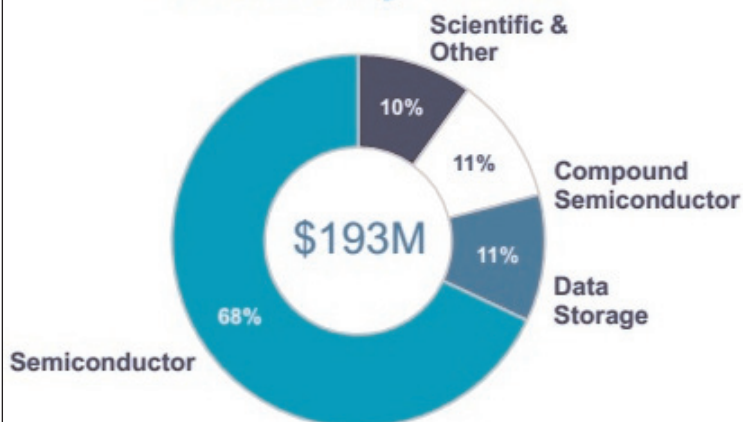
Compound semiconductor revenue is expected to approximately double on full-year 2025, driven primarily by Lumina MOCVD and Spector IBD systems for silicon photonics. "Looking ahead in 2027, we expect revenue growth to accelerate, driven by backlog for these tools," says chief financial officer John Kiernan.

Data storage revenue is expected to double year-on-year in 2026

"Demand across our key markets remains exceptionally strong, with many customers providing forecasts that extend well into the future," says chief financial officer John Kiernan. "This increasing visibility is translating into robust order momentum, and today a significant portion of our anticipated 2027 revenue is already represented in backlog," he adds. For example, in Q2/2026 Veeco secured \$200m in advanced packaging orders for wet processing and lithography systems, principally for delivery in 2027.

"To capitalize on these opportunities, we remain intensely focused

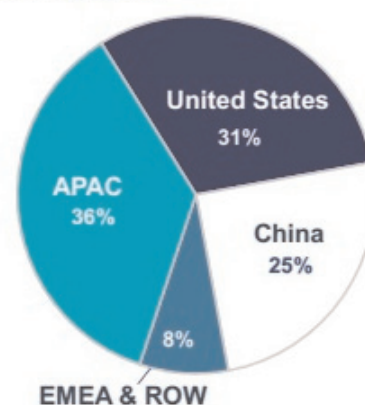
Revenue by Market



Revenue Trend (\$M)	Q2 25	Q1 26	Q2 26
Semiconductor	124	109	131
Compound Semi	14	19	21
Data Storage	12	10	22
Scientific & Other	16	20	20
Total	166	158	193

Revenue by Region

ROW is negligible



Revenue Trend (\$M)	Q2 25	Q1 26	Q2 26
APAC	98	90	70
USA	22	32	59
China	27	20	48
EMEA & ROW	18	16	16
Total	166	158	193

on executing our manufacturing ramp and investing ahead of expected revenue. During 2027, we plan to more than double capacity in advanced packaging and silicon photonics. These investments include expanding manufacturing capacity through a combination of internal production and strategic outsourcing partnerships [with contract manufacturers in South-east Asia], adding and training personnel, and expanding our supply chain to support customer demand," says Kiernan.

"While we view these investments as critical to capturing significant long-term growth opportunity, they will have a near-term impact. On a full-year 2026 basis, we expect approximately \$10m of incremental operating expenses [in second-half 2026] and a gross margin impact of roughly 75 basis points associated with these growth initiatives."

The expectation for gross margin has therefore been cut from 41–43% to 40–42%. With the forecast for operating expenses being increased from \$205–220m to \$215–225m, guidance has now been reduced for operating income from \$101–126m to \$97–115m, and for net income from \$94–115m

(\$1.50–1.85 per diluted share) to \$91–107m (\$1.36–1.61 per diluted share).

"The combination of increasing customer visibility, strong order momentum, and expanding opportunities tied to AI infrastructure gives us confidence in our long-term outlook," says Kiernan.

"Veeco is uniquely positioned to capitalize on these opportunities, deliver sustainable, profitable growth, and create a substantial value for shareholders."

Regarding the compound semiconductor market in particular and the projected served available market (SAM) opportunity through 2030: "Our outlook remains supported by the secular growth of AI infrastructure in silicon photonics, optical connectivity, and power efficiency. We believe these trends are driving a significant inflection in compound semiconductors, where adoption is accelerating across both optical networking and power applications, which continues to create an increasingly attractive opportunity for Veeco," says Miller.

"In silicon photonics, we project a \$700m SAM by 2030 for our role in the manufacturing of indium phosphide lasers. The rapidly evolving

landscape of AI data centers is driving demand across our Spector IBD system, WaferStorm and WaferEtch for wet processing solutions, and Lumina MOCVD platform. We continue to see engagement with these customers as they move toward large-scale deployments.

"In the other photonics category, we project \$550m in SAM by 2030. This includes opportunities for red micro-LEDs, low-Earth-orbit satellites, and AR/VR applications.

"In GaN power, we project \$250m in SAM by 2030, supported by long-term trends tied to AI data-center power efficiency, electrification, and high-power-density applications. We remain encouraged by our progress with a leading power IDM customer, where our Propel 300 platform continues to advance towards production. Following the previously announced pilot-line order, we believe we are well positioned to participate in future capacity expansions. Veeco is also a critical member in the imec 300mm GaN power consortium program to advance power electronics manufacturing alongside other industry leaders."

www.veeco.com

Veeco receives LUMINA+ MOCVD system order for manufacturing InP lasers

Veeco Instruments Inc of Plainview, NY, USA says that a global leader in optical and photonic technologies has selected its LUMINA+ metal-organic chemical vapor deposition system to fabricate indium phosphide (InP) lasers for innovative datacom applications. The firm adds that its LUMINA+ system has now been adopted across all major applications in the arsenide and phosphide (As/P) epitaxial space, including the fast-growing InP laser market.

"Following a series of recent orders and qualifications, this order extends the strong position of our LUMINA+ system for high-volume As/P production," says Anil Vijayendran, VP of MOCVD

products at Veeco. "Offering the same great process performance as the original LUMINA system, the LUMINA+ system achieves breakthrough productivity, bringing much-needed scale to the optical transceiver industry."

The fully automated LUMINA+ system has the largest As/P batch size in the MOCVD market, best-in-class throughput and lowest cost per wafer supported by Veeco's TurboDisc technology, it is claimed, making it suitable for expanding InP laser production capacity. With a seamless wafer-size transition, LUMINA+ can deposit high-quality epitaxial layers on InP wafers of any size, Veeco adds.

According to market research firm LightCounting, sales of optical transceivers and related products are expected to grow by 53% in 2026 to \$39bn, then continue this rapid growth over the next several years, driven by record capital deployment by the world's leading hyperscalers and the shift in demand from training toward inference and agentic AI workloads. As major optical component manufacturers continue to build out InP laser capacity to meet this increasing demand, Veeco reckons that the LUMINA+ system positions it as a key MOCVD epitaxy supplier to support this expansion.

www.veeco.com

Innolume selects Veeco Gen2000 MBE system to expand quantum dot laser production

Vertically integrated gallium arsenide (GaAs)-based quantum dot (QD) diode laser developer and maker Innolume GmbH of Dortmund, Germany has bought a Veeco GEN2000 molecular beam epitaxy (MBE) system to expand production for next-generation optical transceivers and silicon photonics applications. The investment supports the increasing demand for optical connectivity solutions for hyperscale AI infrastructure and cloud data centers.

Quantum dot lasers are emerging as a critical technology for optical interconnects used in AI infrastructure and cloud computing. Their superior temperature stability, low power consumption, and high reliability make them particularly well suited for future optical transceiver architectures, including co-packaged optics (CPO), where conventional laser technologies face increasing thermal and power challenges. The investment reflects Innolume's continued expansion of manufacturing capacity to support

growing customer demand for quantum dot laser solutions.

CPO deployments are accelerating demand for lasers, notes market research firm LightCounting. Sales of transceivers using these lasers will reach almost \$80bn by 2031, driven by increasing bandwidth requirements and a growing focus on energy-efficient optical connectivity. QD lasers offer narrow spectral linewidth, low threshold current, and superior temperature stability, making them an ideal emitter technology for CPO.

"Quantum dot lasers are playing an increasingly important role in next-generation silicon photonics and AI-driven optical interconnects," says Innolume's CEO Sven Rüger. "The GEN2000 MBE system provides the production capacity, material quality, and manufacturing efficiency needed to support our technology roadmap and future manufacturing requirements," he adds.

"Innolume's investment in the GEN2000 MBE system underscores the increasing importance of MBE-

grown QD lasers," says Matthew Marek, VP & general manager for Veeco's MBE product line. "We are proud to be selected as Innolume's production partner and look forward to supporting their continued growth as demand for advanced optical connectivity solutions accelerates."

Veeco claims that the production GEN2000 MBE system is recognized for its throughput and low cost-of-ownership. In addition, Innolume is implementing Veeco's Spector ion beam deposition system to further expand its in-house coating capabilities for ultra-low-loss anti-reflective and highly reflective laser facet coatings, strengthening its manufacturing capabilities with Veeco process technology solutions spanning multiple critical manufacturing steps. Veeco claims that Innolume's adoption of both its MBE and ion beam deposition platforms highlights its unique ability to deliver complementary process technologies that enable high-volume photonic device manufacturing.

www.innolume.com

Riber's revenue grows 19% in first-half 2026, driven by 71% growth in Services & Accessories

Doubling in Services & Accessories orders counteracted by Systems orders falling by 27% as export licenses restricted

For first-half 2026, molecular beam epitaxy (MBE) system maker Riber S.A. of Bezons, France has reported revenue of €12.8m, up 19% on €10.7m in first-half 2025.

This was driven by Services & Accessories revenue rising by 71% from €3m to €5.1m.

Systems revenue was €7.7m, roughly level with first-half 2025's €7.8m (for three machines delivered in each case). Riber reiterates that its business remains structurally seasonal, with deliveries traditionally weighted toward the second half of the year.

Of first-half 2026 revenue, Europe comprised 17% (up from 15% in first-half 2025), Asia 48% (down from 70%), North America 10% (down from 13%). Other countries (including Australia) comprised 24% (up from just 2%), reflecting diversification of the markets served.

Against a commercial backdrop marked by tighter export licensing conditions for Asia, the firm is continuing to roll out its ROSIE (Riber Oxide Silicon Epitaxy) strategic roadmap, aimed at opening up new growth opportunities in integrated photonics markets. This platform is dedicated to the growth of functional oxides on 300mm silicon wafers and compliant with SEMI industry standards. The second unit is scheduled to be shipped in July to a leading quantum computing player in the USA. This platform is designed for the development of a new generation of electro-optic photonic components for telecoms and data-center infrastructures, with applications in certain quantum architectures.

Systems orders fall 27% but Services & Accessories double

At end-June, the total order book was €26.8m, down 3% on €27.7m in first-half 2025.

Services & Accessories orders almost doubled from €5.2m to €10.3m.

This reflects strong momentum in spare-parts sales for recently installed production equipment. It also benefited from several upgrade orders placed by long-standing customers in North America.

However, Systems orders are down by 27% to €22.5m to €16.5m (comprising four systems, including three production systems and one ROSIE platform, but excluding the order announced on 9 July for a production system in Europe, scheduled for delivery in 2027).

This trend mainly reflects the refusal of several export licenses by the French authorities, representing more than €8m in orders that could not be booked over the period. It also reflects longer decision-making and investment cycles among certain customers, whose high-volume projects remain dependent on visibility regarding demand from major cloud and artificial intelligence players.

Roadmap

Riber says that the fundamentals of its addressable markets remain favorable, supported by accelerating investment in artificial intelligence,

Against a commercial backdrop marked by tighter export licensing conditions for Asia, the firm is continuing to roll out its ROSIE strategic roadmap, aimed at opening up new growth opportunities in integrated photonics

data centers and quantum technologies. However, tighter export licensing procedures for Asia could weigh on the conversion of certain commercial opportunities, it warns.

Riber is also continuing the rollout of ROSIE. The first BTO/STO (barium titanate oxide/strontium titanate oxide) samples under the partnership with NQCP (Novo Nordisk Foundation Quantum Computing Programme) will be made available during fourth-quarter 2026 to support the initial evaluation phases. Several laboratories and industrial partners have expressed strong interest by requesting samples.

Riber is also preparing the next stage of its roadmap with the completion, by year-end, of a dual-chamber ROSIE cluster production machine. This new configuration should enhance the platform's appeal among industrial players, support its progression toward maturity and prepare for its commercial development.

"The structural trends underpinning our markets remain particularly favourable," believes chairwoman & CEO Annie Geoffroy. "Despite a more demanding environment for export licenses, Riber is continuing to execute its strategy with discipline. The next milestones in the ROSIE roadmap, with the availability of the first BTO/STO samples followed by the rollout of our cluster production platform, will create the conditions required to accelerate adoption of this technology and sustainably strengthen our positioning in the future markets for silicon-based integrated photonics," she adds.

"I would like to thank our shareholders for their continued trust, as their number has quadrupled over the past year."

www.riber.com

Aixtron's revenue almost doubles in Q2/2026, driven by opto boom

Q2 orders up 81% year-on-year, as opto rises to 75% share

For first-half 2026, deposition equipment maker Aixtron SE of Herzogenrath, near Aachen, Germany has reported revenue of €174.5m, down 30% on first-half 2025's €249.9m.

Of total revenue, after-sales business remained stable year-on-year at about €52m, while equipment sales fell by 38% from €197.8m to €122m.

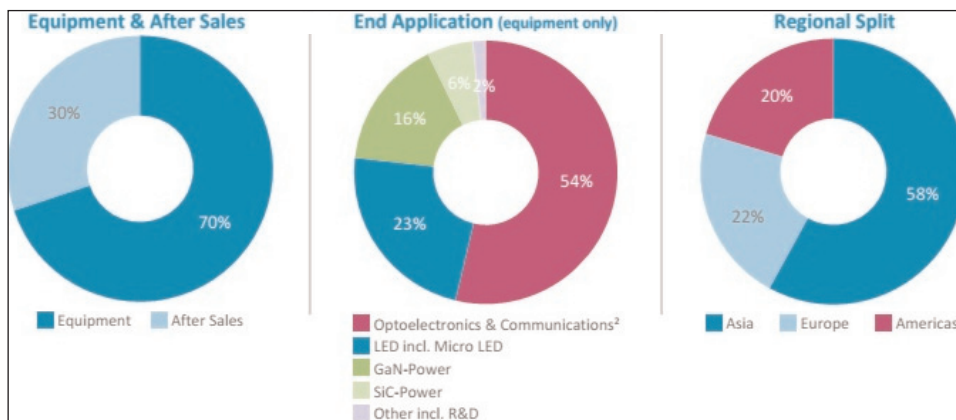
Of total equipment revenue, power electronics applications contributed just 22% (plummeting from 71% a year ago). Specifically, metal-organic chemical vapor deposition (MOCVD) tools for gallium nitride (GaN) shrank from 26% to 16%, while chemical vapor deposition (CVD) tools for silicon carbide (SiC) slumped from 45% to just 6%.

MOCVD equipment for making LEDs and micro-LEDs has risen from 16% a year ago to 23% of equipment revenue, although demand remains soft.

MOCVD equipment for making optoelectronics and communications devices (telecoms/datacoms, consumer electronics, and solar) has boomed from just 9% of equipment revenue in first-half 2025 to 54% in first-half 2026, particularly for manufacturing lasers for optical datacoms and 3D sensing technology. "After the clear inflection point we saw in Q1, the market continued to accelerate in Q2, driven by strong demand from AI data-center applications," notes CEO Dr Felix Grawert.

Despite being down 16% year-on-year on Q2/2025's €137.4m, quarterly revenue has rebounded from €59.4m in Q1/2026 by almost doubling to €115.1m in Q2/2026 (above the mid-point of the €110m±€10m guidance range). This reflects the ongoing ramp-up in photonics business as well as the emergence from Q1's trough in power electronics.

Gross margin fell from 36% first-half 2025 to 33% in first-half 2026. However, as well as the lower production volume (particularly in



Q1/2026), this included one-off expenses in the mid-single-digit-million Euro range related to a personnel reduction in the operations area (following a prior 10% staff reduction between mid-2025 and mid-2026, from 1155 to 1035).

This is intended to create a more flexible operating structure in light of the very soft business outlook at the beginning of the year. Subsequently, quarterly gross margin recovered from just 18% in Q1 to 41% in Q2 (back level with a year ago).

Return to profitability in Q2

Operating expenses increased by 3% from first-half 2025's €63m to €65.2m in first-half 2026, due to R&D expenses rising by 31% from €36m to €47m (as Aixtron continues to invest in technology growth).

Compared with an operating profit (EBIT) of +€26.9m (EBIT margin of +11% of revenue) in first-half 2025, in first-half 2026 Aixtron recorded EBIT of -€7.6m (-4% margin), due mainly to the lower revenue volume and the one-off expense for personnel reduction in Q1. However, compared with -€22.3m (-38% margin) in Q1, EBIT was +€14.7m (+13% margin) in Q2, reflecting the higher revenue level and improved operating leverage.

Compared with a net profit of €24.3m (€0.22 per share) in first-half 2025, Aixtron recorded a net loss of -€2.8m (-€0.02 per share) in first-half 2026. However, this was due to the net loss of -€21.9m

(-€0.19 per share) in Q1. In contrast, Q2 returned a net profit of €19.1m (€0.17 per share), roughly level with €19.2m (€0.18 per share) in Q2/2025.

Cash flow generation more than doubles in Q2

Cash flow from operating activities has more than doubled year-on-year from €85.1m in first-half 2025 to €172.7m in first-half 2026. Of this, quarterly operating cash flow more than doubled from Q1/2026's €53.6m to Q2's €119m.

Capital expenditure (CapEx) in first-half 2026 was almost €11m. Free cash flow was hence €162.1m (more than doubling from first-half 2025's €71.1m). Of this, Q2/2026 free cash flow was €113.6m, up on Q1's €48.5m (and €41.3m in Q2/2025).

A key driver was the big increase in customer advance payments, reflecting the strong order intake and backlog, a favourable order composition, and individually agreed payment terms.

Cash and cash equivalents (including other current financial assets) rose during Q1/2026 from €224.6m to €272.7m. Following a dividend payment of €16.9m, this has now risen to €816.2m at the end of Q2/2026, due to the placement in April of the firm's inaugural convertible bond, of €450m.

After deducting the liability component of the convertible bond of €349.2m, net financial assets are

€467m, up from €273m at the end of Q1 and more than doubling from €222m at year-end 2025. After falling from 88% to 85% during Q1, the equity ratio has hence fallen to just 61% at the end of Q2.

"Free cash flow of €162.1m in the first half of the year and available liquidity of €816.2m provide us with substantial financial flexibility," notes chief financial officer Dr Christian Danninger. "We are well positioned to execute the upcoming production ramp and develop our new site in Malaysia [a €40m investment in 2026–2027] while continuing to invest in our technology and operational capabilities," he adds.

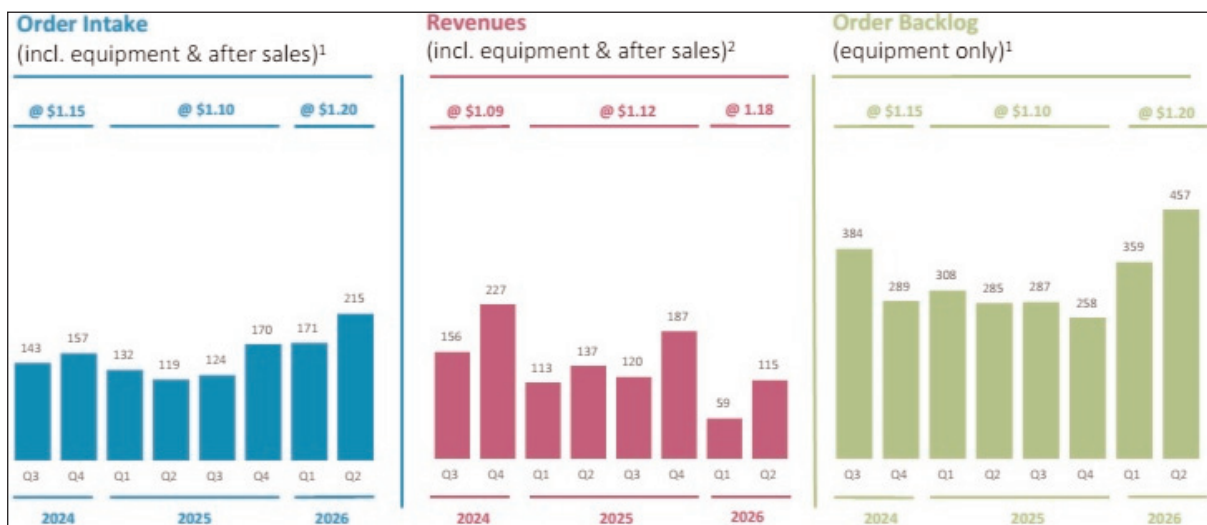
Order intake and order backlog

Order intake has grown by 54% from first-half 2025's €250.7m to €386m in first-half 2026. Of this, Q2/2026 was €214.5m (up 25% on €171.4m in Q1 and 81% on €118.5m a year ago).

This was driven by exceptionally strong demand for optoelectronic systems that began to materialize in late Q1, growing by 36% from €118m in Q1 to €160m in Q2 (rising from 70% of equipment order intake to 75%). High multi-tool order activity (with major laser-related system shipments expected to begin in Q3) extends visibility well beyond 2026. "We expect order momentum in optoelectronics to remain at very high levels in the second half of the year," says Grawert.

In contrast, LED/micro-LED system demand remained soft in first-half 2026.

Demand for systems for SiC & GaN power electronics also remained soft. Utilization rates at customers are gradually increasing, but an inflection point toward a market recovery is not yet visible.



As of end-June, equipment order backlog was €456.9m, up from €359.1m at the end of March and €257.8m at the end of 2025.

In addition to the strong order intake and backlog, the composition of current orders and individually agreed payment terms has boosted customer advance payments by more than €150m during first-half 2026 to €197m. This comprises about 43% of the equipment order backlog, and provides meaningful funding for the upcoming volume production ramp.

At the same time, inventories increased during first-half 2026 from €283.6m to €317.9m, mainly reflecting higher levels of work-in-progress for shipments scheduled in the coming quarters.

Raised 2026 full-year guidance confirmed

To serve all customers with shipments at their requested delivery dates, Aixtron is now ramping up production capacity at its own premises and in close collaboration with its suppliers, to realize growth in shipment volumes in Q3 and further in Q4.

Aixtron hence targets further revenue growth in Q3 to €180m±€20m, followed by about €200m in Q4.

So, despite the soft start to 2026, Aixtron says that it is on track to achieve its full-year revenue guidance, which on 14 April was raised from €520m±€30m to €560m±€30m. This comprises the first-half 2026 revenue of €175m, plus forecasted Q3–Q4/2026

after-sales revenue of about €55m, equipment order backlog (convertible into 2026 revenue) of about €235m, and new orders of €95m±€30m.

So, second-half 2026's revenue of about €385m should be more than double the first-half's €175m.

Aixtron also expects to achieve the raised guidance for gross margin of about 42% and for EBIT margin of 17–20%, which includes one-off expenses in the mid-single-digit-million Euro range related to the personnel reduction in operations.

For full-year 2026, CapEx should be about €55m, comprising baseline investments and about two-thirds of the €40m investment in the Malaysia expansion. The process to sell Aixtron's production facility in Italy (valued at €7.1m) is ongoing.

"The first half of 2026 marked an important turning point for Aixtron," says Grawert. "Strong order momentum in optoelectronics provides high visibility for the upcoming production ramp, while the convertible bond and our planned production site in Malaysia enhance our financial and operational flexibility." Groundworks for the new building in Penang, Malaysia have already started, targeting a phased production ramp-up, to first system shipments by end-2027.

"We have positioned the company well to capture the full wave of accelerating optoelectronics demand," believes Grawert. "At some point in time, power electronics will also restart and add to revenue growth."

www.aixtron.com

Aixtron recruiting staff for new Penang facility

Facility to house front-end equipment manufacturing, engineering and new Customer Service Support Center

Deposition equipment maker Aixtron SE of Herzogenrath, near Aachen, Germany is now actively recruiting for a variety of roles at the new facility that it is building in Penang, Malaysia.

The investment establishes two key enabling technology areas for AI infrastructure in Malaysia. First, Aixtron says that its wide-bandgap semiconductor technologies help to address the 'AI Power Wall' by enabling more efficient power conversion for data centers, energy infrastructure and electric vehicles. Second, Aixtron's products offer solutions for the 'AI Data Wall' by enabling high-performance optical interconnects with high bandwidth, fast data transmission and reduced energy demand. Together, these technologies address two of the central challenges facing the continued growth of AI: the need for more energy-efficient computing

infrastructure and the need to move ever-larger volumes of data at high speed.

On 22 July, Datuk Sikh Shamsul Ibrahim Sikh Abdul Majid, CEO of the Malaysian Investment Development Authority (MIDA), visited Aixtron in Herzogenrath, to gain first-hand insight into the manufacturing and development of Aixtron products. "Aixtron's investment in Penang is fully aligned with Malaysia's national strategy to strengthen its position in the global semiconductor industry," he said. "The presence of a front-end equipment manufacturer of Aixtron's caliber will directly support Malaysia's National Semiconductor Strategy, its high-value and digital economy agenda, and its national target of developing 60,000 high-skilled semiconductor professionals by 2030. Aixtron will contribute to this goal by recruiting locally and devel-

oping the skills of its new Penang workforce, and its products will play a pivotal role in improving energy sustainability and transforming the country toward a greener future," he added.

"Malaysia is becoming an important location for advanced semiconductor technology, and Aixtron is proud to contribute to this development," says Aixtron's CEO Dr Felix Grawert. "With our new site in Penang, we are bringing front-end equipment manufacturing, engineering capabilities and our new Customer Service Support Center closer to one of the world's most dynamic semiconductor ecosystems."

Aixtron currently has about 150 open positions to be filled at the facility in Penang by the end of 2026. Candidates are invited to submit their applications at:

www.aixtron.com.my.

AlixLabs expands cleanroom space at RISE ProNano

Sweden-based semiconductor equipment maker AlixLabs AB — which was spun off from Lund University in 2019, and is pioneering Atomic Pitch Splitting (APS) — is expanding its cleanroom space at the Lund-based RISE ProNano lab by 400m².

The expansion is part of AlixLabs' continuous growth plan as it advances from technology development toward commercialization. The additional cleanroom capacity will provide more space to install, qualify and operate equipment for customer-facing beta activities, including semiconductor wafer processing and process validation for leading semiconductor clients.

A central part of the expansion is preparation for the company's APS Beta platform, which is expected to become operational in second-half 2026. This will allow AlixLabs to run

more extensive beta tests with semiconductor customers and support the transition of APS from pilot-scale development toward commercial manufacturing use cases.

"Expanding our cleanroom footprint at RISE ProNano is a significant step in our commercialization roadmap," says CEO Jonas Sundqvist. "The additional 400m² give us the infrastructure needed to scale our beta activities, support customer evaluations and demonstrate the value of APS in a production-relevant environment."

AlixLabs' APS technology is designed to enable advanced semiconductor patterning through a fast atomic layer etching (ALE) process, creating extremely small and precise structures while reducing process complexity. By expanding its cleanroom capacity, the firm is strengthening its ability to support

semiconductor customers as they evaluate new approaches to future chip manufacturing.

The expansion also reinforces AlixLabs' long-term presence in Lund's semiconductor ecosystem. Based at RISE ProNano, AlixLabs benefits from access to advanced infrastructure, process expertise and a collaborative environment designed to support the scaling of next-generation semiconductor technologies.

"This expansion is not only about more space," says Sundqvist. "It is about building the operational foundation required for commercialization," he adds. "With the APS Beta platform coming online later this year, we are creating the capacity needed to work more closely with customers and accelerate the path toward industrial adoption."

www.alixlabs.com

Space Forge selects Texas A&M University System as manufacturing base

Agreement sets framework for firm's first US facility for semiconductor materials manufacturing and processing

Space Forge Inc (which, as a branch of Space Forge Ltd of Cardiff, Wales, UK, operates from Florida's Space Coast, using space as a unique laboratory environment to manufacture semiconductor materials that cannot be made on Earth) has signed a master research agreement with The Texas A&M University System, which sets the framework for a research collaboration and marks a first step towards Space Forge establishing its initial semiconductor materials manufacturing and processing capability in the USA.

