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Field-Programmable Gate Array (FPGA) Market - Forecasts from 2020 to 2025

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Abstracts

The Field-Programmable Gate Array (FPGA) market is projected to grow at a CAGR of 7.27% to reach a market size of US$12.122 billion in 2025 from US$7.957 billion in 2019. Field-programmable Gate Array (FPGA) is a pre-fabricated silicon device that can be electrically programmed in the field to become any kind of digital circuit or system. They are an array of configurable logic blocks (CLBs) connected via programmable interconnects and can be reprogrammed to the desired application or functionality requirements after manufacturing. High demands for ADAS (Advanced Driver Assistance System) for GPS control and 3D visualization and growing consumer electronics industry will increase the demand for the FPGA market. FPGA helps in making products at a lower cost. FPGA is required mostly in consumer electronics as they need more computing power and flexibility in hardware for product differentiation and to withstand according to new-standards. FPGA chip major adoption is due to the fact that it adopts the best part of application-specific integrated circuits (ASICs) and processor-based systems. FPGAs even provide a cheaper solution and faster time to market for low-to-medium of volume production. FPGA is widely implemented in mainstream embedded computing to build complex mission-critical systems. FPGAs have better dataflow and data processing speed compared to traditional microprocessors.

By Architecture

Field-Programmable Gate Array (FPGA) market is segmented by architecture as SRAM, flash, and antifuse. SRAM FPGAs are configured with data logical cells in the static memory as SRAM is volatile without a power source. The storage of SRAM helps in configuring data with internal volatile memory cells, with distribution being done throughout the device. Flash-based FPGAs are a combination of FPGAs with flash

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memory; they are a unique combination of non-volatility and re-programmability within a single chip providing a simple, secure, reliable and low-powered solution.

By End-User Industry

By end-user industry, the FPGA market is segmented as automotive, manufacturing, telecom, aerospace and defense, consumer electronics, healthcare, and others. In the automobile industry, FPGA helps in lowering the total car ownership cost by integrating and reducing external components and unifying the development flow. FPGA supports the implementation of even more automotive functions. FPGAs are used in the telecom industry as they support high-speed serial lanes up to 32 Gbits/second and integrate hard IP for 100G Ethernet, Interlaken, PCI Express Gen4 and DDR4 memory controllers. Aerospace and defense require FPGA for security, tools, and specialization, it enables system designers to custom-program the device according to functionality, power consumption, etc. FPGA is required in the consumer electronics industry as they need more computing power and flexibility in hardware for product differentiation. FPGAs are required in the medical industry as it enables design flexibility helping designers explore new ideas and reduce risks in the system development process. FPGAs are required in the medical industry for medical imaging; they are primarily used in detection and image construction. The detection system requires real-time performance and significant hardware interface challenges. Image construction is similar to the high-performance computing problem.

By Geography

Geographically, the Field-Programmable Gate Array (FPGA) market is classified into North America, South America, Europe, Middle East, and Africa, and the Asia Pacific The report also analyses major countries across these regions with complete analysis and forecast along with prevailing market trends and opportunities which each of these countries present for the manufacturers. The USA has a significant market share of the FPGA market owing to the rising adoption of FPGA applications in the military and defense industry in the region. APAC will witness the fastest regional market growth due to the rapid Industrialization and growing electronics and consumer electronics industries in the region.

Competitive Insights

Key market players in the FPGA market include ABB, Intel Corporation, Xilinx, Microsemi, and Achronix Semiconductor Corporation among others. The global FPGA

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market is highly competitive with key market players competing by way of continually innovating new applications and technologies. M&A and partnerships are some of the key strategies being implemented by key market players to gain a larger market share. Current development in the market includes: - Xilinx in March 2019 announced FPGA for space applications 20nm Kintex Ultrascale XQRKU060 that will be used for empowering future-ultrahigh throughput applications.

Segmentation

The FPGA market is segmented by architecture, end-user industry, and by geography.

By Architecture

SRAM

Flash

Antifuse

By End-User Industry

Automotive

Manufacturing

Telecom

Aerospace and Defense

Consumer Electronics

Healthcare

Others

By Geography

North America

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USA

Canada

Mexico

South America

Brazil

Argentina

Others

Europe

Germany

France

United Kingdom

Spain

Others

Middle East and Africa

Saudi Arabia

Israel

UAE

Others

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Asia Pacific

China

Japan

South Korea

India

Others

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9.1. ABB
9.2. Intel Corporation
9.3. Microsemi, a wholly owned subsidiary of Microchip Technology Inc.
9.4. Achronix Semiconductor Corporation
9.5. Xilinx
9.6. QuickLogic
9.7. Microchip Technology Inc.
*list is not exhaustive

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