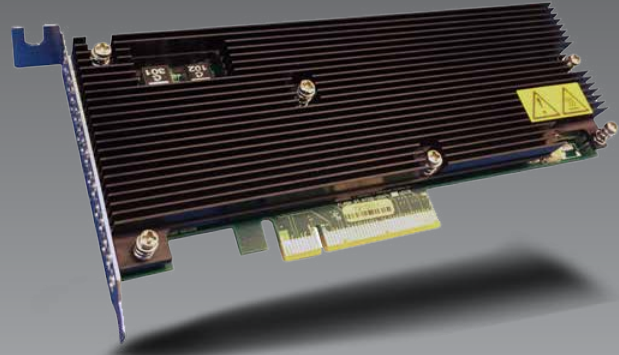**BittWare**
a molex company

**250S+**
FPGA PCIe Card

# Near Storage Accelerator with Kintex FPGA
## Directly Attached Accelerator & Proxy In-Line Accelerator

The 250S+ is a fully-programmable NIC-sized near-storage accelerator featuring a Xilinx UltraScale+ Kintex FPGA. This PCIe Gen 3-capable accelerator card can be added to PCIe or CAPI-enabled server platforms introducing an energy-efficient acceleration capability for applications including:
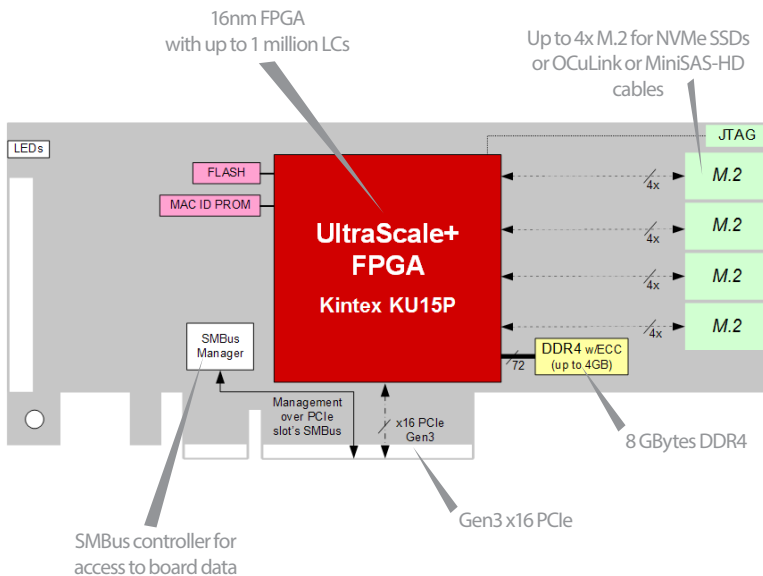
- Database Acceleration
- In-line Compression/Encryption
- Checkpoint Restarting
- Burst Buffer Caching

The 250S+ is available with a choice of two configurations: up to four M.2 NMVe SSDs coupled on-card to the Xilinx FPGA, OCuLink or MiniSAS-HD break-out cabling allowing the 250S+ to be part of a massively scaled storage array.

X86/IBM P9 Host

PCIe/CAPI

FPGA

M.2 NVMe
M.2 NVMe
M.2 NVMe
M.2 NVMe

4x OCuLink or MiniSAS HD

Optional
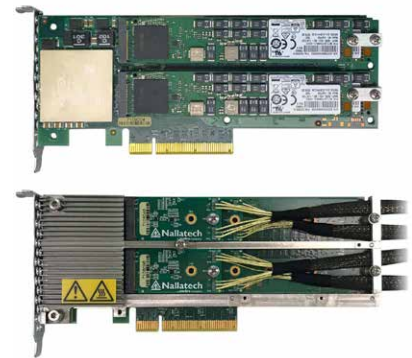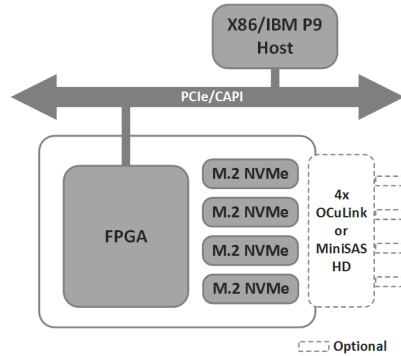
## key features

