VPX-REDI
(OpenVPX)

BA 9TR/301-RCx
RCx - Series

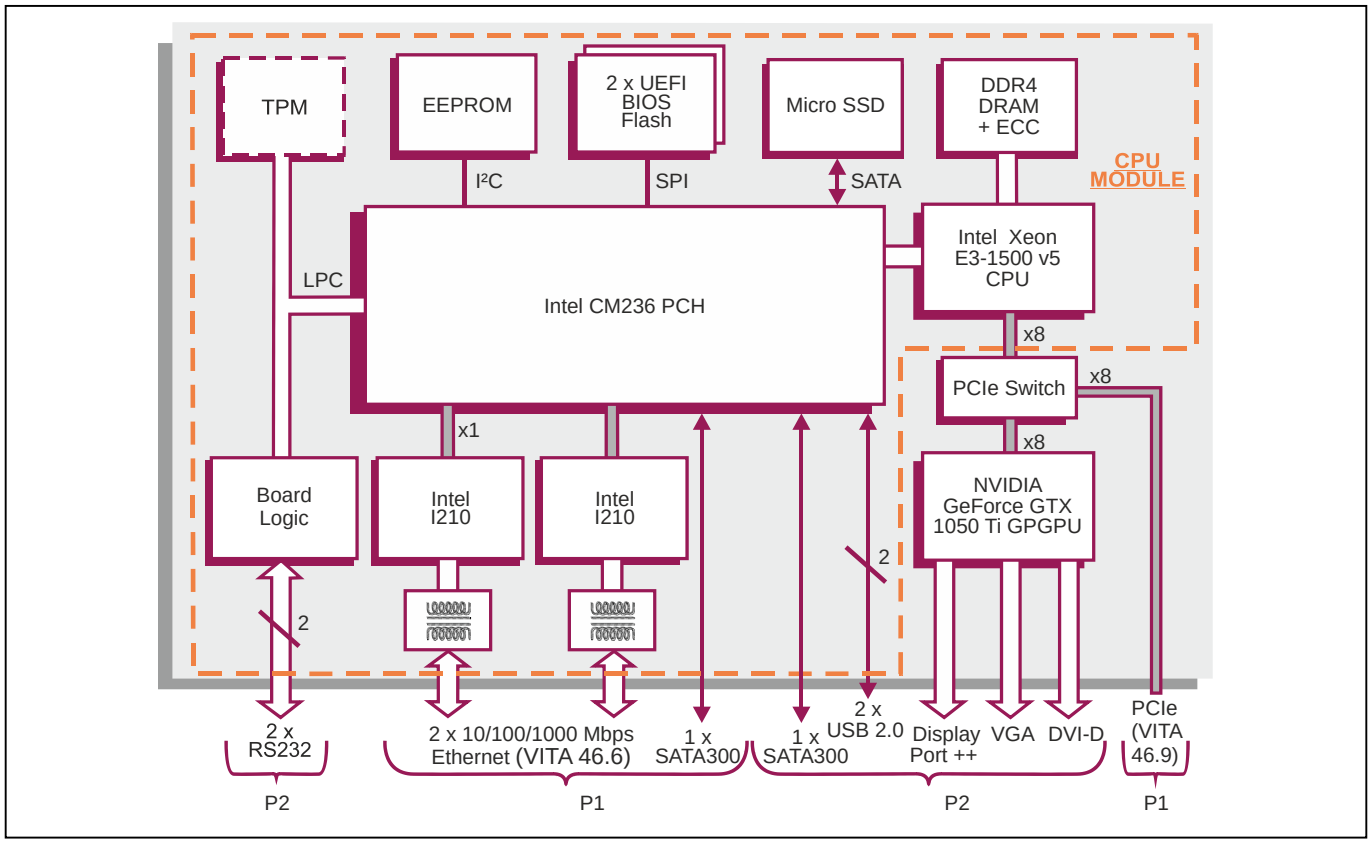
Rugged 3U VPX™ GPGPU Processor

Key Features

BA 9TR/301-RCx is a 3U VPX™ GPGPU board with a total of 2.29 TFLOPs floating point performance within a single slot. Included is an Intel® Xeon® processor E3-1505L v5 for control, storage and management capability.

