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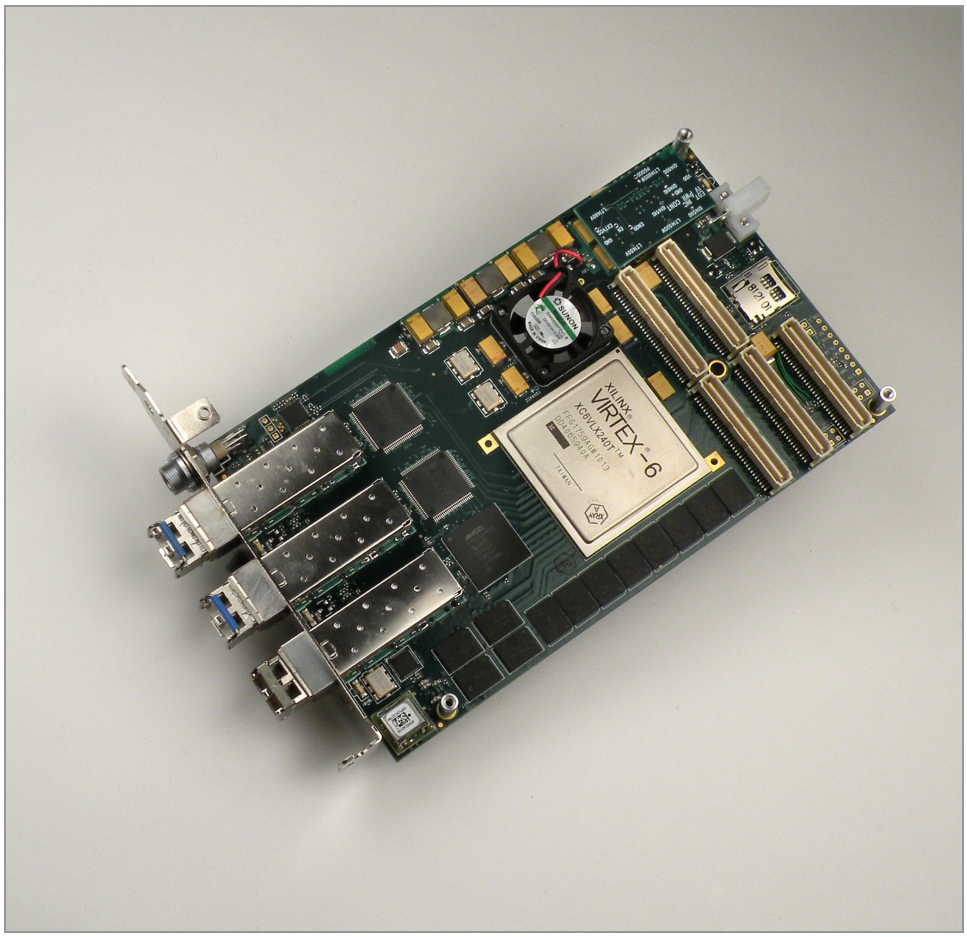
3P

Three-port interface for up to 10GbE / OC192 (STM64) / OTU2f



Description

The 3P is a three-port mezzanine board that pairs with a PCIe main board to provide three independent ports, each supporting one optional transceiver. Port 0 supports an SFP+ for 10GbE (optical), OC192 (STM64), or OTU2/2e/2f; ports 1 and 2 each support an SFP for 1GbE (electrical or optical), OC3/12/48 (STM1/4/16), or OTU1. SDDS data processing is available as an option.

The user-configurable FPGA (Xilinx Virtex 6) can access three independent 512 MB blocks of DDR2 DRAM, which can be used as data buffers. Two of these can be combined to create a memory block of 1GB.

Each port links to a SERDES via a specialized LIU or, optionally, via a multigigabit transceiver (MGT) in the FPGA. Each port has its own reference clock, programmable from 10 to 210 MHz. A time code input (1 pps or IRIG-B) also is included.

EDT provides FPGA configuration files to support 1GbE and 10GbE at the PHY layer; OC3/12/48/192 (raw, framed, framed and descrambled, header, and payload); OTU1/2/2e/2f (raw, framed, framed and descrambled); and demultiplexing. Custom files can be requested.

The main board supplies DMA, plus additional memory and programmable FPGA resources.

