Lasers - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2026 - 2031)

Market Report | 2026-01-16 | 120 pages | Mordor Intelligence

AVAILABLE LICENSES:

- Single User License $4750.00
- Team License (1-7 Users) $5250.00
- Site License $6500.00
- Corporate License $8750.00

Report description:

Lasers Market Analysis

The lasers market is expected to grow from USD 21.43 billion in 2025 to USD 22.92 billion in 2026 and is forecast to reach USD 32.08 billion by 2031 at 6.96% CAGR over 2026-2031. This expansion reflects rising deployment across precision micromachining, additive manufacturing, autonomous mobility, and next-generation display production. Ultrafast pulse sources that machine sub-10 nm semiconductor features and kW-class fiber systems that cut thicker metal sheets are now mainstream in high-volume factories. Government-funded photonics clusters accelerate ecosystem development in Asia-Pacific, while additive manufacturing lasers lower material waste in aerospace components and shorten production cycles. Supply chain risks around gallium, germanium, and indium phosphide substrates remain a headwind, yet innovations in thermal management and beam-combining architectures continue to raise attainable power ceilings.

Global Lasers Market Trends and Insights

Surging Demand for High-Precision Micromachining in Semiconductor Back-End Packaging

Fan-Out Wafer Level Packaging and Through-Glass Via processes specify femtosecond and excimer sources that deliver sub-10 ?m features with under-1% pulse-to-pulse energy deviation, ensuring uniform via formation across full 300 mm wafers. Replacing wire bonding with laser-formed micro-bumps reduces interconnect resistance by 40% and opens the path to three-dimensional chip stacks. Beam-shaping modules synchronized with in-situ monitoring raise yield and lower scrap rates in high-volume fabs.

Asia-Pacific foundries continue to procure turnkey laser stations, creating a substantial pull on ultrafast source suppliers. As packaging line takt times tighten, demand for even higher repetition rates is expected to lift average selling prices in the premium ultrafast tier.

Growing Adoption of Additive Manufacturing Lasers for Aerospace Super-Alloy Parts

Aerospace primes now qualify powder-bed-fusion fiber lasers that process titanium aluminide and nickel super-alloys at material utilization rates above 95%, sharply outperforming subtractive machining. Dynamic beam shaping shortens build cycles by 40% and lowers energy consumption by 60%, while maintaining microstructure integrity critical for flight hardware. AS9100 revisions explicitly reference laser-printed parts, simplifying certification workflows. U.S. and European engine programs increasingly design for "print-first" geometries that cannot be machined economically. The shift ties laser demand to wide-body fleet renewal and hypersonic propulsion projects scheduled for late-decade entry into service.

Persistent Shortages of High-Grade Gallium Arsenide/Indium Phosphide Epi-Wafers

Export curbs on gallium and germanium intensify the scarcity of compound semiconductor substrates vital for high-power laser diodes. Variability in thermal conductivity across lots forces laser makers into lengthy re-qualification cycles, delaying shipments and elevating inventory buffers. Start-ups in North America and Europe plan new crystal-growth fabs, but tooling lead times and process know-how push meaningful volumes past 2027. Premium substrate pricing inflates the bill of materials by double digits, particularly for LiDAR and telecom lasers operating at elevated junction temperatures. Manufacturers are experimenting with silicon-based interposers to stretch the existing epi-wafer supply, yet performance penalties remain non-trivial.

Other drivers and restraints analyzed in the detailed report include:

Rising Installation of LiDAR Lasers in Autonomous Mobility StacksExpanding Use of Ultrafast Lasers for Next-Gen OLED and Micro-LED Display RepairExport-Control Regimes Limiting High-Power Laser Shipments to Certain Countries

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

Segment Analysis

Fiber lasers held 41.40% of the global lasers market in 2025 thanks to robust beam quality, all-fiber architectures, and minimal service needs. Solid-state platforms, however, register the swiftest 9.18% CAGR to 2031 as directed-energy weapons and fusion experiments demand multi-megawatt optical chains. The global lasers market size for solid-state devices is projected to cross USD 5.62 billion by 2031, reflecting defense funding pipelines. Hybrid configurations that splice slab gain media into armored fiber delivery lines help transcend single-fiber power ceilings while preserving brightness. CO? sources persist in thick-section cutting, whereas diode lasers expand in pump arrays and direct-write applications. Excimer and UV variants remain indispensable in sub-100 nm semiconductor lithography, anchoring steady demand despite cyclical foundry capex.

Ongoing research into distributed-gain architectures promises power scaling without thermally induced mode instabilities. Free-electron and quantum cascade technologies still occupy niche spectroscopy realms, but breakthroughs in compact accelerator structures could eventually democratize mid-infrared access. Safety compliance under IEC 60825-1 shapes enclosure designs, influencing total landed cost in high-automation factories. Vendors that fuse fiber reliability with solid-state punch position themselves to capture outsized share as application boundaries blur.

