

## Nallatech PCIe-395

FPGA Network Processing Card

The PCIe-395™ network processing card provides a powerful PCI Express computing and I/O platform for FPGA development and deployment across a range of application areas including Signal Intelligence, Network Security and Algorithm Acceleration.

The PCIe-395 features four SFP+ connectors supporting 1GbE, 10GbE, SONET/SDH and OTN via the PCI backplate. These network interfaces are directly coupled to an Altera Stratix V FPGA with high bandwidth DDR3 SDRAM and QDR-II+ memories.

The PCIe-395 is compatible with most high density server and blade platforms from leading vendors.



Four SFP+ network processing card featuring Altera Stratix V FPGA and memory



### Key features

- » PCI Express form factor
- » Altera Stratix V FPGA
- » Four SFP+ ports supporting a range of 1G and 10G protocols including 10GbE (LAN and WAN)
- » 8-lane PCI Express Gen 3 host interface
  - Up to 5.0 GB/s WRITE (system-to-card)
  - Up to 5.0 GB/s READ
- » Two independent banks of 18MB QDR-II+ SRAM
- » Four independent banks of 8GB DDR3 SDRAM

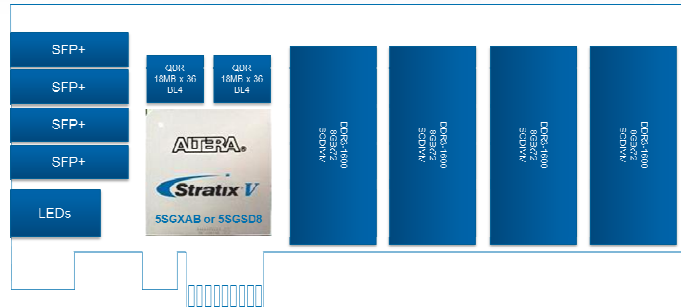
### Benefits

- » **Commercial-off-the-shelf (COTS) hardware**  
Shorten time to market and reduce risk
- » **Four SFP+ ports**  
Flexible network I/O compatible with a wide range of network interconnect
- » **PCI Express Gen 3**  
High performance, industry standard interconnect
- » **Altera Stratix V FPGA**  
Powerful processing capability with latest FPGA technology

## Nallatech PCIe-395

### FPGA Network Processing Card

#### Functional diagram



#### Full specification

##### Form Factor

- » Full-height, full-length PCI Express
- » 4.376 x 9.5 inches (111 x 241 mm)
- » Double-width PCI Express card

##### Processing

- » Altera Stratix V AB or D8
- » -2 speed grade
- » Please contact Nallatech for further information

##### Host Interface

- » 8-lane PCI-Express
- » Gen 3 capable
- » Up to 10GByte/sec sustained host bandwidth performance
- » Actual performance is host computer chipset and operating system dependant

##### DDR3 SDRAM memory

- » Four banks of DDR3 SDRAM x 72
- » 4 x 8GB @ 1600 MT/s standard

##### QDR-II SRAM memory

- » 2 independent 18MByte banks
- » 18-bit data bus per bank (no ECC)
- » Burst of 4
- » Data rate: 550MHz
- » Max. bandwidth per bank: 1.1MT/s

##### PCI backplate interfaces

- » Four SFP+ interfaces capable of supporting:
  - SONET/SDH (receive only)
  - 10G – OC192/STM64
  - 2.5Gb – OC48/STM16
  - 622M – OC12/STM4
  - 155M – OC3/STM1

- » OTN
  - 10Gb – OTU2/2e/1e/2f/1
  - 2.5Gb – OTU1

- » Status LEDs

##### FPGA Configuration

- » CPLD & Flash Engine
- » Allocation for user FPGA bitstream
- » Bitstream updates via Host software
- » Golden bitstream recovery
- » FPGA partial configuration via host (CVP)

##### Application Development

- » Supports multiple design flows including VHDL and Verilog
- » Compatible with Altera development tools and all major synthesis design flows

##### Firmware

- » Support for Altera MegaFunction IP:
- » PCIe interface IP and driver software
- » UniPHY DDR3 memory interface IP
- » 10 GbE PHY IP
- » PFL Parallel Flash Loader CPLD IP
- » NIOS flash controller IP in FPGA

##### Power Supply Monitoring & Reporting

- » Voltage and Current monitoring
- » Temperature monitoring
- » Fault condition reporting to FPGA

##### Electrical

- » On-card power derived from 3.3V and 12V PCIe slot
- » 6-pin GPU-style header for applications that need more power.
- » FPGA power dissipation is application dependent

##### Quality

- » Manufactured at our ISO9001:2000 certified facility to IPC-A-610-ClassIII workmanship standard
- » ROHS compliant

##### Cooling

- » Double-width active heatsink (embedded fan) standard
- » Passive heatsink optional

##### Environmental

- » Cooling: Air convection
- » Operating temperature: 0°C to 35°C
- » Storage temperature: -20°C to 80°C
- » Relative humidity: 45 to 95% (non-condensing)

#### Ordering and deliverables

##### Deliverables

- » PCIe-395 FPGA card
- » Built-In-Self-Test (BIST)
- » 30 days product maintenance (technical support, support lounge access)
- » 1 year hardware warranty

##### Ordering

- » Contact Nallatech for leadtime and pricing information

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