The agreement applies throughout the Texas A&M System and establishes how future research will be handled across all joint projects.

The Texas A&M System was selected for the strength of its existing semiconductor facilities and infrastructure, including cleanrooms, material processing and characterization capabilities, alongside aligned research, access to a skilled local workforce and the major semiconductor projects planned across the region. Space Forge will work closely with the Texas A&M Semiconductor Institute as well as the AggieFab Nanofabrication Facility. AggieFab is a part of the Texas A&M Engineering Experiment Station and the Texas A&M University Department of Electrical and Computer Engineering.

Texas already has an established semiconductor and space ecosystem, with many of Space Forge's

current collaborators based in the state, including Intuitive Machines, Voyager and Starlab.

"Space Forge's leadership in developing high-quality substrates for advanced materials and semiconductor applications aligns perfectly with our institute's mission to drive disruptive, next-generation research," comments Steve Putna, director, Texas A&M Semiconductor Institute, and associate vice-chancellor for the Texas A&M System. "Together, we will pursue breakthroughs that strengthen semiconductor innovation. Texas is one of the most dynamic environments for semiconductors in the nation, and collaborations like this one are exactly what will keep the Texas A&M System at the forefront of that momentum. This collaboration not only advances cutting-edge research, but also fuels workforce development and economic growth right here in Texas," he adds.

"AggieFab has built its reputation as a nanofabrication facility where researchers and industry partners can turn ambitious ideas into real devices and materials," says AggieFab's director Arum Han, associate agency director for the Texas A&M Engineering Experiment Station. "Our cleanroom environment, along with our advanced fabrication, characterization and material processing tools, gives Space Forge a powerful foundation to develop and refine the next generation of semiconductor substrates

right here in Texas. We're excited to put our infrastructure and technical expertise to work in this collaboration while giving our students and researchers hands-on experience with the pioneering materials that will define the future of the industry," he adds.

"This agreement is an important first step in establishing our manufacturing presence in the United States," says Space Forge Inc's president Michelle Flemming. "The Texas A&M System gives us the infrastructure, the research strength and the talent to stand up our first US facility for semiconductor materials, and to do it in a state that has demonstrated, with funding, how serious it is about both advancing semiconductors and space."

The collaboration supports Space Forge's broader goal of building US capacity in advanced semiconductor materials and speaks to a national priority, with US domestic semiconductor manufacturing capacity projected to grow 203% in the decade following the 2022 CHIPS and Science Act, according to the Semiconductor Industry Association and Boston Consulting Group.

The collaboration will begin with terrestrial material growth, characterization and processing, before expanding over the next 12-24 months to include joint research opportunities across the Texas A&M System.

www.spaceforge.com

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www.semiconductor-today.com

Aehr's quarterly revenue rises 33% year-on-year to \$18.8m

Record quarterly bookings of \$60.7m and \$100m effective backlog to drive 160–200% growth in fiscal 2027

For fiscal fourth-quarter 2026 (ended 29 May), Aehr Test Systems of Fremont, CA, USA — which provides solutions for testing, burning-in and stabilizing semiconductor devices in wafer-level, singulated die, and packaged-part form — has reported greater-than-expected revenue of \$18.8m, up 83% on \$10.3m last quarter and 33% on \$14.1m a year ago. Despite this, fiscal full year revenue of \$50m for 2026 is still down on \$59m for 2025.

On a non-GAAP basis, operating expenses have risen from \$5.4m a year ago and \$6.3m last quarter to \$7.4m, raising fiscal full-year OpEx from \$23.2m in 2025 to \$25.4m for 2026.

Net income was \$3.6m (\$0.11 per diluted share), compared to net losses of \$1.5m (\$0.05 per diluted share) last quarter and \$0.25m (\$0.01 per diluted share) a year ago. Fiscal full-year net income was \$0.9m (\$0.03 per diluted share) for 2026, down from \$4.6m (\$0.15 per diluted share) in 2025.

Cash used in operating activities was \$3.3m for fiscal 2026, cut from \$7.4m in fiscal 2025.

During fiscal Q4/2026, total cash, cash equivalents and restricted cash rose from \$37.1m to \$116.5m, boosted by \$60m from an equity offering in April.

Fiscal Q4/2026 “capped a year of significant bookings and revenue diversification,” notes president & CEO Gayn Erickson.

Order backlog more than doubles
Quarterly order bookings have risen from just \$11m a year ago and \$37.2m last quarter to a record \$60.7m.

Order backlog has correspondingly risen from \$15.2m then \$37.2m to \$80.6m. Effective backlog (including bookings since 29 May) is \$100.6m.

“Record quarterly bookings, a very strong backlog, and growing demand across AI processors, silicon photonics, and power semi-

conductors for our wafer-level and package-level burn-in solutions position us well for significant growth moving forward,” Erickson says.

“Heading into fiscal year 2027, we have substantial visibility into projected fiscal 2027 revenue of \$130–150m, representing expected year-over-year growth of 160–200%,” he adds.

“In wafer-level burn-in (WLBI), demand from AI-related applications continued to accelerate,” Erickson says. “Our lead AI production customer is significantly ramping capacity, driving an increase in forecasted capacity needs for our FOX WLBI solutions this year and beyond. They are shifting their burn-in from system-level to all wafer-level for their AI accelerators used for training and inference applications. We are also engaged with additional AI processor suppliers that are evaluating WLBI to improve product reliability and reduce yield loss from production burn-in of their devices later in the manufacturing process.”

Aehr successfully completed benchmark testing of its WLBI solution with a major supplier of AI accelerators, CPUs, and network processors. The testing was conducted on one of their processors and produced results that exceeded their expectations. “This top-tier AI processor supplier has now expressed interest in moving to pilot-production test validation for its current high-volume device, for which we completed the benchmark,” says Erickson. “They indicated that this device is expected to continue ramping and achieve significant volumes over the next year or more. In addition, they recently requested that we evaluate a second device in parallel. The potential revenue opportunity from any one of these devices is significant to Aehr in terms of

near- and long-term revenue streams related to the WLBI systems and proprietary Aehr WaferPak contactors.”

Aehr's package-level burn-in business for AI processors also gained momentum in the year, highlighted by record follow-on production orders from the firm's lead hyperscale customer for Sonoma systems supporting high-volume AI processor production burn-in. “This customer is a premier large-scale data-center provider and is forecasting a substantial expansion of Sonoma system purchases for a second device which has twice the power per package as the first device that they are using Sonoma systems for today,” says Erickson. “As their current and next-generation devices ramp, we believe Sonoma systems and consumables can become an increasingly important contributor to Aehr's revenue. We are also engaged with multiple current and potential new customers for package-level reliability qualification and production burn-in of AI accelerators, application-specific integrated circuits (ASICs), network processors, and also for edge AI processors for automotive and robotics, which represent significant opportunities for Aehr over the next few years.”

“As we have anticipated for the last year, silicon photonics devices and the need for production burn-in is now seeing strong momentum as AI data-center architectures increasingly rely on optical I/O and high-speed interconnects. Our lead silicon photonics customer is ramping, with follow-on orders this past year and more already in this fiscal year for fully automated WLBI systems powering AI optical I/O and data-center interconnects. In addition, our newest major silicon photonics customer that is a global leader in networking products

and solutions has provided us a forecast for additional systems this calendar year as it ramps capacity to support next-generation hyperscale data-center deployments. We believe the silicon photonics and optical test and burn-in market has the potential to grow substantially and could be another long-term growth driver."

"We are seeing encouraging signs of recovery in silicon carbide (SiC) power semiconductors. We are actively engaged to meet the WLBI needs of several of the world's largest automotive manufacturers and several of their SiC suppliers for their new electric vehicles," says Erickson. Aehr has also announced that it has received about \$8m in new orders in just the last month for silicon carbide WLBI WaferPaks as global electric vehicle programs accelerate. "These include expanded production orders from our lead

silicon carbide customer for WaferPak full-wafer contactors, and a key order directly from one of the largest automotive companies in the world for multiple WaferPaks to be used in qualification of silicon carbide devices from suppliers for their new generation of electric vehicles using Aehr's FOX WLBI systems. This year, we expect renewed demand for both SiC and GaN power semiconductor test and burn-in, driven by automotive electrification and AI data-center power infrastructure," he adds.

Aehr also continues to pursue opportunities in memory, including NAND flash and potential high-bandwidth memory (HBM) applications with our WLBI solutions roadmap. "The growth of these two memory markets may have never been stronger, with massive capacity increases planned this decade. We continue to work with

multiple memory suppliers to align our solutions to meet the production needs of these companies' new capacity coming online," says Erickson.

"With multiple customers entering or expanding production, a record backlog, and additional opportunities under discussion for both wafer-level and package-level burn-in, we believe Aehr is well positioned for multiple years of strong revenue growth."

Full-year revenue expected to grow 160–200% in fiscal 2027

For full-year fiscal 2027 (ending 25 June), Aehr expects revenue to grow 160–200% year-on-year to \$130–150m. Net income should be 18–22% of total revenue. This outlook reflects the current effective backlog of about \$100m and expected customer demand from existing production programs.

www.aehr.com

Trymax secures multi-million-dollar supply agreement with AOI to support InP laser manufacturing

Ashers and UV curing systems to remove residues, etch surfaces, and treat materials

Trymax Semiconductor Equipment BV of Nijmegen, The Netherlands (which provides plasma-based solutions for photoresist removal, surface cleaning, isotropic etch and UV curing/charge erase) has been awarded a multi-year, multi-million-dollar purchase order by Applied Optoelectronics Inc (AOI) of Sugar Land, TX, USA (a designer and manufacturer of optical and hybrid fibre-coaxial networking products for AI data centers, cable TV and broadband fiber access networks).

AOI grows and fabricates its own indium phosphide (InP)-based laser chips and wafers in-house, for use in its optical transceivers for intra- and inter-data-center connectivity. InP-based laser manufacturing can present specific process challenges, particularly in handling fragile substrates across mixed wafer sizes —

an area in which Trymax has established itself as an equipment supplier for this class of device, based on its tool availability, innovative technology and wafer-handling capabilities, it is claimed.

Trymax will provide AOI with its ashers and UV curing systems to support the chip-making process by removing residues, etching surfaces, and treating materials at various stages of fabrication. These platforms can process InP wafers ranging from 3- to 6-inches in diameter and are recognized for handling fragile substrates without compromising yield, Trymax says.

"This award reflects the depth of engineering collaboration we've built with AOI over time," says Garrie Murphy, sales director Americas at Trymax. "Our teams have worked closely to align our ashers and UV curing platforms with

the exacting tolerances their manufacturing processes demand, and this marks a natural extension of that partnership as their production needs continue to grow," he adds.

"Trymax is a trusted partner for plasma cleaning and UV/ozone surface preparation equipment, which we plan to integrate into our wafer fab in Sugar Land," comments Stephen Hu, deputy director of Wafer and Chip Production at AOI. "In our evaluation, their equipment performed very well and their team has been highly responsive, which is critical for our partners as we aim to rapidly expand our laser chip production capacity in Texas."

Trymax is exhibiting in the Netherlands Pavilion in Hall 1 (K2760) at SEMICON Taiwan 2026 at TaiNEX, Taipei (2–4 September).

www.ao-inc.com

www.trymax-semiconductor.com

Palomino completes acquisition of Vega Links

Karthik Gopalakrishnan appointed as CTO and Rajesh Radhamohan as CPO; Sudeep Bhoja and Gopal Raghavan join Strategic Advisory Board

Artificial intelligence (AI) interconnect technology company Palomino Laboratories Inc of Goleta, CA, USA has closed its acquisition of Vega Links Inc, creating a next-generation AI interconnect company.

Palomino is developing next-generation connectivity solutions for the rapidly evolving AI infrastructure market. The product focus addresses AI interconnect solutions in the 0–50m range and includes:

- (i) silicon chipsets enhancing the speed of copper,
- (ii) silicon optical integrated circuits (IC's) optimizing the performance of micro-VCSEL interconnects, and
- (iii) silicon and gallium nitride ICs for micro-LED interconnects.

Chipsets are designed to enable high-bandwidth, low-latency, and energy-efficient data movement across AI systems. Solutions are designed to support the growing performance demands of AI, high-performance computing (HPC), enterprise networking, hyperscale data centers and advanced robotics, as increasingly intelligent systems require faster, more efficient, and more reliable data connectivity.

Vega Links was founded to pioneer advanced AI systems architecture and interconnect technologies for next-generation AI infrastructure, bringing expertise in high-speed AI and memory connectivity. The acquisition accelerates Palomino's strategy to become a leading AI interconnect technology company, combining its gallium nitride (GaN) micro-LED technologies with Vega Links' silicon design, systems architecture, and product engineering strengths.

Executive leadership and Strategic Advisory Board actions

Palomino's has appointed Karthik Gopalakrishnan as chief technology officer (CTO) and Rajesh Radhamohan as chief product officer (CPO).

It has also appointed Sudeep Bhoja and Gopal Raghavan to its

Strategic Advisory Board.

Bhoja is co-founder & CTO of d-Matrix, an AI computing company building next-generation inference accelerators for generative AI. He has more than 25 years of experience in semiconductor architecture, high-speed interconnects, and AI computing. Previously, he was CTO of the Datacenter business unit at Inphi Corp (acquired by Marvell Technology), where he led the development of PAM4 DSP interconnect and silicon photonics technologies. Previously, he was technical director in Broadcom's Infrastructure and Networking Group, with earlier roles at Lucent Technologies and Texas Instruments.

Raghavan is a veteran Silicon Valley semiconductor executive, entrepreneur and technology strategist with more than four decades of leadership spanning semiconductor architecture, embedded AI, and high-performance computing. He has held executive leadership and technical roles at Microsoft, Renesas Electronics, Cadence Design Systems, Intel, Hughes Electronics, and Conexant, and served as co-founder & CTO of Inphi, a pioneer in high-speed semiconductor interconnect technologies. He also served as CEO & co-founder of Eta Compute, an edge AI semiconductor company, and continues to advise emerging technology companies on strategy and commercialization. Raghavan's experience building innovative semiconductor businesses, leading engineering organizations, and commercializing advanced technologies are expected to provide valuable strategic guidance as Palomino expands its AI interconnect platform.

Executive commentary

"We are building a world-class leadership team and Strategic Advisory Board with deep expertise across AI infrastructure, semiconductor

architecture, networking, and product innovation," says Palomino's co-founder & CEO Jeffrey B. Shealy. "Together, this exceptional team significantly strengthens our ability to execute our vision of becoming a premier AI interconnect company delivering differentiated semiconductor technologies that enable the next generation of AI infrastructure," he adds.

"The future of AI infrastructure will require innovation across system architecture, silicon, networking, and advanced interconnect technologies," says Gopalakrishnan. "Bringing together the complementary capabilities of Palomino and Vega Links creates an outstanding opportunity to develop next-generation AI interconnect solutions," he adds. "Our objective is to develop highly differentiated AI interconnect chipsets that improve bandwidth, latency, power efficiency, and scalability while enabling customers to build larger and more efficient AI computing clusters."

Industry opportunity

Palomino believes that future AI clusters will rely on heterogeneous interconnect technologies rather than a single approach. Copper is expected to remain important for very-short-reach applications, while optical technologies, including micro-VCSEL and micro-LED-based solutions, are expected to play an increasingly important role as AI clusters continue to scale. Palomino believes that this broader technology portfolio positions it to pursue opportunities across multiple segments of the rapidly expanding AI networking market.

The firm intends to leverage the combined engineering organization to accelerate customer engagements, expand strategic partnerships, and advance commercialization of its AI interconnect chipset roadmap.

www.palominolabs.ai

Palomino ships first-generation micro-LED light engine prototypes to first hyperscaler customer

Second-generation to sample by end-Q3; first development contract from strategic AI customer expected in Q4

Artificial intelligence (AI) interconnect technology company Palomino Laboratories Inc of Goleta, CA, USA has shipped its first micro-LED light engine prototypes to its first hyperscaler customer. Furthermore, the customer completed its evaluation and provided Palomino with test measurement results confirming that the measured micro-LED bandwidth exceeded Palomino's initial design targets.

The company is investing in R&D to improve bandwidth, efficiency and power performance of its gallium nitride (GaN) micro-LED light engine technology. Palomino is on-track to sample its second-generation micro-LED technology with improved bandwidth performance to multiple customers by the end of fiscal third-quarter 2026.

With improved prototype bandwidth and power performance, Palomino plans to pursue one or more development contracts to advance its micro-LEDs and align performance with its customer's initial AI interconnect requirements. It hence expects to receive its first development contract from a strategic AI customer in fiscal



fourth-quarter 2026.

"These first samples, confirmed by a leading hyperscaler customer, exceeded our design targets and validated that our GaN micro-LED technology is progressing," says co-founder Dr Steven Denbaars, a pioneer of GaN micro-LEDs. "Now we are accelerating our next generation technology on an aggressive schedule to drive a meaningful improvement in system performance as we move toward integration within a full optical interconnect solution," he adds. "With our recently announced LOI [letter of

intent] to acquire Vega Links Inc, we expect to migrate from delivering breakthrough micro-LED devices toward delivering differentiated optical links for AI applications."

Palomino believes this work targets an increasingly urgent constraint in modern AI interconnects, namely bandwidth and efficiency, which is widely viewed as a system bottleneck as compute performance scales more quickly than interconnect bandwidth, according to a 2024 IEEE Micro Journal publication from University of California Berkley.

By leveraging differentiated micro-LEDs, micro-VCSELs (vertical-cavity surface-emitting lasers) and copper engine technologies, Palomino is focused on enabling emerging short-reach interconnect applications and delivering faster, more efficient data movement for AI data centers. According to 2025 and 2026 market reports from LightCounting and company estimates, the total addressable market for the Palomino's AI interconnect solutions is more than \$60bn in 2031.

www.palominolabs.ai

Cree LED and Nanolumens enter settlement and limited patent license agreement

Cross-license resolves infringement dispute related to components used in LED displays

Cree LED Inc of Durham, NC, USA (a Penguin Solutions brand) and NanoLumens Inc of Peachtree Corners, GA, USA have entered into a mutually beneficial patent cross-license agreement that resolves a patent infringement dispute involving Cree LED's patents related to LED components commonly used in LED displays.

Cree LED and Nanolumens say they are committed to protecting their intellectual property as part of their broader mission to drive innovation in LED display technology. As US-based firms with significant investments in research, development and product quality, they add that they actively monitor the global market to identify and address unauthorized

use of their patented technologies. This spans the entire value chain, from manufacturers and suppliers to specifiers and end users, ensuring that their innovations remain protected and that their customers can rely on the integrity and performance of each company's solutions.

www.nanolumens.com

www.cree-led.com

Kubos secures \$2.1m investment to accelerate development of cubic-phase GaN

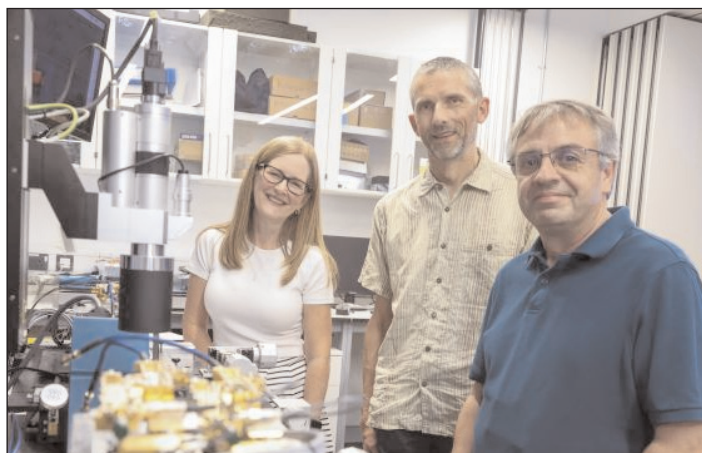
Funding to enable entry into micro-LED market within three years through IP licensing

Micro-LED material technology company Kubos Semiconductors Ltd (which was spun out of the UK's University of Cambridge in 2017, and is now based in the Sbarc building at Cardiff University in South Wales) has raised over \$2.1m to accelerate development of its cubic-phase gallium nitride (GaN) technology. This brings total funding to over \$8m and will enable Kubos to enter the micro-LED market within three years through IP licensing.

The latest investment includes the award of a Growth Catalyst project grant from government agency Innovate UK, part of UK Research and Innovation (UKRI). This funded project will explore the potential of Kubos' patented cubic GaN micro-LED technology to deliver Gigahertz switching speeds at low operating powers for optical communication applications.

The financial support from Innovate UK is matched by investor funds from strategic investors Development Bank of Wales (lead investor), the Low Carbon Innovation Fund 3 (LCIF3) and S4C Digital Media Ltd. The funding also includes follow-on investment from Kubos' existing shareholders.

The funds will accelerate the development of high-speed micro-LEDs for optical interconnects. "The project perfectly complements Kubos'



ongoing development of a platform-material solution for high-efficiency micro-LEDs emitting across the visible wavelength spectrum," says Kubos' CEO Dr Susan Gormley.

"This is an exciting opportunity to strengthen Kubos' pathway to commercialization through the delivery of transformational technology for AI and data-center infrastructure, next-generation displays and high-efficiency lighting," she adds.

"Kubos is exactly the kind of Welsh tech venture that demonstrates the strength and potential of South Wales' compound semiconductor sector," comments Gareth Mayhead, investment executive at the Development Bank of Wales. "Since our first investment, the team has made encouraging progress in developing technology that could improve the efficiency and scalability of micro-LED production for global markets,"

he adds.

"Our follow-on funding is a relatively small investment, but it plays an important role in unlocking further capital, including Innovate UK grant support, and gives Kubos the runway it needs to continue proving its tech-

nology at scale," Mayhead continues. "The continued support of LCIF3 also reflects confidence in the company's progress and the opportunity for Wales to build on its growing reputation in this key growth sector."

The Development Bank of Wales has a track record of supporting breakthrough technologies and compound semiconductor businesses. The Low Carbon Innovation Fund 3 (LCIF3) is a co-investment fund operated by the University of East Anglia, focused on developing environmentally beneficial technologies, products or services. S4C Digital Media plays a key role in the delivery of digital content to consumers. This investor group brings experience and knowledge that touches on all aspects of the opportunity that Kubos aims to exploit.

www.kubos-semi.com

SemiLEDs' revenue bounces back from \$1.06m to \$9.07m

More buy-sell purchase orders expected next quarter

For its fiscal third-quarter 2026 (to end-May), LED chip and component maker SemiLEDs Corp of Hsinchu, Taiwan has reported revenue of \$9.07m, up from \$1.06m last quarter, due to the increase of buy-sell purchase orders of equipment.

Gross margin was 27%, recover-

ing from just 1% last quarter.

Despite operating expenses rising from \$0.85m last quarter back to \$1.05m, operating margin was 16%, compared to -79% last quarter.

Compared to a net loss of \$603,000 (\$0.07 per diluted share) last quarter, net income was \$1.5m

(\$0.18 per diluted share).

During the quarter, cash and cash equivalents hence rose further, from \$4m to \$6m.

SemiLEDs expects more buy-sell purchase orders in fiscal fourth-quarter 2026 (to end-August).

www.semileds.com

Chuck Mattera joins Uviquity as strategic advisor

Uviquity of Raleigh, NC, USA — a venture-backed start-up founded in 2022 that is pioneering integrated photonics, developing photonic integrated circuits (PICs) on a proprietary aluminium nitride (AlN) platform for quantum and ultra-violet applications — says that Dr Vincent D. (Chuck) Mattera Jr, founder & CEO of Avalanche Thinking Inc and former chair & CEO of Coherent Corp, has joined it as a strategic advisor as it scales its AlN photonics platform and accelerates commercialization.

“Chuck has spent his career identifying foundational technologies early and transforming them into global businesses,” notes Uviquity’s CEO & co-founder Scott Burroughs. “We believe integrated AlN photonics can become a foundational platform technology serving quantum systems, advanced sensing, and future deep-ultraviolet applications. Chuck’s experience scaling technology companies, building strategic customer relationships, and creating the partnerships and ecosystems required for long-term market leadership will be invaluable as we move from demonstrated results to product in customers’ hands,” he believes.

“Throughout my career, I have been drawn to technologies that will underpin growth markets and are capable of redefining industries rather than just incrementally improving existing products,” says Mattera. “Uviquity has developed a remarkable integrated AlN photonics platform with the potential to unlock capabilities that existing photonics technologies cannot easily achieve across the ultraviolet, visible and infrared spectra,” he comments. “What excites me most is the opportunity to help Uviquity build a business that can transform breakthrough science into enduring industrial leadership. I look forward to working with Scott and the team as they build a scalable photonics platform serving multiple strategic markets from a common semiconductor foundation.”

Mattera joined II-VI Inc in 2004 and served as CEO from 2016 to 2024. Across those two decades, the company grew from roughly \$150m in annual revenue to more than \$5bn, and he led its transformation from an engineered materials company into a global leader in materials, lasers and photonics. He oversaw dozens of acquisitions, including Finisar and Coherent Inc, following which II-VI adopted the Coherent Corp name in 2022. Earlier in his career, Mattera spent two decades at AT&T Bell Laboratories, Lucent Technologies, and Agere Systems, overseeing the development and manufacture of semiconductor lasers. After his retirement from Coherent, he founded Avalanche Thinking.

A photonics platform spanning the deep ultraviolet to infrared

Uviquity fabricate photonic integrated circuits on aluminium nitride (AlN), whose properties are well matched to quantum systems. Its ultrawide bandgap keeps it transparent deep into the ultraviolet. Further, it is intrinsically non-linear, electro-optically active, and strongly piezoelectric. A single chip can hence route light with low loss, convert it between wavelengths, modulate and switch it at high speed, and provide acousto-optic control and tuning — a combination no other integrated platform offers, over a spectral range no other material can reach. Uviquity claims to hold the shortest-wavelength second-harmonic-generation result demonstrated in AlN to date, first published at SPIE Photonics West 2026 in January, and has more than 20 patents pending.

Uviquity is commercializing its AlN photonics platform across several markets:

- **Quantum.** Atomic clocks, quantum sensors, and trapped-ion and neutral-atom systems depend on narrow-linewidth light at specific ultraviolet and visible wavelengths, supplied currently by complex rack-scale laser systems built from hand-aligned mirrors and free-space optics.

Uviquity’s platform addresses these wavelengths from the deep ultra-violet through the infrared, bringing frequency conversion, routing and heterogeneously integrated laser gain onto a single wafer-scale chip. Work in this area is advancing through research collaborations and early customer programs focused on atomic clocks, quantum sensing, and next-generation quantum computing architectures.

- **Sensing and analytics.** Uviquity’s first commercial products are deep-UV laser modules, based on photonic integrated circuit chips, for advanced spectroscopy and analytical instrumentation. Its lead product, announced in May, is said to be the world’s first chip-scale laser emitting at 229nm, delivering collimated, narrow-linewidth deep-UV output for applications including Raman and fluorescence spectroscopy. The modules serve instrument developers in semiconductor inspection, precision metrology, pharmaceutical and biopharmaceutical production, petrochemical processing, environmental monitoring, and defense. Sampling to OEM partners begins in fourth-quarter 2026, providing the initial commercialization pathway for the broader AlN photonics platform.
- **Additional applications.** The same AlN platform also enables far-UVC disinfection and other wavelength-specific photonic systems under development.

Uviquity recently entered Phase II of its joint development agreement with BluGlass, covering continued development of its heterogeneously integrated PIC platform, wafer and chip processing, packaging development, and laser integration.

Just as silicon photonics is transforming data-center interconnects, integrated photonic platforms capable of generating, routing and converting light across a broad spectral range are emerging as foundational infrastructure for quantum systems, advanced sensing, and precision measurement.

www.uviquity.com

Vexlum establishes London lab and appoints Stefan Truppe as managing director of Vexlum UK

First UK R&D operation supports £2.5bn National Quantum Strategy

Finland-based laser developer and manufacturer Vexlum — which was spun off from Tampere University of Technology's Optoelectronics Research Centre in 2017 and develops and manufactures high-power semiconductor vertical-external-cavity surface-emitting laser (VECSEL) technology systems — has announced the appointment of Dr Stefan Truppe as managing director of Vexlum UK, and the establishment of a dedicated laboratory in London, positioning the firm at the center of the UK's rapidly growing quantum ecosystem.

The expansion follows a significant surge in local demand for Vexlum's VXL laser system. As a compact, 2-liter laser engine that replaces traditional large laboratory instrumentation, the firm's lasers have become a critical component for UK-based research into neutral-atom and trapped-ion quantum computing. By establishing a permanent presence in London, Vexlum will provide localized technical support and collaborative R&D capabilities to its expanding UK client base.

