::NEW PRODUCT

Nallatech 250S+
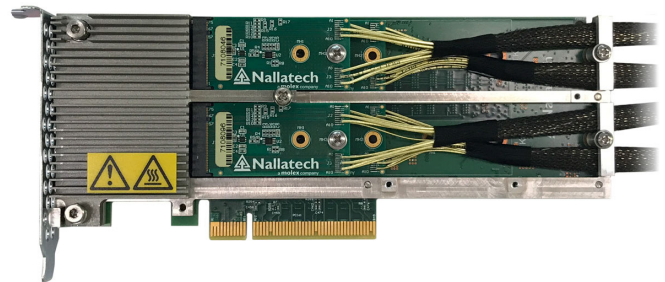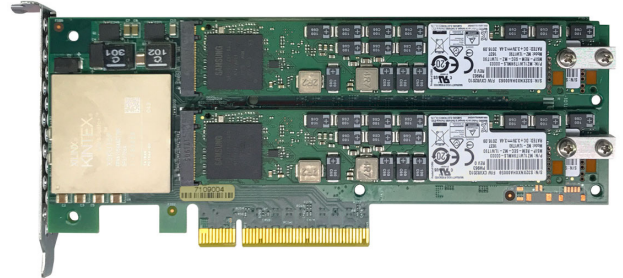## Near-Storage FPGA Accelerator

The 250S+ is a high performance PCIe-based Flash SSD with localized FPGA acceleration capability.

- **8-lane PCIe Gen 4 card**
- **(1) Xilinx KU15P Ultrascale+ FPGA**
- **(4) M.2 NVMe SSDs or Cables**
- **(1) bank of local DDR4 or MRAM memory**

Designed to address datacentric and distributed compute algorithms

- **Database Acceleration**
- **Inline Compression**
- **Inline Encryption**
- **Checkpoint Restarting**
- **Burst Buffer Caching**

Fully Programmable, Inline Storage FPGA Accelerator with Multiple M.2 NVMe SSDs

SSD SPECIFICATIONS	3.84TB Version	6.4TB Version	25.6TB Cabled
# of M.2 NVMe SSDs	4	4	4
Storage Capacity (TB)	3.84	6.4	25.6
Available Cables	-	-	OCULink or MiniSAS-HD
Data Transfer Rate (128KB data size)			
- Sequential Read (GB/s)	7.2	8.0	13.2
- Sequential Write (GB/s)	3.52	5.6	11.8
Data I/O Speed (4KB data size, sustained)			
- Random Read (KIOPS)	1400	1720	3200
- Random Write (KIOPS)	120	132	640
Latency (Sustained workload)			
- Random Read/Write (typical)	85/50us	85/50us	90/20us
- Sequential Read/Write (typical)	15/15us	15/15us	90/20us
Endurance DWPD Drive Writes Per Day	1.3 (3 years)	10 (5 years)	5 (5 years)

Form Factor
» Single or double width PCI Express card
» Half Height, Half Length (HHHL)
» 2.713 x 6.6 inches

Host Interface
» 8-lane PCI-Express Gen 4
» Actual performance is host computer chipset and operating system dependent

Processing
» Xilinx Ultrascale device in FFVA1156 package
» Default configuration: KU15P, speed grade 2

DDR4 SDRAM Memory
» One bank of DDR4 SDRAM x 80 for FPGA fabric
» 4GB @ 2400 MT/s

Application Development
» Contact Nallatech

Electrical
» On-card power derived from 12V PCIe slot
» FPGA power dissipation <35W

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

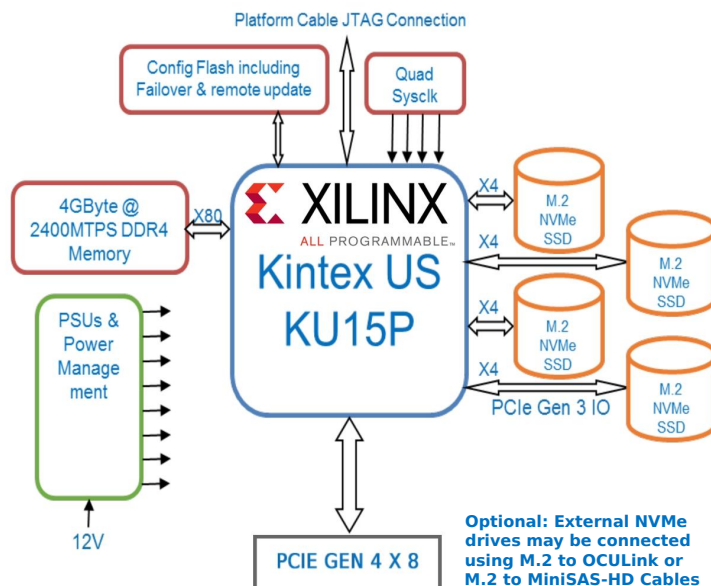## Power Supply Monitoring & Reporting
» Voltage monitoring
» Temperature monitoring
» Fault condition reporting to FPGA

Ordering codes / model numbers:
250S-15P2-4004-0P – 250S+ Only
250S-15P2-4004-4P – 250S+ fitted with 4x OCULink cables
250S-15P2-4004-5P – 250S+ fitted with 4x MiniSAS-HD cables
250S-15P2-4094-0P – 250S+ fitted with 4x 960GB NVMe SSD Sticks
250S-15P2-4194-0P – 250S+ fitted with 4x 1.92TB NVMe SSD Sticks

Optional: External NVMe drives may be connected using M.2 to OCULink or M.2 to MiniSAS-HD Cables

Cooling
» Standard: double width passive heatsink
» Optional: Contact Sky Blue for alternative cooling

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
» 250S+ FPGA card
» (4) M.2 NVMe SSD Sticks or Cables
» Built-In-Self-Test (BIST)
» Standard full and optional half-height PCI brackets are available
» 1 year access to online support lounge
» 1 year hardware warranty

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.

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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