Materials processing retained a 30.10% share of the global lasers market in 2025, spanning cutting, welding, drilling, and additive build processes across automotive, aerospace, and general industry. Yet sensor deployments, notably LiDAR and spectroscopy

modules, post an 8.58% CAGR, poised to narrow the gap by decade-end. Heavy-industry orders remain cyclical, but retrofit programs in brownfield plants sustain baseline volume. In parallel, medical and aesthetic lasers harvest incremental growth from outpatient procedures that favor low invasiveness and quick recovery.

Lithography expenditures hinge on advanced-node ramps at the top foundries, with each EUV scanner embedding multiple high-repetition excimer sources. Next-generation displays rely on ultrafast repair to maintain yield, unlocking higher panel profit margins. Military procurement of high-energy systems for counter-UAS duties injects lumpiness but also elevates public-sector funding for fundamental optics research. As edge and cloud data centers mushroom, optical interconnect demand boosts telecom laser volumes, reinforcing the application mix diversity within the global lasers market.

The Lasers Market Report is Segmented by Laser Type (Fiber Lasers, Diode Lasers, and More), Application (Materials Processing, and More), Power Output (Low-Power, Medium-Power, High-Power), Mode of Operation (Continuous-Wave, Pulsed), End-User Industry (Electronics and Semiconductor, and More), and Geography (North America, South America, Europe, Asia-Pacific, and More). The Market Forecasts are Provided in Terms of Value (USD).

Geography Analysis

Asia-Pacific controlled 46.40% of the global lasers market in 2025 and is projected to compound at 8.17% CAGR to 2031, propelled by dense semiconductor fabs, burgeoning display lines, and state-backed photonics parks. China leads excimer and ultrafast procurement for advanced lithography nodes, while Japan refines precision machining applications that demand superior beam quality. South Korea's OLED and micro-LED lines maintain high utilization, feeding sustained laser service contracts. India's Production-Linked Incentive schemes entice machine-tool makers to localize laser cutting and welding capacities, widening addressable demand. Taiwan and Singapore contribute niche volumes from compound semiconductor and precision engineering clusters, respectively.

North America ranks second, buoyed by aerospace build rates and defense contracts for megawatt-class directed-energy systems. U.S. photonics hubs under the Manufacturing USA umbrella foster start-up formation in integrated photonics and quantum cascade designs. Canada's materials-science institutes partner with local machine shops to trial laser cladding and hardening, while Mexico's electric-vehicle corridor scales fiber-laser welding for battery trays. Cross-border supply chains benefit from USMCA harmonization, though export controls constrain outbound shipments of high-power units to certain destinations. Environmental-monitoring mandates also spur domestic demand for mid-infrared gas-sensing modules.

Europe holds notable share through Germany's machinery giants and France's defense integrators that champion high-energy research lasers. The United Kingdom pursues aerospace composites processing with laser ablation to minimize delamination defects, and Italy's super-car makers adopt multi-kW disk lasers to weld aluminum chassis efficiently. EU-wide regulations, including the Machinery Directive and IEC 60825-1 alignment, shape safety features embedded in export-grade systems. Collaborative programs like DioHELIOS illustrate Europe's focus on fusion-energy enablers, with consortiums pooling diode-laser expertise to drive cost-effective scaling. Growing green-hydrogen initiatives further elevate interest in laser-based plate cutting and pipe welding across the region.

List of Companies Covered in this Report:

Coherent Corp. IPG Photonics Corporation TRUMPF SE + Co. KG nLIGHT, Inc. Lumentum Holdings Inc. Jenoptik AG Novanta, Inc. Lumibird SA Wuhan Raycus Fiber Laser Technologies Co. Ltd Hans Laser Technology Industry Group Co., Ltd. Maxphotonics Co., Ltd. Keyence Corporation EKSPLA UAB MKS Instruments, Inc. (Spectra-Physics) Panasonic Corporation EdgeWave GmbH Civan Lasers Ltd. Synrad Laser Division Amonics Ltd. TOPTICA Photonics AG

Additional Benefits:

 The market estimate (ME) sheet in Excel format
 3 months of analyst support

Table of Contents:

1 INTRODUCTION
1.1 Study Assumptions and Market Definition
1.2 Scope of the Study

2 RESEARCH METHODOLOGY

3 EXECUTIVE SUMMARY

4 MARKET LANDSCAPE
4.1 Market Overview
4.2 Market Drivers
4.2.1 Surging demand for high-precision micromachining in semiconductor back-end packaging
4.2.2 Growing adoption of additive manufacturing lasers for aerospace super-alloy parts
4.2.3 Rising installation of LiDAR lasers in autonomous mobility stacks
4.2.4 Expanding use of ultrafast lasers for next-gen OLED and micro-LED display repair
4.2.5 Government-funded photonics clusters driving regional manufacturing ecosystems
4.2.6 Rapid price/performance improvements in kW-class fiber lasers for sheet-metal cutting
4.3 Market Restraints
4.3.1 Persistent shortages of high-grade gallium arsenide/indium phosphide epi-wafers
4.3.2 Export-control regimes limiting high-power laser shipments to certain countries
4.3.3 Thermal-management challenges above 30 kW limiting cutting-thickness roadmap
4.3.4 Fragmented safety standards increasing certification costs for OEMs
4.4 Value Chain Analysis
4.5 Technological Outlook
4.6 Regulatory Landscape
4.7 Porter's Five Forces Analysis
4.7.1 Bargaining Power of Suppliers
4.7.2 Bargaining Power of Buyers
4.7.3 Threat of New Entrants
4.7.4 Threat of Substitutes
4.7.5 Degree of Competition