The laboratory will support laser development, testing and technical validation for UK customers while providing a local base for collaborative research and product development with partners across the UK quantum ecosystem. The facility

will house laser development and testing equipment to configure, validate and optimize systems for UK customers, while supporting ongoing product development.

The new UK operation combines commercial activities with local R&D capabilities, enabling Vexlum to contribute more directly to the UK's emerging quantum technology supply chain. Rather than operating solely as a sales office, the company is establishing engineering and R&D capabilities alongside customer support and industrial collaboration.

"The UK has built one of the world's most dynamic quantum ecosystems," comments Vexlum's CEO & co-founder Jussi-Pekka Penttinen. "Following our recent funding round, we're investing in local engineering and R&D capabilities so we can better support our growing UK customer base while becoming an active contributor to the UK's quantum technology supply chain," he adds. "Stefan's appointment gives us exceptional scientific leadership and strengthens our ability to build long-term partnerships across the UK quantum ecosystem."

Truppe joins Vexlum from Imperial College London, where he will continue to serve as an associate professor in the Department of Physics, while also leading Vexlum

UK's strategic growth and industrial partnerships. A pioneer in the use of deep ultraviolet (UV) lasers for cooling gases of atoms and diatomic molecules to near absolute zero, Truppe's expertise aligns with Vexlum's mission to provide high-power laser engines at any wavelength.

"Vexlum's Finland-based in-house semiconductor fabrication to final laser assembly — gives us unmatched quality control," says Truppe. "My goal is to make Vexlum the definitive voice for VECSEL excellence in the UK. By integrating our compact VXL engines into the UK's quantum and semiconductor supply chains, we're helping partners overcome the laser bottlenecks that have long slowed ultracold matter experiments and quantum sensors."

Vexlum's technology originates from a collaboration between semiconductor experts at Tampere University and the quantum research group of Nobel laureate David Wineland at the USA's National Institute of Standards and Technology (NIST). This foundation has allowed Vexlum to diversify its VECSEL portfolio into high-growth sectors beyond quantum computing, including semiconductor metrology and space communications.

www.vexlum.com

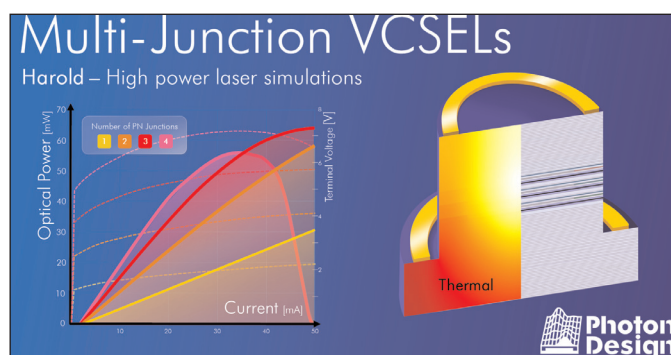
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Photon Design enables multi-junction VCSEL simulation for high-power applications

Latest HAROLD release provides 3D optical, electrical and thermal simulations

Photonic simulation CAD software developer Photon Design Ltd of Oxford, UK says that it has enabled pioneering, multi-junction vertical-cavity surface-emitting laser (VCSEL) simulation, within its HAROLD simulation tool.

Multi-junction VCSELs deliver higher optical power than traditional VCSELs, while retaining their compact, efficient, manufacturable and reliable design. Instead of one gain junction, a multi-junction VCSEL has several junctions stacked vertically within its epitaxy. Efficiency comes from using the same current across the multiple gain junctions. This enables either a higher optical power for the same current, or a longer lifetime and reliability from delivering single-junction power levels with less current and therefore generating less



heat. The high power and efficiency of multi-junction VCSELs is contributing to their rapid uptake in many markets, including high-speed datacoms, machine vision, longer-range automotive LiDAR and consumer 3D sensing applications such as facial recognition.

"Photon Design's HAROLD simulation tool supports the demanding design requirements of multi-junction VCSELs, providing thorough

3D optical, electrical and thermal simulations," says CEO Dr Dominic Gallagher. "HAROLD shows engineers how additional junctions can raise output power, before efficiency then declines as a result of losses in what is now

a larger epitaxy structure," he adds. "HAROLD provides designers with band diagrams using 3D drift-diffusion modelling of the energy-band structure; thermal analysis of current-induced temperature gradients and their effect on gain; and rigorous output-power predictions from combining the 3D optical profile of the DBR gratings with simulated gain spectra."

www.photond.com/harold

ams OSRAM extends CEO Aldo Kamper's term

The Supervisory Board of ams OSRAM AG of Premstaetten, Austria, and Munich, Germany has approved the reappointment of CEO Aldo Kamper and agreed to a new contract effective 1 October, and running through 30 September 2031. His previous term was set to expire on 31 March 2027. Kamper has been CEO since April 2023.

"As CEO, Aldo Kamper has strategically realigned ams OSRAM and laid the foundation for sustainable growth," comments Supervisory Board chairwoman Dr Margarete Haase. "Under his leadership, key milestones have been achieved — from the successful implementation of the 'Re-establish the Base' efficiency program to the strengthening of the financial base and the clear positioning of ams OSRAM in the attractive digital photonics field," she adds.

"Together, we have established

the basis for the next growth phase as a focused technology company," says Kamper. "I look forward to continuing along this path with determination and further developing ams OSRAM as the leading company in the fast-growing field of digital photonics."

Kamper began his professional career at OSRAM in Regensburg in 1994 and held leadership positions in Europe and the USA in the areas of LED and specialty lighting. In 2010, he took on the role of CEO of the Opto Semiconductors business unit. During his tenure, he pioneered the development of micro-LED technology, dynamic front-end lighting, and roadmaps for high-performance LEDs. In addition, the global manufacturing footprint was further expanded. In 2018, he joined Leoni AG as CEO, a global provider of products, solutions, and services for energy and data man-

agement in the automotive industry.

Shortly after becoming CEO of ams OSRAM AG in April 2023, Kamper launched the strategic efficiency program 'Re-establish the Base' to focus the portfolio and strengthen profitability. In addition, under his leadership, the group's structures were streamlined, the business units were assigned clear responsibilities, and significant measures were taken to strengthen the financial base while substantially reducing debt. The sale of the non-optical sensing business was completed as of 1 July. With this, a sound financial foundation has been established for profitable growth in the optical core business as well as in future areas of digital photonics, such as augmented reality and data communication.

www.ams-osram.com/about-us/executive-committee/aldo-kamper

BluGlass gives June-quarter update

Development contracts with government and tier-1 clients progressing

BluGlass Ltd of Silverwater, Australia — which develops and manufactures gallium nitride (GaN) visible laser diodes based on its proprietary low-temperature, low-hydrogen remote-plasma chemical vapor deposition (RPCVD) technology — has provided an update for its fiscal fourth-quarter 2026 (to end-June).

"BluGlass has had a strong finish to the 2026 fiscal year with multiple paid development contracts with government and tier-1 customers progressing to schedule," says CEO & managing director Jim Haden.

"At the same time, we're continuing to advance opportunities within our US\$100m project pipeline while also engaging with prospective new customers on semi-custom laser solutions to solve specific application challenges. Our phase II agreement with Uviquity reinforces our growing industry reputation, expands our product portfolio, and supports project conversion. Alongside our core target verticals, we're seeing increased interest from emerging AI and data-center applications where advanced photonic technologies are being deployed to overcome bandwidth, latency and power consumption constraints," he adds.

"While BluGlass is a relatively new laser company compared to our more established and much larger peers, our single-mode gallium nitride (GaN) lasers continue to set new industry performance standards. Our recent world record for peak power output demonstrates the cutting-edge precision and power our lasers offer, benefitting from our team's proprietary epitaxy-to-fabrication know-how. Paid development projects are also supporting novel capabilities."

"Our strong commercial and technical progress over the quarter highlight our GaN laser leadership, and demonstrate that our technology, product roadmap and commercialization strategy are gaining meaningful traction with industry heavyweights," he claims. "The

quality of our customer base is a significant endorsement of our technical capability, and we remain focused on embedding our visible laser technology into next-generation customer applications during development. This approach creates immediate revenues as well as the potential for future manufacturing and supply agreements."

"BluGlass delivered significant strategic progress over the quarter, strengthening its commercial position, industry reputation and capital markets profile," says executive chair Omer Granit. "In line with our refreshed commercialization strategy, we are broadening our presence in the USA with increased engagement across customers, government stakeholders, industry leaders and investors," he adds.

"Our focus remains on building BluGlass into the leading US on- and near-shore visible laser company. We're continuing to convert more opportunities from our growing commercial pipeline, while also actively positioning BluGlass to access deeper pools of capital to support our long-term growth ambitions.

"Shareholder support during the quarter has been exceptional, enabling us to add AUS\$14.6m to our balance sheet through the successful completion of an institutional capital raise, board and management investment, exercise of options and shortfall agreement. As BluGlass continues to achieve new technical and commercial milestones, the market is increasingly recognising the significant opportunity ahead of us with macro tailwinds underpinning material sector growth."

AUS\$1.4m contract from Uviquity

In July, BluGlass received a AUS\$1.4m (US\$1m) contract from US photonics company Uviquity for Phase II of its joint development agreement (JDA). Building on the first stage, Phase II broadens the collaboration from R&D on Uvi-

quity's heterogeneously integrated photonic integrated circuit (PIC) platform to include additional engineering, novel packaging, laser integration and purchases of BluGlass' visible GaN lasers.

Uviquity develops chip-based deep-ultraviolet lightsources on an aluminium nitride (AlN) PIC platform for human-safe far-UVC disinfection at scale and deep-UV sensing and analytical instrumentation. The firm recently demonstrated the first chip-scale deep-UV laser emitting at 229nm for analytical and inspection applications across the semiconductor, pharmaceutical, environmental and defence markets.

AUS\$1.3m agreement with a Fortune 500 company

During the quarter, BluGlass entered a AUS\$1.3m collaboration with a global leader in mass-capacity data storage. Under the agreement, BluGlass is leveraging its visible GaN laser and custom semiconductor development capabilities to support the customer's next-generation photonics development activities. The \$1.3m agreement will be paid in four instalments tied to activity-based milestones, expected to be completed over the next 12-18 months.

Initial order from strategic AI infrastructure customer

BluGlass has secured an initial order for its GaN surface emitting lasers from a strategic stealth-mode customer developing next-generation optical interconnect technologies intended to support future AI computing and data-center infrastructure.

While revenue from the initial purchase order is not material, the engagement has the potential to expand into a broader development program and ultimately a long-term commercial relationship.

New world-record single-mode performance

BluGlass significantly enhanced the technical performance of its single-mode GaN lasers during the

quarter, achieving a record 1.9W of single-spatial-mode power — a 52% improvement over the company's previous record of 1.25W. BluGlass says that this reinforces the suitability of its visible lasers for high-power, high-precision applications across defence, aerospace, quantum and industrial domains.

The record was achieved using the company's blue 450nm single-mode GaN laser with its proprietary gain-chip technology, incorporating a single-mode master oscillator with a tapered power amplifier (MOPA) to materially increase power while maintaining high precision. The technical milestone further differentiates BluGlass' laser platform for applications requiring both high optical power and high beam quality.

Raised \$14.6m

BluGlass strengthened its balance sheet during the quarter, raising a combined \$14.6m from an institutional placement, exercise of options, and a shortfall agreement with Amery Partners Pty Ltd. An upsized \$8m placement to institutional investors was supported by a \$2.3m cornerstone investment by board and management. The placement was conducted at \$0.24 per share and included one free-attaching option exercisable at \$0.38 and expiring on 31 May 2028.

Exercised \$0.26 options contributed \$5.06m and the firm received \$1.5m under a shortfall agreement with Amery Partners Pty Ltd. All exercised options and issued shortfall shares included one unquoted free-attaching option on the same terms as the placement. Attaching options associated with shortfall shares are subject to shareholder approval at the firm's 2026 Annual General Meeting.

Strategic Uviquity investment

BluGlass made a US\$1.5m strategic investment in US-based integrated photonics company Uviquity via the issue of a convertible note. Uviquity is an existing customer and development partner whose photonics roadmap complements BluGlass' advanced laser capabilities.

The investment strengthens BluGlass's position in emerging photonics, quantum, sensing and advanced packaging markets and provides potential future equity participation in a strategically aligned company operating in a complementary segment of the photonics market. The key terms of the convertible note include an interest rate of 6%, 12-month maturity date and standard conversion mechanisms including the right to convert (or redeem) at maturity and automatic conversion at a discount on a qualified financing.

Strategic US Government and defence engagements

During the quarter, BluGlass showcased its visible GaN laser technology in late April at the SPIE Defense + Security conference in National Harbor, MD, USA for defence photonics and sensing technologies. CEO Jim Haden and executive VP Brad Siskavich met with prospective customers, government stakeholders and industry partners to demonstrate BluGlass' advanced laser capabilities and support the continued expansion of its development pipeline.

BluGlass also participated in several invitation-only US Government and defence industry engagements, including a US Navy industry gathering in Seattle and a roundtable with the Hon. Michael Dodd, US Assistant Secretary for Critical Technologies. Focused on advanced underwater technologies and future capability requirements, the Navy event generated multiple requests for additional information and follow-on meetings to further explore GaN's enabling capabilities in Subsea and Seabed Warfare (SSW).

The invitation-only directed-energy roundtable in Washington DC centered on accelerating the development and deployment of directed-energy systems — a key focus area for the Department's critical technology portfolio. Haden discussed the potential of BluGlass' advanced visible lasers for future

directed-energy systems and related defence applications with Assistant Secretary Dodd and his advisor Colonel Jake Hess.

Semiconductor Australia

BluGlass has divested its majority stake in the nation's premier semiconductor conference, Semiconductor Australia, to focus on its core GaN laser business. The firm remains a minority shareholder with branding rights and profit share. Semiconductor Australia 2026 is being held in Sydney on 22 October and will feature keynote presentations from the chair of the National Reconstruction Fund, Martijn Wilder AM, and Dr Larry Marshall, lead independent director of Fortescue Innovation.

Jim Haden appointed managing director

In July, BluGlass appointed CEO & executive director Jim Haden to the role of managing director. The new title reflects his management responsibilities and aligns with standard market practice.

Financials

Quarterly customer receipts of \$200,000 included the North Carolina State University (NCSU) development contract and product laser orders. R&D expenditure during the quarter was \$3.01m, inclusive of salaries, materials and fabrication costs for laser product development. R&D investment remains aligned with the firm's commercialization roadmap and customer-driven development projects.

Payments to related parties during the quarter were \$178,000, encompassing executive chair and non-executive director fees.

Cash and cash equivalents at the end of the quarter were \$11.48m. Following the capital raising completed during the quarter, BluGlass says that it is well funded to advance its commercialization strategy, progress customer-funded development programs and pursue opportunities within its growing pipeline while continuing to actively manage costs.

www.bluglass.com.au

BluGlass secures AUS\$1.4m Phase II contract under joint development agreement with Uviquity

Phase II encompasses advanced photonics development, wafer & chip processing, advanced packaging and purchases of visible GaN lasers

BluGlass Ltd of Silverwater, Australia — which develops and manufactures gallium nitride (GaN) visible laser diodes based on its proprietary low-temperature, low-hydrogen remote-plasma chemical vapor deposition (RPCVD) technology — has secured a AUS\$1.4m (US\$1m) commitment from Uviquity of Raleigh, NC, USA (a venture-backed start-up pioneering wide-bandgap integrated photonics) for Phase II of its joint development agreement (JDA).

The Phase II program extends the collaboration to include the continued development of Uviquity's heterogeneously integrated photonic integrated circuit (PIC) platform, wafer and chip processing, packaging development, laser integration, as well as purchases of BluGlass' visible GaN laser products and related components.

Uviquity develops chip-based deep-UV light sources on an aluminium nitride (AlN) PIC platform, serving two markets: deep-UV sensing and analytical instrumentation, and human-safe far-UVC disinfection. The first phase of the JDA advanced this platform. Uviquity

recently announced the world's first chip-scale deep-UV laser at 229nm, targeting analytical and inspection applications across the semiconductor, pharmaceutical, environmental and defence markets.

The Phase II commitment will be paid in instalments over the coming year, commencing in third-quarter 2026.

"Our expanded agreement with Uviquity is a testament to the value of BluGlass' advanced visible GaN lasers and custom development capability for novel applications," says BluGlass' CEO Jim Haden.

"Uviquity is at the cutting-edge of PIC development and is leveraging our visible laser processing and advanced packaging expertise to expand its unique aluminium nitride platform into sensing, quantum and disinfection applications."

"Importantly, this strategic partnership includes the potential for a long-term manufacturing supply agreement for GaN lasers as Uviquity commercializes its photonic integrated circuit and packaging roadmap. We're excited about our continued collaboration as we work towards having our lasers

'designed-in' next-generation applications across fast-growing emerging markets," he adds.

"The successful closing of all activities under the first phase of our JDA reinforces our confidence in the value of the BluGlass-Uviquity partnership," says Uviquity's CEO Scott Burroughs. "Over the past two years, our team has achieved important technical milestones, including pioneering advances in AlN-based photonics and demonstration of the world's first chip-scale 229nm deep-UV laser that we look forward to sampling to customers later this year. This is the beginning of a series of products that we plan to introduce going forward," he adds.

"Phase II broadens this collaboration from research and development into additional engineering, novel packaging, laser integration, and product-focused activities. We believe the combination of Uviquity's AlN PIC platform and BluGlass' advanced laser capabilities creates a powerful foundation for future commercial opportunities."

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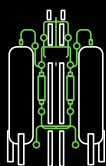
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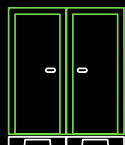
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NUBURU receives Italian Golden Power clearance to acquire 70% of Tekne

NUBURU Inc of Centennial, CO, USA (a dual-use defense & security integrated platform company) says that the Italian Government has authorized the proposed acquisition by NUBURU Defense LLC of a 70% controlling interest in Tekne S.p.A. under Italy's Golden Power framework.

Golden Power is the Italian Government's authority to review, condition or block the acquisition of companies operating in sectors of national strategic interest, including defense and security. The authorization is the principal governmental clearance required under the binding Share Purchase and Investment Agreement signed on 26 May between NUBURU, NUBURU Defense LLC, Tekne and Tekne's historical shareholders. It follows the Golden Power notification submitted on 5 June and a detailed review process that included supplemental information and engagement with the Italian authorities.

The agreement contemplates closing within 30 calendar days after the Golden Power condition precedent is confirmed as satisfied in accordance with the agreement, subject to the terms of the authorization and completion of the remaining corporate, funding, governance and closing actions contemplated by the agreement and the applicable review mechanisms. Upon closing, NUBURU expects to own 70% of Tekne, obtain majority control and, subject to final US GAAP accounting assessment, consolidate Tekne's financial results within the NUBURU group.

"Italy examined this transaction in detail and authorized it. That decision opens the path to majority control of an established defense-industrial company with more than 35 years of heritage, about 180 personnel across operations in Ortona, Poggiofiorito and Guastalla and an updated signed order portfolio with approximately \$108.7m

of normalized residual value, subject to customary validation," says NUBURU's executive chairman & co-CEO Alessandro Zamboni.

"We have raised the capital, retired about \$16.75m of principal obligations, continued supporting Tekne's working capital and have now achieved the principal regulatory milestone. NUBURU moves from regulatory review to closing and integration execution."

Final path to closing

NUBURU and the other parties will now progress the corporate resolutions, capital increase, share transfer, governance appointments and documentation required to complete the transaction, while implementing the terms, commitments and any prescriptions applicable under the authorization. The firm expects to announce completion of the acquisition separately following closing.

Business plan required by investment agreement and provided for Golden Power review

The Investment Agreement requires Tekne's 2026–2030 Business Plan to be prepared and approved in accordance with agreed guidelines in time for the Golden Power notification. The plan provided in connection with the Golden Power review is centered on preserving Tekne's Italian production footprint, protecting strategic technologies and intellectual property, supporting employment and technical capability development, and establishing security and governance controls appropriate for a strategic defense-industrial company. Following closing, NUBURU intends to:

- preserve and expand Tekne's Italian production footprint and strategic know-how;
- protect sensitive information, defense technologies and Italian intellectual property;
- support industrial continuity, working capital and execution of Tekne's existing order portfolio;

- develop integrated mobility, electronic warfare, counter-UAS and non-kinetic mission packages;
- strengthen governance, security, compliance and public-company reporting; and

- expand access to Italian, EU and NATO defense and security markets, in accordance with applicable Golden Power, procurement, qualification and export-control requirements.

"Tekne brings fielded systems, specialized manufacturing, electronic warfare and CEMA capabilities, defense-mobility expertise and established customer relationships," says Dario Barisoni, co-CEO of NUBURU and CEO of NUBURU Defense LLC. "We have a clear strategy to integrate those capabilities with NUBURU's photonics, software orchestration and advanced deployable manufacturing to deliver integrated, governed mission solutions for Italian, EU and NATO defense and security markets, in accordance with applicable Golden Power, procurement, qualification, security and export-control requirements," he adds. "We expect Tekne to become the industrial foundation of NUBURU's Italy-centered Defense & Security platform. The authorization shifts our work from regulatory process to industrial execution and positions the combined platform to create significant long-term operational and strategic value."

Tekne: established scale and a multi-year business plan

Founded in 1990, Tekne is an Italian engineering and manufacturing company whose capabilities span special and military vehicles, defense mobility, electronic warfare and CEMA, tactical communications, counter-UAS applications and civil-security platforms. Unlike a pre-revenue technology concept, Tekne brings operating sites, personnel, customer relationships, fielded systems and an established order portfolio.

- Industrial base: about 180 personnel across Tekne's operations in Ortona, Poggiofiorito and Guastalla, based on current Tekne management materials;
- Order portfolio: an updated signed order portfolio with about \$108.7m of normalized residual value, based on Tekne management materials and subject to customary validation, delivery conditions, modification and cancellation risk;
- Five-year scale: Tekne's May 2026 Business Plan, prepared under the business-plan framework required by the Investment Agreement and provided in connection with the Golden Power review, contemplates about \$648m of cumulative planned value of production for 2026–2030 under Italian domestic GAAP;
- Strategic capability: more than 35 years of Italian engineering, production and systems-integration experience serving defense, government, emergency-response and industrial applications; and
- Margin profile: management believes the margin characteristics

contemplated in Tekne's plan are broadly in line with those observed across the defense sector; this qualitative comparison is not company-specific margin guidance and does not imply a numerical margin target.

If the acquisition closes and NUBURU obtains control, then NUBURU expects, subject to its final accounting assessment, to consolidate Tekne's results from the acquisition date and separately recognize the 30% non-controlling interest. Management believes that this would create a step-change in NUBURU's operating scale and industrial profile.

Capital deployed and execution readiness

The regulatory milestone follows NUBURU's July closing of a \$38m public offering, before placement-agent fees and offering expenses. Within days of that financing, NUBURU repaid in full about \$15.5m of remaining principal under its December 2025 debenture and \$1.25m of Lyocon acquisition notes, eliminating about \$16.75m of principal obligations.

NUBURU has stated that remaining net proceeds are intended to support the Tekne transaction, acquisition and working-capital requirements and near-term execution of its integrated Defense & Security platform.

Tekne as industrial foundation of NUBURU's Defense & Security Platform

After closing, Tekne is expected to become the industrial foundation of NUBURU's Italy-centered Defense & Security platform, contributing defense mobility, EW/CEMA, industrial scale and defense systems-integration capabilities. Subject to applicable Golden Power prescriptions, approvals and formal implementation, its existing Network Contract with NUBURU Defense is expected to remain an operating framework for joint programs within the controlled group, connecting Tekne's defense mobility, electronic warfare, CEMA and manufacturing with NUBURU's photonics, non-kinetic effects, operational-resilience software and deployable manufacturing.

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Vector Photonics developing packaging to speed adoption of PCSELS in data centers, free-space optical comms, satellites and LiDAR

Accelerated Manufacturing for PCSEL Packaging Solutions project targets scalable, thermally efficient and resource-effective packaging

Vector Photonics Ltd of the West of Scotland Science Park (which was spun off from the University of Glasgow in 2020, based on research led by professor Richard Hogg) has begun a new program that addresses a critical and growing challenge in advanced photonics manufacturing: the lack of scalable, thermally efficient and resource-effective packaging for photonic crystal surface-emitting lasers (PCSELS).

The firm's project Accelerated Manufacturing for PCSEL Packaging Solutions (AMPPS) adds a critical manufacturing capability into Vector Photonics' manufacturing process, paving the way for industry's first high-power, high-brightness, large-area surface-emitting laser platforms that are optimized for data-center applications and silicon photonics integration.

"As global demand for high-bandwidth optical interconnects accelerates driven by AI, current laser supply chains are becoming constrained by thermal bottlenecks, yield limitations and dependence on a narrow set of device and packaging technologies," notes CEO Dr Richard Taylor. "AMPPS responds directly to this need by exploring new, manufacturable packaging architectures that improve performance, reduce waste, and enhance supply chain resilience across multiple UK growth sectors."

Vector Photonics reckons that PCSELS are ideally positioned to deliver optical communications and integrated photonics in next-generation networks. PCSELS improve system performance because of their mode purity, low divergence, and efficient coupling across vari-

ous platforms. Vector Photonics says that its new packaging initiative will enable PCSEL technology to overcome real-world system-level constraints. It will deliver packaged demonstrators, thermal optimized assembly concepts, process flow documentation, and design kits.

"Our AMPPS program strengthens the UK's position in global photonics value chains, accelerates the commercialization of PCSEL technology, and lays the foundation for future growth in resource-efficient, resilient UK-based manufacturing for high-performance optical communications," says Taylor.

Vector Photonics exhibited at the European Conference on Optical Communications (ECOC 2026) in Malaga, Spain (21-23 September).

www.ecoc2026.org

Vector Photonics to demo PCSEL optical comms technology in Taiwan

Scottish scale-up part of Innovate UK's Global Business Innovation Programme and exhibit at SEMICON Taiwan

Vector Photonics is heading to Taiwan as part of Innovate UK's Global Business Innovation Programme (GPIB).

The initiative consists of a preparation phase followed by a five-day tailored program to connect with key stakeholders and leading Taiwanese companies. Vector Photonics and the other delegates will later showcase their technologies at the UK's pavilion at SEMICON Taiwan 2026 in Taipei's Nangang Exhibition Center (2-4 September, with forums beginning on 31 August to align with International Semiconductor Week). The program will provide a unique oppor-

tunity to find partners and identify opportunities for technology collaboration.

"PCSELS are an enabling technology for next-generation optical communications in growth sectors such as data centers, satellites and LiDAR," says Vector Photonics' CEO Dr Richard Taylor. "Therefore we expect great interest from major Taiwanese companies in Vector Photonics' commercially-ready PCSEL products."

Previous Innovate UK GPIBs have proven very effective in opening up the Taiwan market for UK companies such as Vector Photonics. Although home to the world's

biggest semiconductor manufacturer TSMC, Taiwan also has a strong SME sector, and its ecosystem is supported by organizations like the Industrial Technology Research Institute (ITRI), which plays a crucial role in the growth of Taiwan's high-tech industry.

Vector Photonics is exhibiting in booth I3000 at SEMICON Taiwan. It is also demonstrating the technology in booth 1468 at the 52nd European Conference on Optical Communication (ECOC 2026) in the FYCMA trade fair and congress center in Malaga, Spain (21-23 September).

www.semicontaiwan.org/en

Sivers announces \$3.4m program with SemiNex for InP light sources for AI data centers

High-power, multi-wavelength light sources required by co-packaged optics and emerging scale-up and scale-out architectures

Sivers Semiconductors AB of Kista, Sweden (which supplies RF beam-former ICs and lasers for AI data-center, SATCOM, defense and telecom applications) and SemiNex Corp of Danvers, MA, USA — which designs and makes indium phosphide (InP) lasers diodes, DFB lasers, semiconductor optical amplifiers (SOAs) and external-cavity lasers — have announced a program for next-generation InP light sources for AI data-center interconnects.

Initially valued at about \$3.4m, the program targets high-power external laser sources for co-packaged optics (CPO), high-channel-count distributed feedback (DFB) arrays for wavelength-

multiplexed links, and SOA gain stages that extend optical reach as channel counts scale. As optics move from the faceplate into the package, power per wavelength, wall-plug efficiency, and thermal stability increasingly determine how far an architecture can scale, making the light source a system-level design problem rather than a component selection.

"The advanced light sources needed for next-generation optical networking within AI factories are as crucial as the compute, memory and silicon photonics elements," says Sivers Semiconductors' CEO Vickram Vathulya. "We highly value our partnership with SemiNex to combine innovative technologies

and deliver compelling light source solutions at scale to the market," he adds.

