

Ultrafast Lasers Market Report by Type (Titanium-Sapphire Lasers, Diode-Pumped Lasers, Fiber Lasers, Mode-Locked Diode Lasers), Pulse Duration (Femtosecond, Picosecond), End User (Consumer Electronics, Medical, Automotive, Aerospace and Defense, Research), and Region 2024-2032

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Abstracts

The global ultrafast lasers market size reached US\$ 2.1 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$ 6.7 Billion by 2032, exhibiting a growth rate (CAGR) of 13.4% during 2024-2032.

Ultrafast lasers are short pulses of light of a few picoseconds or femtoseconds that are used to create, detect and study short-lived transient chemical reactions and transient states. They are generated by mode-locked oscillators and have a broadband optical range. Some of the commonly used ultrafast lasers include diode-pumped, mode-locked diode, titanium-sapphire and fiber lasers. They are used for the precise processing of materials, such as metals, ceramics, composites, fiber-reinforced materials and semiconductors. They have high peak powers and power densities and offer enhanced dimensional accuracy with minimal post-processing steps. As a result, they are widely used in the manufacturing of automobiles, consumer electronics and medical devices.

Ultrafast Lasers Market Trends:

Significant growth in the electronics industry across the globe is one of the key factors creating a positive outlook for the market. With the increasing miniaturization of consumer electronic devices, ultrafast lasers are used for the manufacturing of smartphones, microprocessors and display panels. Moreover, the widespread product

adoption in the automotive industry is providing a thrust to the market growth. Ultrafast lasers are used for making small grooves into the surface of engine cylinder walls to facilitate efficient distribution of the lubricant and minimize friction losses. In line with this, the increasing adoption of ultrafast lasers for high-quality micromachining, scribing and cutting of brittle materials is also favoring the growth of the market. Additionally, the increasing utilization of these lasers for the development of coronary stents using biopolymers or magnesium-based alloys with enhanced biocompatibilities is also favoring the market growth. Other factors, including rapid industrialization, along with the implementation of favorable government policies promoting the use of ultrafast lasers, are anticipated to drive the market toward growth.

Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each sub-segment of the global ultrafast lasers market report, along with forecasts at the global, regional and country level from 2024-2032. Our report has categorized the market based on type, pulse duration and end user.

Breakup by Type:

Titanium-Sapphire Lasers

Diode-Pumped Lasers

Fiber Lasers

Mode-Locked Diode Lasers

Breakup by Pulse Duration:

Femtosecond

Picosecond

Breakup by End User:

Consumer Electronics

Medical

Automotive

Aerospace and Defense

Research

Breakup by Region:

North America

United States

Canada

Asia-Pacific

China

Japan

India

South Korea

Australia

Indonesia

Others

Europe

Germany

France

United Kingdom

Italy

Spain

Russia

Others

Latin America

Brazil

Mexico

Others

Middle East and Africa

Competitive Landscape:

The competitive landscape of the industry has also been examined along with the profiles of the key players being Amplitude Laser, Coherent Inc, EKSPLA (EKSMA Group), IMRA America Inc. (Aisin Corporation), IPG Photonics Corporation, Jenoptik AG, Laser Quantum (Novanta Inc.), LIGHT CONVERSION, Lumentum Operations LLC, NKT Photonics A/S (NKT A/S) and Wuhan Huaray Precision Laser Co. Ltd.

Key Questions Answered in This Report:

How has the global ultrafast lasers market performed so far and how will it perform in the coming years?

What has been the impact of COVID-19 on the global ultrafast lasers market?

What are the key regional markets?

What is the breakup of the market based on the type?

What is the breakup of the market based on the pulse duration?

What is the breakup of the market based on the end user?

What are the various stages in the value chain of the industry?

What are the key driving factors and challenges in the industry?

What is the structure of the global ultrafast lasers market and who are the key players?

What is the degree of competition in the industry?

Contents

1 PREFACE

2 SCOPE AND METHODOLOGY

- 2.1 Objectives of the Study
- 2.2 Stakeholders
- 2.3 Data Sources
 - 2.3.1 Primary Sources
 - 2.3.2 Secondary Sources
- 2.4 Market Estimation
 - 2.4.1 Bottom-Up Approach
 - 2.4.2 Top-Down Approach
- 2.5 Forecasting Methodology

3 EXECUTIVE SUMMARY

4 INTRODUCTION

- 4.1 Overview
- 4.2 Key Industry Trends

5 GLOBAL ULTRAFAST LASERS MARKET

- 5.1 Market Overview
- 5.2 Market Performance
- 5.3 Impact of COVID-19
- 5.4 Market Forecast

6 MARKET BREAKUP BY TYPE

- 6.1 Titanium-Sapphire Lasers
 - 6.1.1 Market Trends
 - 6.1.2 Market Forecast
- 6.2 Diode-Pumped Lasers
 - 6.2.1 Market Trends
 - 6.2.2 Market Forecast
- 6.3 Fiber Lasers

- 6.3.1 Market Trends
- 6.3.2 Market Forecast
- 6.4 Mode-Locked Diode Lasers
 - 6.4.1 Market Trends
 - 6.4.2 Market Forecast

