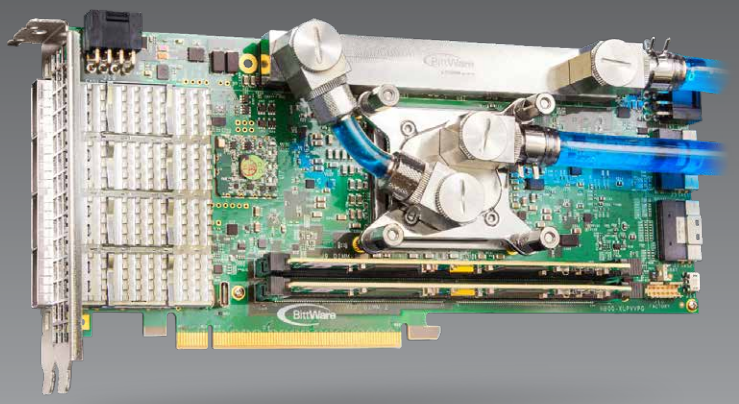
BittWare a molex company

XUP-VVP

PCIe FPGA Board



Power Edition for Monster FPGA Loads

Liquid cooled with 300A power supply

BittWare's XUP-VVP is an UltraScale+ VU13P FPGA-based PCIe card, designed for ultra high power applications. The Xilinx UltraScale+ VU13P FPGA gives designers incredible performance potential, with 3.8M logic elements —yet with a power density that makes power and thermal management difficult. The XUP-VVP meets this challenge with BittWare's Viper platform, supporting monster FPGA loads, up to 256 GBytes DDR4 or 1152 Mbits QDR-II+, 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. While the default option for the board is air-cooling, the XUP-VVP is also available with liquid cooling for rapid heat removal. A 300A FPGA core power supply powers even the largest FPGA loads.

XILINX

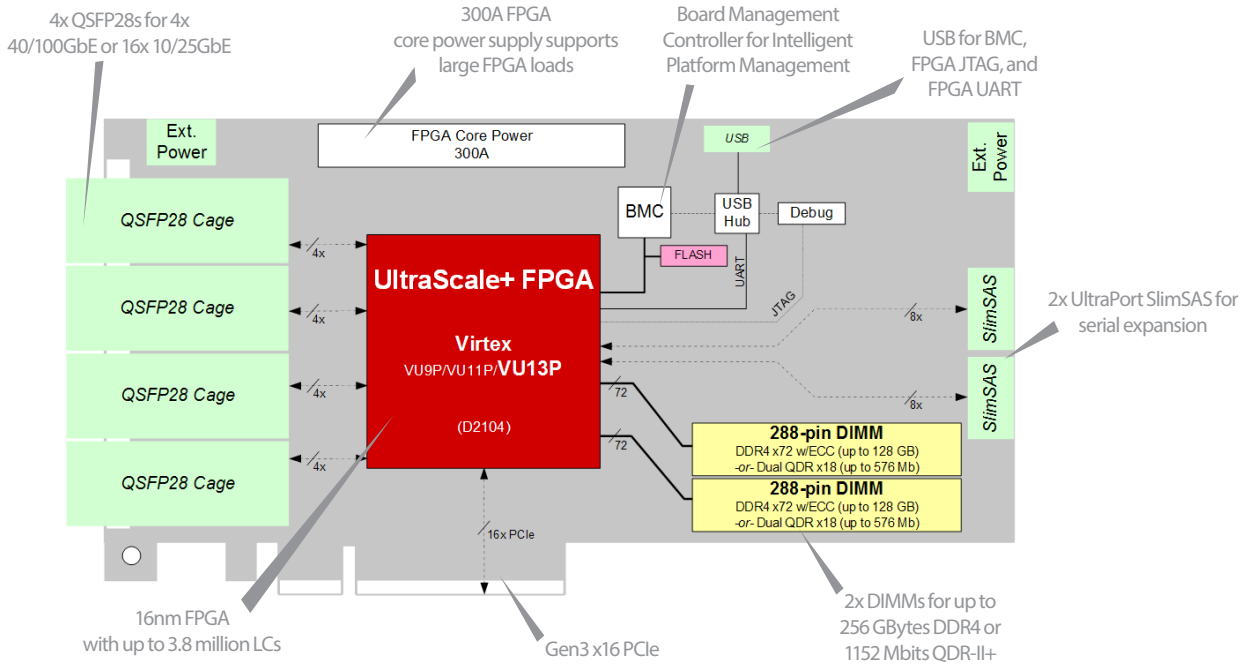
Xilinx VU13P FPGA: lidless package is used by BittWare's Viper thermal management for enhanced cooling performance

key features

300A
FPGA core power supply

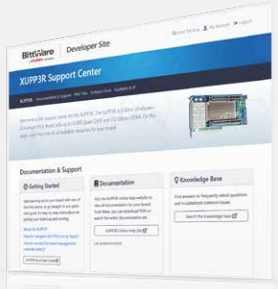
Viper platform
Liquid Cooling
option for extreme FPGA loads

Up to VU13P FPGA:
3.8 million LCs
360Mb UltraRAM
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 D2104 package
	  • Core speed grade - 2
	• Contact BittWare for VU9P/VU11P FPGA options

On-board Flash	• Flash memory for booting FPGA

External memory	• 2 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 (optional; no power used from PCIe connector)
USB port	• Micro USB: access to BMC, FPGA JTAG, and FPGA UART
Utility	• Connects to a breakout board for 1 PPS input and 10MHz clock input
UltraPort SlimSAS	• 2 UltraPort SlimSAS on rear edge connected to FPGA via 16x GTY transceivers • Provides 400Gbps board-to-board bandwidth • 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 • Provides 400Gbps board-to-board bandwidth
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 & two AUX connectors (8-pin; both must be connected) • Power dissipation is application dependent • 300A FPGA core power supply
Environmental	• Operating temperature 5°C to 35°C
Size	• ¾-length, standard-height PCIe dual-slot board • 10 x 4.37 inches (254 x 111.15 mm)

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**

Rev 2019.05.06 | May 2019

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