"The optical layer is becoming the constraint on how far AI infrastructure can scale," says SemiNex's CEO Ronald Moore. "The industry needs more power, at more wavelengths, at higher efficiency, and there is no way to get there by pushing today's devices harder," he adds. "Those gains come out of the design and processing of the InP itself, and that is exactly where our two teams are working together."

Customer sampling and early production ramps are targeted for second-half 2027.

www.SemiNex.com

www.sivers-semiconductors.com

POET's board gains Bardia Pezeshki and Jean F. Rankin

POET Technologies Inc of Toronto, Ontario, Canada — which designs and develops photonic integrated circuits (PICs), light sources and optical modules — has appointed Dr Bardia Pezeshki and Jean F. Rankin to its board of directors, serving until the next annual meeting of shareholders or until successors are duly elected or appointed. POET has also accepted the resignation of Jean-Louis Malinge, who has been on the board since 2017.

Pezeshki is a technology executive, entrepreneur and innovator in optical communications, semiconductor devices and advanced interconnect technologies. Most recently, he served as founder, CEO and chief technology officer of Avicena Tech, where he pioneered micro-LED-based optical interconnect solutions for AI and high-performance computing systems. He previously founded and led Kaiam Corp and Santur Corp, commercializing advanced optical transceivers and

tunable laser technologies for data-center and telecoms applications.

Earlier, Pezeshki held senior R&D positions at SDL Inc and IBM's T.J. Watson Research Center. He has a Ph.D. in Electrical Engineering from Stanford University and a Bachelor of Science in Physics from Harvey Mudd College.

Rankin is an experienced public company director and former senior legal executive with expertise in corporate governance, IP, M&A, securities regulation and executive compensation. She is on the board of InterDigital Inc, where she chairs the Compensation Committee and is a member of the Nominating and Governance Committee.

She previously served on the board of Resonant Inc, including as chair of its Compensation Committee and as a member of its Audit and Nominating and Governance Committees. Rankin also served as executive VP, secretary and general counsel of LSI Corp and Agere Systems Inc,

after senior legal roles at Lucent and AT&T. She has a Juris Doctor, cum laude, from the University of Pennsylvania Law School and a Bachelor of Arts with High Distinction from the University of Virginia.

"Bardia brings exceptional technical and commercial expertise in photonics, optical interconnects and semiconductor innovation, together with a proven record of building and scaling technology businesses," comments chairman & CEO Dr Suresh Venkatesan. "Jean brings extensive public company, legal and governance experience, including significant expertise in intellectual property, strategic transactions and executive oversight. Their complementary experience will be highly valuable as POET advances the commercialization of its technology and expands its position in the rapidly growing artificial intelligence and data-center markets," he reckons.

www.poet-technologies.com

OpenLight and Tower expand PH18DA photonics ecosystem to accelerate photonic IC development

OpenLight's PDK available on Cadence's EDA tools, enabling PIC development on Tower's PH18DA InP-on-silicon photonics platform

Photonic application-specific integrated circuit (PASIC) chip designer and manufacturer OpenLight of Goleta, Santa Barbara, CA, USA (which launched as an independent company in 2022, introducing the first open silicon photonics platform with heterogeneously integrated III-V lasers, modulators, amplifiers and detectors) and specialty analog foundry Tower Semiconductor Ltd of Migdal Haemek, Israel have announced the availability of OpenLight's photonic process design kit (PDK) for Tower's PH18DA indium phosphide (InP)-on-silicon photonics platform in Cadence's electronic design automation (EDA) tools. Developed through close technical collaboration between the companies, the PDK now enables customers to design advanced photonic integrated circuits (PICs) within a widely adopted IC design environment and accelerate development toward production.

The PH18DA ecosystem brings together OpenLight's photonics IP, Tower's process and manufacturing expertise, and Cadence's EDA

tools, enabling a streamlined path for developing advanced photonic ICs while bringing photonics design closer to established electronic IC workflows and manufacturing.

"By making our PDK available on Cadence tools, we enable customers to design photonic integrated circuits within the same environment they rely on for advanced IC development," says OpenLight's CEO Dr Adam Carter. "This integration simplifies adoption and strengthens the path from design to production on the PH18DA platform."

Designs created using OpenLight's PDK support fabrication on Tower's PH18DA InP-on-silicon photonics platform, which enables the integration of active photonic components - including lasers, modulators, and amplifiers - into a single monolithic PIC. The platform supports advanced optical systems for applications such as optical interconnects, AI infrastructure, and sensing.

"In collaboration with Cadence and OpenLight, we are advancing

design capabilities on the PH18DA platform through a new capability that integrates expertise across technology, IP, and EDA," says Dr Samir Chaudhry, VP of customer design enablement and reliability at Tower. "This approach enables customers to streamline development of 400G and 1.6T laser-integrated photonic integrated circuits, while achieving co-optimized PIC and EIC designs for improved performance, power efficiency, and scalability necessary for next-generation near- and co-packaged optics (NPO/CPO) solutions," he adds.

"Adding the OpenLight PDK PH18DA manufactured by Tower Semiconductor to the rich portfolio of photonics processes supported by the Cadence Photonics ecosystem is a key milestone because it marks the introduction of integrated active devices for high-performance, co-optimized electro-optical designs," says Gilles Lamant, distinguished engineer, Cadence.

www.towersemi.com

www.openlightphotonics.com

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LITEON invests US\$34m for 21% stake in DenseLight

Optical packaging, testing, module integration and manufacturing to combine with InP laser sources and optical communication

Optoelectronic and power management firm LITEON Technology of Hsinchu, Taiwan has announced a strategic investment in DenseLight Photonics — an integrated device manufacturer (IDM) of indium phosphide (InP) optical communication components through its Singapore-based operating subsidiary — with a total transaction value of US\$34.3m. LITEON will hold about 21% equity ownership in DenseLight and secure one seat on the board.

The strategic investment is a milestone in the collaboration between the two firms in high-speed optical communications and AI infrastructure. By combining LITEON's core capabilities in advanced optical packaging, testing, optical module integration and manufacturing, as well as data-center power management and system integration, with DenseLight's expertise in InP laser source technologies and optical communication components, both parties aim to strengthen their positions across the optical communications value chain and expand their presence in the rapidly growing AI data-center interconnect market.

The rapid adoption of AI applications is driving increasing demand for high-speed, low-power and highly reliable optical connectivity technologies in data centers worldwide. DenseLight has expertise in the development and manufacturing of InP-based laser source technologies and optical communication components. Its key products include continuous wave (CW) distributed feedback (DFB) lasers, gain chips, and semiconductor optical amplifiers (SOAs), which are widely used in high-speed optical communications, data-center networking, and emerging photonics applications.

Through the strategic partnership, LITEON and DenseLight aim to deepen collaboration across product development, market expansion, and supply chain integration. Together, they will pursue future growth opportunities in high-speed optical communication components, optical modules, optical engines, and rack-scale optical interconnect solutions.

"The AI revolution is accelerating the upgrade of data-center infrastructure worldwide, and optical communications have become one

of the key enabling technologies for next-generation data centers and high-performance computing," notes LITEON's chairman Tom Soong. "This strategic investment further strengthens LITEON's presence in the optical communications sector while expanding our opportunities in AI infrastructure applications. Through our partnership with DenseLight, we will leverage our complementary technological and market strengths to capture the growing opportunities in high-speed optical communications and AI data-center markets," he adds.

"LITEON possesses deep expertise in optoelectronic semiconductors and a comprehensive portfolio of data-center solutions," comments DenseLight's chairman Julian Lee. "This partnership will not only enhance technology exchange and resource integration between our organizations but also accelerate innovation in high-speed optical communications. Together, we are committed to delivering greater value and advanced solutions to customers in the global cloud computing and AI markets."

www.denselight.com

<https://optoelectronics.liteon.com>

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Quintessent raises \$40m in Series A funding round

Firm begins sampling first product for AI optical interconnects

Quintessent Inc of Santa Barbara, CA, USA — which specializes in heterogeneous integration of quantum dot lasers and silicon photonic integrated circuits (PICs) — has raised \$40m in an oversubscribed Series A investment round led by Cycle Capital, along with new investors Goldman Sachs XIG-Industry Ventures, Hina Liberty Capital, Susquehanna International Group, InterVest, Safar Partners, and Ciena. Existing investors including Foothill Ventures, M Ventures, Osage University Partners, and Sierra Ventures also participated in the round.

Also, Quintessent has begun customer sampling of its single-chip quantum dot-based DWDM comb laser— a new class of light source designed to simplify optical connectivity for rapidly scaling AI clusters.

Both funding and product milestones arrive at an inflection point for AI infrastructure. With the formation of the Open Compute Interconnect (OCI) MSA (multi-source agreement) – backed by the industry's largest chipmakers and hyperscalers – the market has converged on wide- and-parallel dense wavelength division multiplexing (DWDM) architectures as a leading solution for optical scale-up networks, requiring many orders of magnitude more laser sources to interconnect future AI clusters. At the same time, the massive AI infrastructure buildout has collided with a worldwide shortage of indium phosphide (InP) lasers; a light source on which almost all existing optical interconnects universally depend.

Quintessent says that it addresses both realities at once:

- The simplest way to light up a DWDM link: Quintessent's product generates eight precisely spaced wavelengths (lambdas) from a single laser with a single bias control. No banks of individually tuned lasers, no high-power pump lasers, nor complex wavelength-control

electronics are required. The result is a laser architecture designed to reduce power consumption, simplify manufacturing, improve reliability through fewer components, and enable optical connectivity that scales for AI data centers.

- A supply chain built for the AI era: Quintessent's comb laser architecture is fabricated with gallium arsenide (GaAs) O-band quantum dot gain material — a mature, high-volume material system independent of the capacity-constrained InP supply chain — that is heterogeneously integrated on standard silicon photonics to enable high-volume, wafer-scale manufacturing.

By consolidating many lasers into one and eliminating supporting components, Quintessent's architecture delivers what is claimed to be a step-change reduction in the cost of DWDM wavelengths, which in turn enables up to a 40% reduction in data movement power compared to 'narrow-and-fast' architectures. In addition, Quintessent's design may be scaled to more (or fewer) wavelengths, and to additional CWDM wavelength bands, to enable simple bi-directional optical fiber communication with just one laser needed for each direction.

From OFC demonstration to customer sampling

Quintessent first unveiled its comb laser technology earlier this year with live demonstrations to select customers and partners at the Optical Fiber Communication conference & exhibition (OFC 2026). The firm is now announcing the start of customer sampling; currently available as an evaluation kit, allowing customers to easily integrate the laser into system test beds.

Funding comb laser maturation and new products

The investment will be used for further maturation of Quintessent's comb laser, including sampling, reliability/qualification, and

ramping up manufacturing. This is the first product in the broader roadmap of optical connectivity technologies spanning enabling components through integrated optical interconnect solutions for AI infrastructure.

Quintessent also plans to use part of the proceeds to develop other critically needed optical components — such as semiconductor optical amplifiers (SOAs) — and to begin work on an optical engine for high reliability, availability and serviceability (RAS) pluggable module interconnect applications within AI data centers.

"AI continues to accelerate data-center demand, placing significant pressure on power systems. With its novel quantum dot material and disruptive comb laser design, Quintessent will be instrumental to scaling up data-center performance while also reducing energy consumption," comments Cycle Capital founder & managing partner Andrée-Lise Méthot. Quintessent is "at the intersection of two defining challenges: the rapid growth of AI compute and the need to reduce its energy footprint. This commitment reflects Cycle Capital Fund V's deep-tech-driven ClimateTech strategy, focused on backing enabling technologies that help meet rising energy demand through scalable innovation," she adds.

"For the past several years, we have focused on building technologies designed to make optical connectivity fundamentally simpler to deploy and scale," says Quintessent's co-founder & CEO Alan Liu. "Quintessent is starting its transition from tech development to a product-focused company. We plan to use our investment to accelerate that transition and meet customer demand."

The comb laser (QCOMB-1310-08-08-200-EVK) is currently sampling as an evaluation kit.

www.oci-msa.org

www.quintessent.com

Aeluma gains \$30m US CHIPS Act funding

Funding to advance scalable non-InP substrate technology for AI datacoms

Aeluma Inc of Goleta, CA, USA has signed a letter of intent (LOI) for up to \$30m of proposed funding under the CHIPS and Science Act, which is administered by the US Department of Commerce. The award will support R&D on the firm's scalable, non-InP (indium phosphide) semiconductor manufacturing platform for photonics.

Scalable manufacturing of compound semiconductors is critical to AI, advanced computing, and other applications. Aeluma says that its non-InP, large-diameter substrate platform addresses supply chain constraints and enables the scaling of photonic components such as high-speed photodetectors and lasers. These technologies will accelerate domestic production for next-generation AI interconnects, network communications, and sensing.

"This award aims to accelerate development and commercialization of our scalable, high-performance semiconductor platform, leveraging Aeluma's facilities in Goleta, CA, and partner sites within the US," says president & CEO Jonathan Klamkin Ph.D. "With growing demand for

photonics in AI and advanced computing infrastructure, Aeluma is poised for broad market adoption of our innovative technology solutions," he adds.

"The CHIPS R&D incentives will support a breakthrough in manufacturing of photonic devices for compute and communication networks," says Bill Frauenhofer, executive director for Semiconductor Innovation and Investment at the US Department of Commerce. "Accelerating R&D for next-generation substrates for domestic photonic devices provides American industry the extreme bandwidth and energy efficiency to scale complex AI workloads."

Aeluma pioneered a platform to build high-performance photonics on large-diameter, mismatched substrates up to 300mm in size. This technology bridges compound semiconductor materials with mainstream microelectronics to meet the scaling requirements of high-growth markets. The funded initiatives would accelerate commercialization of Aeluma's high-performance semiconductors

for the AI and advanced computing markets. InP substrates are used for manufacturing critical photonic components, but these substrates are relatively expensive, limited in manufacturing throughput, and subject to geopolitics and supply shortages. Aeluma leverages alternative, larger-diameter substrates to build high-performance photonics. The development contemplated in the LOI emphasizes manufacturing readiness and scaling of Aeluma's non-InP photonics, aligning with the US CHIPS and Science Act objectives to strengthen domestic semiconductor manufacturing, supply chain resiliency, and national security.

The award is subject to the completion of further due diligence, required approvals (including internal approvals of the US Government) and the parties' execution of definitive award documents. The LOI contemplates a portion of the award being funded up front and the remainder funded on a milestone-based award structure tied to eligible project costs and technical progress.

www.aeluma.com

Nokia acquires NXP's fab in Chandler, Arizona, for conversion to InP optical comms

As part of its long-term plans for optical component manufacturing capacity expansion, Finland-based telecom equipment maker Nokia has agreed to acquire the Chandler Semiconductor Fabrication campus in Arizona of NXP Semiconductors N.V. of Eindhoven, The Netherlands. Opened in September 2020, the fab has focused on RF gallium nitride (GaN), but was scheduled to be closed by NXP in 2027.

Subject to regulatory approvals, Nokia will initially lease manufacturing capacity in part of the facility starting in early 2027 and will convert the site for the production of indium phosphide (InP)-based

optical communications chips, targeting the booming demand for AI data-center applications. Nokia will then acquire the full site, with the transaction expected to close in first-quarter 2029.

Previously, at the end of February 2025, Nokia acquired the vertically integrated optical communications equipment maker Infinera Corp of San Jose, CA, USA, gaining an InP wafer fab in California and a back-end packaging facility in Pennsylvania. The firm says it remains on track to begin ramping production at the San Jose fab later in fourth-quarter 2026. Also, in second-quarter 2026 Nokia announced an investment to

increase the Pennsylvania plant's test & packaging capacity by 10x, beginning in third-quarter 2026. These investments support the demand expected in 2027 and 2028.

Nokia says that acquiring NXP's Chandler fab further strengthens its in-house compound semiconductor manufacturing capabilities by adding an experienced team with industry expertise. It also adds US-based InP manufacturing capacity when secure and scalable domestic supply is becoming increasingly important for the broader US technology ecosystem and the AI data-center build-out.

www.nxp.com

www.nokia.com

Lumentum’s quarterly revenue more than doubles year-on-year to over \$1bn

September-quarter revenue guidance raised by \$250m, reaching target model a quarter early

For its fiscal full-year 2026 (ended 27 June), Lumentum Holdings Inc of San Jose, CA, USA (which designs and makes optical and photonic products for optical networks and lasers for industrial and consumer markets) has reported revenue of \$3014m, up 83.2% on fiscal 2025’s \$1645m.

Specifically, Components segment revenue grew by 79.7% from \$1116.3m to \$2005.6m. Systems segment revenue grew by 90.7% from \$528.7m to \$1008.4m.

“Lumentum is positioned at the heart of a secular industry shift,” says president & CEO Michael Hurlston. “As AI compute workloads increase in both speed and bandwidth, data-center architects are turning to optical links as a primary means of connectivity. Our fourth quarter results reflect the early stages of this transition.”

Fiscal fourth-quarter 2026 revenue was \$1006.3m (at the high end of the revised guidance range of \$960–1010m), up 24.5% on \$808.4m last quarter and up 109.3% as it more than doubled from \$480.7m a year ago, driven by strong cloud and AI applications. This is the eighth consecutive quarter of growth, and the third consecutive quarter of sequential growth of over 20%, despite supply chain constraints.

Components revenue doubles

Specifically, Components segment revenue has grown further, by 102.7% from \$320.4m a year ago

and by 21.8% from \$533.3m last quarter to \$649.4m (64.5% of total revenue), driven by exceptional, broad-based strength in scale-out and scale-across component product lines. Highlights include:

- setting new company records for 100G and 200G electro-absorption modulated laser (EML) shipments, driven primarily by strong demand for 100G devices, although momentum for 200G EMLs is also accelerating rapidly (exceeding 25% of total EML revenue);
- expanding 200G lane-speed continuous wave (CW) laser sales across multiple transceiver customers;
- growing ultra-high-power laser shipments for co-packaged optics (CPO) solutions (on track to deliver meaningful revenue exiting calendar year 2026);
- achieving the 10th consecutive quarter of sequential growth in narrow-linewidth lasers for data-center interconnect (DCI)/scale-across installations (up >130% year-on-year);
- growing pump lasers by 80% year-on-year for a second consecutive quarter (effectively selling out), supported by multiple long-term supply agreements now in place for scale-across deployments (offsetting planned capital expenditures).

Systems revenue up 122.6% year-on-year

Systems segment revenue has grown by 122.6% from \$160.3m a year ago and by 29.7% from

\$275.1m last quarter to \$356.9m (35.5% of total revenue), driven by record shipments of 800G cloud transceiver modules (comprising the bulk of shipments). Initial shipments of next-generation 1.6T transceiver modules began as planned, with a portion utilizing internal CW lasers. Also, the optical circuit switches (OCS) ramp remains on track (shipments doubled quarter-over-quarter), backed by strengthening demand across the firm’s multi-year, multi-billion-dollar purchase agreement.

Both cloud transceivers and OCS were major drivers of the revenue growth quarter over quarter.

“While pockets of supply chain tightness for certain components cap shipments below total market demand, our factories executed to our aggressive plan for both product lines,” says Hurlston.

“Profitability across our transceiver lines continues to improve, driven by gains in both yield and capacity utilization, as well as the initial rollout of higher-ASP 1.6T transceivers,” he notes.

Due to better manufacturing utilization, favorable mix, and increased pricing on select products, quarterly gross margin (on a non-GAAP basis) has risen further, from 37.8% a year ago and 47.9% last quarter to 50.4% (ahead of schedule on a 50% target that had been expected for a \$2bn-per-quarter revenue run-rate). This boosted full-year gross margin from 34.7%

\$ in millions	Q4 FY26		Q3 FY26		Q4 FY25	
Components	\$649.4	64.5%	\$533.3	66.0%	\$320.4	66.7%
Systems	356.9	35.5%	275.1	34.0%	160.3	33.3%
Total	\$1,006.3	100.0%	\$808.4	100.0%	\$480.7	100.0%

\$ in millions, except for EPS	Q4 FY26		Q3 FY26		Q4 FY25	
Revenue	\$1,006.3		\$808.4		\$480.7	
Gross Margin	506.9	50.4%	386.9	47.9%	181.6	37.8%
Operating Expenses	138.1	13.7%	126.2	15.6%	109.3	22.7%
Operating Income	368.8	36.6%	260.7	32.2%	72.3	15.0%

in fiscal 2025 to 46% for fiscal 2026.

R&D spending increased from \$67.6m a year ago and \$78.4m last quarter to \$87.5m, boosting full-year R&D from \$256m in fiscal 2025 to \$304.8m in fiscal 2026.

Overall operating expenses have hence risen from \$109.3m a year ago and \$126.2m last quarter to \$138.1m. However, as a proportion of revenue they have fallen from 22.7% then 15.6% to 13.7%, respectively. "We continue to invest in critical R&D programs serving cloud and AI customers while maintaining the rigorous cost controls necessary to optimize our business model," notes executive VP & chief financial officer Wajid Ali.

Fuelled by product momentum and strong operating leverage, operating income has risen further, from \$72.3m (operating margin of 15%) a year ago and \$260.7m (32.2% margin) to \$368.8m (36.6% margin, exceeding the guidance range of 35–36%). Full-year operating income has hence risen from \$160.1m (9.7% margin) in fiscal 2025 to \$897m (29.8% margin) for fiscal 2026.

"Our differentiated technology commands premium value, and our operating model delivers outsized leverage," notes Hurlston.

Likewise, quarterly net income has risen further, from \$63.3m (\$0.88 per diluted share) and \$225.7m (\$2.37 per diluted share) last quarter to \$326.3m (\$3.23 per diluted share, well above the guidance range of \$2.85–3.05). Full-year net income has hence risen from \$146.4m (\$2.06 per diluted share) in fiscal 2025 to \$782.3m (\$8.67 per diluted share) for fiscal 2026.

Capital expenditure has increased from \$125m last quarter to \$167m in Q4/2026, focused on manufacturing capacity for cloud and AI customers.

Driven primarily by convertible debt conversions (to cut debt by \$1.1bn), during fourth-quarter 2026 total cash, cash equivalents, and short-term investments fell by \$433.9m from \$3172.3m to \$2738.4m. However, this is still up on \$1.9bn at the end of fiscal 2025.

To support the expected growth in cloud and AI-related revenue, inventories have been increased further, from \$470.1m a year ago and \$632.8m last quarter to \$691.6m.

"While our Q4 results demonstrate broad-based traction, key growth drivers such as OCS solutions and our cloud module business, where we are advancing 1.6T adoption, are beginning to layer in," notes Hurlston. "Increasing demand for ultra-high-power CPO lasers, an initial order for ELS modules, as well as our breadth of NPO [near-packaged optics] engagements are the first signs that optics are starting to penetrate in-rack connectivity, significantly upping our optical TAM [total addressable market]," he adds.

September-quarter revenue to grow to record \$1.225–1.275bn

For fiscal first-quarter 2027 (to end-September 2026), Lumentum expects revenue to grow to another record of \$1.225–1.275bn, up by more than 130% year-on-year at the mid-point. "Our trajectory continues to accelerate as AI demand drives our Q1 revenue guidance midpoint to \$1.25bn [\$250m ahead of the guidance given at March's Optical Fiber Communication 2026

conference], reaching our target model more than a quarter ahead of schedule," notes Hurlston.

About half of this sequential growth is expected to stem from the Components portfolio, driven by continued expansion of scale-out and scale-across applications.

The other half of the sequential growth should be powered by the ongoing ramp of the Systems portfolio of 1.6T transceivers and accelerating OCS deliveries. "We expect our first triple-digit OCS revenue quarter, and we expect to be meaningfully above the three-digit mark," says Hurlston.

Driven by product mix and tight operational execution, gross margin is expected to continue to grow.

Operating margin should rise to 39.5–40.5% (up by more than 2100 basis points year-on-year at the mid-point, which exceeds the high end of the target model associated with the expected revenue level, and already matches the midpoint of the 38–42% target model at a \$2bn revenue run-rate). "Think of the 42% outlier more as a midpoint, with the range probably moving up 100–200 basis points versus what we showed at OFC," says Ali.

Diluted net income per share is expected to increase further to \$4.05–4.35.

Pump lasers will remain effectively sold out for the foreseeable future, despite the rapid capacity expansion. To support the growth in scale-across deployments, Lumentum has secured multiple long-term agreements (LTAs) with customers that help to offset planned capital expenditures. "We continue to expect a four-fold increase in our pump laser ship-

\$ in millions, except for EPS	Q4 FY26	
	Actual	Q1 FY27 Guidance ⁽¹⁾
Revenue	\$1,006.3	\$1,225 – \$1,275
Operating Margin	36.6%	39.5% – 40.5%
Diluted EPS	\$3.23	\$4.05 – \$4.35

(1) Guidance assumes effective tax rate of 16.5%

ments over the next several quarters to meet this escalating demand,” says Hurlston.

Demand for both EML and CW lasers is expected to grow significantly through second-half calendar 2026 and into 2027. “To capture the coming 200G and 300G lane-speed opportunities, we are expanding capacity across our two indium phosphide wafer fabs in Japan, qualifying both CW and EML process flows on our newest tools as they come online,” says Hurlston. “Even as we allocate additional capacity to CW lasers, we remain on track to deliver over 50% EML unit growth by the December 2026 quarter compared to the year-ago quarter,” he adds. 200G should grow to at least 50% of EML shipment volume by mid-2027.

“For ultra-high-powered lasers, we expect to be in the \$50m range by the end of the calendar year, with the first triple-digit quarter in fiscal Q3,” says Hurlston. “We remain confident in a demand ramp for ultra-high-power laser chips in the second half of calendar 2027, ahead of [CPO] customer scale-up deployments in calendar 2028,” he adds.

“Adding to our confidence, we were recently given our first external light source (ELS) module purchase, for delivery by the second half of calendar 2027, which — from an ASP standpoint — is meaningfully higher than the set of [ELS] lasers we ship in,” Hurlston says. “The margins are above the corporate average, but not quite as good as the lasers,” he adds. “We’re trading a little bit of margin to get some revenue bump.”

Regarding Systems: “Our visibility into future cloud transceiver demand is clearer than ever. In fact, we

expect the 1.6T transceiver uptake to intensify starting in fiscal Q1 and sustain through calendar 2027,” says Hurlston.

“OCS internal manufacturing expansion is progressing smoothly,” notes Hurlston. “The demand signal for 2027 continues to be incredibly strong, and we have started the initial work to add capacity with contract manufacturers as well as continuing to increase output in our internal factories,” he adds. “We are now planning higher- and lower-port-count products, including specialized in-tray offerings.”

However, despite being on track to increase EML output year-on-year, Lumentum expects to be still shipping significantly behind customer demand at the end of 2026. There is also still a significant supply-demand imbalance for CW lasers. Regarding high-powered lasers: “We are very much further behind relative to our ability to supply,” says Hurlston. “Our execution of the ramp is on track. We’re further behind because the demand has accelerated, with the demand signal increasing faster than the ability to supply.”

We’re probably pretty comfortable just [on InP] given our lead arrangement with a Japanese supplier and now the announced deal with AXT. Given the rate of change in the demand vector that we’re seeing, that may not be true a quarter or two from now

Greensboro fab and AXT substrate supply to boost capacity
To provide capacity for future growth, in mid-March Lumentum acquired from RF & power device maker Qorvo Inc a fab in Greensboro, NC, which is now being converted from gallium arsenide (GaAs) to become Lumentum’s fifth InP fab. “We continue to expect first revenue out of Greensboro in early 2028, ramping through calendar 2028 into full production by the end of 2028 and into 2029,” says Hurlston.

Regarding the possibility of more long-term agreements (LTAs) with customers to fill the new capacity in Greensboro, Hurlston expects to “have some things to talk about over the next couple of quarters”.

In response to the surge in demand for EMLs and CW lasers as well as ultra-high-power lasers as “everybody starts to look to adopt near-packaged or co-packaged solutions”, in late July Lumentum announced a long-term agreement (running through 31 December 2031) with AXT Inc of Fremont, CA, USA for the supply and capacity reservation of InP substrates. Lumentum is paying an initial deposit of \$43.5m, to be followed by a second deposit of \$43.5m (with the timing and terms surrounding payment to be subsequently determined during calendar year 2028).

“We’re probably pretty comfortable just given our lead arrangement with a Japanese supplier and now the announced deal with AXT,” says Hurlston. “Given the rate of change in the demand vector that we’re seeing, that may not be true a quarter or two from now. If this vector continues, we’re probably going to need to look for more help on substrates.”

www.lumentum.com

First Solar issues 2026 Corporate Responsibility Report

Domestic manufacturing & supply chains creating enduring economic, community value

Cadmium telluride (CdTe) thin-film photovoltaic (PV) module maker First Solar Inc of Tempe, AZ, USA has issued its 2026 Corporate Responsibility Report, detailing how it creates enduring value by developing, sourcing, manufacturing and recycling solar domestically, supporting jobs and communities, strengthening industrial capacity, and helping to ensure that the benefits are realized locally.

