VirtexII™-Pro Based ASIC Prototyping Engine (PCIe)

Features

- PCI Express (PCIe) PWB (1-lane or 4-lane)
  - Up to 6 VirtexII-Pro in FF1704
  - 2vp70-5,-6,-7 or 2vp100-5,-6
- Flexible, abundant, and configurable embedded memory in FPGA's
  - 444 18-kbit memory blocks per FPGA (2vp100)
  - Up to 1.378 Kbytes Distributed SelectRAM per FPGA (2vp100)
- 100% of FPGA resources available for user applications
- 2 - 200-pin high-speed expansion connectors for awesome signal integrity
  - Custom daughter cards
  - Standard Daughter cards:
    - Camera Link/LVDS
    - DNP/PM104
    - D31k10SD/ D32k10SD_mictor
  - 10 DDR SDRAM's (with 2vp100’s)
  - standard: 32M x 16
  - Options for 64M x 16 DDR devices
  - 2 DDRs connected to FPGAs B, C, D, E, & F
- 8 off-board, RocketIO-based high-speed serial ports
  - SMB Connectors (2 MGTs each)
  - 2 ports each connected to FPGAs A, B, E, F
  - 3.125 GB/S (with -6, -7 speed grade FPGA)
- 20A on-board switching regulator for both +2.5V and +1.5V
- Standalone operation with an off-the-shelf ATX power supply
- Two PowerPC 405 Cores per FPGA (12 total with six FPGA’s)
  - Embedded 300+ MHz Harvard Architecture
  - Hardware Multiply/Divide Unit
  - Thirty-Two 32-bit General Purpose Registers
  - 16 KB 2-Way Set-Assoc. Instruction Cache
  - 16 KB 2-Way Set-Assoc. Data Cache
  - Memory Management Unit (MMU)
  - Timer Facilities
- Status LED’s provide instant status and operational feedback
- Four RS232 ports for PowerPC observation/debug
  - Four full duplex (RX/TX)
  - All four ports multiplexed via SpartanII Configuration FPGA
- Fast/Easy FPGA configuration using standard SmartMedia FLASH card
  - Microprocessor controlled (CY7C68013)
  - Separate RS232 port for configuration/operational status and control
- Fastest possible configuration using SelectMap
- Sanity checking programs for bit files simplify the configuration process
- 2 low skew clocks distributed to all FPGA’s and headers:
  - 2 user-selectable socketed oscillators
  - PCIe Clock
  - 2 CY7B993/4 RoboClockII PLL’s for the best clock distribution
- Robust observation/debug with 324 connections for logic analyzer observability and pattern generator stimulus.
- Boatloads of reference stuff included (FREE)
- DDR SDRAM controller (Verilog/VHDL)
- PowerPC 'Hello World'
  - UART’s
  - USB utilities
  - Board test(s)
  - Windows XP, ME, 2000, 98, NT, LINUX, Solaris
- Full support for embedded logic analyzers via JTAG interface
  - ChipScope, ChipScope PRO
  - Identify™ from Synplicity
Description

The DN6000K10PCIe is a complete logic emulation system that enables ASIC or IP designers to prototype logic, memory, and embedded systems designs for a fraction of the cost of other solutions. The DN6000K10PCIe is hosted in a 1 or 4-lane PCI Express slot (PCIe) and can be used standalone. This product supports up to 6 FPGAs and each position can be populated by either a 2vp70 or 2vp100. A DN6000K10PCIe stuffed with 6 2vp100s can emulate up to 4.5+ million gates of logic as measured by LSI. In addition, each 2vp100 VirtexII Pro FPGA contains two 300MHz+ 405 PowerPC microprocessors, 444 18x18 multipliers, and 7.992 Mbytes of block RAM memory. Eight serial RocketI/O ports are provided on the corners of the circuit board and can support a variety of serial communication protocols at speeds up to 3.125 GB/s (with -6, -7 speed grade). The DN6000K10PCIe is designed for performance. All external memories run at a frequency of at least 133MHz and the FPGA internal speed is limited only by the logic within. The FPGAs are high I/O count, 1704-pin BGA packages, allowing for maximum chip to chip interconnect. Two 200-pin expansion connectors provide for expansion capability.

Easy Configuration Via SmartMedia

The configuration bit file for the FPGA is copied onto a 32/64/128-megabyte SmartMedia FLASH card (provided) and an on-board microprocessor controls the FPGA configuration process. An RS232 port provides detailed information regarding the configuration process, completely bypassing time-consuming debugging of the configuration process. FPGA configuration occurs at close to the fastest possible parallel frequency -- 48MHz. Eight LED's provide instant status and operational feedback. Two of these LED's are connected to the CPLD and can be user-configured.

Included Accessories:

For technical applications and sales support, call 858.454.3419

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