BittWare a molex company

XUP-VV4

PCIe FPGA Board

UltraScale+ PCIe board with VU13P

XILINX

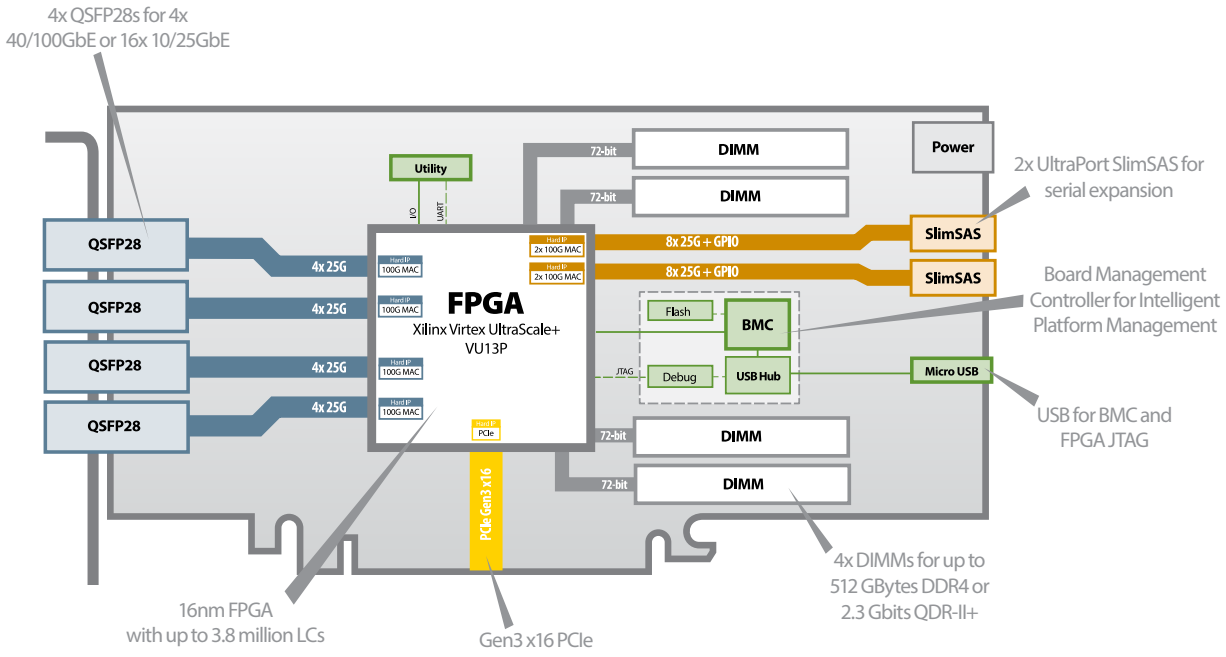
BittWare's XUP-VV4 is an UltraScale+ VU13P FPGA-based PCIe card, ideal for high-density datacenter applications. The Xilinx UltraScale+ VU13P FPGA gives designers incredible performance potential, with 3.8M logic elements — yet with a power density that makes thermal management difficult. The XUP-VV4 meets this challenge with BittWare's Viper platform, supporting large FPGA loads, up to 512 GBytes DDR4, and 4x 100 Gbps Ethernet.

BittWare's Viper platform uses advanced computer flow simulation to drive the physical board design in a thermals first approach, including the use of heat pipes, airflow channels, and arranging components to maximize the limited available airflow in a server. The XUP-VV4 features air cooling by default, but liquid cooling is also available. The board features the D2104 lidless package from Xilinx—allowing the heat pipes to contact the die directly, instead of through the heat spreader lid.

Xilinx VU13P FPGA: lidless package is used by BittWare's Viper thermal management for enhanced cooling performance

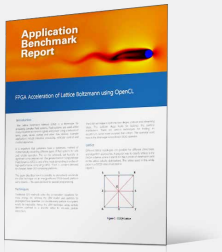
key features

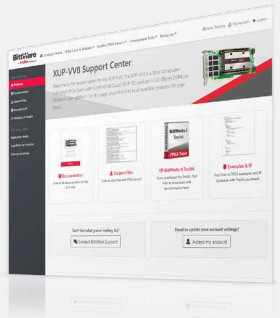
- **4x 100GbE** via 4 QSFP28
- **Air** or **Liquid** Cooled
- VU13P FPGA: **3.8 million LCs** FPGA by Xilinx



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+
	  • VU13P in D2104 package
	  • Core speed grade - 2
	• Contact BittWare for other FPGA options

On-board Flash	• Flash memory for booting FPGA

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 port	• Micro USB: access to BMC and FPGA JTAG
Utility	• Connects to a breakout board for UART, 1 PPS input, and 10MHz clock input
UltraPort SlimSAS	• 2 UltraPort SlimSAS on rear edge connected to FPGA via 16x GTY transceivers • Can support an additional x16 or x8 PCIe interface (requires soft IP core and additional slot)
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

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 passive heatsink • Optional: double-width liquid cooling
Electrical	• On-board power derived from 12V PCIe slot & an AUX connector (8-pin) • Power dissipation is application dependent
Environmental	• Operating temperature 5°C to 35°C
Form factor	• ¾-length, standard-height PCIe dual-slot board • 10 x 4.37 inches (254 x 111.15 mm)

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

Development Tools

System development	• BittWorks II Toolkit - host, command, and debug tools for BittWare hardware
FPGA development	• FPGA Examples - example Vivado projects • Xilinx Tools - Vivado® Design Suite

XILINX
ALLIANCE PROGRAM
CERTIFIED

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

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