

The Global Lasers Market 2027–2037

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Abstracts

The global laser market is undergoing its most significant structural transformation in two decades. Laser sources are the enabling light engines inside AI data centre optics, semiconductor fabs, EV battery lines, surgical systems, air defence and satellite constellations. After a two-year downturn in 2023–2024, the market rebounded in 2025. The growth engine has changed. For thirty years, industrial materials processing dominated laser demand, led by the displacement of CO₂ lasers by kilowatt-class fiber lasers in cutting and welding. Communications is now the largest application. AI clusters require vast numbers of optical links, and each needs electro-absorption modulated lasers, high-power CW lasers for silicon photonics, VCSELs or external laser sources for co-packaged optics. By 2037, communications will account for around a third of global laser revenue.

Industrial lasers remain large and profitable but face intense price competition. Chinese manufacturers now supply the majority of the world's fiber lasers at a fraction of historical prices. Western suppliers are responding with beam shaping, adjustable-ring-mode beams, blue and green wavelengths, and a shift towards higher-value segments. Next-generation lasers are where the growth lies. Key segments include:

femtosecond lasers moving into high-volume semiconductor packaging and glass substrate production;

multi-wavelength, comb and heterogeneous lasers for optical interconnect;

RGB lasers for AR glasses;

PCSELs, VECSELs and mid-infrared cascade lasers;

narrow-linewidth lasers for quantum computers and optical clocks.

Defence has become a major laser market as laser counter-drone and air defence systems enter service in the United States, United Kingdom, Israel and South Korea. New customer classes are emerging in laser fusion, free-electron lithography sources, laser isotope separation, space laser communications and power beaming. Private laser fusion companies alone have raised nine-figure rounds. Geopolitics now shapes the industry. China dominates the supply of gallium, germanium, indium, rare-earth dopants and nonlinear crystals, and export controls since 2023 have made supply security a strategic concern. Governments increasingly treat photonics as critical infrastructure, as the 2026 US–Lithuania critical minerals agreement shows.

The Global Laser Market 2027–2037 is a comprehensive analysis of the global market for laser sources, both established and next-generation. It provides historical data from 2011 and detailed forecasts to 2037 by technology, application and region. The report identifies the forces reshaping the industry: the AI infrastructure build-out, semiconductor advanced packaging and glass substrates, the fielding of directed energy weapons, the commercialisation of quantum technologies, and private investment in laser fusion. It also assesses the restraints, including Chinese price competition, cyclical capital spending and critical materials supply risk.

Report contents include:

Global laser market revenue forecasts 2025–2037, with historical data from 2011

Forecasts by technology, next-generation segment, application and region, including units and ASPs

Analysis of market drivers, restraints, pricing dynamics and the 2024–2026 market cycle

Assessment of geopolitics, export controls and critical raw materials (Ga, Ge, In, rare earths, crystals)

In-depth coverage of established technologies: fiber, EEL, VCSEL, DPSS, CO₂, excimer, thin-disk, gas, dye and chemical lasers

Next-generation laser roadmap with TRL assessments and commercialisation

timelines

Ultrafast lasers: architectures, GHz-burst processing, production capacity by manufacturer, and applications in semiconductors, glass substrates and ophthalmology

AI interconnect lasers: EML, CW, ELS for CPO, multi-wavelength and comb sources, integration approaches, 200G VCSELs and InP supply constraints

Visible and RGB lasers for AR, laser TV, automotive displays and blue laser processing

Novel semiconductor and mid-IR lasers: VECSEL, PCSEL, quantum-dot, QCL, ICL, GaSb, supercontinuum and emerging gain media

Precision and quantum lasers: narrow-linewidth, frequency combs, FMCW LiDAR, quantum computing and sensing lasers

High-energy lasers: directed energy weapons, laser fusion, petawatt facilities, FEL lithography and laser enrichment

Free-space laser communications, orbital data centre links and laser power beaming

Enabling components, materials and manufacturing

End-use market analysis across 17 applications

Regional analysis, including national laser clusters

Market shares, the Western versus Chinese competitive landscape, start-ups, funding, M&A and partnerships

Base, upside and downside scenarios

More than 100 tables and 80 figures

Profiles of 148 companies. Companies profiled include Accelink Technologies, Active Fiber Systems GmbH, AdValue Photonics, Aeva Technologies, Alpes

Lasers, Amada Co., Ltd., Amplitude Laser Group, ams OSRAM, Applied Energetics, Applied Optoelectronics, Inc. (AOI), Astrolight, Ayar Labs, Aylight, BAE Systems, Blue Laser Fusion, BlueHalo (AeroVironment), Broadcom, Brolis Semiconductors, BWT (Beijing), Cailabs, Coherent Corp., Comptek Solutions, Cowboy Space Corporation, Cucuyo GmbH, Cymer (ASML), Daylight Solutions (Leonardo DRS), DeepLase Technologies, DR Laser Technology, E&R Engineering Corp., Ekspla, Elbit Systems, Electro Optic Systems (EOS), eleQtron, Enlighthra, EO Technics, EOS GmbH, Everbright Photonics, Exail, EX-Fusion, Focused Energy, Focuslight Technologies, Freeform, Fujikura, Furukawa Electric, FYLA Laser, General Atomics, Gigaphoton, Global Laser Enrichment (GLE), Ground-A, Hamamatsu Photonics, Han's Laser Technology, Hanwha Aerospace, Hesai Technology, Hexagon Manufacturing Intelligence, HGTECH (Huagong Tech), Huaray Precision Laser, H?BNER Photonics, INCERASOLUTION, Inertia Enterprises, Inno Laser Technology, Innolume, inPhocal, Integrated Optics UAB, IPG Photonics, Iradion Laser, Jenoptik, JPT Opto-Electronics, K2 Photonics, Keiron, Kyocera SLD Laser, Laserline, Leonardo, Light Conversion, LITILIT, LK Metrology, Lockheed Martin, Lumentum, Lumibird and more.....

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