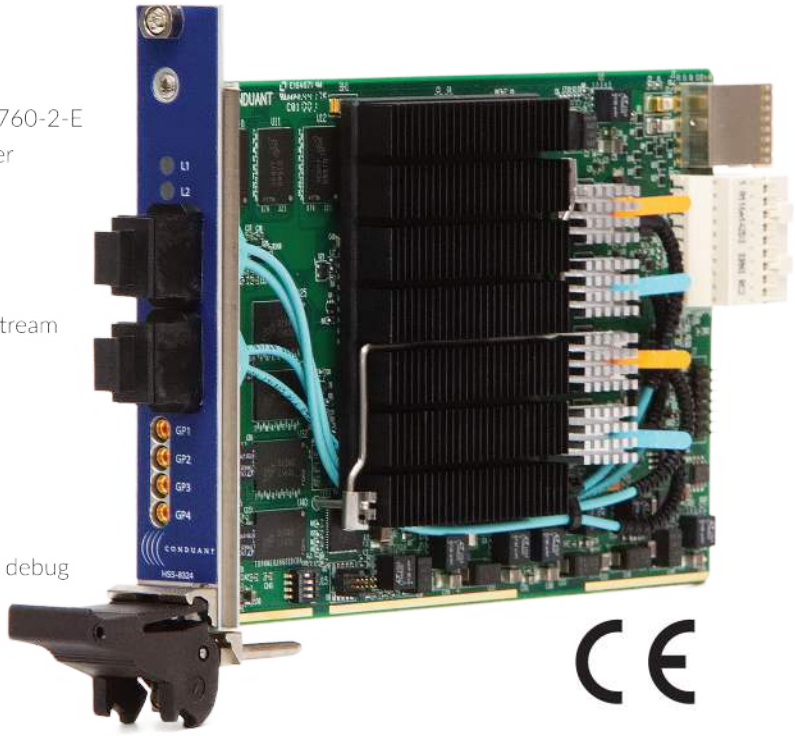
CONDUANT

HSS-8324 PXI EXPRESS HIGH SPEED OPTICAL FPGA BOARD

Product Features

- PXI Express single slot form factor
- PXI instrument signals (triggers, clocks, etc.)
- 8-lane PCI Express Gen 3.0 (max 8 GB/s)
- Xilinx Kintex Ultrascale FPGA XCKU095-FFVB1760-2-E
- 24 optical channels (48 fibers), up to 16 Gbps per channel, 850 nm
- Dual 24 fiber MPO/MTP fiber connections
- 8 GB DDR3 SDRAM
- 8 MB QDR SRAM
- Xilinx eFUSE or battery-backed 256-bit AES bitstream encryption
- UART interface (3 wire, RS-232 compatible)
- 4X MMCX external connectors
- User programmable LEDs
- 1 Gib configuration flash
- Power and FPGA configuration status LEDs
- JTAG interface for programming flash and FPGA debug
- Microcontroller based power sequencing
- Fractional divide clock synthesis
- Xilinx power/temperature system monitor



Specifications

PXI Express Revision	1.0 ECN 1
Interlaken Revision	1.2
Form Factor	PXI Express hybrid, peripheral or timing slot (1 slot required)
Dimensions	6.1875" (D) x 0.787" (W) x 5.0" (H)
Weight	< 1 lb (0.5 kg)
DRAM	8 GB DDR3 SDRAM 2x512Mx64b @ 800 MHz
SRAM	8 MB QDR 2+Extreme SRAM 2Mx36b @ 600 MHz
External Connectors	2x MTP/MPO 24 fiber (optional) 4x MMCX 50 Ω
FPGA	Xilinx Kintex Ultrascale XCKU095-FFVB1760-2-E
Power	TBD

FPGA software included

- VHDL source code for board self-test which can also be used as a programming example
- VHDL source code that instantiates Xilinx cores and names and assigns pins and clock constraints

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Advanced Capabilities

The Conduant HSS-8324 Optical FPGA board provides the user with a hardware platform that is able to sustain full-duplex high-bandwidth transfers through its 8-lane Gen3 PXI Express (PXIe) interface and its 24-lane optical interface. The PXIe interface provides a theoretical maximum throughput of 8 GB/s (simultaneous in and out).

The board provides both 8 GB of high-speed DDR3 SDRAM and 8 MB of QDR II+ SRAM. At the center of the design is a Xilinx Kintex Ultrascale (XCKU095-FFVB1760-2-E) FPGA which interconnects all ports and other devices while supplying the additional resources that are available within the FPGA. Other models of Kintex or Virtex Ultrascale FPGAs may be available; check with your Conduant sales representative.

With up to 48 optical fibers available, the board can be used for numerous applications that require high speed data connectivity. Each lane of optical fiber (transmit or receive) can operate independently. There are also dual Interlaken cores available in the FPGA which can be used to create dual 150 Gbps Interlaken connections (12 x 12.5 Gbps). Other optical protocols (i.e. Serial FPDP, Xilinx Aurora, etc.) can also be used and a copper cabling option is available.

At power-on, the Kintex Ultrascale FPGA is quickly configured with the user program by using the SPI x4 serial flash memory device. This provides the fast wake-up required for PCI Express. The user content can be encrypted using a key that is either permanently programmed in a non-volatile manner into the FPGA (eFUSE) or can be preserved in a volatile manner so long as the on-board battery is not removed. This feature makes this product particularly attractive for applications in which protecting the FPGA intellectual property from cloning or reverse engineering is important.

The board includes a microcontroller for power management and an on-board I2C interface connecting the uC, FPGA, and optical transceivers.

For users who need more FPGA resources than are available in the XCKU095-FFVB1760-2-E, the pinout has been chosen to support migration to other, pin-compatible, Virtex/Kintex Ultrascale components. These variations can be provided on request.

Warranty & Customer Support

Conduant hardware products are backed by a limited one-year warranty. All software includes a 90 day warranty. Maintenance and priority support is available on a yearly subscription basis. Please contact your Conduant sales representative for more details.

Customer support is provided through a comprehensive web portal at www.conduant.com/support. Private logins and trouble ticket management are provided along with technical downloads, knowledge base, and other support tools.

Options

FPGA options | *contact Conduant for availability*
High speed serial | *Copper or optical fiber; 12 and 24 lane*
Battery backup for encrypted FPGA configuration support
Extended temperature
Custom software | *Contact your Conduant sales representative for custom software availability*

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