

# BittWare XUP-P3R PCIe Card

The BittWare XUP-P3R is a 3/4-length PCIe x16 card based on the AMD Virtex UltraScale+ FPGA.

The UltraScale+ devices deliver high-performance, high-bandwidth, and reduced latency for systems demanding massive data flow and packet processing. The board offers memory configurations supporting QDR-II+ and DDR4, sophisticated clocking and timing options, and four front panel QSFP cages, each supporting up to 100 Gbps (4x25) - including 100GbE.

The XUP-P3R also incorporates a Board Management Controller (BMC) for advanced system monitoring, which greatly simplifies platform integration and management. All of these features combine to make the XUP-P3R ideal for a wide range of data center applications, including network processing and security, acceleration, storage, broadcast, and SigInt.



## FEATURES AND ADVANTAGES

### 4x 100GbE via 4 QSFP28

Ideal for network-intensive applications

### Up to 64 GBytes DDR4

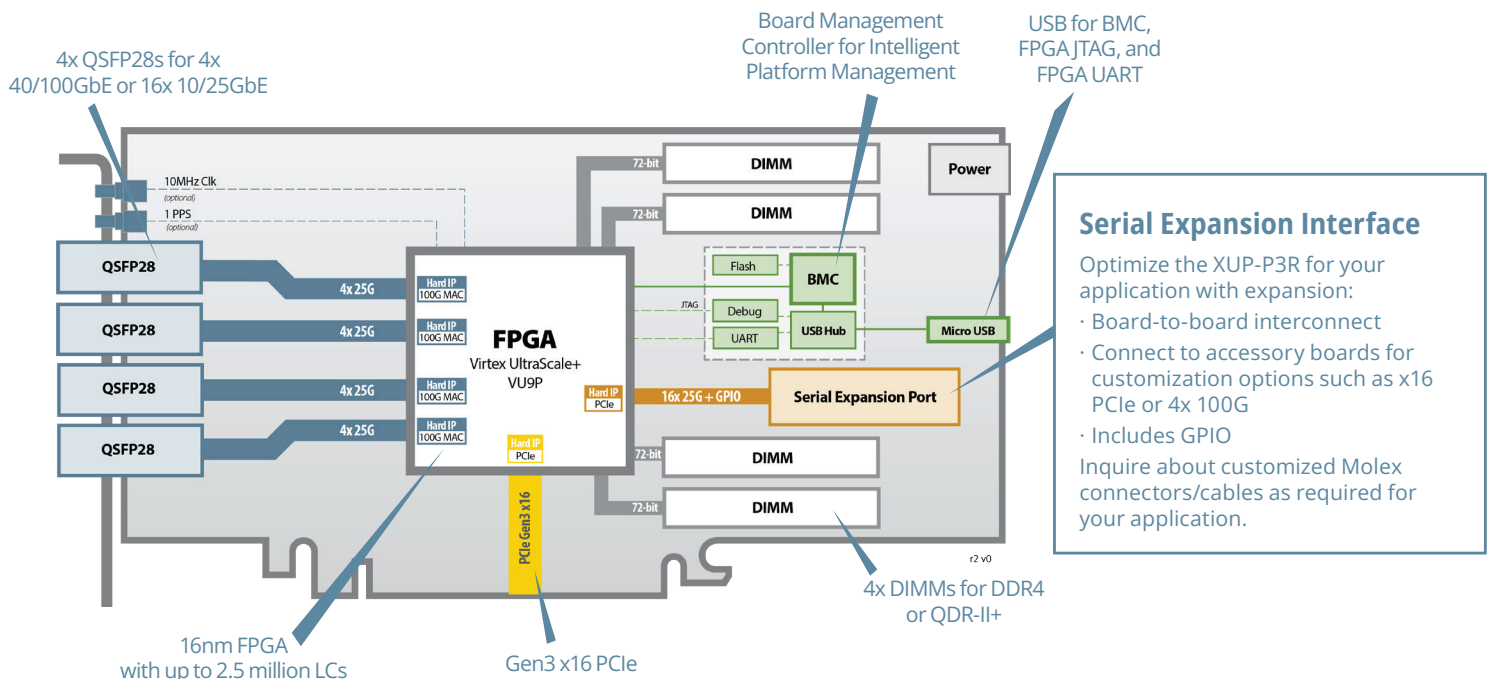
Large pool of off-chip memory

### Up to VU9P: 2.5 million LCs FPGA by AMD

Powerful FPGA resources

### Expansion options

SEP interface for accessory boards



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## SYSTEM SPECIFICATIONS

### FPGA

- Virtex UltraScale+
  - VU9P
  - Core speed grade - 2
- Contact BittWare for additional FPGA options

### External memory

- 4 DIMM sites, each supporting\* :
  - Up to 16 GBytes DDR4 x72 with ECC
  - Up to 576 Mbits dual QDR-II+ x18 (2 independent 288 Mbit banks)

### Host interface

- x16 Gen3 interface direct to FPGA

### USB header

- Micro USB: (USB 2.0) for debug and programming FPGA and Flash

### Serial expansion port (SEP)

- Expansion interface to FPGA via 20x GTY transceivers (optional; requires second slot)
- 14x GPIO signals to the FPGA

### QSFP cages

- 4 QSFP28 (zQSFP) cages on front panel connected directly to FPGA via 16 transceivers
