Dual VU440 Prodigy™ Logic System

The Dual VU440 Prodigy Logic System is a compact, sleek, all-in-one system that includes all components - FPGA module, extendable power control module, and power supply for maximum flexibility, durability, and portability. The system is based on Xilinx's Virtex UltraScale XCVU440 FPGA and provides 2,368 general purpose I/Os and 88 GTH transceivers on 20 high-speed connectors. Utilizing the 6th generation Prodigy Player Pro™ technology, user can perform an array of runtime features remotely through both Ethernet and USB. User also have access to S2C's vast library of over 80 daughter cards to quickly build prototyping targets. The modular system can be re-configured to a Single or Quad system.

Highlights

- Large capacity and scalability with11.08M System Logic Cell and 177.2Mb of internal memory
- 2,304 high-performance I/Os s for inter-FPGA connections and daughter cards
- 88 GTH transceivers for high-bandwidth data transmission
- On-board support for two 72-bit 8GB ECC DDR4 SO-DIMM sockets
- Compatible with 80+ Prodigy Daughter Card Library
- Stackable design for easy capacity expansion
- Compact, sleek, all-in-one chassis for clean,- portable, and well-organized work environment

Features

Large Capacity & Scalability

- 11.08M System Logic Cells and 177.2Mb internal memory
- Two on-board DDR4 SO-DIMM sockets can hold at least 72-bit 8GB DDR4 in each socket
- Multiple Logic Systems can be conveniently connected together to expand capacity

High Reliability

- Screw-lock design to I/O connectors
- Self-Tests - Isolate design issues from board issues conveniently with a software GUI
- Monitoring of on-board voltage, current, and temperature with a software GUI
- Automatic shut-down upon detection of overcur- rent, overvoltage, or overtemperatures

High Performance

- Up to 100W power for each FPGA
- Equal trace length for I/Os from same I/O connector
- On-board support of DDR4 memory can run up to 2,400 Mbps
- 88 high-speed GTH transceivers can run up to 12.5Gbps

Flexible & Powerful I/Os

- 2,304 high-performance I/O pins and 56 GTH transceivers on 16 Prodigy I/O connectors for inter-FPGA connections and daughter cards
- I/O voltage can be adjusted to 1.2V, 1.35V, 1.5V or 1.8V through RunTime software in GUI with 4 status LEDs on-board to indicate I/O voltages
- 32 high-speed GTH transceivers and 64 GPIOs through 4 PGT I/O connectors

Features

Advanced Clock Management Standalone Mode

- 6 global clocks to be selected from
  - 6 programmable clock sources (0.2 ~ 350MHz)
  - 5 pairs of external clocks through MMCX connectors
  - 1 OSC socket
- 3 design clock outputs through 3 pairs of MMCX connectors
- 2 global resets sourced from pushbutton or MMCX
- 1 global reset sourced from RunTime software in GUI

Multi-System Mode

- 6 global clocks to be selected from
  - 6 local programmable clock sources (0.2 ~ 350MHz)
  - 6 global clock sources
- 3 feedback clocks can be output to global clock sources
- 2 global resets sourced from global reset sources

Ease-of-Use

- Multiple FPGA configuration options through Ethernet port, USB port, JTAG, and Micro SD card
- Remote power on/off/recycle through Ethernet
- Auto detection of daughter cards and cables
- Virtual SWs & LEDs for simple tasks such as changing a setting or indicating a condition remotely
- Virtual UART for firmware debugging
- User Test Area - LEDs, pushbuttons, switches, and pin headers for testing and debugging
- On-board battery charging circuit makes FPGA bin file encryption easy
- Optional ProtoBridge™ AXI software to co-model with software/simulation models at transaction-level
- Optional Prodigy Player Pro Compile for design partition & implementation
- Optional Prodigy Multi-Debug Module (MDM) for the concurrent deep trace debugging of multiple FPGAs
- Compatible with S2C's off-the-shelf pre-tested daughter cards

I/O Architecture