Features

- Mezzanine board – pairs with an EDT main board (PCIe), which adds DMA, programmable FPGA resources, and memory
- Port 0: One optional SFP+ for 10GbE (optical), OC192 (STM64), or OTU2/2e/2f at 1550 or 1310 nm (or 10GbE at 850 nm)
- Port 1: One optional SFP for 1GbE (electrical or optical), OC3/12/48 (STM1/4/16), or OTU1 at 1550, 1310, or 850 nm
- Port 2: Identical to (but independent of) port 1
- Data processing: SDDS (optional)
- FPGA: One programmable Xilinx Virtex 6 (XC6VLX240T, LX365T, SX315T, or SX475T)
- DRAM (DDR2): Three independent 512 MB blocks (or combine two for 1 GB)
- SERDES: Port 0 = 10G LIU or FPGA MGT; port 1 = SONET/SDH LIU or FPGA MGT; port 2 = SONET/SDH LIU or FPGA MGT
- EDT intellectual property for 10GbE PCS and PMA layer, SONET/SDH framing, demultiplexing, and G.709 framing
- Time code input: 1 pps or IRIG-B, with user-configurable output

Applications

- Telecommunications monitoring, recording, and processing
- SONET/SDH to ethernet conversion
- SDDS data processing
- Multiple other network processing applications

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Specifications

Product Type	Three-port interface for signals up to 10GbE, OC192 (STM64), or OTU2f; it requires an EDT PCIe main board.
FPGA Resources	One programmable FPGA (Xilinx Virtex 6 XC6VLX240T, LX365T, SX315T, or SX475T), plus FPGA resources on main board
Memory	DRAM (DDR2) for snapshot recording / data buffering — Three independent 32-bit wide 512 MB blocks; two can be combined into a 64-bit wide 1 GB block
Clocks	Three (reference) — one per port — independently programmable from 10 to 210 MHz; port 0 has additional jitter attenuation.
Data Rates	Dependent on such factors as data format, main board, and system variables.
Data Format (I/O)	**Ethernet** / **SONET (SDH)** / **ITU-T G.709** Port 0: 10GbE (10G BASE-R) / OC192 (STM64) / OTU2/2e/2f) Port 1: 1GbE (1000 BASE-T or -X) / OC3/12/48 (STM1/4/16) / OTU1 Port 2: 1GbE (1000 BASE-T or -X) / OC3/12/48 (STM1/4/16) / OTU1 Also provided is a time code input (to connect to an external source) for 1 pps, IRIG-B, or other input, with user-configurable output.
Data processing	SDDS (optional) is available; with this option, ports 1 and 2 SERDES should be configured for MGT.
SERDES	The FPGA MGT is capable of line rates of 750 Mb/s to 6.6 Gb/s — or, with 5x digital over sampling, 150 Mb/s to 750 Mb/s. Port 0: 10G LIU or optional MGT Port 1: SDH LIU or optional MGT Port 2: SDH LIU or optional MGT
Transceivers	Three (an optional SFP+ on port 0, and optional SFPs on ports 1 and 2) are available, supporting data as shown below.

PORT 0 (1 SFP+, optional)	**ELECTRICAL [none]**	**OPTICAL 10GbE, OC192 (STM64), OTU2/2e/2f 1550 nm**	**10GbE, OC192 (STM64), OTU2/2e/2f 1310 nm**	**10GbE only 850 nm**
Output power	–	0 to +4 dBm	–8.2 to 0.5 dBm	-5 to -1 dBm
Center wavelength	–	1530 to 1565 nm	1260 to 1355 nm	840 to 860 nm
Sensitivity	–	23 dBm	–10.3 dBm	–7.5 dBm
Maximum input power	–	–7 dBm	0.5 dBm	0.5 dBm
Connector	–	LC	LC	LC

PORTS 1 and 2 (1 SFP each, optional)	**1GbE**	**1GbE, OC3/12/48 (STM1/4/16), OTU1 1550 nm**	**1GbE, OC3/12/48 (STM1/4/16), OTU1 1310 nm**	**1GbE, OC3/12/48 (STM1/4/16), OTU1 850 nm**
Output power	–	–2 to 3 dBm	–9.5 to –3 dBm	–9 to –2.5 dBm
Center wavelength	–	1500 to 1580 nm	1270 to 1360 nm	830 to 860 nm
Sensitivity	–	–28 dBm	–18 dBm	–18 dBm
Maximum input power	–	–9 dBm	0 dBm	0 dBm
Connector	RJ45	LC	LC	LC

Connectors	One RJ45 or LC on each transceiver (as shown above), plus one 7-pin Lemo for time code input
Cabling	To 7-pin Lemo on board, from time code source, via one DB9 (for 1 pps or IRIG-B) or BNC (for IRIG-B only); for other cabling, consult EDT.
Physical	Weight / Dimensions — TBD / 6.6 x 4.2 x 0.75 in. (with a main board)
Environmental	Temperature (operating / non-operating) — 0° to 40° C / -40° to 70° C Humidity (operating / non-operating) — 1% to 90%, non-condensing at 40° C / 95%, non-condensing at 45° C
System and Software	For details on system requirements and EDT-provided software driver packages, see specifications for your EDT main board.

Ordering Options

- Main board: PCIe8 LX / FX / SX
- FPGA: XC6VLX240T / LX365T / SX315T / SX475T
- Data processing: SDDS / no SDDS
- SERDES: [options above]
- Transceivers: 0 / 1 / 2 / 3 [options above]
- Cabling (for time code input): DB9 / BNC

Bold is default. For more options, see main board detail. **Ask** about custom options.