Responsibility is "embedded in how we operate, built into every stage of how we source, manufacture and recycle American solar," says Samantha Sloan, executive VP of corporate affairs. "That is what allows us to build value by creating jobs and industrial capacity while strengthening energy and supply chain security."

Highlights from the report include:

- The scale and durability of a genuinely domestic manufacturing footprint: First Solar's impact is reflected in its economic footprint. A study commissioned by First Solar and conducted by the University of Louisiana at Lafayette, released in March, found that the firm supported nearly 30,000 estimated American jobs and \$3bn in labor income in 2025, while contributing

an estimated \$5.8bn to US gross domestic product. The analysis projects that by 2027 it will support more than 39,000 jobs and \$4bn in labor income, reflected in paychecks, regional economic growth, and the development of communities where First Solar operates.

- Technology that is responsible by design: First Solar owns its intellectual property and controls its manufacturing processes, giving it the freedom to operate and enabling end-to-end traceability and product security. Its products are designed to be secure, traceable, recyclable and reliable over decades of operation. Reflecting its conviction that how something is made matters, the firm's thin-film manufacturing requires less energy, water and chemical intensity than conventional crystalline silicon (c-Si) production, including up to 50 times less chemical and gas intensity, as it continues to improve resource efficiency while scaling responsibly.

- Domestic capacity that supports reindustrialization: First Solar exited 2025 with almost 13GW of US nameplate capacity, scaling toward about 17GW by 2027. This

fully vertically integrated capacity relies on US value chains for raw materials, including glass and steel, anchoring domestic-content capability, supply chain resilience, and a scale that is difficult to replicate. By the end of 2026, the firm expects to have invested over \$5bn in American manufacturing and R&D infrastructure since 2019.

- Industrial value retention at scale: First Solar says it is the only solar manufacturer with more than 20 years of experience operating global, in-house PV recycling facilities, achieving an average material recovery rate of more than 95% in 2025. Its high-value recycling recovers critical materials such as tellurium and returns glass, steel and aluminium to domestic industrial supply chains, keeping strategic materials in productive use and retaining industrial value at home rather than sending it overseas or to landfill.

"When solar is made this way, the result is tangible," says Sloan. "It enables good-paying jobs, revitalized communities, and strategic industries, while delivering the reliable, affordable power that families and businesses depend on."

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Ascent Solar meets growing drone market demand

Ascent Solar Technologies Inc of Thornton, CO, USA – which designs and makes lightweight, flexible copper indium gallium diselenide (CIGS) thin-film photovoltaic (PV) panels that can be integrated into consumer products, off-grid applications and aerospace applications – has emphasized its continued commitment to providing durable, reliable solar solutions to the space market, and expanded on its entry into the unmanned systems market as global demand rapidly grows. This objective underscores its strategy of expanding the spectrum of commercial opportunities for its thin-film offerings while maintaining its paramount focus on space applications.

Ascent says that its commitment to the rapidly growing space economy is demonstrated by its participation in new orbital missions, such as the recent integration of its thin-film solar products into Reditus Space's ENOS spacecraft, which is scheduled for launch this Fall. In addition, Ascent received an order for 100 modules for a satellite that will manufacture components in space. Both of these could lead to annual recurring business of 10–25kW.

With respect to the drone market, Ascent says that it is currently experiencing accelerated demand from unmanned aerial and marine systems industries, as its technology's uniquely high power-to-weight ratio offers major operational advantages. It is also working with a European organization to supply its products for integration into a high-altitude platform station (HAPS) project, expecting to deliver an initial 250W sub-array by the end of the Summer. These endeavors represent additional customer adoption milestones in Ascent's ongoing work to provide lightweight, resilient solar power solutions at high altitudes. The firm has received orders from two Eastern European drone manufacturers that will integrate Ascent's products into aircraft wing designs. These initial orders have the potential to become recurring business, reaching 200–300kW of product demand annually. Company leadership is also actively engaged in discussions with two US-based drone manufacturers around future opportunities to supply its solar products.

Additionally, Ascent has secured product orders from two unmanned marine vehicle (UMV) companies:

one global manufacturer and the other US-based. This expansion into applying its solar products to UMVs illustrates the versatility of the company's technology across many drone market verticals. These initial orders have the potential to become recurring business, reaching 125–200kW of product demand annually.

"As defense departments across the globe increasingly prioritize unmanned systems, lightweight power generation has become mission critical," says Ascent Solar's CEO Paul Warley. "Our thin-film PV boasts an exceptional power-to-weight ratio achieving as light as 500–600W/kg and features an advanced encapsulation design that is well suited for demanding drone applications. Those advantages allow drones to stay in the air longer without adding weight that compromises their performance or aerodynamics," he adds. "Space remains a priority market, but we are excited by the increasing opportunities from the drone industry, as many of the same performance advantages that make our products ideal for space vehicles also deliver substantial benefits for unmanned applications."

Ascent Solar broadens thin-film space PV testing beyond NASA's low Earth orbit results

Interest increases in solutions spanning multiple orbital environments

Ascent Solar plans to expand testing of its CIGS PV technology beyond low Earth orbit (LEO) as the firm has received an increase in requests for solar solutions capable of supporting missions across multiple orbital environments.

Ascent is preparing a series of in-house characterization campaigns designed to validate the survivability and performance of its thin-film solar technology in increasingly challenging space conditions, concluding in fourth-quarter 2026.

Previous NASA testing in LEO demonstrated CIGS PV's potential

to recover from radiation exposure through its self-annealing properties, a phenomenon described in journals as 'Remarkable Recovery'. Now, Ascent is extending that research to determine whether that same recovery is possible in the more demanding radiation environments of medium Earth orbit (MEO), geostationary orbit (GEO) and other high-energy orbits, to bolster the qualifications of its thin-film solar products for an expanding range of space applications.

"Emerging space markets like on-orbit servicing and assembly,

space-based solar power, orbital data centers and others, depend on power systems that can reliably operate in extremely punishing environments," says CEO Paul Warley. "Mission operators are increasingly prioritizing solutions that reduce risk and improve long-term performance. By expanding the validation of our CIGS products' use beyond LEO, we will establish them as the lowest-risk options for a vast range of next-generation space mission applications."

<https://pubs.acs.org/aaemcq/>

Ascent reflects on H1/2026 achievements and milestones Outlines strategic goals for continued corporate development

Ascent Solar Technologies Inc of Thornton, CO, USA – which designs and makes lightweight, flexible copper indium gallium diselenide (CIGS) thin-film photovoltaic (PV) panels that can be integrated into consumer products, off-grid applications and aerospace applications – has recapped its commercial progress and solar material development in first-half 2026, and outlined its objectives to spur growth and advancement throughout the second half of the year.

"We've experienced a significant deal of momentum in the first half of 2026, most notably as our customer base has expanded," says CEO Paul Warley. "While addressing the fast-growing needs of the space market remains our key focus, we're simultaneously pursuing adoption from customers looking for solar solutions in marine and high-altitude (HAPS/HALE) applications," he adds. "As our products' efficiency and capabilities continue to improve amid increased market demand, we expect our sales revenue and customer base to grow throughout the rest of the year."

Key company milestones and achievements in first-half 2026 include:

- entering the year by rapidly completing pre-paid orders for customers aiming to use Ascent's thin-film PV in space, HAPS/HALE, and unique terrestrial applications;
- completing Atomic Oxygen exposure testing on Ascent's space solar products, which did not incur any damage during the testing process with 1mil FEP as the primary barrier and encapsulant;
- continuing development of the firm's PV modules' space beaming capabilities to address the growing market demand for power beaming and receiving technologies in space;
- CEO Paul Warley conducting business travel to Europe, in addition to attending the 2026 SATShow and 2026 SOF Conference, where he liaised with strategic industry players to establish potential partnerships and secured several viable commercial leads;
- closing an up to \$25m private placement.

Ascent plans to build on these

achievements throughout the remainder of the year by executing upon the following strategic goals:

- cultivating new business relationships and making deliveries to new customers in need of repeat orders across multiple sectors to continue the expansion of the strategic partners and customer base;
- making further enhancements to the company's thin-film PV technology;
- executing advanced environmental testing to quantify product performance and resilience in the punishing conditions of space and marine environments;
- continuing development of UAV and HAPS arrays and pilot designs for delivery to Ascent's European partners in the near future; and
- further building on existing strategic partnerships to meet mutually beneficial goals and delivery of combined solutions for space prototype deployables.

Ascent says that it is poised for further customer adoption and revenue growth through second-half 2026.

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Why the UK Government reshuffle matters for compound semiconductor manufacturers

Howard Rupprecht, managing director of **CSconnected**, on what July's UK Cabinet reshuffle means for compound semiconductor manufacturers across the UK and beyond, and why South Wales is a central global asset to UK sovereign capability in this critical sector.

This July, as the UK welcomed Andy Burnham as Prime Minister, the Department for Science, Innovation and Technology folded and a new Department for Business, Innovation, Science and Trade (DBIST) was created. At the same time, Kanishka Narayan MP was elevated to Cabinet as Minister of State for Artificial Intelligence, jointly in the Cabinet Office and DBIST.

This is a clear signal of the importance the Burnham administration is placing on AI. Narayan now sits in the room where spending decisions get made and, as co-chair of the UK Semiconductor Advisory Panel, alongside South Wales compound semiconductor cluster members IQE and KLA, the government now has a more direct line into the sector than ever.

Why this matters to compound semiconductor manufacturing

The industry has for many years welcomed the direction of travel from the UK Government: more ministerial attention, a named Semiconductor Advisory Panel, growing recognition that this is a strategic sector rather than a niche one. Here at CSconnected, as convenor of the South Wales compound semiconductor cluster, we've welcomed a steady flow of Westminster figures to roundtables and fab tours. Our aim has always been to facilitate discussions around public funding and policy by highlighting activities that reflect the interest of the UK in growing our sovereign semiconductor capability, while demonstrating the value of an end-to-end supply chain cluster within it. While I welcome the news of Narayan moving into the Cabinet, I'm eager for confirmation that semiconductors will continue to sit with him or indeed which other minister will take over.

Compound semiconductor manufacturing runs on long cycles. A decision to expand epitaxy capacity, bring on a new process tool, or commit to a multi-year skills program is made against an assumption of who in

government you can go to, what they can unlock, and how long that will stay true. When that assumption is unclear, investment decisions can stall. And that's a cost that could put UK competitiveness at risk at a time when the global semiconductor market is racing towards a value of \$1.5–2 trillion by 2030.

Why all eyes will be on the UK Semiconductor Panel

While the question of formal departmental ownership is yet to be confirmed, the UK Semiconductor Advisory Panel is the functioning link between industry and the people who make spending decisions, with Narayan co-chairing it from inside Cabinet, and IQE's Jutta Meier and KLA's Andrew Evans sitting on the panel. For manufacturers, I'd recommend engaging with the Panel now. While semiconductors underpin more technology than just AI, having a minister who understands the technology at a Cabinet table should raise the attention that the Panel's recommendations get across government, rather than in just one department's budget.

What does the £1.1bn AI Hardware Plan mean for semiconductor manufacturers?

When the £1.1bn AI Hardware Plan was announced in June, most of the coverage focused on what it does for AI chip and inference startups: a £150m advance commitment, with the Government acting as first customer to buy British-made inference chips this summer rather than waiting for the market to mature around them. That's a genuinely useful piece of industrial policy, and it's had the attention that it deserves.

What has had less attention is what a demand signal like that does further down the value chain, at the materials and equipment layer that inference chips depend on. Every inference chip built in Britain needs epitaxial materials, substrates, and process and

packaging equipment behind it — exactly the capability that the South Wales cluster has spent a decade building.

When Government commits to buying finished British hardware, it's also backing the supply chain that makes that hardware possible. The practical question for semiconductor manufacturers is not whether they qualify for the £150m directly; it's whether procurement policy going forward recognises that this approach only works if the materials and equipment going into British chip manufacturing are also British, or at least reliably sourced from businesses operating in Britain. A chip strategy that secures the top of the stack while leaving the base exposed to global supply shocks risks further problems in the future.

Why policy must now back what is already working

Over the past year to 18 months, two global companies have independently backed South Wales with real capital: KLA opened a \$138m facility in Newport in May 2025, expanding process equipment capability directly tied to AI-driven chip demand, and Vishay committed £250m to its Newport Wafer Fab for silicon carbide production, doubling its workforce with 500 new jobs. That's on top of IQE's own continued scale-up of indium phosphide (InP) and photonics manufacturing at a site just a few miles away. Three independent capital decisions from different global businesses in the same postcode inside 18 months feels like a real signal in the market.

Our ask to the UK Government now is to compound that signal. The single highest-value thing it can do is to distribute capital where we know inward investment will follow. The case studies above evidence exactly that. I would like to see Burnham's administration prioritize converting the capital from previous announcements or extending the Good Growth Fund into the cluster to build on the successes from the past ten years.

Zoom out from the UK, and the same argument is relevant. Demand for indium phosphide, the material behind the optical components used in AI-driven data-center interconnects, is accelerating faster than global supply can comfortably meet. IQE's own public statements this year have linked its growth directly to that trend, citing accelerating demand for InP solutions driven by their role in optical photonics for data centers and AI infrastructure, with that growth scaling through its Newport manufacturing base.

This is what makes the UK Government changes a global story, playing out against a backdrop where supply security is increasingly geopolitical rather than purely commercial. China's export licensing controls on indium-bearing materials have already constrained supply for manufacturers dependent on Chinese-sourced inputs, a live example of how quickly a fast-growing market can be disrupted by decisions made outside it entirely. For a UK Government thinking about resilience as well as growth, building domestic capacity will improve global trade alongside national sovereignty. Even now in the South Wales cluster, we delivered £480m in exports in 2025, with over 90% of industrial output sold internationally.

This is what makes the case for backing established capacity over funding something new so significant. The South Wales cluster is already growing, already exporting, and already attracting capital that could have expanded anywhere in the world, choosing Newport. Government support that is aimed at the capacity already meeting global demand reaches the market faster than support aimed at capability that is yet to be built, at a moment when speed is key to remaining globally competitive.

The South Wales cluster is a highly evidenced example of what a functioning international cluster should look like. Established manufacturing capability, multiple independent investors backing the same location, and a growing share of a market that isn't waiting for anyone's industrial strategy to catch up.

Time is of the essence

Semiconductors have never just been about AI, although they are a fundamental piece of that story. They underpin defence, automotive, clean energy and telecoms as much as they do data-center infrastructure.

As the foundational technology behind many of the industrial sectors recognised by the government, our ask is simple. Back capital into what is working, extend the mechanisms that already exist rather than designing new ones, and let skills and export support do what they're meant to: turn capacity into growth. Germany, the EU and the USA are not pausing to watch how the new government settles, and manufacturers here in Wales haven't paused either. ■

www.csconnected.com

CSconnected and the South Wales compound semiconductor cluster

CSconnected is the not-for-profit convenor of the South Wales compound semiconductor cluster. Optimizing a quadruple helix of industry, academia, government and community, it promotes the cluster to customers, investors,

and government stakeholders, developing the talent pipeline, facilitating public investment and policy engagement, and driving the growth of the local supply chain through its Supply Chain Development Programme. It does

not do this alone. Its strength lies in the collective, in the partnership of organizations that together make the cluster the most strategically significant industrial asset that the UK has in this advanced technology race.

Gate-all-around InGaN nano-LED

Vertical integration of an FET with a nanopillar LED enables electrical modulation of sidewall recombination and transistor operation.

University of Michigan Ann Arbor in the USA reports a gate-all-around (GAA) nanoscale light-emitting diode (nano-LED), with a conformal gate electrode surrounding both the n-GaN contact region and the InGaN/GaN multiple-quantum-well (MQW) active region [Yakshita Malhotra et al, Optics Express, v34, p23712, 2026].

The researchers comment: "To the best of our knowledge, this is the first report of vertical integration of a field-effect transistor (FET) with a nanopillar LED in nanoscale. Further, other reports on monolithic integration of FETs with LED report much higher values of gate potential (V_{G-N}) to manipulate the electroluminescence (EL) from LEDs."

The team adds: "The inclusion of a third electrode is not only handy in terms of monolithic vertical integration of a FET with an LED, but it can also be used to modulate the surface recombination properties and overall

enhancement of the radiative recombination efficiency, which is one of the major challenges for making high efficiency submicron-scale LEDs."

Surface non-radiative recombination mechanisms tend to become more significant as device sizes shrink. The researchers see the structure as "a promising route for achieving high-efficiency nanowire LEDs and large-scale three-dimensional optoelectronic integration".

Without the gate (Figure 1), the nano-LED pillar suffers from surface recombination where electrons and holes are absorbed through transitions to intermediate levels that do not produce the desired photons, the Shockley-Read-Hall (SRH) mechanism. These intermediate levels arise from damage such as dangling bonds and surface defect states caused by the plasma etch used to create the pillars.

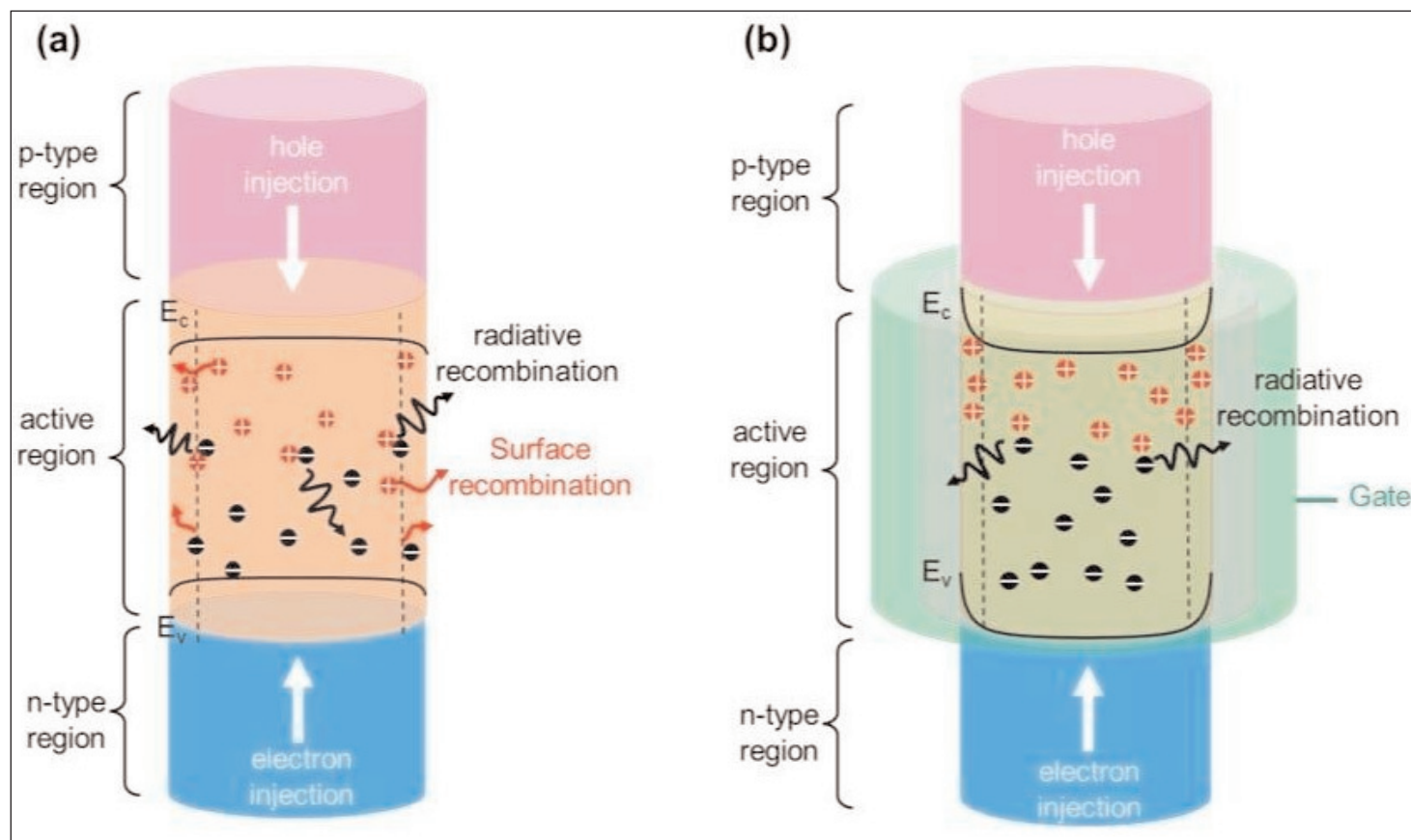


Figure 1. (a) Recombination mechanisms in conventional two-terminal LED. (b) Gated structure used to alter balance of recombination towards photon production.

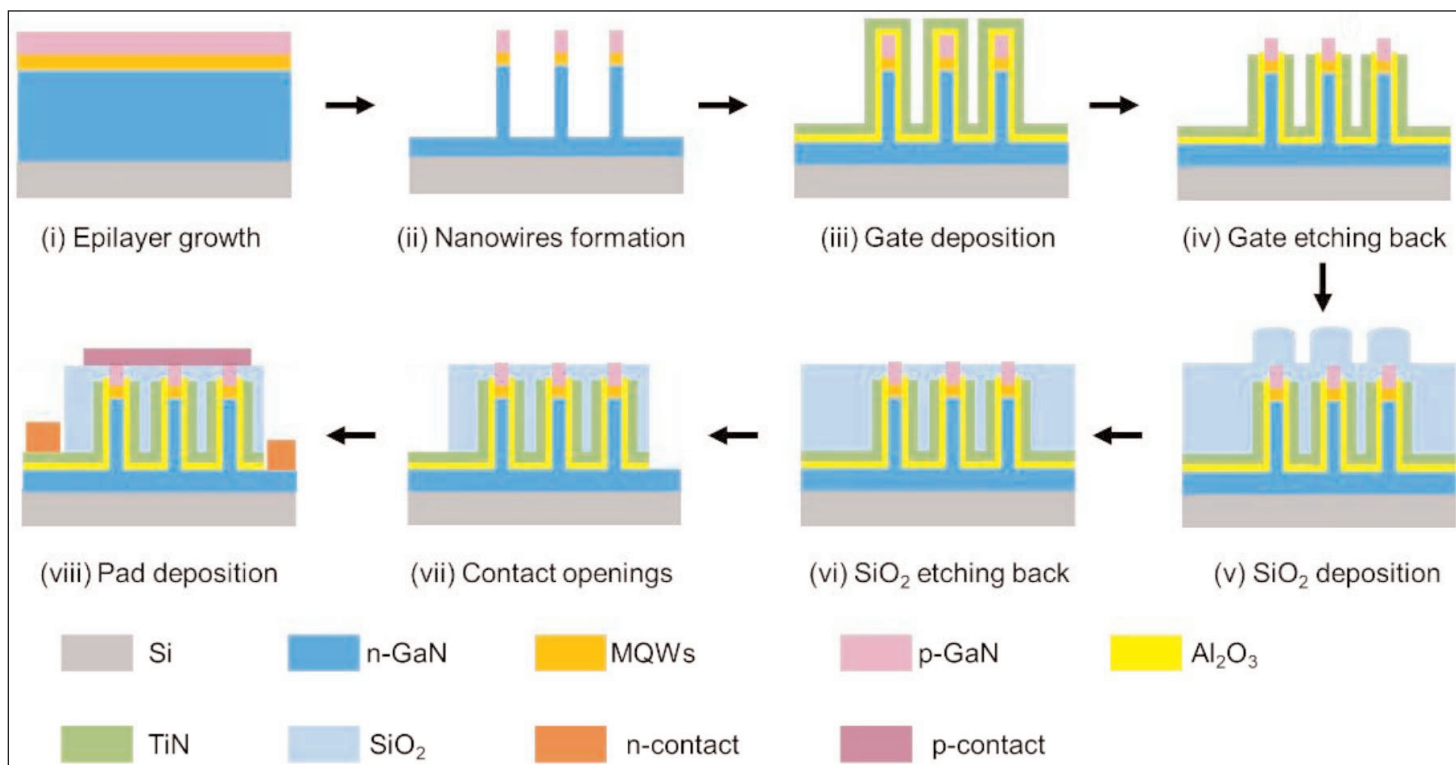


Figure 2. GAA LED fabrication process.

A negative potential applied to the gate confines the electrons away from the surface, enabling more transitions across the bandgap of the multiple quantum wells. The holes on the other hand will be attracted to the surface column, but they travel more slowly, and will lack electrons to absorb there.

A positive gate potential would attract the electrons to the surface region, reducing light emission compared to non-radiative mechanisms.

The gate in the Michigan devices also covered the n-type GaN electron injection region, giving a

field-effect transistor (FET)-like operation profile.

Commenting on simulations, the researchers write:

"The current injection is controlled primarily by the accumulation and depletion of electrons in the n-GaN layer."

The researchers used commercial GaN-based epitaxial wafers grown on silicon (Si) (111) substrates for fabrication of the GAA nano-LEDs (Figure 2). The structure consisted of 2800nm n-GaN, 160nm active region of InGaIn/GaN multiple quantum wells (MQWs), and 150nm p-GaN.

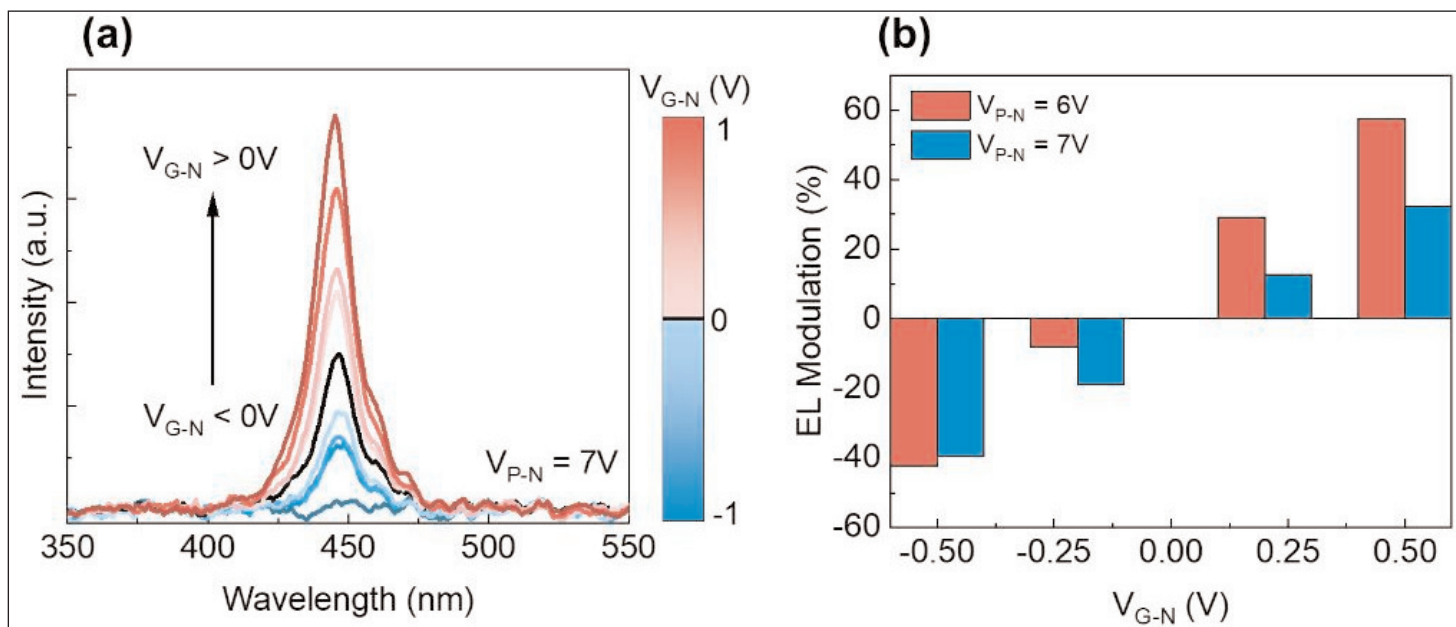


Figure 3. (a) Electroluminescence (EL) at 7V forward bias (V_{P-N}) with varying gate potential (V_{G-N}), 0.25V steps. (b) EL modulation versus V_{G-N} at 6V and 7V V_{P-N} .