5 MARKET SIZE AND GROWTH FORECASTS (VALUE)
5.1 By Laser Type
5.1.1 Fiber Lasers
5.1.2 Diode Lasers
5.1.3 CO2 Lasers
5.1.4 Solid-State Lasers
5.1.5 Excimer and Ultraviolet Lasers
5.1.6 Other Types (Quantum Cascade, Free-Electron)
5.2 By Application

5.2.1 Materials Processing (Cutting, Welding, Drilling)
5.2.2 Communications and Optical Interconnects
5.2.3 Medical and Aesthetic
5.2.4 Lithography and Semiconductor Metrology
5.2.5 Military and Defense
5.2.6 Displays (OLED, Micro-LED, Projection)
5.2.7 Sensors (LiDAR, Spectroscopy)
5.2.8 Printing and Marking
5.3 By Power Output
5.3.1 Low-Power (Less than 1 kW)
5.3.2 Medium-Power (1-3 kW)
5.3.3 High-Power (More than 3 kW)
5.4 By Mode of Operation
5.4.1 Continuous-Wave (CW)
5.4.2 Pulsed (ns, ps, fs)
5.5 By End-User Industry
5.5.1 Electronics and Semiconductor
5.5.2 Automotive
5.5.3 Industrial Machinery
5.5.4 Healthcare
5.5.5 Aerospace and Defense
5.5.6 Research and Academia
5.6 By Geography
5.6.1 North America
5.6.1.1 United States
5.6.1.2 Canada
5.6.1.3 Mexico
5.6.2 South America
5.6.2.1 Brazil
5.6.2.2 Argentina
5.6.2.3 Rest of South America
5.6.3 Europe
5.6.3.1 Germany
5.6.3.2 United Kingdom
5.6.3.3 France
5.6.3.4 Italy
5.6.3.5 Rest of Europe
5.6.4 Asia-Pacific
5.6.4.1 China
5.6.4.2 Japan
5.6.4.3 South Korea
5.6.4.4 India
5.6.4.5 Rest of Asia-Pacific
5.6.5 Middle East
5.6.5.1 Saudi Arabia
5.6.5.2 United Arab Emirates
5.6.5.3 Rest of Middle East

5.6.6 Africa
5.6.6.1 South Africa
5.6.6.2 Rest of Africa

6 COMPETITIVE LANDSCAPE
6.1 Market Concentration
6.2 Strategic Moves
6.3 Market Share Analysis
6.4 Company Profiles (includes Global-level Overview, Market-level Overview, Core Segments, Financials as available, Strategic Information, Market Rank/Share, Products and Services, Recent Developments)
6.4.1 Coherent Corp.
6.4.2 IPG Photonics Corporation
6.4.3 TRUMPF SE + Co. KG
6.4.4 nLIGHT, Inc.
6.4.5 Lumentum Holdings Inc.
6.4.6 Jenoptik AG
6.4.7 Novanta, Inc.
6.4.8 Lumibird SA
6.4.9 Wuhan Raycus Fiber Laser Technologies Co. Ltd
6.4.10 Hans Laser Technology Industry Group Co., Ltd.
6.4.11 Maxphotonics Co., Ltd.
6.4.12 Keyence Corporation
6.4.13 EKSPLA UAB
6.4.14 MKS Instruments, Inc. (Spectra-Physics)
6.4.15 Panasonic Corporation
6.4.16 EdgeWave GmbH
6.4.17 Civan Lasers Ltd.
6.4.18 Synrad Laser Division
6.4.19 Amonics Ltd.
6.4.20 TOPTICA Photonics AG

7 MARKET OPPORTUNITIES AND FUTURE OUTLOOK
7.1 White-space and Unmet-need Assessment

Lasers - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2026 - 2031)

Market Report | 2026-01-16 | 120 pages | Mordor Intelligence

To place an Order with Scotts International:

- - Print this form
- - Complete the relevant blank fields and sign
- - Send as a scanned email to support@scotts-international.com

ORDER FORM:

Select license	License	Price
	Single User License	$4750.00
	Team License (1-7 Users)	$5250.00
	Site License	$6500.00
	Corporate License	$8750.00
	VAT	
	Total	

*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

** VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*		Phone*	
First Name*		Last Name*	
Job title*			
Company Name*		EU Vat / Tax ID / NIP number*	
Address*		City*	
Zip Code*		Country*	
		Date	2026-02-13
		Signature