- Each supports 100GbE, 40GbE, 4x 25GbE, or 4x 10GbE and can be combined for 400GbE

### On-board Flash

- Flash memory for booting FPGA

### Board Management Controller

- Voltage, current, temperature monitoring
- Power sequencing and reset
- Field upgrades
- FPGA configuration and control
- Clock configuration
- I<sup>2</sup>C bus access
- USB 2.0
- Voltage overrides

### Cooling

- Standard: double-width active fan and heatsink
- Optional: double-width passive heatsink
- Optional: double-width advanced passive cooling with heatpipes

### Electrical

- On-board power derived from 12V PCIe slot & an AUX connector (6-pin)
- Power dissipation is application dependent

### Environmental

- Operating temperature 5°C to 35°C

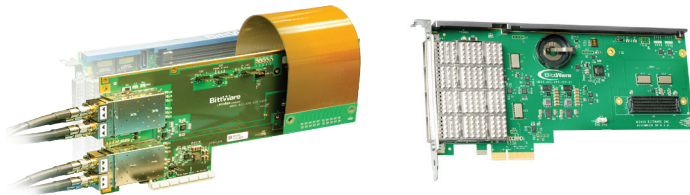
### Size

- ¾-length, standard-height PCIe dual-slot card
- 111.15mm x 241.30mm (4.376in x 9.500in)

### MPN

- XUPP3R-0072

\* DIMM sites 1/2 and sites 3/4 must have the same memory type, or be empty.



Optional accessory boards provide customization options such as x16 PCIe, 4x 100G, or video transceivers.

## DEVELOPMENT TOOLS

### System development

- **BittWorks II Toolkit** - host, command, and debug tools for BittWare hardware

### FPGA development

- **FPGA Examples** - example Vivado projects, available with the BittWorks II Toolkit
- **AMD Tools** - Vivado® Design Suite

## SAFETY & COMPLIANCE

- CE (Europe) EN55032:2015/A11:2020 / EN55024:2010 / EN55035:2017 / EN61000-3-2:2014 / EN61000-3-3:2013
- UKCA (United Kingdom) BS EN55032:2012/AC:2013 / BS EN55024:2010 / BS EN55035:2017 / BS EN61000-3-2:2014 / BS EN61000-3-3:2013
- ICES (Canada) ICES-003 Issue 7
- The safety objectives referred to in Article 3 and set out in Annex I of DIRECTIVE 2014/35/EU have been fulfilled
- RoHS compliant to the 2011/65/EU + 2015/863 directive



Embedded  
Partner  
Network

PLATINUM

To learn more, visit [bittware-molex.com](http://bittware-molex.com)

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