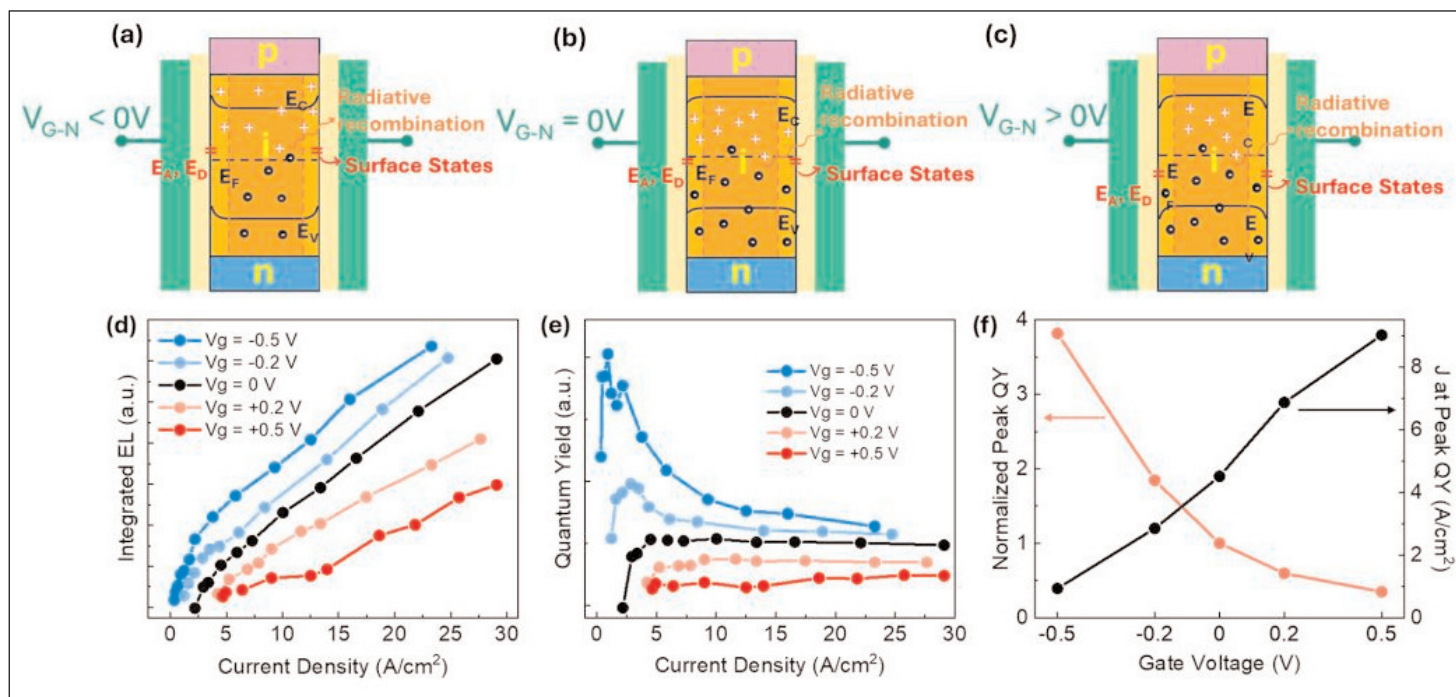


Figure 4. Schematics showing impact of gate bias on band diagrams and defect states: (a) $V_{G-N} < 0V$ (b) $V_{G-N} = 0V$ and (c) $V_{G-N} > 0V$. (d) Integrated EL versus current density for different V_{G-N} . (e) Quantum yield (QY) versus current density. (f) Normalized peak QY (red curve) and current density (black curve) versus V_{G-N} .

The material was etched into hexagonal arrays of 220nm-diameter nanopillars down to the n-GaN layer. The gate stack consisted of 30nm atomic layer deposition (ALD) aluminium oxide (Al_2O_3) dielectric, and 75nm titanium nitride (TiN) metal. The gate material was removed from the top 100nm of the nano-pillars by etch-back. The gate thus surrounded the n-GaN and active region.

A 600nm silicon dioxide (SiO_2) layer was applied through plasma-enhanced chemical vapor deposition (PECVD), insulating the gate from the p-electrode. Further etch-back exposed the p-electrodes. The metals for the n-contact and gate were titanium/gold. The p-contact was 200nm transparent indium tin oxide (ITO), 5nm nickel, and 5nm gold. The completed devices were annealed at 450°C for a minute in forming gas.

The EL of the GAA nano-LEDs was found to be fully suppressed when V_{G-N} reached $-1V$ (Figure 3). A positive gate potential enhanced the EL by allowing more current to flow through the device. However, as the P-N bias increased from 6V to 7V, the modulation

in EL was reduced probably due to the increased non-radiative recombination at the sidewall regions.

To get a better idea of the quantum efficiency (QE, photons/electron injected) performance, the researchers studied the integrated EL performance against current density for different gate potentials (Figure 4). Dividing the integrated EL by the current density gave a qualitative 'quantum yield', proportional to the QE, allowing the relative comparison of performance under different gate conditions.

The researchers report: "The peak QY shows an enhancement of almost 4 times at $V_{G-N} = -0.5V$. On the other hand, for $V_g > 0V$, the QY is significantly reduced to 0.35 times at $V_{G-N} = +0.5V$. For an LED, a slow rising QE, reaching its peak at higher current densities, is a typical indication of a large non-radiative recombination component related to defect related SRH recombination. Whereas a sharp rise to peak QE at low current densities indicates reduced SRH recombination."

<https://doi.org/10.1364/OE.588188>

Author: Mike Cooke

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UV LED reaches 19% wall-plug efficiency at 298nm

Researchers at UCSB use p-GaN islands to enhance light extraction.

University of California Santa Barbara in the USA claims the highest reported wall-plug efficiency (WPE) yet for ultraviolet light-emitting diodes (UV LEDs) around 298nm wavelength [Wenting Gong et al, IEEE Electron Device Letters, published online 3 June 2026]. The team also included a researcher associated with King Abdulaziz City for Science and Technology in Saudi Arabia.

The peak WPE reached 19.0% at 0.09A/cm² injection current. At higher 10A/cm² injection, the WPE drooped to 7.4%, but was still higher than most other reports at this wavelength range.

The III-nitride semiconductor development community is seeking to displace conventional mercury lamps, which in addition to containing a highly toxic element in a fragile enclosure, are bulky and have short lifetimes. However, UV LEDs at shorter wavelengths, less than 300nm, have WPEs less than 10%, let alone reaching the 25% of mercury lamps.

The epitaxial material for the UV LED was grown by metal-organic chemical vapor deposition on AlN/sapphire templates (Figure 1). The magnesium-doped p-side of the device included an electron-blocking layer (EBL), p-AlGaN superlattice, and finally p-GaN.

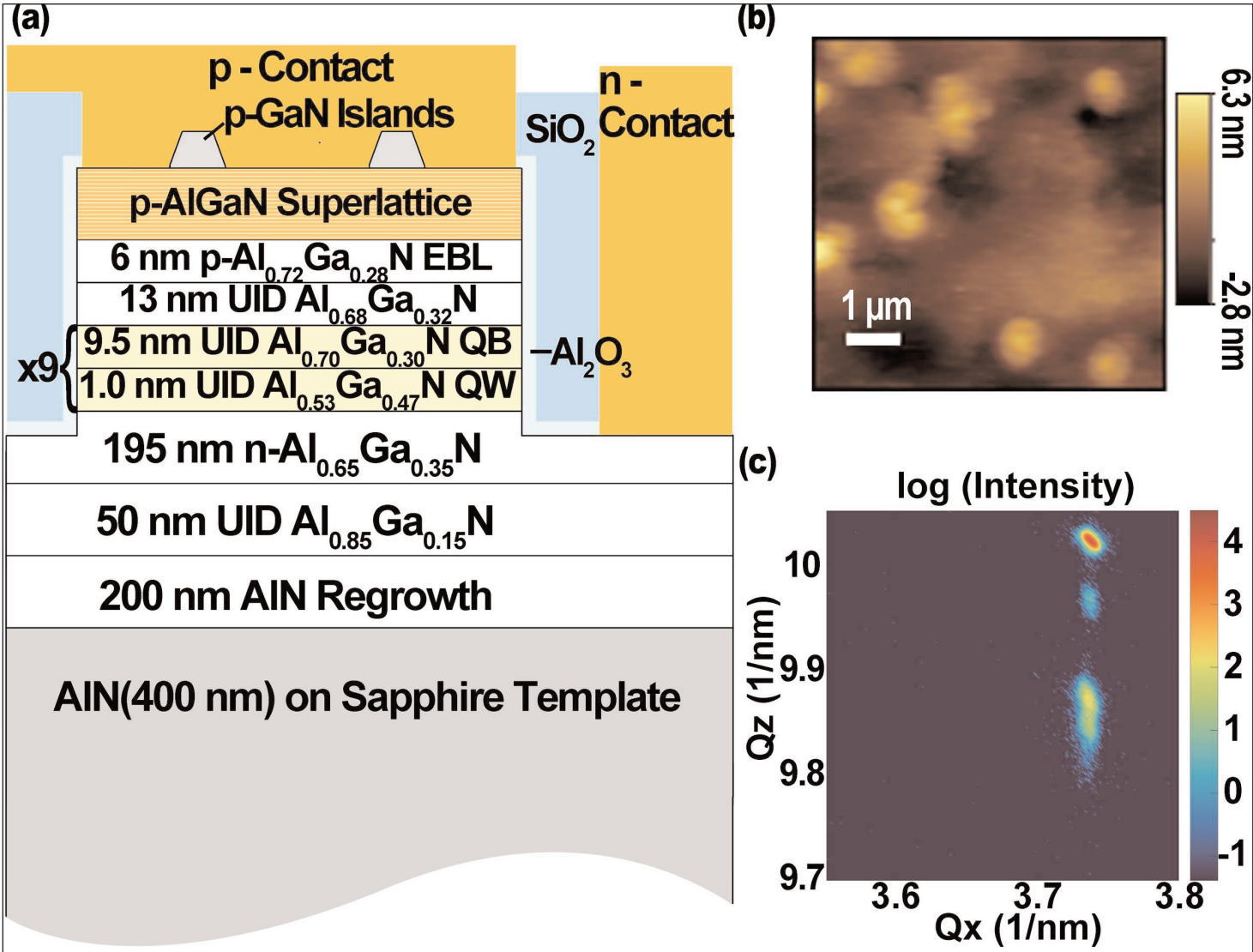


Figure 1. (a) Schematic UV LED cross section. (b) Atomic force microscopy (AFM) image of epitaxial sample surface with p-GaN islands. (c) X-ray diffraction (XRD) reciprocal space mapping (RSM) at (1015) reflection.

Since p-GaN absorbs UV radiation, the researchers used Volmer–Weber island growth for the contact layer, rather than the more usual layer growth used for the AlGaIn layers. The process targeted a low 10% areal island density, with a view to increasing UV light extraction efficiency.

The team comments: “The coherent growth of the AlGaIn heterostructure reduces the dislocation density and is therefore expected to suppress Shockley–Read–Hall (SRH) non-radiative recombination.”

The 195nm n-AlGaIn contact layer thus enabled optimized current spreading. The coherent AlGaIn was also key in forming the p-GaN Volmer–Weber islands due to the high stress at the AlGaIn/GaN interface.

Hole injection is a particular problem in III–nitride devices. P-type doping is usually via magnesium impurities. The acceptor level that grabs electrons to form holes in the valence band is even deeper in high-Al-content AlGaIn than in pure GaN, which is why most UV LEDs include a p-GaN layer. Unfortunately, GaN strongly absorbs radiation shorter than 365nm by exciting electrons across the 3.4eV bandgap.

The circular LED mesas were etched to a 235nm depth. The device area was 0.1mm². The n-contacts were vanadium/aluminium/nickel/gold, and p-side metals were nickel/aluminium/nickel/gold. The p-side stack was also designed to be highly reflective of the UV radiation. Passivation consisted of 37nm atomic-layer-deposited aluminium oxide (Al₂O₃), and 305nm plasma-enhanced chemical vapor deposition silicon dioxide (SiO₂). Contact pads were titanium/gold.

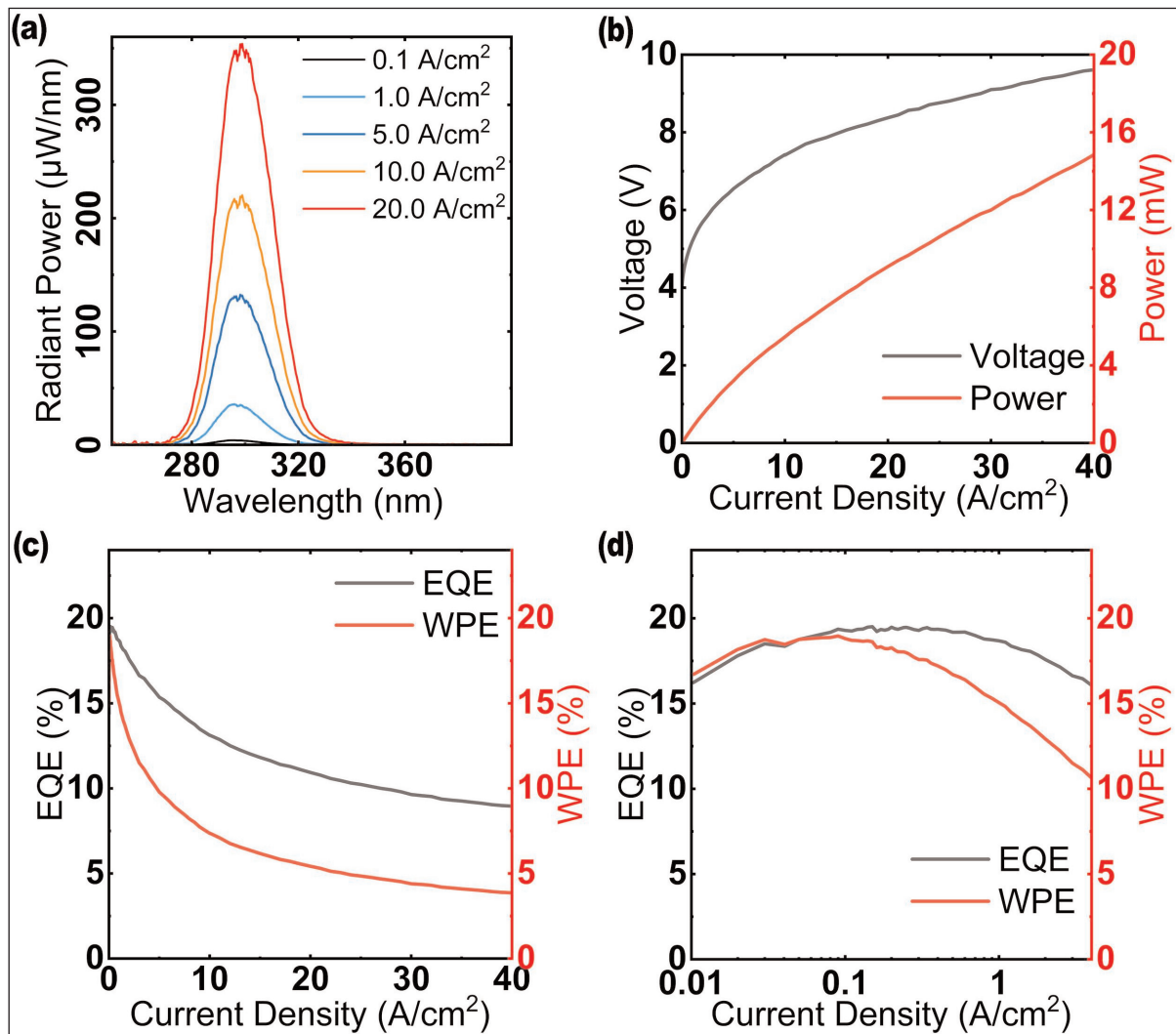


Figure 2. (a) Electroluminescence (EL) spectra under different current densities. (b) Light output power–current density–voltage (L–J–V) plots. (c) External quantum efficiency (EQE) and wall-plug efficiency (WPE) against current density. (d) Zoomed-in view of (c) at low current density with logarithmic x-axis.

The peak wavelength of the LED was around 298nm, falling in the UV-B range (Figure 2). The researchers expect to be able to reduce the reverse current leakage (10^{−5}A/cm² at −5V bias) by using higher-quality templates or bulk AlN substrates.

The peak 19.5% EQE and 19.0% WPE were reached at 0.15A/cm² and 0.09A/cm² injections, respectively.

Although the efficiency droops at more practical injection currents, to 7.4% at 10A/cm², the researchers comment: “The WPE in our LED devices remains advantageous over most reported AlGaIn-based LEDs in this wavelength range.” Indeed, the paper presents a table of 8 reports, including “this work”, showing only one group achieving a higher 9.0% WPE, at 280nm wavelength. The maximum WPE of the competitor was 9.3%.

The 5.5mW output power at 10A/cm² was only beaten by two groups in the table with 6mW (298nm) and 6.5mW (283nm). ■

<https://doi.org/10.1109/LED.2026.3698638>

Author: Mike Cooke

Blue photonic crystal surface-emitting laser

Regrowth-free device achieves 0.066° divergence beam.

Researchers based in China report a room-temperature blue gallium nitride (GaN)-based photonic crystal surface-emitting laser (PCSEL) diode realized by regrowth-free fabrication [Zhiwei Sun et al, Appl. Phys. Lett., v128, p243310 2026].

"A critical advantage of PCSELs is their ability to produce high-quality beams with low divergence," comments the team from Suzhou Laboratory, University of Science and Technology Beijing, Suzhou Institute of Nano-Tech and Nano-Bionics, Xi'an Jiaotong-Liverpool University, and Suzhou Ganbright Optoelectronic Technology Co Ltd.

The researchers report an extremely low divergence angle for their device of 0.066°. Edge-emitting lasers

suffer from wide divergence with an elliptical rather than circular profile. Vertical-cavity surface-emitting lasers (VCSELs) have been commercialized at infrared wavelengths, but implementation of the concept for visible blue laser light is challenging due to material limitations.

Photonic crystal (PhC) structures offer opportunities to overcome some of these limitations. The researchers comment: "The multi-directional distributed feedback effect near the band edge allows for the formation of a coherent large-area standing wave, while first-order diffraction from the grating enables surface emission. This mechanism allows PCSELs to achieve high-power, single-mode lasing with a very narrow divergence

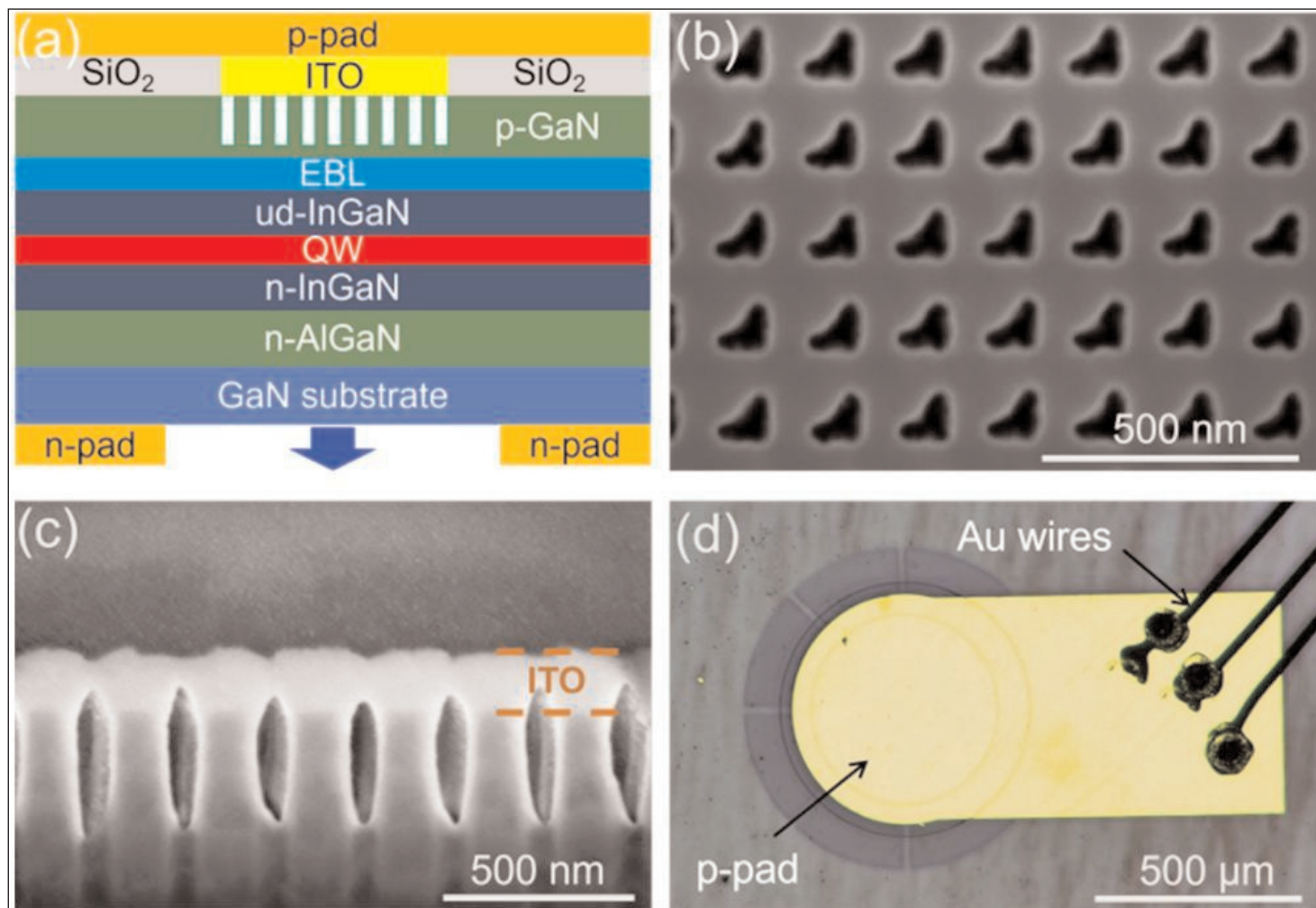


Figure 1. (a) Schematic diagram of GaN PCSEL. White bars represent air holes of PhC. (b) Scanning electron microscope (SEM) image of square lattice with air holes. (c) Cross-sectional SEM image after ITO deposition. (d) Top-view microscopy image of finished device.

angle and high brightness, as has been extensively demonstrated in III-V arsenide and phosphide materials."

There have been some reports of the GaN-based PCSELS, but these typically use epitaxial regrowth steps during fabrication, which increases process complexity and cost. Another complicating factor is the use of double-lattice structures to enhance beam quality for very large devices, requiring difficult lithography and etching sequences. The researchers here instead used a single lattice, hoping that this would be sufficient for compact devices.

The epitaxial material for the device (Figure 1) was grown by metal-organic chemical vapor deposition (MOCVD) on GaN substrate. The laser light was designed to be emitted from the bottom surface. The layer sequence was: 1.9 μm n-type aluminium gallium nitride (n-AlGaIn) cladding, 100nm indium gallium nitride (n-InGaIn) waveguide, 5nm/12nm $\text{In}_{0.12}\text{Ga}_{0.88}\text{N}$ single quantum well (QW), 100nm undoped InGaIn waveguide, 20nm AlGaIn electron-blocking layer (EBL), and 475nm p-GaN cladding.

The researchers comment on the p-GaN: "This layer replaces the AlGaIn cladding conventional to edge-emitting laser diodes to facilitate photonic crystal etching and electrical contact formation."

The fabrication avoided regrowth steps to facilitate process simplicity. The PhC consisted of a square lattice with isosceles right triangle air holes etched in the p-GaN by inductively coupled plasma. The lattice constant was 174nm to match the modal index of the fundamental guided mode. The circular PhC area was of 600 μm diameter. The air holes present a high refractive index contrast with GaN.

The p-side electrode consisted of transparent indium tin oxide (ITO) with a diameter only slightly exceeding the PhC area to reduce current waste through the structure. Plasma-enhanced chemical vapor deposition (PECVD) silicon dioxide (SiO_2) electrically isolated the

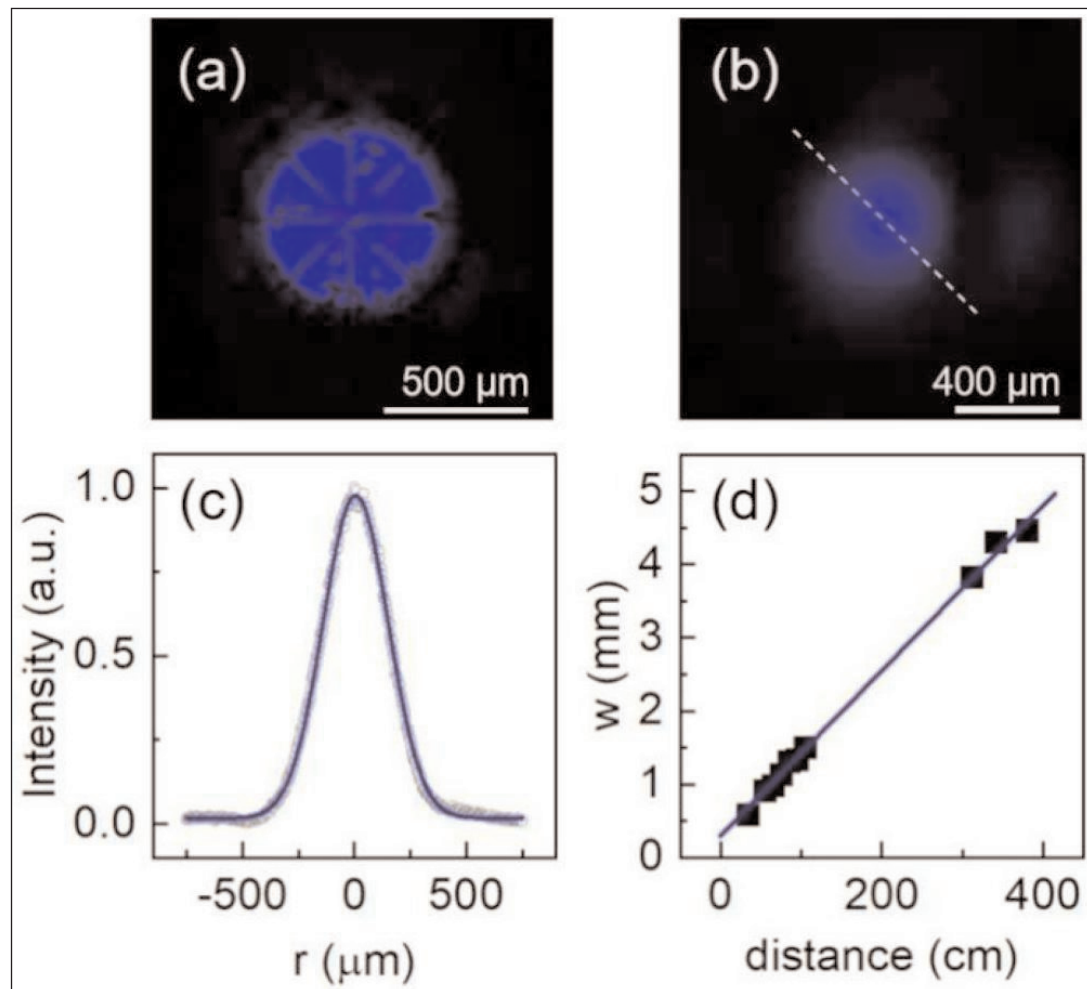


Figure 2. (a) Near-field pattern captured above threshold at 17.1A (6.05kA/cm²). Eight metal fingers extend from n-electrode toward center. Dark spot scattering is solder paste from PCB mounting. (b) Far-field pattern. (c) Intensity profile along dashed line in (b). Blue curve indicates Gaussian fit. (d) Position-dependent spot size (full width at 1/e² intensity).

device.

The PCSEL was completed with a p-metal contact pad, thinning of the substrate, and n-metal deposition.

The researchers used pulsed operation to avoid self-heating effects. The team reports: "A distinct lasing peak emerges near 434nm at an injection current of 13.8A, with full lasing established at 14.8A. The spectral linewidth (FWHM) of the lasing peak is measured to be 25pm, a value limited by the resolution of our spectrometer." The threshold current density was 5.2kA/cm².

The slope efficiency of 6W/A is described as "limited". The blame is apportioned to suboptimal coupling of the PhC to the vertical radiation mode, resulting in lateral dissipation of photons generated in the QW.

The team suggest possible efficiency improvements: "According to three-dimensional coupled-wave theory, shifting the PhC layer closer to the peak of the optical field to increase the vertical confinement factor (Γ_{PhC}) will simultaneously enhance vertical radiation and suppress lateral loss."

