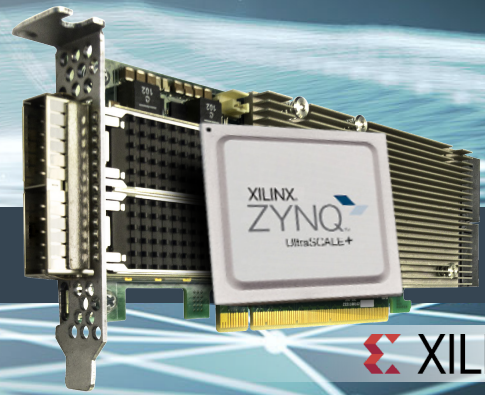


::NEW PRODUCT

Nallatech **250-SoC**

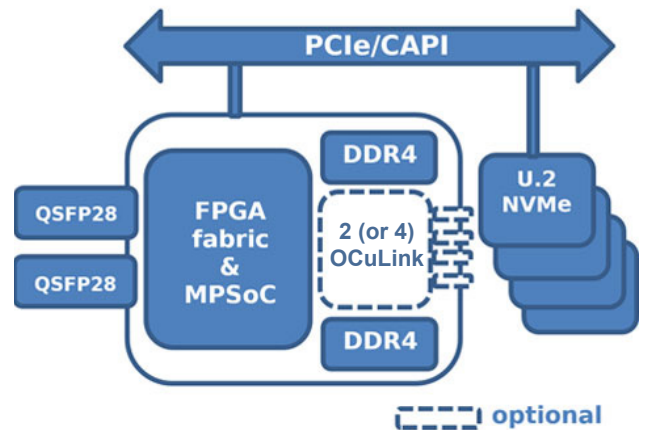
Directly Attached Accelerator (DAA)
NVMe-over-Fabric (NVMe-oF)



The 250-SoC enables the creation of remote, disaggregated storage or Ethernet Just-a-Bunch-of-Flash (EJBOF) to dramatically reduce the storage cost, footprint and power within data centers.

The 250-SoC features a Xilinx Zynq UltraScale+ FPGA/MPSoC device featuring both FPGA fabric and 64-bit ARM processors. This powerful, feature-rich device coordinates data transfer between two 100GbE network ports, on-board DDR4 memory and a PCIe Gen 3 host interface.

This innovative storage product is available either fully-programmable or as a pre-programmed solution featuring Xilinx NVMe-over-Fabric IP. This optimized design implements the NVM Express-over-Fabrics protocol offload and RDMA NIC protocol. This turnkey solution provides reliable transport of NVMe frames with low latency, high throughput, and massive scalability to remote hosts.



Enables reliable transport of NVMe frames with low latency and high throughput to remote hosts



» Accelerating High Level Design

- Vivado HLx Editions supply design teams with the tools and methodology needed to leverage C-based design and optimized reuse
- Includes IP sub-system reuse, integration automation and accelerated design closure
- When coupled with the UltraFast™ High-Level Productivity Design Methodology Guide, this unique combination is proven to accelerate productivity
- It enables designers to work at a high level of abstraction while facilitating design reuse

Directly Attached Accelerator (DAA) & NVMe-over-Fabric (NVME-oF)

Form Factor

- » Half-Height, Half-Length PCI Express compliant card
- » Full-Height PCI bracket options

Host Interface

- » 16-lane mechanical PCI-Express Gen3 capable
- » Configurable as x16 up to Gen3, or two x8 PCIe
- » Actual performance is host chipset & OS dependent

Processing

- » Xilinx Zynq UltraScale+ ZU19EG FFVD1760 package
- » Core speed grade -2
- » Application ARM: Quad-core Cortex-A53 MPCore 1.5GHz
- » Real-Time ARM: Dual-core Cortex-R5 MPCore 600MHz
- » Graphics Processor: Mali-400 MP2
- » Contact Nallatech for other MPSoC options

DDR4 SDRAM FPGA Fabric Memory

- » One FPGA fabric 4GB bank of DDR4 SDRAM x 72 bits
- » Transfer Rate: 2400 MT/s

