Nallatech PCIe-385
FPGA Network Processing Card

The PCIe-385™ low profile 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-385 features two 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 memory.

The PCIe-385 is compatible with most high density server and blade platforms from leading vendors.

Low profile dual SFP+ network processing card featuring Altera Stratix V FPGA and memory

Key features

» Low profile PCIe Gen 3 form factor
» Two independent banks of DDR3 SDRAM
» Two SFP+ capable of supporting:
  » SONET/SDH
    • 10G – OC192/STM64
    • 2.5Gb – OC48/STM16
    • 622M – OC12/STM4
    • 155M – OC3/STM1
  » OTN
    • 10Gb – OTU2/2e/1e/2f/1
    • 2.5Gb – OTU1 supporting 1GbE, 10GbE, SONET/SDH and OTN

Benefits

» Commercial-off-the-shelf (COTS) hardware
  Shorten time-to-market and reduce risk
» PCI Express
  Industry standard interconnect
» 8-lane Gen 3
  High performance host interface
» SFP+ network interfaces
  Support for multiple line rates and protocols
Nallatech FPGA Network Processing cards are available pre-integrated in server and blade platforms from leading vendors including:

Nallatech products are available pre-installed in HP servers through the HP 3PO program. Please visit www.nallatech.com/systems

Nallatech is an IBM Industry Solutions Reseller (ISR) and a member of the IBM IOEM program. Please visit www.nallatech.com/systems

Nallatech PCle-385 FPGA Network Processing Card

Functional diagram

- LEADS
- SFP+ Cage
- DDR3 SDRAM
- DDR3 SDRAM
- Altera Stratix V FPGA
- System Clocks
- Config FLASH
- FPGAs
- Two SFP+ interfaces capable of supporting:
  - SONET/SDH
  - 10G – OC192/STM64
  - 2.5Gb – OC48/STM16
  - 622M – OC12/STM4
  - 155M – OC3/STM1
  - OTN
  - 10Gb – OTU2e/1e/1e1
  - 2.5Gb – OTU1 supporting
  - 10GE, 10Gbe, SONET/SDH and OTN
  - LEADS & Micro JTAG header

PCI backplane interfaces

- Two SFP+ interfaces capable of supporting:
  - SONET/SDH
  - 10G – OC192/STM64
  - 2.5Gb – OC48/STM16
  - 622M – OC12/STM4
  - 155M – OC3/STM1

Electrical

- On-card power derived from 3.3V and 12V PCIe slot
- FPGA power dissipation is application dependent
- Please contact Nallatech for further information

Quality

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

Power Supply Monitoring & Reporting

- Voltage monitoring
- Temperature monitoring
- Fault condition reporting to FPGA

Ordering and deliverables

Deliverables

- PCle-385 FPGA card
- Built-In-Self-Test (BIST)
- Full and half-height PCI backplanes
- 30 days product maintenance (technical support, support lounge access)
- 1 year hardware warranty

Ordering

- Contact Nallatech for leadtime and pricing information

Cooling

- Single-width active heatsink (embedded fan) standard
- Passive heatsink optional
- Please contact Nallatech for further information

Environmental

- Cooling: Air convection
- Operating temperature: 0 °C to 50 °C
- Storage temperature: -20 °C to 80 °C
- Relative humidity: 45 to 95% (non-condensing)

Form factor

- Low profile, single width PCI Express card
- Half height, half length
- 2.713 x 6.6 inches

Processing

- Altera Stratix V A7: default configuration
- A4 & D5: supported configurations
- A3, A5, D3, D4: footprint compatible
- Please contact Nallatech for further information

DDR3 SDRAM memory

- Two Banks of DDR3 SDRAM x 72
- 2 x 4GB @ 1600 MT/s standard
- 2 x 8GB @ 1600 MT/s optional

Host interface

- 8-lane PCI-Express Gen 3
- Actual performance is host computer chipset and operating system dependent

Application Development

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

FPGA Configuration

- CPLD & Flash Engine
- Allocation for 2 bitstreams
- Bitstream updates via Host software
- Golden bitstream recovery
- FPGA partial configuration via host (CVP)
- Auto Recovery from bad user bitstreams
- User data space in flash memory

Firmware

- Support for Altera MegaFunction IP:
- PCI 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

Full specification

Nallatech is a subsidiary of Interconnect Systems Inc.

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