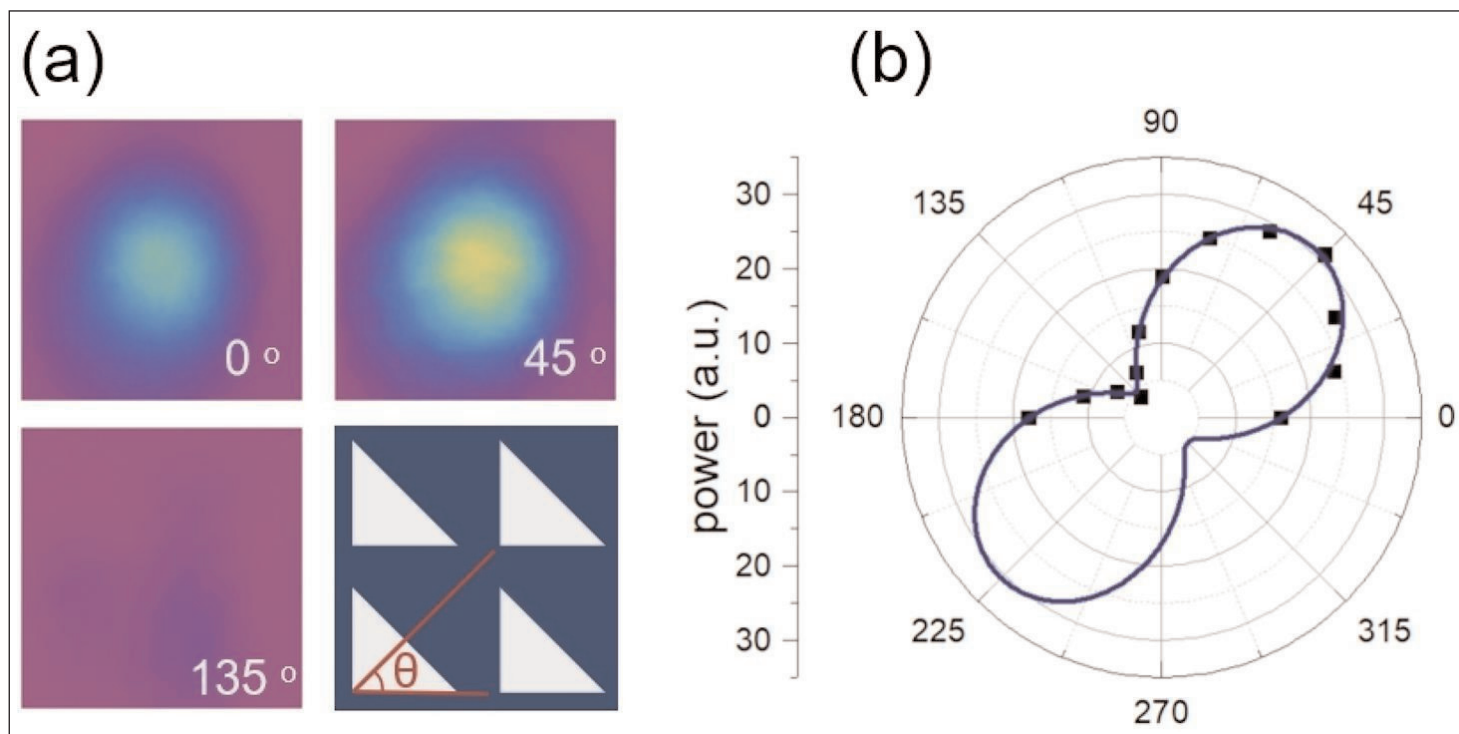


Figure 3. Far-field pattern and polarization characteristics at 21.4A (7.56kA/cm²): (a) contour plots with polarization filter at different angles β . (b) Polar plot of light power versus polarization angle. The blue line represents best-fit sinusoidal curve.

Practical steps towards this could include reducing the p-cladding thickness to boost PhC-optical field interaction, and p-cladding doping profile optimization to mitigate intrinsic optical losses.

The far-field beam divergence was 1.15mradians (0.066°) with a Gaussian profile (Figure 2). The researchers attribute this exceptionally low value partially to single-mode operation at low power densities. The result is all the more remarkable given the relatively large 600 μ m diameter of the device.

The team writes: "This result highlights the ability of the photonic crystal cavity to maintain a coherent

phase front over a large area, a capability that is difficult to achieve with conventional VCSELs or EELDs."

The researchers also found the light output to be linearly polarized (Figure 3): "The polarization axis is oriented at 45°, which corresponds geometrically to the direction perpendicular to the long edge (hypotenuse) of the isosceles right triangular air holes. This polarization pinning is a direct result of the symmetry breaking introduced by the triangular air holes." ■

<https://doi.org/10.1063/5.0315502>

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KnowMade highlights scaling of GaN-based architectures for strategic markets

Gallium nitride adoption is spanning AI infrastructure, advanced photonics and next-generation power electronics.

In the latest update of KnowMade's monthly GaN research, technology, and patent landscape monitoring, new scientific breakthroughs, patent activity and industrial announcements confirm that the global gallium nitride (GaN) ecosystem continues to gain momentum as the technology moves deeper into mainstream semiconductor roadmaps, becoming a strategic semiconductor platform across computing, communications, energy and defense applications. The latest monthly R&D activity highlights an industry rapidly evolving beyond its historical positioning in LEDs and RF power devices toward a much broader role spanning AI data centers, optical interconnects, advanced displays, high-voltage power conversion and next-generation communication systems.

During April, the GaN landscape generated more than 327 new scientific publications and 362 new patent publications worldwide, illustrating the growing intensity of both academic research and industrial competition. Electronics applications accounted for the largest share of activity, with 162 scientific papers and 238 patents, while optoelectronics remained highly dynamic with 80 scientific articles and 99 patent filings.

The latest developments confirm a major shift in the GaN industry: the question is no longer whether GaN can outperform conventional silicon technologies in specific niches, but how rapidly companies can industrialize and scale GaN-based architectures for strategic markets including AI infrastructure, electric mobility, advanced photonics and defense electronics.

Optoelectronics: micro-LEDs beyond displays

One of the strongest trends observed this month is the transformation of micro-LED technologies from display-oriented devices into enabling platforms for photonics, AI communications and emerging computing architectures.

Recent scientific publications show how III-nitride optoelectronics are expanding into fields such as visible light photonics, deep-UV sensing, and neuro-technology. Researchers from Toyohashi University of Technology, Meijo University, Dokkyo Medical University and ALLOS Semiconductors demonstrated a flexible

InGaN micro-LED electro-corticography platform capable of simultaneous neural stimulation and recording. The work illustrates how GaN micro-LEDs are increasingly being considered for biomedical interfaces and next-generation neuroelectronics.

At the same time, collaborations between the Max Planck Institute of Microstructure Physics, the University of Toronto, Advanced Micro Foundry and ams OSRAM demonstrated highly efficient hybrid integration of InGaN laser diodes onto silicon photonics platforms. The significance of this work lies not only in optical performance but also in its compatibility with scalable semiconductor manufacturing processes — a key requirement for future applications in quantum photonics, biosensing and AR/VR systems.

Display technologies also remain a major focus area. A broad collaboration involving Samsung Electronics, Nagoya University and Veeco Instruments investigated efficiency mechanisms in red InGaN micro-LEDs, providing important insight into one of the major bottlenecks limiting fully integrated RGB micro-LED displays. Meanwhile, deep-UV LED research from the University of Cambridge, TU Berlin and the University of Strathclyde addressed defect-control strategies aimed at improving efficiency and lifetime in AlGaN UV emitters for sterilization and sensing applications.

Patent activity confirms that the race toward scalable micro-LED manufacturing is intensifying. Companies including Lumileds, Samsung Display, Silanna UV Technologies and Jade Bird Display are targeting critical challenges such as monolithic RGB integration, optical confinement, carrier management and color conversion architectures. The common objective across these patent filings is clear: simplifying manufacturing while improving optical performance and scalability for future AR/VR systems, automotive lighting and advanced displays.

At the industrial level, the most important development is the growing convergence between micro-LED technologies and AI infrastructure. Announcements from CEA-Leti, Mojo Vision and Avicena all point toward the same strategic direction: replacing conventional electrical interconnects with optical communication links capable of supporting future AI computing densities.

Technology breakdown of the activity in the global GaN scientific landscape

Number of new scientific publications in April 2026 split by applications
Main companies active in the GaN scientific landscape in April 2026



As AI accelerators become increasingly power-intensive, copper interconnects are approaching physical and thermal limitations. Micro-LED technologies are now being positioned as potential low-power alternatives for short-reach optical communication inside AI servers and chiplet architectures. Mojo Vision continues to promote dense micro-LED optical I/O systems, while Avicena launched one of the first commercially available evaluation platforms for micro-LED optical interconnects, signaling that the technology is moving closer to ecosystem validation and potential deployment.

At the same time, companies such as Aledia, Polar Light Technologies and Porotech are focusing on solving one of the most critical barriers in micro-LED displays: scalable RGB integration and high-efficiency red emission. These challenges remain central to the commercialization of AR glasses, micro-displays and next-generation premium displays.

Electronics: GaN targets AI power, high-voltage systems and RF integration

The electronics segment of the GaN ecosystem continues to evolve rapidly as companies and research organizations push the technology toward higher voltages, higher switching frequencies and greater levels of system integration.

Recent scientific publications demonstrate significant progress in vertical power architectures, RF devices and heterostructure engineering. Researchers from Université de Tours and STMicroelectronics improved pseudo-vertical GaN p-i-n diodes for RF switching applications, while collaborations involving Linköping University, Hexagem AB, Lund University and Hitachi Energy demonstrated normally-off vertical GaN FinFETs capable of stable operation at elevated temperatures.

Several publications also highlighted the increasing maturity of vertical GaN architectures. Researchers from Ohio State University and SixPoint Materials demonstrated vertical GaN-on-GaN PN diodes exceeding 10kV breakdown voltage, an important milestone for future medium- and high-voltage power conversion systems. Meanwhile, researchers from Universiti Sains Malaysia, Waseda University and Power Diamond Systems proposed integrated CAVET-HEMT architectures combining vertical and lateral transistor concepts in a single monolithic structure.

At the materials level, Toshiba identified previously unreported defect mechanisms in AlGaIn-on-silicon structures that strongly impact leakage and manufacturing yield, underlining how defect engineering remains one of the key industrial challenges for large-scale GaN-on-Si manufacturing. In parallel, Tokyo University of Science and Sumitomo Electric Industries demonstrated high-density ScAlN/GaN heterostructures produced through sputter epitaxy, suggesting potential lower-cost pathways for future high-performance HEMTs.

Patent activity further confirms that the GaN electronics industry is entering a more mature phase focused on reliability, electrostatic control and harsh-environment operation. Infineon Technologies is working on dynamic substrate biasing techniques aimed at improving switching robustness and leakage control in GaN HEMTs. Efficient Power Conversion (EPC) is addressing threshold-voltage stability in enhancement-mode GaN transistors, while Raytheon is developing radiation-tolerant GaN heterostructures for aerospace and defense electronics.

At the same time, organizations such as Sumitomo Electric Industries and the University of Wisconsin are exploring ferroelectric-assisted GaN architectures and

ScAlN heterostructures that could eventually enable multi-functional electronic devices combining RF amplification, memory behavior and tunable electronic properties.

AI infrastructure has become a major growth driver for GaN

One of the clearest themes emerging this month is the growing role of GaN technologies inside AI infrastructure and advanced data-center architectures.

Several major announcements illustrate how AI is reshaping power electronics requirements. Enphase Energy unveiled its IQ Solid-State Transformer platform designed around distributed GaN-based power conversion for future AI data centers. The company aims to replace traditional centralized power architectures with software-defined distributed GaN modules operating directly on emerging 800VDC systems.

The stakes are considerable. AI servers are rapidly approaching megawatt-scale rack densities, creating unprecedented challenges in power delivery, thermal management and energy efficiency. GaN technologies are increasingly being viewed as one of the few semiconductor platforms capable of supporting the switching speeds, power density and compact form factors required by future AI infrastructure.

Intel Foundry's announcement of ultra-thin 300mm GaN chiplets with integrated digital logic reinforces this trend. Intel is positioning GaN not as a standalone discrete technology but as part of the future chiplet ecosystem for AI processors and advanced computing systems. By integrating digital control directly onto GaN devices using scalable 300mm manufacturing processes, Intel is effectively pushing GaN toward highly integrated intelligent power architectures.

Meanwhile, NexGen Power Systems continues promoting vertical GaN as a potential long-term alternative to both silicon and silicon carbide for ultra-high-density power conversion. Its communications emphasize multi-kilovolt capability, MHz-class switching and improved avalanche robustness, targeting applications ranging from EVs to AI infrastructure and industrial electrification.

The rapid expansion of GaN markets is also putting increasing attention on supply chain readiness and manufacturing scalability. South Korean epiwafer supplier IVWorks raised new funding to industrialize its proprietary reGaN technology for RF and AI power semiconductor applications, highlighting how epitaxy and wafer engineering are becoming strategic assets within the GaN ecosystem. The announcement comes as IDTechEx forecasts strong long-term adoption of GaN technologies across AI data centers, electric vehicles and renewable energy systems, reinforcing expectations of significant growth in demand for advanced GaN materials and device platforms.

Strategic competition and geopolitics reshape GaN landscape

As GaN technologies become increasingly strategic for AI infrastructure, automotive power electronics, telecom and defense systems, competition is extending far beyond device performance and manufacturing scale. Intellectual property, supply chain positioning and geopolitical alignment are now becoming major factors shaping the future structure of the GaN industry.

This evolution is clearly illustrated by the escalating patent dispute between Infineon Technologies and Chinese GaN supplier Innoscience. A recent ruling by the US International Trade Commission intensified the rivalry by imposing restrictions on certain Innoscience products in the US market. However, the broader significance of the conflict goes well beyond the legal outcome itself. The case highlights how GaN is becoming entangled in the wider geopolitical fragmentation of the semiconductor industry. While Infineon presented the decision as a major intellectual property victory, Innoscience responded that the products concerned had already been redesigned or phased out, allowing the company to continue shipping newer-generation devices. The situation illustrates how rapidly evolving GaN product cycles can complicate the practical enforcement of patent restrictions.

More importantly, the dispute reflects growing concerns around supply chain sovereignty and what many Western customers now describe as 'red supply chains'. These concerns are particularly acute in AI infrastructure and hyperscale data centers, where sourcing decisions are increasingly influenced not only by technical performance and cost but also by geopolitical risk. Although Innoscience has successfully entered parts of Nvidia's ecosystem, much of its activity reportedly remains concentrated within China-focused deployments rather than global AI infrastructure programs.

At the same time, the competitive pressure coming from Chinese GaN suppliers is beginning to reshape the broader industry landscape. Aggressive pricing strategies and rapid capacity expansion are contributing to major supply chain adjustments across Asia. Recent decisions by companies such as Taiwan Semiconductor Manufacturing Company Ltd (TSMC) to step back from parts of the GaN foundry business, alongside new investments from Taiwan's Powerchip Semiconductor Manufacturing Corp (PSMC) and other foundries, illustrate how quickly the global GaN manufacturing ecosystem is reorganizing itself.

These developments confirm that GaN is no longer viewed simply as an emerging semiconductor technology, says KnowMade. It is increasingly becoming a strategic industry where technological leadership, manufacturing control, intellectual property and geopolitical alignment are all deeply interconnected. ■

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Power electronics market to grow at 10% CAGR from \$25.5bn to \$65.2bn by 2036

Silicon carbide will become the dominant power semiconductor material by 2036, reckons IDTechEx.

Since the development of power diodes and thyristors in the 1950s, silicon has been the dominant material for power electronics across applications ranging from electric vehicles to wind turbines. However, the emergence of wide-bandgap semiconductors such as silicon carbide (SiC) and gallium nitride (GaN) has enabled industry to push to higher voltages and smaller form factors while increasing efficiency and maintaining reliability. At the same time, early-stage research into the next generation of semiconductor materials, ultrawide-bandgap (UWBG) semiconductors, threatens to disrupt this space further.

In its report: 'Power Electronics Market 2026–2036: Data Centers, Electric Vehicles, and Renewables', market research firm IDTechEx therefore expects the power electronics market to grow at a compound annual growth rate (CAGR) of 10% from US\$25.5bn in 2026 to US\$65.2bn by 2036.

A material difference: key properties differentiating Si, SiC, GaN, and UWBGs

The most obvious difference between silicon, SiC, GaN, and UWBGs at a material level is their bandgap. This directly influences critical properties of the materials such as their critical breakdown fields, dictating the maximum voltage at which power semiconductors can safely operate. A higher critical breakdown field enables higher-voltage operation or, alternatively, enables the same voltage operation with a smaller drift layer, minimizing form factor and on-resistance. However, other metrics are also important in evaluating semiconductor materials. Electron mobility and drift velocity affect a device's switching performance, in turn affecting the switching frequencies that can be achieved by a power transistor. However, it is worth noting that device architecture also plays a key role here; for example, GaN high-electron-mobility transistors (HEMTs) enable rapid switching frequencies, on the order of MHz.

With thermal management playing a crucial role in system design, the thermal properties of semiconductor materials are also an essential consideration. With material and device considerations taken into account,

SiC is well positioned to complement silicon in applications requiring high-voltage, while GaN complements especially well in lower-power, fast-switching applications. Material properties of some UWBGs are very interesting. Especially diamond, due to its large bandgap, high switching performance, and exceptional thermal conductivity, has the potential to function as the 'ultimate' power semiconductor, at least in theory.

Data centers drive wide-bandgap innovations, while renewables support silicon's staying power

One of the power electronics applications experiencing the most hype recently is data centers, especially for AI training, where the next generation of servers requires an overhaul of power architecture, switching from AC-to-DC conversion at the rack level to a 'sidecar' architecture, delivering 800VDC to the rack. This will eventually be superseded by a 'native' 800VDC architecture, where grid voltage will be stepped down to 800VDC by solid-state transformers, to then be distributed around the data center. While this is expected to bring significant efficiency improvements, the primary reason is one of necessity; incumbent power architecture simply will not be able to provide the power necessary for Nvidia's Vera Rubin Ultra servers and beyond. Detailed insights on the 800VDC transition are included in the report 'Power Electronics Market 2026–2036: Data Centers, Electric Vehicles, and Renewables'.

In electric vehicles, the shift to an 800V powertrain was a key driver for wide-bandgap innovation, where the benefits of SiC over incumbent silicon technology were evident, and worth the cost premium in many performance models.

In data centers, similar drivers are pushing innovation in wide-bandgap technology, especially for GaN. On the low-voltage side (stepping 800VDC down to 50V, or 12V, or 6V), efficiency and miniaturization are key. The ultra-fast switching of GaN reduces the size of passive components (inductors, capacitors etc) and thus the overall footprint of the device. With a drive to keep as much space as possible for compute, device

size is a metric of critical importance driving GaN commercialization. On the high-voltage side, solid-state transformers are likely to rely on SiC technology,

where single MOSFETs are now able to operate at 10kV.

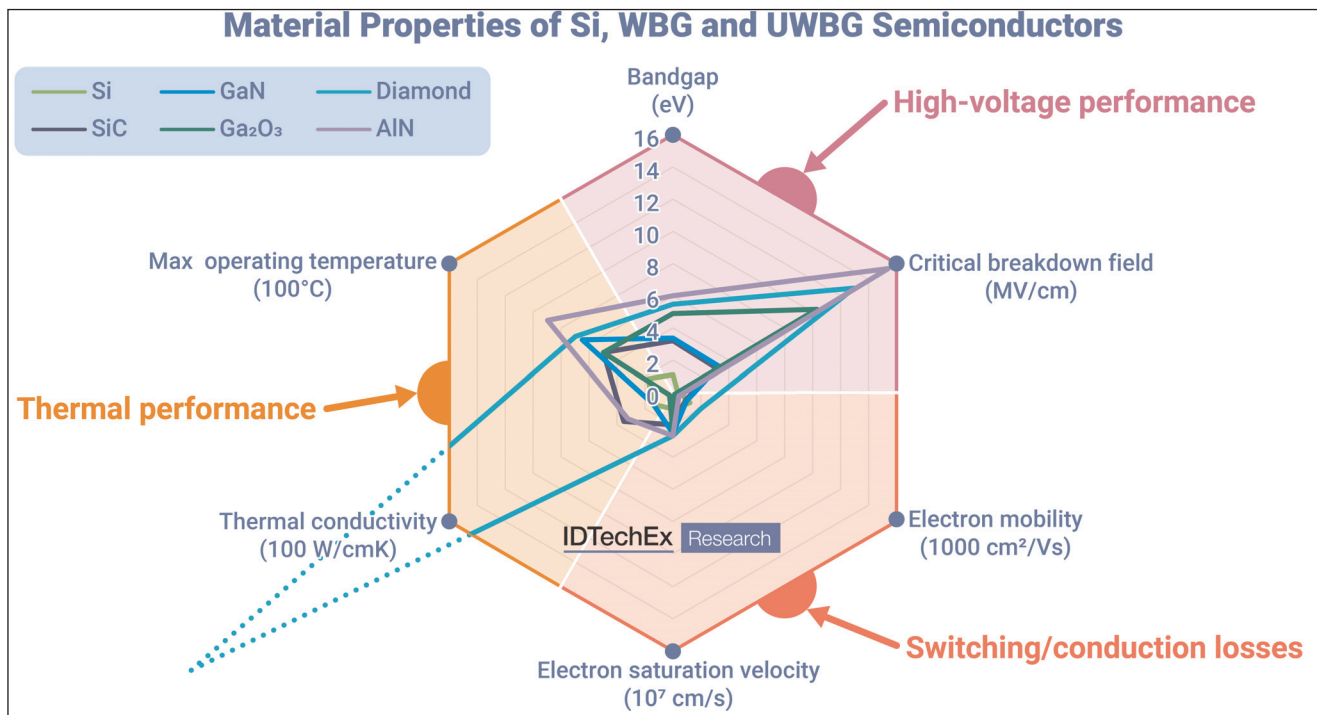
SiC and GaN are certainly dominating the headlines, if not the entire market just yet (IDTechEx does expect SiC to become the dominant power semiconductor material by 2036). However, there remains a strong, steady market for silicon power semiconductors.

One example where players have been more hesitant to switch to wide-bandgap semiconductors is renewable energy, specifically wind turbines. This is especially true offshore, where repair costs would be very expensive if components were to malfunction. The miniaturization benefits are also relatively less important compared to in other industries.

Finally, the wind industry is highly cost conscious; in many cases, the premiums associated with SiC are too high to bear. Altogether, this has resulted in a much slower transition away from incumbent silicon technology. However, early collaborations, such as those between Wolfspeed and Hopewind, are now beginning to emerge, suggesting SiC technology has become sufficiently mature for use in even these more cautious industries. This maturity has been developed significantly by R&D from the EV industry, highlighting the cross-application nature of the power electronics market.

How will ultra-wide bandgaps disrupt the landscape, and when?

UWBGs have so far received much less attention than their wide-bandgap counterparts, and are much earlier in development, with only early device prototypes available for a limited number of materials. IDTechEx provides SWOT analyses on UWBG semiconductor materials and is in contact with key players across the three main UWBG materials: Ga₂O₃, AlN, and diamond.



While all three have the potential to offer advantages over incumbent materials, especially in terms of high-voltage or extreme-environment performance, all three have drawbacks. Ga₂O₃ has very thermal conductivity, effectively doping AlN has proved challenging (though polarization-doping could be an effective solution here), and effectively growing single-crystal diamond to the wafer sizes suitable for commercial power electronics applications has proven challenging and expensive. They each also have key commercial drivers: Ga₂O₃'s relatively straightforward manufacture from melt, AlN's route to commercialization through optoelectronics, and diamond's superior material properties. As such, it remains unclear which material, if any, will 'win' the UWBG race.

However, what is clear is that all three are still a long way from large-scale commercialization. Ga₂O₃, with device prototypes, might be the closest, but even players in this space do not expect commercialization for at least the next five years. It is also clear that the cost premiums that will undoubtedly be associated with these materials will prevent them from taking over the wide-bandgap space. They are more likely to further complement WBGs in extreme and niche applications, such as in aerospace, where the performance improvements justify higher costs.

With semiconductor materials occupying overlapping application areas, the power electronics industry is complicated by materials competing with and complementing each other. In IDTechEx's report, key semiconductor materials are benchmarked and compared, and their use across the most pertinent application areas: data centers, EVs, and renewables, are evaluated to provide clarity and detail. ■

www.IDTechEx.com/PowerElecMarket

First experimental demonstration of S-band large-signal performance for GaN HBTs

Selective-area emitter technology and device scaling yield record 30.5GHz f_T and 7.01GHz f_{max} in GaN HBTs, with a first-reported S-band output power density of 16.5kW/cm²

A Chinese research team has achieved consecutive breakthroughs in gallium nitride (GaN) heterojunction bipolar transistors (HBTs), with results published in IEEE Electron Device Letters (IEEE EDL) in both 2025 and 2026. The 2026 paper was selected as an Editor's Pick, marking a transition for GaN HBTs from frequency characterization to practical power application evaluation.

Due to their vertical current transport structure and the high critical electric field inherent to wide-bandgap materials, GaN-based HBTs offer significant theoretical advantages for high-power, high-frequency RF applications. However, compared to commercially established gallium arsenide (GaAs) HBTs and rapidly advancing GaN high-electron-mobility transistors (HEMTs), the RF performance of GaN HBTs has long been stagnant, with cut-off frequency (f_T) and maximum oscillation frequency (f_{max}) previously limited to around 8GHz and

1.8GHz, respectively. The primary bottlenecks were twofold: the high resistivity of the p-type GaN base layer and surface damage from dry etching, which caused Schottky-like base contacts and high base resistance (R_B),

severely limiting f_{max} ; and high emitter contact resistance (R_{E-M}) in scaled devices, which increased collector charging time (τ_C) and limited f_T .

In 2025, the team published a paper 'AlGaN/GaN Heterojunction Bipolar Transistors With Record f_T/f_{max} = 21.6/4.23GHz' (L. Zhang et al, IEEE Electron Device Letters, 46(6), 912–915, 2025), marking the first time that GaN HBT frequencies were pushed into the S-band. This breakthrough was achieved through three key technological innovations. First, the team employed a selective-area epitaxial emitter technology, avoiding the base etching process and successfully achieving ohmic base contacts for the first time, with a specific contact resistivity of $3.23 \times 10^{-3} \Omega \text{ cm}^2$. Second, they introduced a heavily doped n^+ -GaN emitter cap layer, reducing the specific emitter contact resistivity to $1.35 \times 10^{-7} \Omega \text{ cm}^2$ and effectively lowering the collector

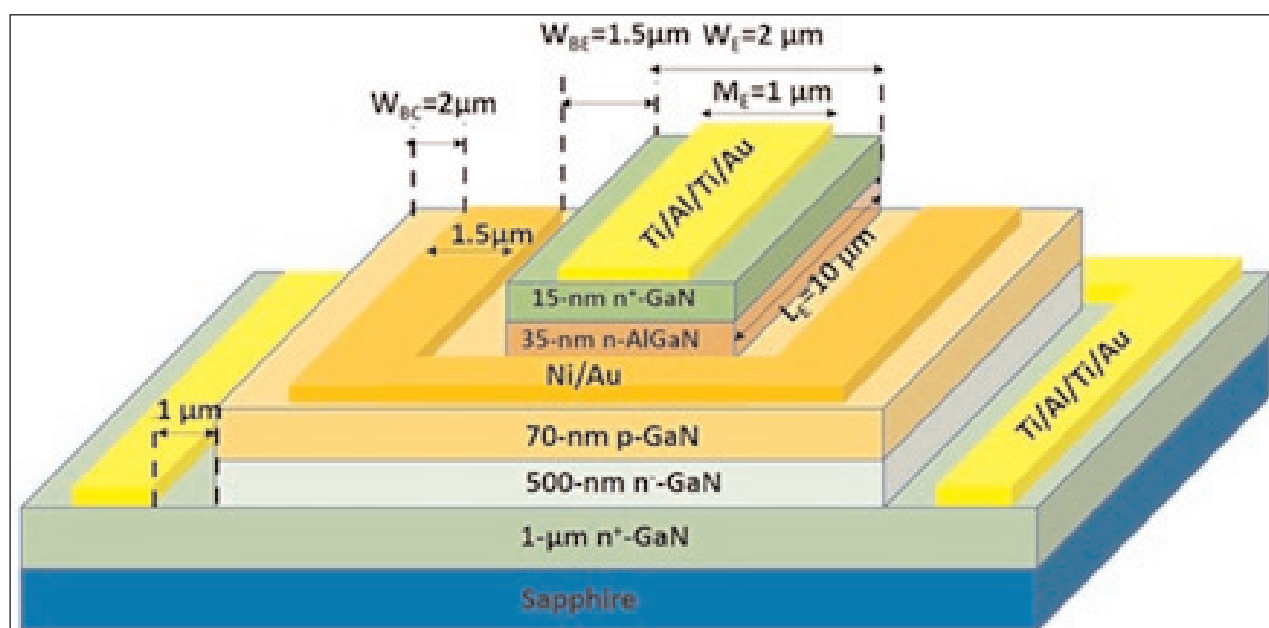


Figure 1: Schematic diagram of the GaN HBT with SAG n-AlGaIn emitter.