7 MARKET BREAKUP BY PULSE DURATION

- 7.1 Femtosecond
 - 7.1.1 Market Trends
 - 7.1.2 Market Forecast
- 7.2 Picosecond
 - 7.2.1 Market Trends
 - 7.2.2 Market Forecast

8 MARKET BREAKUP BY END USER

- 8.1 Consumer Electronics
 - 8.1.1 Market Trends
 - 8.1.2 Market Forecast
- 8.2 Medical
 - 8.2.1 Market Trends
 - 8.2.2 Market Forecast
- 8.3 Automotive
 - 8.3.1 Market Trends
 - 8.3.2 Market Forecast
- 8.4 Aerospace and Defense
 - 8.4.1 Market Trends
 - 8.4.2 Market Forecast
- 8.5 Research
 - 8.5.1 Market Trends
 - 8.5.2 Market Forecast

9 MARKET BREAKUP BY REGION

- 9.1 North America
 - 9.1.1 United States
 - 9.1.1.1 Market Trends
 - 9.1.1.2 Market Forecast

- 9.1.2 Canada
 - 9.1.2.1 Market Trends
 - 9.1.2.2 Market Forecast
- 9.2 Asia-Pacific
 - 9.2.1 China
 - 9.2.1.1 Market Trends
 - 9.2.1.2 Market Forecast
 - 9.2.2 Japan
 - 9.2.2.1 Market Trends
 - 9.2.2.2 Market Forecast
 - 9.2.3 India
 - 9.2.3.1 Market Trends
 - 9.2.3.2 Market Forecast
 - 9.2.4 South Korea
 - 9.2.4.1 Market Trends
 - 9.2.4.2 Market Forecast
 - 9.2.5 Australia
 - 9.2.5.1 Market Trends
 - 9.2.5.2 Market Forecast
 - 9.2.6 Indonesia
 - 9.2.6.1 Market Trends
 - 9.2.6.2 Market Forecast
 - 9.2.7 Others
 - 9.2.7.1 Market Trends
 - 9.2.7.2 Market Forecast
- 9.3 Europe
 - 9.3.1 Germany
 - 9.3.1.1 Market Trends
 - 9.3.1.2 Market Forecast
 - 9.3.2 France
 - 9.3.2.1 Market Trends
 - 9.3.2.2 Market Forecast
 - 9.3.3 United Kingdom
 - 9.3.3.1 Market Trends
 - 9.3.3.2 Market Forecast
 - 9.3.4 Italy
 - 9.3.4.1 Market Trends
 - 9.3.4.2 Market Forecast
 - 9.3.5 Spain

- 9.3.5.1 Market Trends
- 9.3.5.2 Market Forecast
- 9.3.6 Russia
 - 9.3.6.1 Market Trends
 - 9.3.6.2 Market Forecast
- 9.3.7 Others
 - 9.3.7.1 Market Trends
 - 9.3.7.2 Market Forecast
- 9.4 Latin America
 - 9.4.1 Brazil
 - 9.4.1.1 Market Trends
 - 9.4.1.2 Market Forecast
 - 9.4.2 Mexico
 - 9.4.2.1 Market Trends
 - 9.4.2.2 Market Forecast
 - 9.4.3 Others
 - 9.4.3.1 Market Trends
 - 9.4.3.2 Market Forecast
- 9.5 Middle East and Africa
 - 9.5.1 Market Trends
 - 9.5.2 Market Breakup by Country
 - 9.5.3 Market Forecast

10 SWOT ANALYSIS

- 10.1 Overview
- 10.2 Strengths
- 10.3 Weaknesses
- 10.4 Opportunities
- 10.5 Threats

11 VALUE CHAIN ANALYSIS

12 PORTERS FIVE FORCES ANALYSIS

- 12.1 Overview
- 12.2 Bargaining Power of Buyers
- 12.3 Bargaining Power of Suppliers
- 12.4 Degree of Competition

12.5 Threat of New Entrants

12.6 Threat of Substitutes

13 PRICE ANALYSIS

14 COMPETITIVE LANDSCAPE

14.1 Market Structure

14.2 Key Players

14.3 Profiles of Key Players

14.3.1 Amplitude Laser

14.3.1.1 Company Overview

14.3.1.2 Product Portfolio

14.3.2 Coherent Inc

14.3.2.1 Company Overview

14.3.2.2 Product Portfolio

14.3.2.3 Financials

14.3.2.4 SWOT Analysis

14.3.3 EKSPLA (EKSMA Group)

14.3.3.1 Company Overview

14.3.3.2 Product Portfolio

14.3.4 IMRA America Inc. (Aisin Corporation)

14.3.4.1 Company Overview

14.3.4.2 Product Portfolio

14.3.5 IPG Photonics Corporation

14.3.5.1 Company Overview

14.3.5.2 Product Portfolio

14.3.5.3 Financials

14.3.6 Jenoptik AG

14.3.6.1 Company Overview

14.3.6.2 Product Portfolio

14.3.6.3 Financials

14.3.7 Laser Quantum (Novanta Inc.)

14.3.7.1 Company Overview

14.3.7.2 Product Portfolio

14.3.8 LIGHT CONVERSION

14.3.8.1 Company Overview

14.3.8.2 Product Portfolio

14.3.9 Lumentum Operations LLC

- 14.3.9.1 Company Overview
- 14.3.9.2 Product Portfolio
- 14.3.9.3 Financials
- 14.3.10 NKT Photonics A/S (NKT A/S)
 - 14.3.10.1 Company Overview
 - 14.3.10.2 Product Portfolio
- 14.3.11 Wuhan Huaray Precision Laser Co. Ltd.
 - 14.3.11.1 Company Overview
 - 14.3.11.2 Product Portfolio

