Altera Stratix IV GX FPGA Development Kit

1. Overview

The Altera® Stratix® IV GX FPGA Development Kit deliver a complete system-level design environment that includes both the hardware and software needed to immediately begin developing FPGA designs. With a PCI-SIG® -compliant board and a 1-year license for Quartus® II design software, you can:

- Develop and test PCI Express® 2.0 (up to x8 lane) endpoint and root port designs
- Develop and test memory subsystems consisting of DDR3 and QDR II+ memory
- Build designs capable of migrating to Altera's low-cost HardCopy® IV ASICs
- Add other Stratix IV GX FPGA-supported protocol interfaces such as 10-Gbps Ethernet, CPRI, OBSAI, SAS/SATA, Serial RapidIO® , and many others by taking advantage of the modular capability of these boards through the high-speed mezzanine connectors and over 30 different high-speed mezzanine cards (HSMCs) available

2. Specification

Featured devices

- Stratix IV GX EP4SGX230KF40C2N FPGA or,
- Stratix IV GX EP4SGX530KH40C2N FPGA

- **Company: Terasic**
- **Tel: +886-3-5750880**
- **Fax:+886-3-5726690**
- **Add: 9F., No.176, Sec.2, Gongdao 5th Rd, East Dist, Hsinchu City, 30070. Taiwa**

Configuration status and set-up elements

- Fast passive parallel (FPP) configuration via a MAX® II EPM2210 CPLD and flash memory
- On-board USB-Blaster™ download cable using Quartus II Programmer

Clocks

- On-board clock oscillators: 50 MHz, 100 MHz, 125 MHz, 148.5 MHz, 155.52 MHz, and 156.25 MHz
- SMA connectors for external clock input
- SMA connectors for clock output

General user input/output

- LEDs
- LCD display
- Push-button and dual in-line package (DIP) switches

Memory devices

- 512-MB DDR3 SDRAM with a 64-bit data bus
- 128-MB DDR3 SDRAM with a 16-bit data bus
- Two 4-MB QDR II+ SRAMs with 18-bit data buses
- 64-MB sync flash and 2-MB SSRAM

Component and interfaces

- PCI Express x8 edge connector
- 10/100/1000BASE-T Ethernet PHY with RJ-45 connector
- Two HSMC connectors
- HDMI video output
- 3G-SDI video input and output
- Power measurement circuitry
- Temperature measurement circuitry

Power

- Laptop DC input
- PCI Express edge connector power
- Power measurement circuitry

Other features

- PCI Express half-length, full-height (6.6" x 4.376") board format

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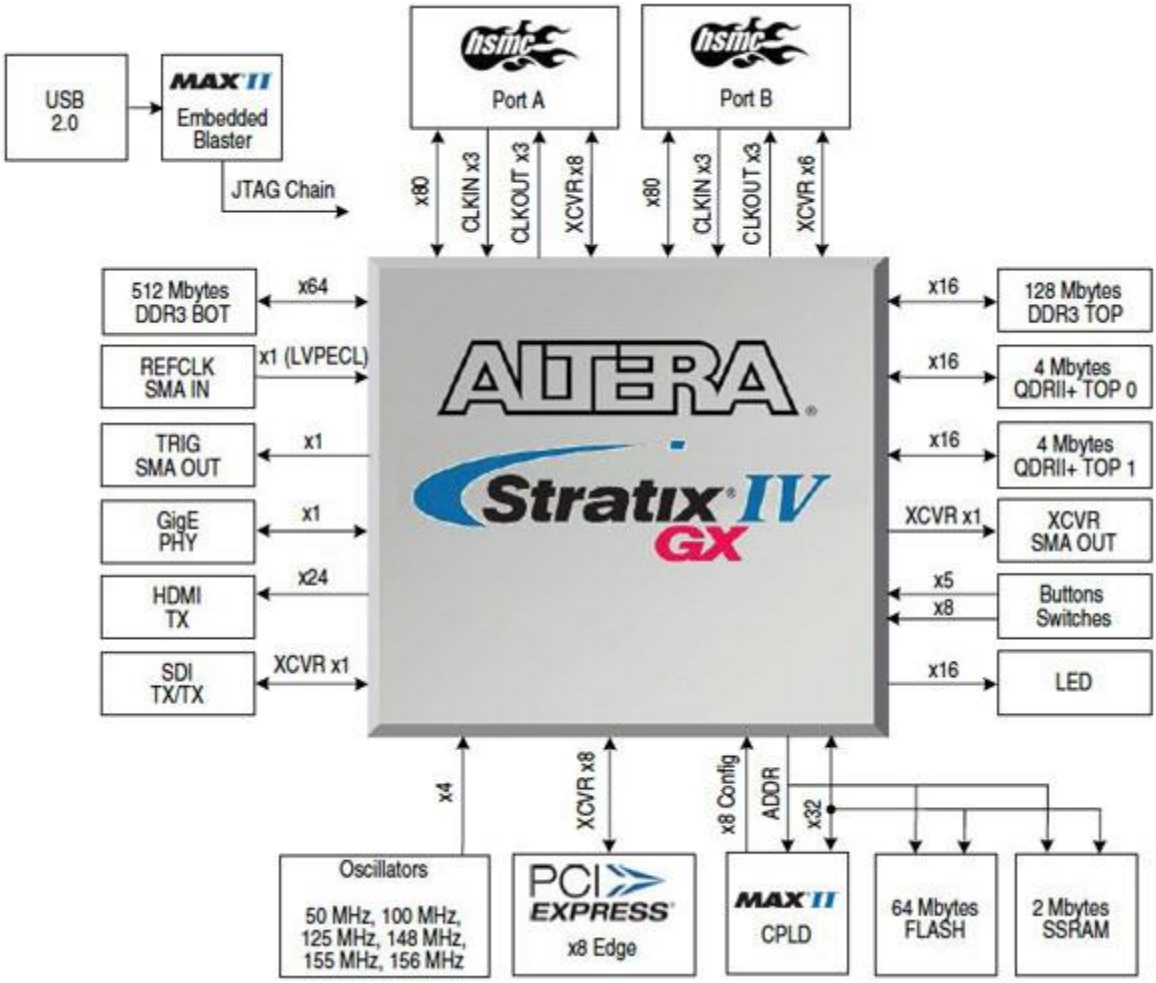
- RoHS compliant