| Up to **4x NVMe** drives | Up to **8 GBytes** DDR4 | KU15P FPGA: **1.1 million LCs** Kintex UltraScale+ |

16nm FPGA with up to 1 million LCs

Up to 4x M.2 for NVMe SSDs or OCuLink or MiniSAS-HD cables

LEDs

JTAG

FLASH

MAC ID PROM

UltraScale+ FPGA
Kintex KU15P

M.2
M.2
M.2
M.2

4x

SMBus Manager

DDR4 w/ECC (up to 4GB)

72

Management over PCIe slot's SMBus

x16 PCIe Gen3

8 GBytes DDR4

SMBus controller for access to board data

Gen3 x16 PCIe

### 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

**VIVADO**
HLx Editions

# Additional Services

Take advantage of BittWare's range of design, integration, and support options

### Customization
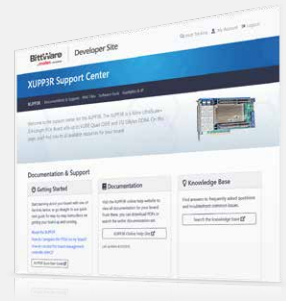Additional specification options or accessory boards to meet your exact needs.

### Server Integration
Available pre-integrated in our TeraBox servers in a range of configurations.

### Application Optimization
Ask about our services to help you port, optimize, and benchmark your application.

### Service and Support
BittWare Developer Site provides online documentation and issue tracking.

## Specifications

| | |
|---|---|
| FPGA | • Xilinx Kintex UltraScale+<br>   • KU15P in a FFVA1156 package<br>   • Core speed grade -2<br>• Contact BittWare for other FPGA options |
| On-board DDR4 SDRAM | • One bank of DDR4 SDRAM x80 bits<br>• 8GB per bank (4GB version also available)<br>• Transfer Rate: 2400 MT/s |
| Host interface | • x8 mechanical PCIe Gen3 |
| Storage options | • Four on-board 960GB NVMe SSD sticks<br>• Four OCuLink cables<br>• Four MiniSAS-HD cables |
| Power supply monitoring & reporting | • Voltage monitoring<br>• Temperature monitoring<br>• Fault condition reporting to FPGA |
| Cooling | • Single-width passive heatsink for FPGA power up to 25W<br>• Double-width passive heatsink for FPGA power up to 50W |

| | |
|---|---|
| Electrical | • On-card power derived from PCIe slot supplies<br>• Power dissipation is application dependent<br>• Typical FPGA power consumption ~25-50W |
| Environmental | • Operating temperature: 5°C to 35°C |
| Quality | • Manufactured to ISO9001:2008 IPC JSTD-001 -Class III<br>• RoHS compliant |
| Form factor | • Half-height, half-length PCIe board<br>• Dimensions: 167.7 mm x 68.9 mm<br>• Single or double-width option<br>• Full-height PCI bracket option |

## Development Tools

| | |
|---|---|
| FPGA development | • BIST - Built-In Self-Test for CentOS 7 provided with source code (pinout, gateware, PCIe driver and host test application) |
| Application development | • Xilinx Tools - Vivado Design Suite HLx Editions: HDL and C/C++ with HLS<br>• OpenPOWER CAPI SNAP 2.0 for POWER9 |

## Deliverables

• 250S+ FPGA board
• Built-In Self-Test (BIST)
• 1-year access to online Developer Site
• 1-year hardware warranty

To learn more, visit **www.BittWare.com**

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