The PCIe-280™ accelerator card provides a powerful PCI Express computing platform for FPGA development and deployment across a range of application areas including signal intelligence, decryption and algorithm acceleration.

Customers deploying the PCIe-280 can increase application performance by harnessing up to 5GByte/sec of sustained host bandwidth.

An onboard Xilinx Virtex-5 user FPGA directly coupled to a high bandwidth, flexible memory configuration that includes ECC and parity protection.

Optimized memory controller IP cores and reference designs are included as part of the standard product deliverables along with driver and API source code for 64-bit Linux operating systems.

The PCIe-280 is compatible with almost all high density server and blade centre platforms from leading OEMs.

PCI Express 2.0 accelerator card featuring Xilinx Virtex-5 FPGA & Memory

Key features
- PCI Express form factor
- 8-lane PCI Express 2.0 host interface
  - Up to 2.5 GB/s WRITE (system-to-card)
  - Up to 2.5 GB/s READ
- Xilinx Virtex-5 user FPGA
- 2 independent banks of QDR-II SRAM
- Up to 2 independent banks of DDR2 SDRAM
- 32 card-to-card high speed serial links
- DIME-II expansion slot
- Linux 64-bit Operating System support

Benefits
» Commercial-off-the-shelf (COTS) hardware
  Shorten time to market and reduce risk
» PCI Express 2.0
  Industry standard interconnect
» 8-lane
  Ubiquitous high performance host interface
» Comprehensive suite of IP
  Invest time developing your algorithm, not interfaces

The Leader in FPGA Accelerated Computing
www.Nallatech.com / contact@nallatech.com
Full specification

Form factor
- Single width PCI Express card
- 5.426 x 9.652 inches

Processing
- Xilinx Virtex-5 LX330T-2 or LX220T-2 user FPGA
- Please contact Nallatech for other supported FPGAs options
- Compatible DIME-II modules include DATA-V5 and BenADDA-16

SRAM memory
- 18 MB QDR-II SRAM
- Two independent 9 MB banks
- Two 36-bit data buses per bank
- ECC and Parity support
- Operating frequency: 250 MHz
- Max. bandwidth per bank: 4 GB/s
- Max. total bandwidth: 8 GB/s
- QDR-II SRAM controller IP core included

SDRAM memory
- 1GB DDR2 SDRAM
- Two independent 512 MB banks
- 36-bit data bus
- ECC and Parity support
- Operating frequency: 250 MHz
- Max. bandwidth per bank: 2 GB/s
- Max. total bandwidth: 4 GB/s
- Auto refresh capable
- DDR2 SDRAM controller IP core included

Host interface
- 8-lane PCI-Express 2.0
- Up to 5GB/s total Host bandwidth
- Actual performance is host computer chipset and operating system dependent
- PCIe host interface IP core included

Card-to-Card Links
- 32 GTP links operating at 2.5Gbps
- 8 GTPs connected to onboard user FPGA
- 8 GTPs connected to DIME-II expansion slot

PCI backplate interfaces
- LEDs
- Micro JTAG header
- Additional PCI backplane I/O possible via compatible DIME-II modules

Application Programming Interface (API)
- NallaLIB API for 64-bit Linux
- Runtime FPGA programming, hardware control, and application communication

Application development software
- Supports multiple design flows including VHDL and Verilog
- Compatible with Xilinx ISE and all major synthesis design flows
- Access to micro JTAG header via backplate for Chipscope and iMPACT

Electrical
- On-card power derived from 3.3V and 12V
- FPGA power dissipation is application dependent
- 6-pin GPU-style header for applications that need more power. Please contact Nallatech for further information

Quality
- Manufactured to IPC610-Class 2 standard.
- Designed and Supplied to ISO9001:2000 certification
- ROHS compliant

Cooling
- Available with either active (chipfan) or passive (heatsink) cooling.
- Default is double width active chipfans
- Passive heatsink option requires forced-air cooling
- 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)

Ordering and deliverables

Deliverables
- PCIe-280
- Product DVD
- NallaLIB API and documentation
- IP cores (including VHDL source)
- 30 days product maintenance (technical support, support lounge access)

Ordering
- Contact Nallatech for leadtime and pricing information

Technical specifications (e.g. FPGA type, size, external memory capacity etc.) can be modified to meet the exact needs of commercial customer applications as off-the-shelf product available to the general market.