List Of Tables

LIST OF TABLES

Table 1: Global: Ultrafast Lasers Market: Key Industry Highlights, 2023 and 2032

Table 2: Global: Ultrafast Lasers Market Forecast: Breakup by Type (in Million US\$), 2024-2032

Table 3: Global: Ultrafast Lasers Market Forecast: Breakup by Pulse Duration (in Million US\$), 2024-2032

Table 4: Global: Ultrafast Lasers Market Forecast: Breakup by End User (in Million US\$), 2024-2032

Table 5: Global: Ultrafast Lasers Market Forecast: Breakup by Region (in Million US\$), 2024-2032

Table 6: Global: Ultrafast Lasers Market: Competitive Structure

Table 7: Global: Ultrafast Lasers Market: Key Players

List Of Figures

LIST OF FIGURES

Figure 1: Global: Ultrafast Lasers Market: Major Drivers and Challenges

Figure 2: Global: Ultrafast Lasers Market: Sales Value (in Billion US\$), 2018-2023

Figure 3: Global: Ultrafast Lasers Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 4: Global: Ultrafast Lasers Market: Breakup by Type (in %), 2023

Figure 5: Global: Ultrafast Lasers Market: Breakup by Pulse Duration (in %), 2023

Figure 6: Global: Ultrafast Lasers Market: Breakup by End User (in %), 2023

Figure 7: Global: Ultrafast Lasers Market: Breakup by Region (in %), 2023

Figure 8: Global: Ultrafast Lasers (Titanium-Sapphire Lasers) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 9: Global: Ultrafast Lasers (Titanium-Sapphire Lasers) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 10: Global: Ultrafast Lasers (Diode-Pumped Lasers) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 11: Global: Ultrafast Lasers (Diode-Pumped Lasers) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 12: Global: Ultrafast Lasers (Fiber Lasers) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 13: Global: Ultrafast Lasers (Fiber Lasers) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 14: Global: Ultrafast Lasers (Mode-Locked Diode Lasers) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 15: Global: Ultrafast Lasers (Mode-Locked Diode Lasers) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 16: Global: Ultrafast Lasers (Femtosecond) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 17: Global: Ultrafast Lasers (Femtosecond) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 18: Global: Ultrafast Lasers (Picosecond) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 19: Global: Ultrafast Lasers (Picosecond) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 20: Global: Ultrafast Lasers (Consumer Electronics) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 21: Global: Ultrafast Lasers (Consumer Electronics) Market Forecast: Sales

Value (in Million US\$), 2024-2032

Figure 22: Global: Ultrafast Lasers (Medical) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 23: Global: Ultrafast Lasers (Medical) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 24: Global: Ultrafast Lasers (Automotive) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 25: Global: Ultrafast Lasers (Automotive) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 26: Global: Ultrafast Lasers (Aerospace and Defense) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 27: Global: Ultrafast Lasers (Aerospace and Defense) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 28: Global: Ultrafast Lasers (Research) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 29: Global: Ultrafast Lasers (Research) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 30: North America: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 31: North America: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 32: United States: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 33: United States: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 34: Canada: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 35: Canada: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 36: Asia-Pacific: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 37: Asia-Pacific: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 38: China: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 39: China: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 40: Japan: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 41: Japan: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 42: India: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 43: India: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 44: South Korea: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 45: South Korea: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 46: Australia: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 47: Australia: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 48: Indonesia: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 49: Indonesia: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 50: Others: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 51: Others: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 52: Europe: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 53: Europe: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 54: Germany: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 55: Germany: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 56: France: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 57: France: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 58: United Kingdom: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 59: United Kingdom: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 60: Italy: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 61: Italy: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 62: Spain: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 63: Spain: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 64: Russia: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 65: Russia: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 66: Others: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 67: Others: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 68: Latin America: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 69: Latin America: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 70: Brazil: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 71: Brazil: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 72: Mexico: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 73: Mexico: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 74: Others: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 75: Others: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 76: Middle East and Africa: Ultrafast Lasers Market: Sales Value (in Million US\$), 2018 & 2023

Figure 77: Middle East and Africa: Ultrafast Lasers Market: Breakup by Country (in %), 2023

Figure 78: Middle East and Africa: Ultrafast Lasers Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 79: Global: Ultrafast Lasers Industry: SWOT Analysis

Figure 80: Global: Ultrafast Lasers Industry: Value Chain Analysis

Figure 81: Global: Ultrafast Lasers Industry: Porter's Five Forces Analysis

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