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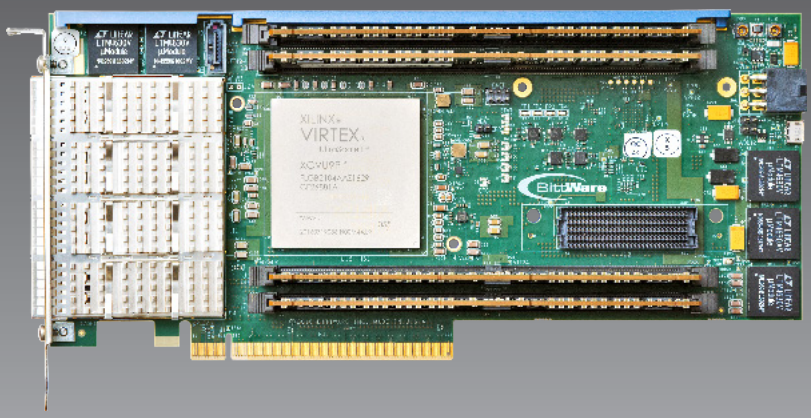
XUP-P3R

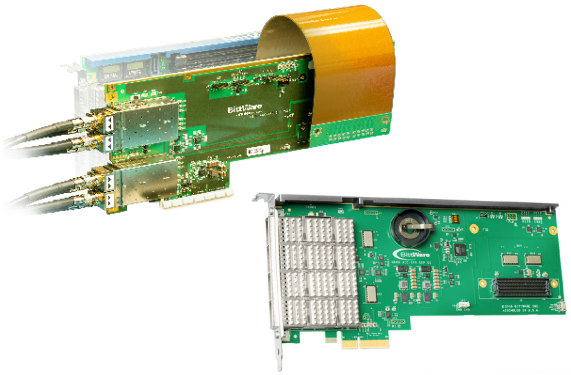
PCIe FPGA Card



UltraScale+ PCIe board with Quad QSFP and 512 GBytes DDR4

BittWare's 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 extensive memory configurations supporting up to 512 GBytes of memory, 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.



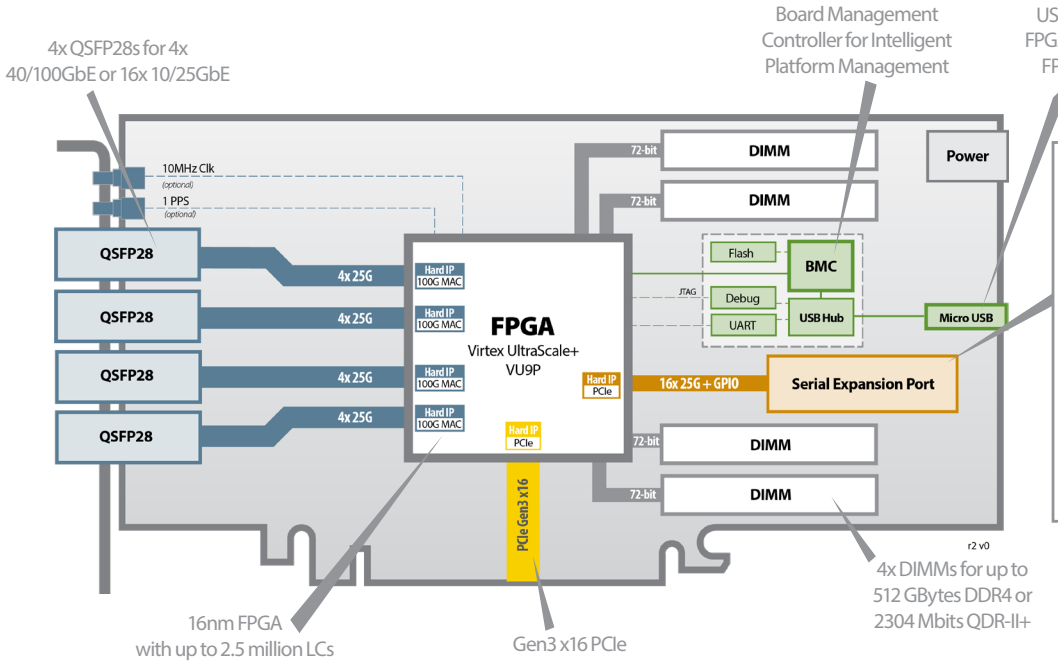
Optional accessory boards provide customization options such as x16 PCIe, 4x 100G, or video transceivers.

key features

4x 100GbE via 4 QSFP28

Up to **512 GBytes** DDR4

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



Serial Expansion Interface

Optimize the XUP-P3R for your application with expansion:

- Board-to-board interconnect
- Connect to accessory boards for customization options such as x16 PCIe or 4x 100G
- Includes GPIO

Inquire about customized Molex connectors/cables as required for your application.

Additional Services

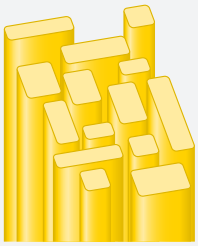
Take advantage of BittWare's range of design, integration, and support options

Customization

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

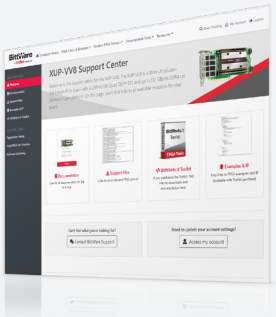
Server Integration

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.

Board Specifications

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

External memory	• 4 DIMM sites, each supporting*:
	  • Up to 128 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

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

Board Management Controller	• Voltage, current, temperature monitoring • Power sequencing and reset • Field upgrades • FPGA configuration and control • Clock configuration • I^2C 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

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

- FCC (USA) 47CFR15.107 / 47CFR15.109
- CE (Europe) EN55032:2015/A11:2020 / EN55024:2010 / EN55035:2017 / EN61000-3-2:2014 / EN610003-3:2013
- UKCA (United Kingdom) BS EN55032:2012/AC:2013 / BS EN55024:2010 /
- BS EN55035:2017 / BS EN61000-3-2:2014 / BS EN610003-3:2013
- 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

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

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