Field Programmable Gate Array (FPGA) Market - By Technology (SRAM, ANTIFUSE, EPROM, EEPROM); By Memory ( Distributed Memory, Block Memory); By Applications & Geography- Forecast (2016-2021)

Description: Field Programmable Gate Arrays (FPGA) consists of a matrix of configurable logic blocks (CLBs) connected through interconnects which are programmable. Based on end-use application and functionality requirements, FPGAs can be reprogrammed once they are manufactured. The provision to reprogram FPGAs distinguishes them from Application Specific Integrated Circuits (ASICs) as ASICs are custom manufactured for specific design tasks. Although one-time programmable (OTP) FPGAs are available, the overall FPGAs is dominated SRAM based which can be reprogrammed.

In a single integrated circuit (IC) chip of FPGA, millions of logic gates can be incorporated. Hence, a single FPGA can replace thousands of discrete components. Due to their programmable nature, FPGAs are an ideal fit for many different markets. Ever-changing technology combined with introduction of new product portfolio is the major drivers for this industry.

Owing to benefits such as increasing the performance, early time to market, replacing glue logic, reducing number of PCB spins, and reducing number of parts of PCB, field programmable gate arrays (FPGA's) are being used in many CPU's. Industrial networking’s, industrial motor control, industrial control applications, machine vision, video surveillance make use of different families of FPGA's.

The global market for Field programmable gate array was estimated to be $XX billion in 2015. The global market for FPGA is estimated to grow at a CAGR of XX% and is forecast to reach $XX billion by 2021. North America and Europe alone are estimated to occupy a share of more than XX% during 2016-2021. North America is the leading market for field programmable gate arrays with U.S. leading the charge followed by Europe. North America region is forecast to have highest growth in the next few years due to growing adoption of field programmable gate arrays .North America field programmable gate array market accounts to XX% of the global market for FPGA's.

The key players in the market are:
Xilinx Inc. (U.S.)
Altera Corporation (U.S.)
Microsemi Corporation (U.S.)
Lattice Semiconductor (U.S.)
Achronix Semiconductor Corporation (U.S.)
Atmel Corporation (U.S.)
S2C Inc. (U.S.) among others.

Field Programmable Gate Arrays (FPGA’s) Beam up Next Generation Radio Astronomy

FPGAs are important in radio astronomy as they are able to meet the high performance requirements required while maintaining flexibility and relatively low cost.

An interesting reported application in the field of radio astronomy is a billion-channel spectrometer used in the Search for Extraterrestrial Intelligence (SETI) project at the University of California at Berkeley and implemented on a BEE2 system. A 16 Gbps, 800 MHz bandwidth input is passed through a 128 tap, 4 channel polyphase filter bank (PFB) on the control FPGA and split into 4 200 MHz bandwidth streams. Each stream is handled by a compute FPGA which implements a 256 million channel spectrometer with 0.745 Hz resolution. The spectrometer's processing includes an 8K channel PFB, data reordering, 32K point fast Fourier transform (FFT) and power spectrum computation. Each FPGA performs 29.4 GMACs (billion multiply -adds per second).

The other important development of radio astronomy is an advanced telescope called ASKAP, for which Researchers in Australia are using Virtex-6 FPGAs to economically meet the demanding requirements of an advanced telescope. Therefore, with the advances in the radio astronomy the scope of field programmable gate arrays is increasing.
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