- NVIDIA® GeForce® GTX 1050 Ti GPGPU with 4GB GDDR5
- Intel® Xeon® processor E3-1505L v5 with 64GB on board storage and 8GB DDR4 ECC DRAM
- x8 Gen 2 PCI Express® for data plane expansion
- VPX-REDI Type 1, Two Level Maintenance (2LM)
- Support for Linux® and Windows®

Photo shows 2LM cover removed



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Specification

Rugged VPX GPGPU and CPU Board

- rugged 3U VPX™ GPGPU board tightly coupled with an in-board CPU module
- single VPX slot
- optional Rear Transition Module (RTM) for bench use only

General-Purpose Graphics Processing Unit

- the GPGPU is implemented by an NVIDIA® GeForce® GTX 1050 Ti device:
  - based on the NVIDIA® Pascal™ GP107 GPU
  - 768 CUDA® cores
  - 4GB GDDR5 (112 GB/s)
  - giving 2.29 TFLOPs of floating-point performance
- support for CUDA® 6.1 or OpenCL™ 1.2
- accessible to the CPU module or VPX™ fabric via the on-board Data Plane switch

Central Processor Unit Module

- the CPU module is based on a 4-core Intel® Xeon® processor E3-1505L v5:
  - 8 Mbytes Smart Cache, 2.0 GHz
  - utilizes the Intel® CM236 Platform Controller Hub
- 8GB soldered DDR4 ECC DRAM:
  - single bit error correction
  - dual channel architecture
- the CPU module is implemented via an XMC processor module (factory fitted)

Graphics Interfaces

- three independent display interfaces implemented by the GPU
- 1 x DisplayPort™ ++ interface via P2:
  - 4K Ultra High Definition
  - resolutions up to 3840 x 2160
- 1 x DVI-D interface via P2:
  - up to 1920 x 1200 @ 60 Hz
- 1 x VGA interface via P2:
  - up to 1920 x 1200 @ 60 Hz
- support for DirectX 12 and OpenGL 4.6

Mass Storage Interfaces

- 2 x SATA300 interfaces:
  - one via P1 and one via P2
- 64GB soldered Micro SSD
- implemented by the CPU module

Serial Ports

- 2 x RS232 serial ports via P2:
  - supports Tx and Rx for both ports
  - 16550 compatible UARTs
- implemented by the CPU module

Other Peripheral Interfaces

- PC RTC, long duration timer, watchdog timer
- 2 x USB 2.0 ports via P2
- implemented by the CPU module

VPX Control Plane, Ethernet

- Ethernet Control Plane (VITA 46.6) providing 2 x 10/100/1000 Mbps Ethernet ports:
  - 10BASE-T, 100BASE-TX, 1000BASE-T
  - on-board magnetics (50V isolation)
- support for IEEE I588 precision clock
- implemented by the CPU module

VPX Data Plane, PCI Express

- PCI Express (PCIe®) VPX Data Plane fabric interface (VITA 46.4) supports:
  - 1 x8 PCIe port
  - Gen 1 and Gen 2
- the Data Plane switch supports 1 x8 PCIe ports to both the GPGPU device and the CPU module
- the CPU module only operates as a root complex

CPU Module Built-In Test (BIT) Support

- option: Power-on BIT, Initiated BIT, Continuous BIT

CPU Module Security Features

- option for Trusted Platform Module (TPM 2.0)
- option for Sanitization Utility Software Package

CPU Module Firmware Support

- UEFI boot firmware (BIOS):
  - UEFI 2.4 support
  - EDK II support
  - includes Compatibility Support Module
  - implements Secure Boot
- implements Intel® Boot Guard
- LAN boot firmware included

CPU Module Non-Volatile Memory

- dual 16 Mbytes of BIOS Flash EEPROM

Software Support

- supports Linux® and Windows®

Safety

- PCB (PWB) manufactured with flammability rating of UL94V-0

Electrical Specification

- the board's maximum power consumption is 100W

Environmental Specification

- conduction-cooled board (VITA 48.2)
- operating temperature at card edge:
  - VITA 47 Class CC4, -40°C to +85°C
- non-operating temperature:
  - VITA 47 Class C4, -55°C to +105°C
- operating altitude:
  - -1,000 to 50,000 feet (-305 to 15,240 meters)
- relative humidity:
  - 5% to 95%, non-condensing

VPX Mechanical Specification

- 3U VPX form-factor (VITA 46.0, VITA 48.0):
  - 3.9 inches x 6.3 inches (100mm x 160mm)
- slot width (VITA 48.0):
  - 0.85 inches VPX-REDI Type 1, RCS-Series, Type 1 Two Level Maintenance (VITA 48.2)
- connectors to VITA 46.0 for P0, P1 and P2
- operating mechanical:
  - shock - VITA 47 Class OS2, 40g
  - random vibration - VITA 47 Class V3, 0.1g²/Hz

Please contact your local Concurrent Technologies sales office for further details on board build options and accessories.