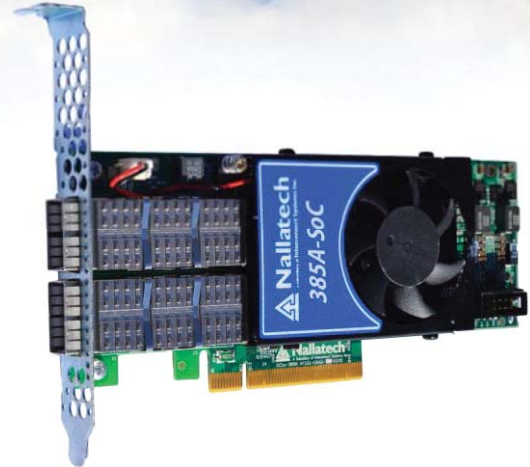# 385A-SoC
System-on-Chip FPGA Accelerator Card

The 385A-SoC™ low profile accelerator card provides a powerful computing and I/O platform for FPGA and ARM-based development and deployment across a range of application areas including High Performance Computing, Image Processing and Network Analytics.

The 385A-SoC is an 8-lane PCIe Gen 3 card featuring an Altera Arria 10 SoC FPGA and DDR4 SDRAM external memory.

Two QSFP network ports enable support for a range of high speed serial I/O protocols (40GbE, 10GbE, 1GbE, Common Public Radio Interface and Fiber Channel) with speeds up to 40Gbps.
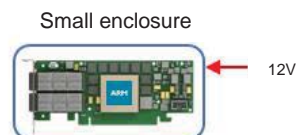
ARM-Based FPGA/SoC Delivers Optimal Performance at Low Cost for Real-Time Applications

Application Use Cases
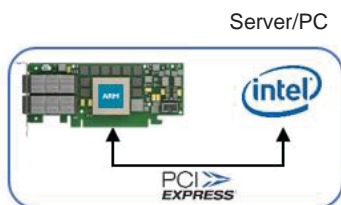
Server/PC

» **PCIe-attached**
- Use the 385A-SoC integrated in a server/PC
- FPGA/SoC is tightly coupled to the host processor via PCIe
- Off-load compute and I/O functions to the FPGA and ARM processors

Small enclosure

12V

» **Stand-alone**
- Use the 385A-SoC as a stand-alone instrument, unattached to a PCIe Host
- Card is mechanically hosted in a small enclosure
- Power is applied to the enclosure via the 12V AUX connector
- OS (including RTOS) executes on an embedded ARM processor
- Up to 1TB of mass storage using two solid state disks (SSD)

The Leader in FPGA Accelerated Computing

Nallatech
a molex company

Specification Highlights

Form factor

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

Processing

» Altera Arria 10 SX F34 package
» Default configuration: SX 660, speed grade 2

DDR4 SDRAM memory (FPGA)

» One bank of DDR4 SDRAM x 72 for FPGA fabric
» 4GB @ 2133 MT/s

DDR4 SDRAM memory (ARM processors)

» One bank of DDR4 SDRAM x 40 for ARM processors
» 2GB @ 2133 MT/s

Host interface

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

Application Development

Electrical

» Supports multiple design flows including HDL

» On-card power derived from 12V PCIe slot or AUX connector (when used in stand-alone mode)

» FPGA power dissipation is application dependent

Quality

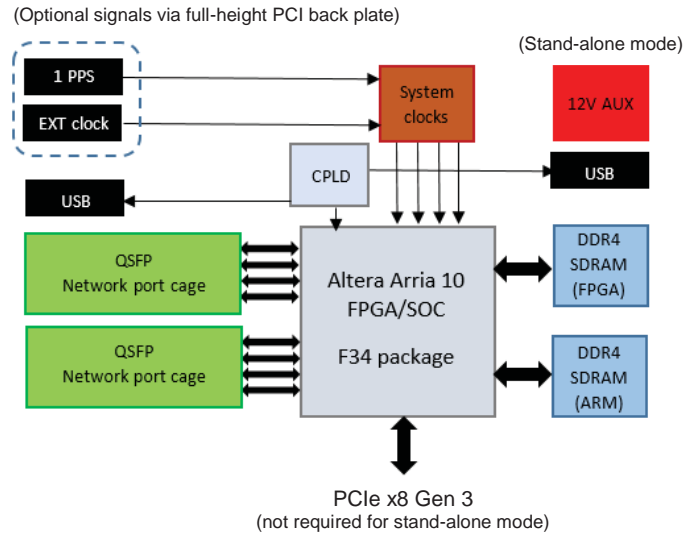» Manufactured to ISO9001:2000 IPC-A-610-Class III
» ROHS compliant

Power Supply Monitoring & Reporting

» On-board Altera USB Blaster
» Voltage monitoring
» Temperature monitoring
» Fault condition reporting to FPGA

High Speed Serial IO interfaces

» Two QSFP supporting datarates up to 40 Gbps
» Default clocking support: 40GbE, 10GbE, 1GbE, CPRI and Fiber Channel

Functional Diagram

(Optional signals via full-height PCI back plate)

(Stand-alone mode)

PCIe x8 Gen 3
(not required for stand-alone mode)

Cooling

» Standard: single-width active heatsink (embedded fan)
» Optional: Passive heatsink

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)

Deliverables

» 385A-SoC FPGA card
» Built-In-Self-Test (BIST)
» Full and half-height PCI back plates available
» 1 year access to online support lounge
» 1 year hardware warranty

Nallatech accelerator cards are available pre-integrated in server platforms from leading vendors. Nallatech also offers application porting and optimization services. Please visit www.nallatech.com