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FPGA Market by Configuration (Low-end FPGA, Mid-range FPGA, High-end FPGA), Technology (SRAM, Flash, Antifuse), Node Size (?16 nm, 20-90 nm, >90 nm), Vertical (Telecommunications, Data Center & Computing, Automotive) & Region - Global Forecast to 2029

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Abstracts

The FPGA market is projected to grow from USD 12.1 billion in 2024 and is projected to reach USD 25.8 billion by 2029; it is expected to grow at a CAGR of 16.4% from 2024 to 2029.

Strong focus on FPGA hardware verification for avionics, growing adoption of FPGA in ADAS systems, and rising demand for FPGA in high bandwidth devices are the factors expected to fuel the growth of the FPGA market.

“Market for low-end FPGAs to hold the largest share during the forecast period.”

Low-end FPGAs are becoming increasingly popular due to their cost-effectiveness and adaptability. They are preferred for cost-sensitive applications, especially in consumer electronics and IoT devices, as they are less expensive than high-end FPGAs. Additionally, low-cost FPGAs offer a high degree of diversity and flexibility as they can be easily reprogrammed and adapted to changing requirements, enabling faster prototyping and design cycles. The adaptability of low-cost FPGAs makes them an ideal solution for various industries that require customization and speedy time-to-market. Moreover, low-cost FPGAs are power-efficient, provide system-level functionality, and are aimed at the educational and hobbyist markets, all of which contribute to their growing demand in the market.

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“Market for SRAM segment is expected to hold the largest share during the forecast period.”

The SRAM segment accounted for the largest share of the overall market in 2022. The increasing adoption of SRAM-based FPGAs in key sectors such as telecommunication systems, consumer electronics, and data center networks drives the substantial market share growth. Rising demand is observed for these FPGAs in wired and wireless communication systems, gaining prominence in applications like 5G wireless, mobile backhaul, and passive optical network (PON) systems. This preference is attributed to their optimized performance. SRAM-based FPGAs are manufactured through the Complementary Metal Oxide Semiconductor (CMOS) process, allowing for enhanced logic density and programming flexibility compared to alternative technologies. The outstanding product characteristics of FPGA technology indicate a promising outlook, presenting ample market opportunities for manufacturers of SRAM-based FPGAs in the foreseeable future.

“Market for telecommunication segment holds for major market share during the forecast period.”

FPGAs have become pivotal in the telecom sector, offering unparalleled adaptability, performance, and responsiveness to evolving needs. In baseband processing, FPGAs efficiently handle tasks such as modulation, demodulation, error correction, and enhancing data transmission. Their role in Network Function Virtualization (NFV) is crucial, accelerating functions like firewalls and deep packet inspection. FPGAs also contribute to Radio Access Networks (RANs) by implementing beamforming and signal processing functions, enhancing network coverage and capacity. In the era of edge computing, FPGAs excel in real-time processing, supporting tasks like image processing and data compression at the network's edge. Their significance extends to deploying 5G networks, where FPGAs power high-performance base stations and facilitate network slicing. The advantages of FPGA adoption in telecom encompass flexibility, high performance, low latency, power efficiency, cost-effectiveness, scalability, security, accelerated innovation, and futureproofing, collectively shaping the dynamic landscape of telecommunications.

“North America is expected to have the second-largest market size during the forecast period.”

Anticipated growth in the FPGA market in North America is attributed to the increasing

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prevalence of data centers during the forecast period. There is a heightened demand for FPGAs in various data center applications, including hardware acceleration, network interface controls, storage interface controls, and high-performance computing (HPC). According to the statistics by Data Centers Map as of September 2023, the global number of data centers accounted for 5,065 data centers worldwide, of which North America has the highest number of data centers (2,164) and Western Europe ranks second (1,285). With the increasing deployment of new data centers in the region, the FPGA market growth is further accelerated.

Extensive primary interviews were conducted with key industry experts in the FPGA market space to determine and verify the market size for various segments and subsegments gathered through secondary research. The break-up of primary participants for the report has been shown below:

The break-up of the profile of primary participants in the FPGA market:

By Company Type: Tier 1 – 50%, Tier 2 – 30%, and Tier 3 – 20%

By Designation: C Level – 70%, Director Level – 20%, Others-10%

By Region: North America – 55%, Europe – 15%, Asia Pacific – 20%, ROW-10%

The report profiles key players in the FPGA market with their respective market ranking analysis. Prominent players profiled in this report are Advanced Micro Devices, Inc. (Formerly Xilinx, Inc.) (US), Intel Corporation (US), Microchip Technology Inc., (US), Lattice Semiconductor Corporation (US), Achronix Semiconductor Corporation (US), QuickLogic Corporation (US), Efinix, Inc. (US), and FlexLogix (US), among others.

Apart from this, AGM Micro (China), Shanghai Anlu Information Technology Co., Ltd. (China), Shenzhen Ziguang Tongchuang Electronics Co., Ltd. (China), Xi'an Zhiduoji Microelectronics Co., Ltd. (China), Renesas Electronics Corporation (Japan), LeafLabs, LLC (US), Aldec, Inc. (US), ByteSnap Design (UK), Enclustra (Switzerland), EnSilica (UK), Gidel (US), Nuvation Engineering (US), EmuPro Consulting Private Limited (India), iWave Systems Technologies Pvt. Ltd. (India), and Mistral Solutions Pvt. Ltd (India) is among a few emerging companies in the FPGA market.

Research Coverage: This research report categorizes the FPGA market based on

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configuration, node size, technology, FPGA and eFPGA market size, vertical, and region. The report describes the major drivers, restraints, challenges, and opportunities pertaining to the FPGA market and forecasts the same till 2029. Apart from these, the report also consists of leadership mapping and analysis of all the companies included in the FPGA ecosystem.

Key Benefits of Buying the Report The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall FPGA market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

Analysis of key drivers (Increased adoption of Artificial Intelligence (AI) and Internet of Things (IoT) technologies in various applications, Integration of FPGAs into advanced driver assistance systems (ADASs), Increasing number of data centers and high-performance computing (HPC) facilities, Growing need for FPGA hardware verification of avionics, and Higher efficiency of field-programmable gate arrays (FPGAs) compared with application-specific integrated circuits (ASICs)), restraints (Security concerns associated with FPGAs,), opportunities (Rising demand for FPGAs in high-bandwidth devices, Surging deployment of 5G communication infrastructure, Increasing penetration of eFPGAs into military & aerospace industry, and Proliferation of data centers worldwide to fuel adoption of FPGAs) and challenges (Lack of improved and standardized verification techniques, Highly complex programming) influencing the growth of the FPGA market.

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the FPGA market.

Market Development: Comprehensive information about lucrative markets – the report analysis the FPGA market across varied regions

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the FPGA

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Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players like Advanced Micro Devices, Inc. (Formerly Xilinx, Inc.) (US), Intel Corporation (US), Microchip Technology Inc., (US), Lattice Semiconductor Corporation (US), Achronix Semiconductor Corporation (US), among others in the FPGA market.

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*Details on Business Overview, Products/Solutions/Services Offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats) might not be captured in case of unlisted companies.

14 APPENDIX

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