DDR4 SDRAM MPSoC Memory

- » One MPSoC 4GB bank of DDR4 SDRAM x 72 bits
- » Transfer Rate: 2400 MT/s

Application Development

- » Vivado Design Suite HLx Editions: HDL & C/C++ w/HLS

Two QSFP28 Network Ports (Front Panel)

- » Two 4-25Gbps-lane QSFP28 cages accessible from front panel
- » Flexible low jitter clocking supporting multiple network & telecoms standards – 100/40/10 GbE, CPRI, Fiber Channel, etc.
- » Each QSFP28 independently clocked, user programmable
- » Network recovered with jitter attenuation (option)

Two (or four) OcuLink High-Speed Serial Interfaces (Back Panel)

- » One 8-25Gbps-lane OcuLink connectors from back panel
- » One 8-16Gbps-lane OcuLink connectors from back panel
- » Flexible configuration: NVMe, PCIe, 100/40/10 GbE, OpenCAPI
- » Two addt'l optional 8-lane OcuLink connectors (25 & 16Gbps)

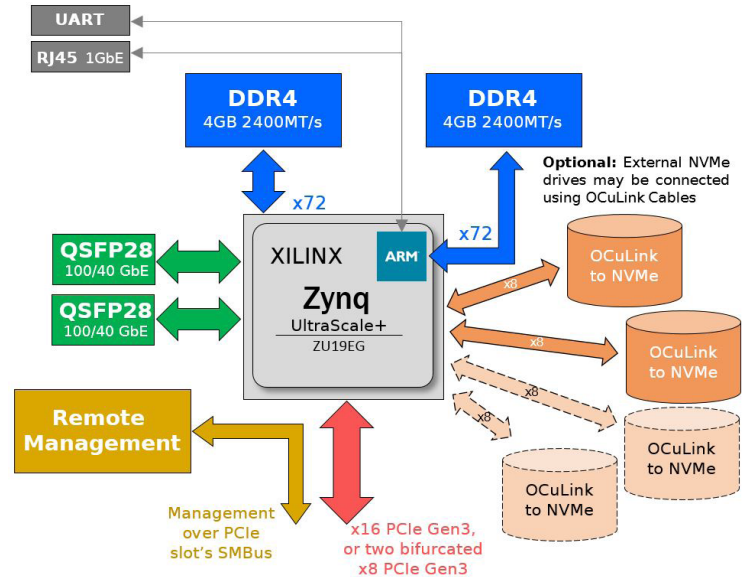
Board Control (Available on Full-Height Front Panel)

- » RJ45 1GbE access to the ARM processor
- » USB connector for UART to ARM processor

Datacenter Deployment, Health Monitoring & Reporting

- » On-board power, voltage & temperature monitoring
- » Field flash update via software
- » SMBus controlled anti-bricking, fallback & multiboot

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



- » SMBus access to unique board data and temperature sensor

Electrical

- » On-card power derived from PCIe slot supplies
- » Power dissipation is application dependent
- » Typical FPGA power consumption ~50W
- » Card designed to deliver up to 75W power consumption

Quality

- » Manufactured to ISO9001:2008 IPC JSTD-001-Class III
- » RoHS compliant

Environmental

- » Cooling: active and passive heatsink options
- » Operating temperature: 5°C to 35°C

Deliverables

- » 250-SoC FPGA card
- » Built-In-Self-Test (BIST)
- » 1-year access to online support lounge
- » 1-year hardware warranty

Nallatech's PCIe compliant FPGA boards rely on the host's cooling capabilities to stay within its acceptable operating temperature limits.

The user must make sure that the FPGA application is designed within the power limits documented by Nallatech and that sufficient cooling is provided to make sure the maximum FPGA die temperature is 15C below the maximum operating limit. Nallatech recommends that users perform a thermal characterization of their application in their system to meet these requirements.

Application optimization: Sky Blue and Zerif provides consultancy services assisting customers in the porting, optimization and benchmarking of applications executed on Nallatech FPGA accelerators.

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