Altera Stratix IV GX FPGA Development Kit Block Diagram



3. Kit content

- Stratix IV GX FPGA Development Kit soft content
  - Design examples
    - Board Update Portal featuring the Nios® II processor web server and remote system update
    - Board Test System
  - Complete documentation
- Altera's Complete Design Suite
  - Quartus II software includes support for Stratix IV FPGAs and HardCopy IV ASICs
    - 1-year license included

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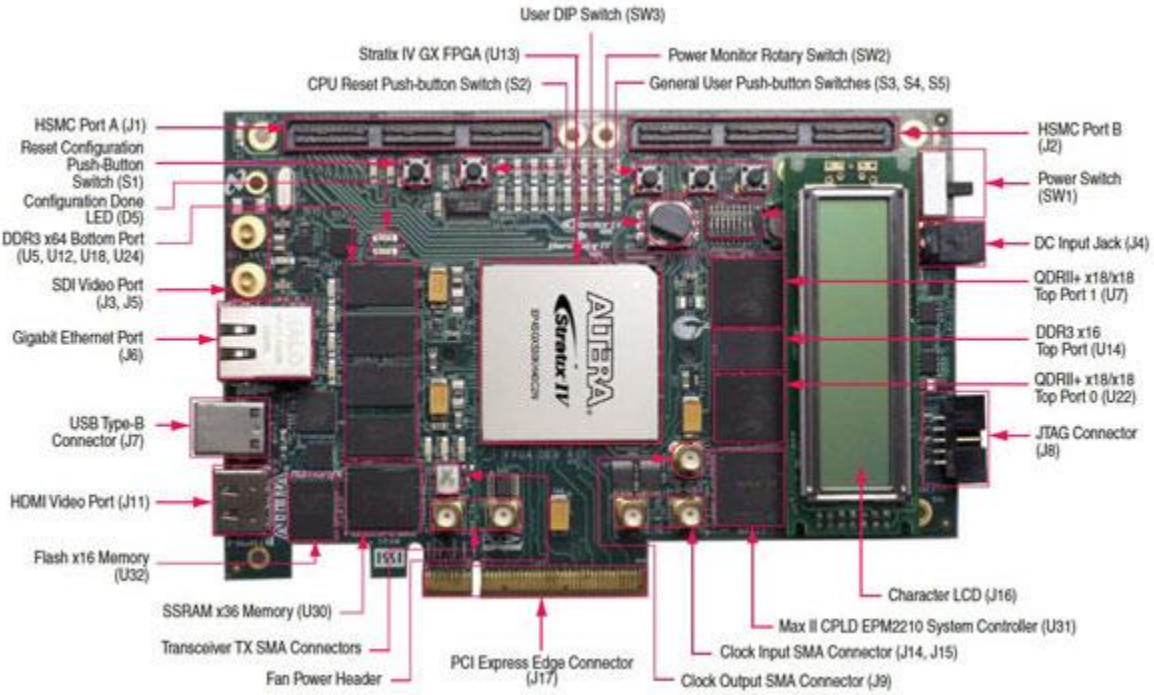
- Nios II Embedded Design Suite
- MegaCore® intellectual property (IP) library includes PCI Express, Triple-Speed Ethernet, SDI, and DDR3 High-Performance Controller MegaCore IP cores
  - IP evaluation available through OpenCore Plus

- Loopback and debug HSMCs
- Power adapter and cables

4. Layout



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