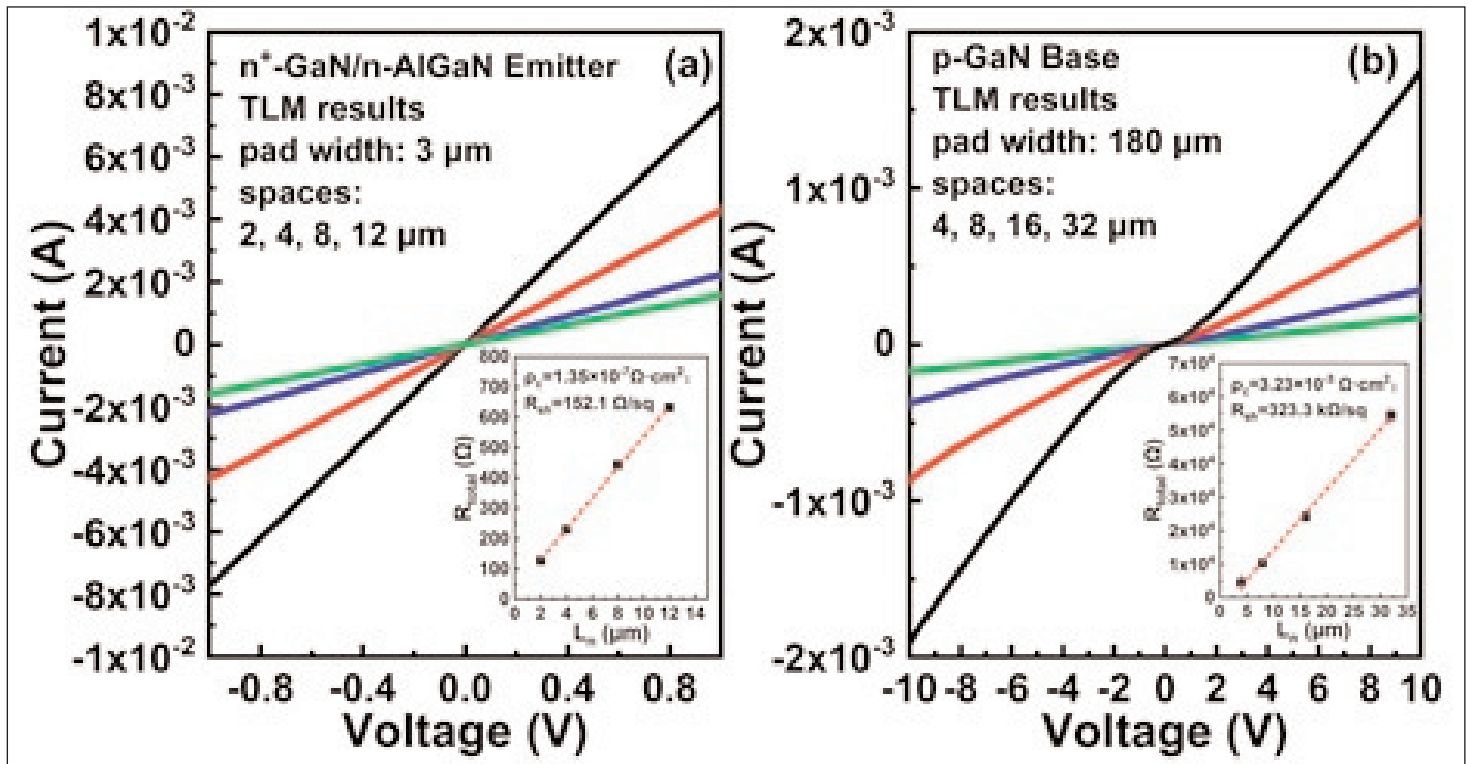


Figure 2: The I-V curves and resistance of the TLM structure on the regrown emitter layer and base layer.

charging time. Third, critical dimensions such as the base-emitter spacing were scaled down, further reducing parasitic resistances and capacitances. The resulting device demonstrated a record f_T of 21.6GHz and f_{max} of 4.23GHz. The base-to-collector electron transit time was reduced to 6.9ps, only one-quarter of previously reported values. This device also achieved the highest recorded values for GaN HBTs on sapphire substrates: a saturated current density of 91.9kA/cm², and a DC power density of 1.31MW/cm².

In 2026, the team published a follow-up paper 'Experimental Demonstration of S-Band Gallium Nitride

Heterojunction Bipolar Transistors With $P_{\text{out}} = 16.5\text{kW/cm}^2$ ' (L. Zhang et al, IEEE Electron Device Letters, 47(7), 1306-1309, 2026), which was selected as an 'Editor's Pick'. This work further pushed the frequency and power records of GaN HBTs. Building on the 2025 results, the team adopted a high-aspect-ratio emitter design, increasing the emitter area to $3 \times 80 \mu\text{m}^2$ to reduce emitter contact resistance and on-resistance, thereby enhancing power output capability. Critically, the team systematically investigated the impact of the base-emitter spacing (W_{BE}) on device performance. Reducing W_{BE} from $2 \mu\text{m}$ to $1 \mu\text{m}$ resulted in a 67%

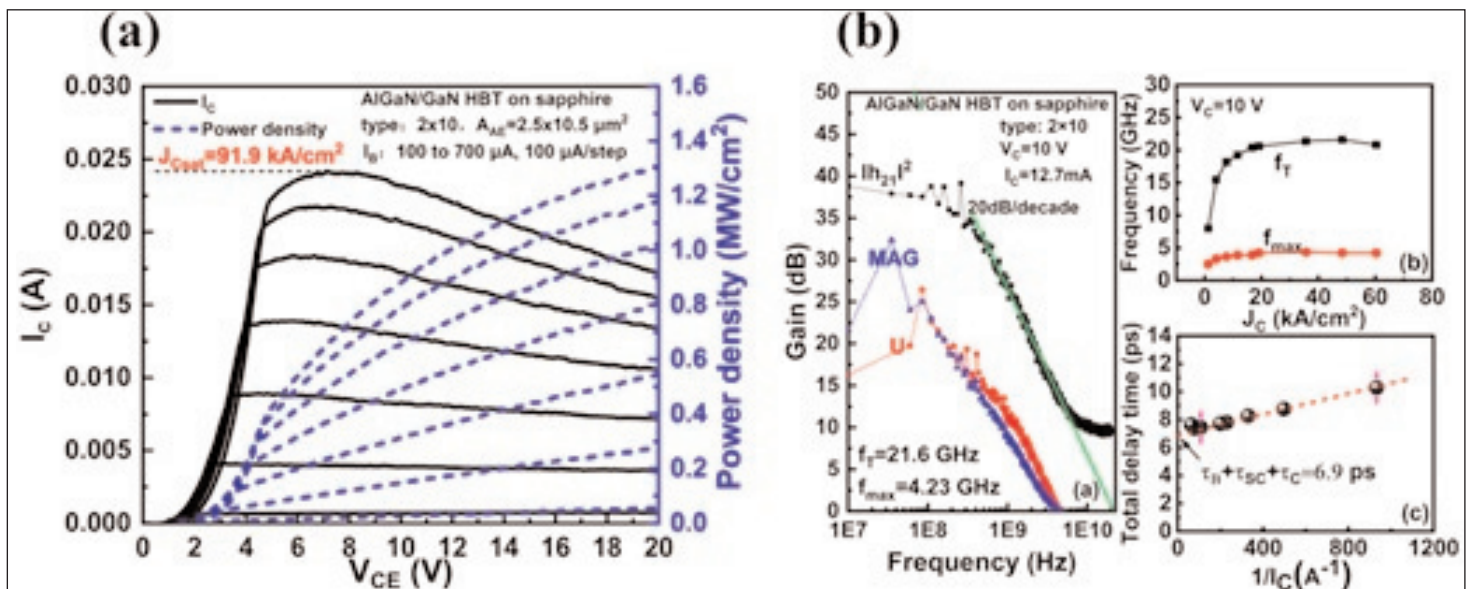


Figure 3: The AlGaIn/GaN HBT with design $A_E = 2 \times 10 \mu\text{m}^2$: (a) common-emitter family curves; (b) the frequency performance and the fitted delay time.

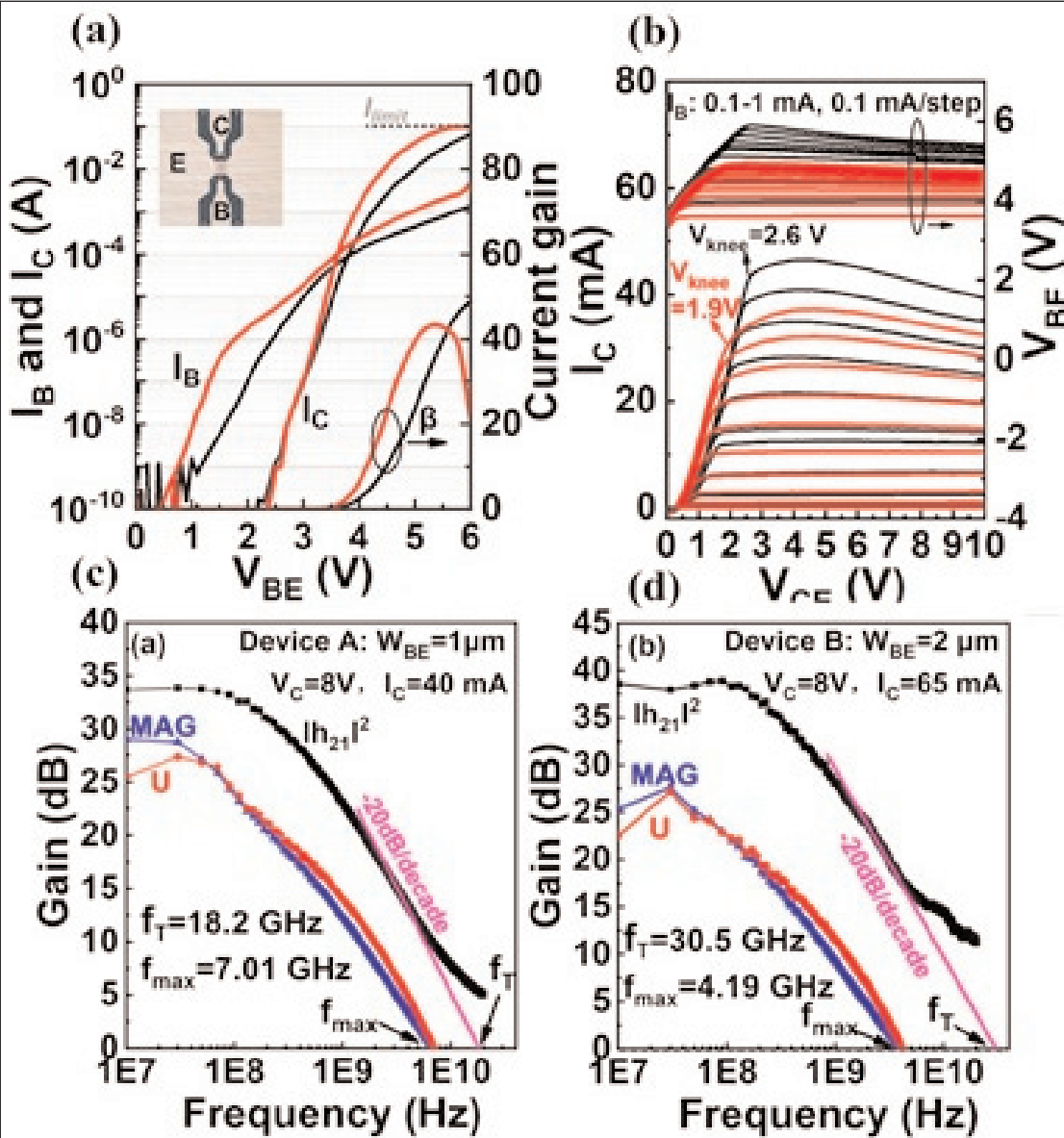


Figure 4: Measured characteristics of the GaN HBTs with different base-emitter spacing: (a) Gummel plot curves; (b) family curves; (c) and (d) frequency performance.

increase in f_{max} , from 4.19 GHz to a record 7.01 GHz for GaN HBTs. Devices with $W_{BE} = 2 \mu m$ achieved a record f_T of 30.5 GHz, the highest ever reported for a GaN HBT. For power characterization, the team performed continuous-wave large-signal load-pull measurements in the S-band. At 2.4 GHz and $V_{CE} = 10$ V, the scaled device demonstrated an output power density of 16.5 kW/cm^2 . This is the first experimental demonstration of S-band large-signal performance for a GaN HBT, confirming the inherent high-power-density advantage of the vertical structure.

Through the systematic adoption of selective-area epitaxial emitter technology, the introduction of a heavily doped cap layer, and the scaling of device dimensions, the team has systematically addressed the parasitic resistance bottlenecks that have long constrained GaN HBT RF performance. The team states that future work, including the use of SiC or GaN substrates for improved thermal management and further optimization of device dimensions and structure, holds promise for significantly enhancing power-added efficiency (PAE) and advancing the practical application of GaN HBTs in S-band power amplifiers. ■

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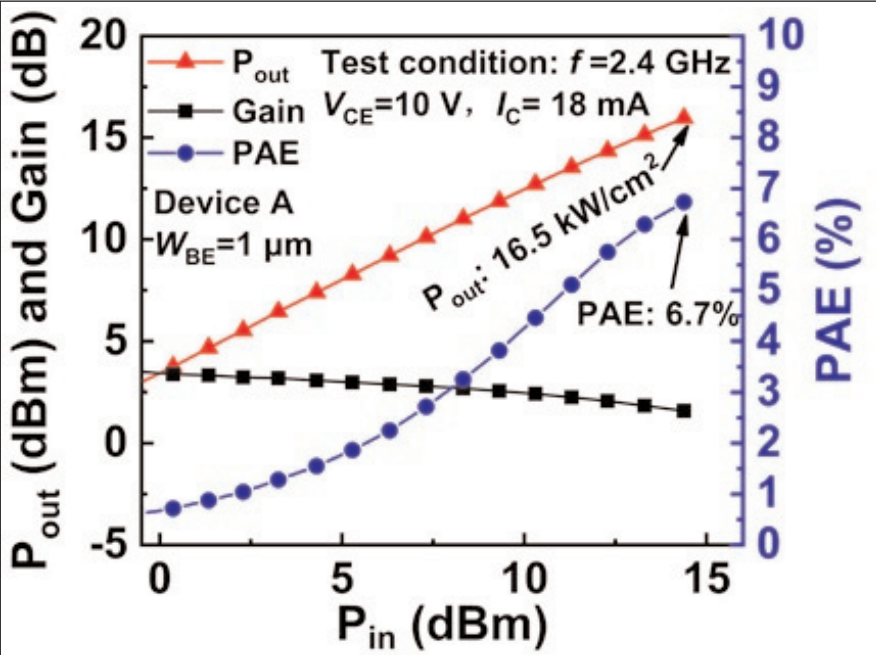


Figure 5: Large-signal performance of the GaN HBT.



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Smartphone market falls 4% year-on-year in Q2, driven by memory shortage

Apple and Samsung have grown shipments and market share, while mass-market suppliers shrank, says **omdia**.

Global smartphone shipments fell 4% year-on-year in second-quarter 2026 as the ongoing memory crisis disrupted supply and pushed up component costs, according to Omdia's Smartphone Horizon Service for July 2026 (sell-in shipments). The current dynamic has created severe market polarization, reflecting stark differences in vendors' mitigation strategies, which vary according to their priorities, scale, price-band focus, and core audience demographics, notes the market research firm.

In particular, Samsung and Apple bucked the downward trend, growing shipments and increasing their market share by 2 and 4 percentage points compared with Q2/2025, respectively.

Samsung remained the largest smartphone vendor in Q2/2026 with 22% market share (up from 20% a year ago), helped by resilient demand and strong supply availability. The delayed launch of the Galaxy S26-series pushed some demand into the second quarter for the premium segment. At the same time, Samsung gained ground in the budget segment as Chinese rivals pivoted to a more conservative strategy, by reducing

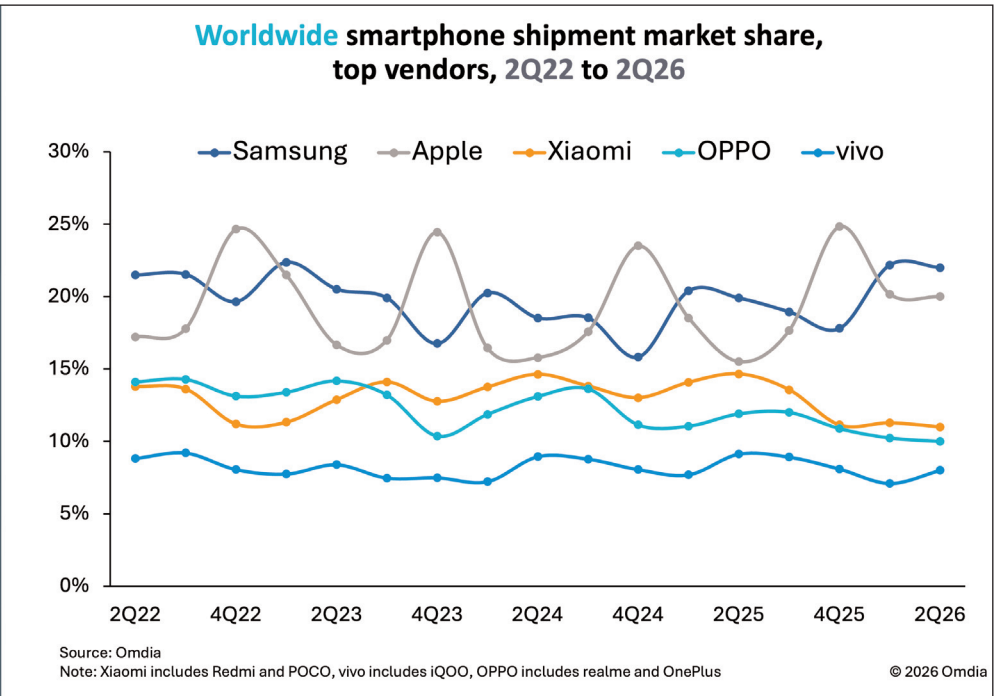
product lines and increasing device sell-in prices.

Apple delivered its best second-quarter performance ever, capturing a record-high 20% market share (up from 16% a year ago) during what traditionally is its slowest quarter of the year. The iPhone 17 series delivered one of the strongest iPhone refresh and upgrade cycles in Apple's history. Apple also benefited from stable pricing while most competitors were forced to raise their pricing. However, as Apple raised pricing across other products towards the end of Q2, a key question remains to what extent iPhones might be impacted by similar hikes later this year.

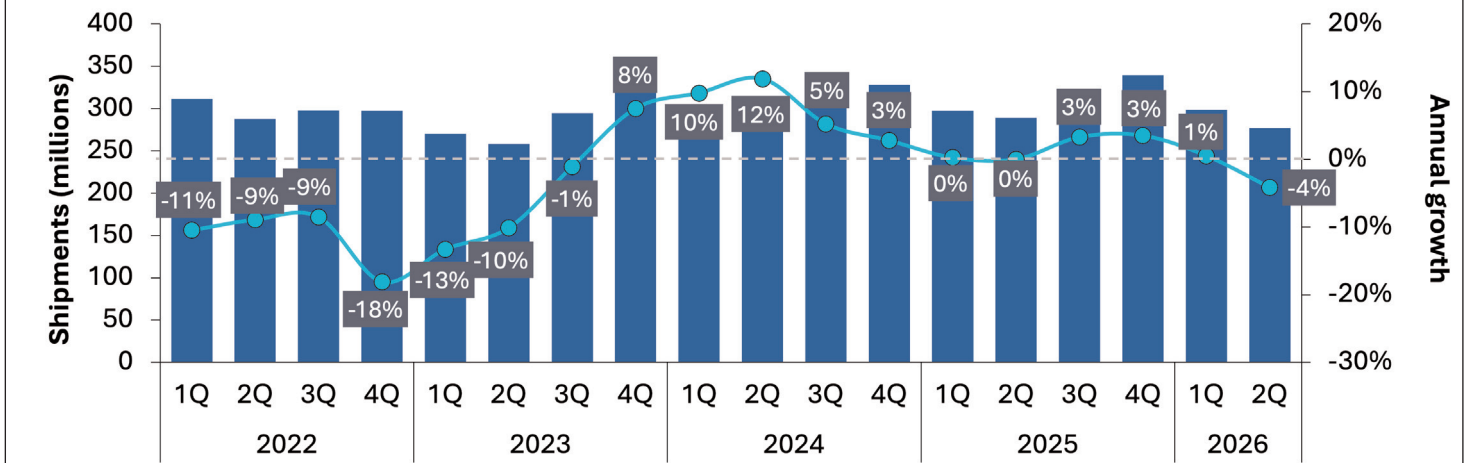
Meanwhile, mass-market segment declines squeezed many players beyond the top two. By rank, Xiaomi defended its third spot with 11% market share (down from 15% a year ago). OPPO held fourth at 10% share (down from 12%) as it underwent restructuring to optimize its three-brand umbrella. vivo rounded out the top five with 8% market share (down from 9%).

"The steepest volume drops hit the sub-\$400 mass-market segment, where supply constraints are tightest, profit margins are slimmest, and price sensitivity

Apple and Samsung soared in 2Q26, claiming high market share gains as memory crisis causes smartphone market polarization



Global smartphone market down 4% in 2Q26 as the memory crisis took a major hit on the mass market segment



is highest,” says principal analyst Runar Bjorhovde. “To adapt, vendors are shifting their strategies from volume to value by reoptimizing portfolios and adjusting retail pricing. Managing the surging component costs is incredibly complex and unpredictable, with some vendors facing memory costing more than four to five times what they did a year ago. Memory and storage alone now account for more than 60% of the bill-of-material for budget devices and more than 30% for high-end models. Although memory and storage costs are the biggest challenges for vendors, they are far from the only challenge. New semiconductor bottlenecks, such as within foundries, are adding further cost pressures,” he adds.

“While vendors hope for near-term price corrections, memory price declines are expected to begin at the earliest in the second half of 2027. However, prices are unlikely to return to pre-2025 levels,” says research manager Le Xuan Chiew. “Smartphone vendors’

tactical adjustments should not be considered short-term response tactics but rather key permanent strategic shifts that will ensure business agility and sustainability in the years to come,” he adds.

“We anticipate the sharpest volume declines to hit in the upcoming two quarters, where normal seasonal demand peaks — driven by new launches, holidays and shopping festivals — collide with constrained memory chip supply,” says Bjorhovde. “Consequently, vendors are expected to lean further into the higher-price segments to capitalize on customers seeking device upgrades in 2026’s sales season. However, while moving upmarket protects margins and revenue, vendors offer fewer options to budget-constrained consumers. Many mass-market buyers will be forced to delay purchases, downgrade expectations, utilize financing, or opt for refurbished devices.”■

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4–9 September 2026

29th European Microwave Week (EuMW 2026)

ExCel, London, UK

E-mail: eumwreg@itnint.com

www.eumweek.com

9–11 September 2026

China International Optoelectronic Exposition (CIOE 2026)

Shenzhen World Exhibition and Convention Center, China

E-mail: cioe@cioe.cn

www.cioe.cn/en

9–11 September 2026

International Integrated Circuit Innovation Expo (IICIE 2026)

Shenzhen World Exhibition and Convention Center, China

E-mail: carrie.wu@informa.com

https://iicieexpo.com/en/index.html

14–18 September 2026

Energy Conversion Congress & Expo Europe (ECCE Europe 2026)

Valencia, Spain

E-mail: info@ecce-europe.org

https://ipecc2026.org/ecce-europe/

20–24 September 2026

52nd European Conference on Optical Communication (ECOC 2026)

FYCMA – Trade Fairs and Congress Center, Malaga, Spain

E-mail: ecoc2026@viajeseci.es

www.ecoc2026.org

20–22 September 2026

3rd Biannual IEEE Workshop on Wide Bandgap Power Devices & Applications in Europe (WiPDA-Europe 2026)

AAU Innovate, Aalborg University, Denmark

E-mail: WiPDA2026@energy.aau.dk

www.energy.aau.dk/wipda-europe-2026-e156452

29–30 September 2026

Photonics UK 2026

Excel London, UK

E-mail: enquiries@microelectronicsuk.com

www.microelectronicsuk.com/photonics-uk

4–8 October 2026

IEEE Energy Conversion Congress & Expo (ECCE 2026)

Vancouver, British Columbia, Canada

E-mail: info@ieee-ecce.org

www.ieee-ecce.org/2026

4–9 October 2026

29th European Microwave Week (EuMW 2026)

Excel, London, UK

E-mail: eumweek@mcon-mannheim.de

www.eumw.eu

13–15 October 2026

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14–17 October 2026

49th International Semiconductor Conference (CAS 2026)

Hotel Sinaia, Sinaia, Romania

E-mail: cas@imt.ro

www.imt.ro/cas

19–21 October 2026

Global Photonics, Optics and Lasers Conference (GPOLC2026)

Radisson Blu Hotel, Dubai Deira Creek, Dubai, UAE

E-mail: gpolc2026@synergiasummits.com

<https://gpolc2026.synergiasummits.com>

26–28 October 2026

13th IEEE Workshop on Wide Bandgap Power Devices and Applications (WiPDA 2026)

Burlington, Vermont, USA

E-mail: NKim@ieee.org

<https://wipda.org/>

5–8 November 2026

4th IEEE International Power Electronics and Application Conference and Exposition (PEAC 2026)

Suzhou, China

E-mail: peac@cpss.org.cn

www.peac-conf.org

8–13 November 2026

12th International Workshop on Nitride Semiconductors (IWN 2026)

Kumamoto, Japan

E-mail: info@iwn2026.org

www.iwn2026.jp

13–15 November 2026

AMSE 2026: the 7th International Conference on Advanced Materials Science and Engineering

Kyoto, Japan

E-mail: amse_secretary@yeah.net

www.amse.net

15–20 November 2026

SC26 Conference

McCormick Place, Chicago, IL, USA

<https://sc26.supercomputing.org>

16–19 November 2026

The Sixth International Symposium on 3D Power Electronics Integration & Manufacturing (3D-PEIM 2026)

Tempe, AZ, USA

www.3d-peim.org

12–16 December 2026

72nd annual IEEE International Electron Devices Meeting (IEDM 2026)

Hilton San Francisco Union Square, San Francisco, CA, USA

E-mail: IEDM@maritz.com

www.ieee-iedm.org

14–18 February 2027

2027 IEEE International Solid- State Circuits Conference (ISSCC 2027)

San Francisco, CA USA

E-mail: Issccinfo@yesevents.com

www.isscc.org

3–5 March 2027

Asia Photonics Expo (APE 2027)

Marina Bay Sands, Singapore

E-mail: visitors-ape@informa.com

www.asiaphotonicsexpo.com

7–11 March 2027

Optical Fiber Communication Conference and Exposition (OFC 2027)

Los Angeles Convention Center, Los Angeles, CA, USA

E-mail: ofc@mcievents.com

www.ofcconference.org

7–11 March 2027

IEEE Applied Power Electronics Conference and Exposition (APEC 2027)

New Orleans, Louisiana, USA

E-mail: apec@apec-conf.org

www.apec-conf.org

18–22 April 2027

SPIE Defense + Security 2027

Orlando, FL, USA

E-mail: customerservice@spie.org

www.spie.org/conferences-and-exhibitions/defense-and-security

11–13 May 2027

PCIM 2027 (Expo & Conference on Power Electronics, Intelligent Motion, Renewable Energy and Energy Management)

Nuremberg, Germany

E-mail: pcim_visitors@mesago.com

www.mesago.de/en/PCIM/main.htm

23–26 May 2027

12th International Conference on Power Electronics — ECCE Asia (ICPE 2027 — ECCE Asia)

Coex Magok, Seoul, South Korea

E-mail: secretary@icpe-conf.org

www.icpe-conf.org/



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