

**BittWare**  
a molex company

**XUP-VV8**  
PCIe FPGA Board



## 8x 100GbE Network Ports and VU9P/13P FPGA

The XUP-VV8 offers a large Xilinx FPGA in a 3/4-length PCIe board featuring QSFP-DD (double-density) cages for maximum port density. Using the Virtex UltraScale+ VU13P or VU9P FPGA, the board supports up to 8x 100GbE or 32x 10/25GbE.

The FPGA provides large logic and memory resources—up to 3.8M logic cells and 455Mb embedded memory. The board also provides a jitter cleaner to support synchronous ethernet. The board can be configured as single width for users who don't need external memory on the DIMMs.



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



Breakout QSFP28 to 2x 100GbE modules

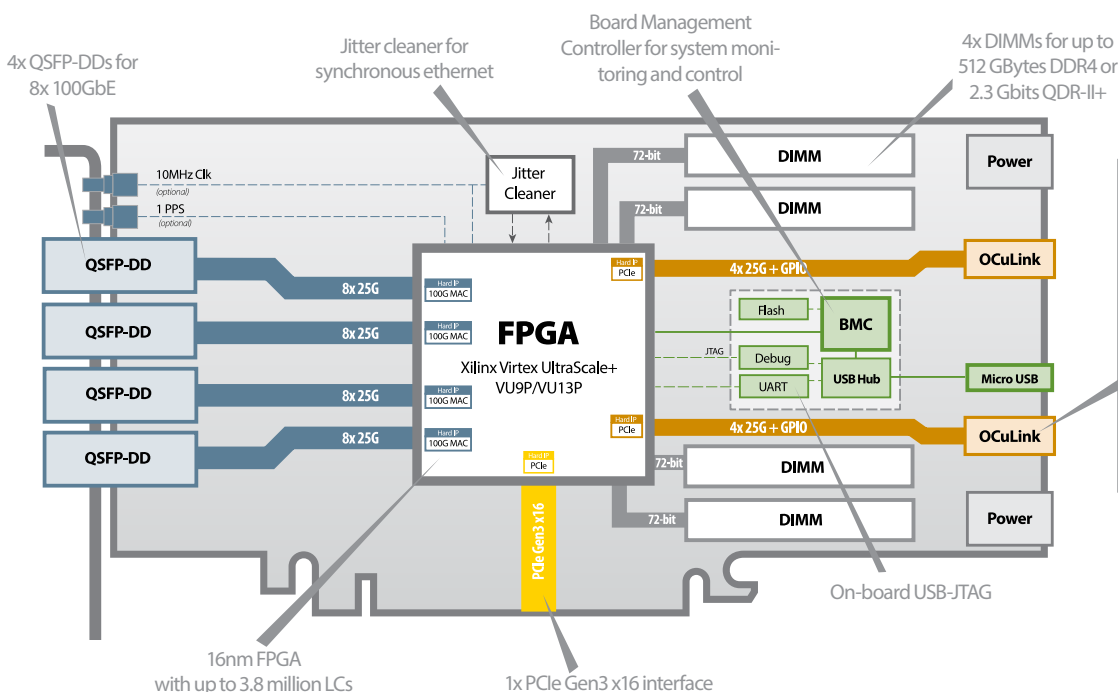
Module connects to one of the QSFP-DD cages on XUP-VV8

### key features

**Four QSFP-DDs**  
up to 8x 100GbE  
or 32x 10/25GbE

**Air or Liquid Cooled**

**Up to 3.8M Logic Cells and 455Mb Embedded RAM**



### OCuLink Expansion Ports

Optimize the XUP-VV8 for your application with expansion:

- Board-to-board interconnect
- Connect to accessory boards for customization options

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.



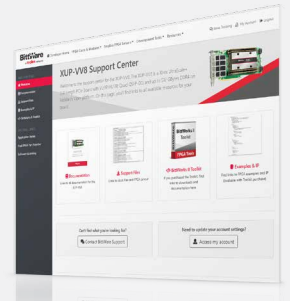
## Server Integration

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	<ul style="list-style-type: none"> <li>Virtex UltraScale+             <ul style="list-style-type: none"> <li>VU9P or VU13P in D2104 package</li> <li>Core speed grade - 2</li> </ul> </li> <li>Contact BittWare for other FPGA options</li> </ul>
On-board Flash	<ul style="list-style-type: none"> <li>Flash memory for booting FPGA</li> </ul>
External memory	<ul style="list-style-type: none"> <li>4 DIMM sites, each supporting:             <ul style="list-style-type: none"> <li>Up to 128 GBytes DDR4 x72 with ECC</li> <li>Up to 576 Mbits dual QDR-II+ x18 (2 independent 288 Mbit banks)</li> </ul> </li> </ul>
Host interface	<ul style="list-style-type: none"> <li>x16 Gen3 interface direct to FPGA</li> </ul>
USB port	<ul style="list-style-type: none"> <li>Micro USB: access to BMC, FPGA JTAG, and FPGA UART</li> </ul>
Timestamp	<ul style="list-style-type: none"> <li>1 PPS input and 10MHz clock input</li> </ul>
OCuLink	<ul style="list-style-type: none"> <li>2 OcuLink on rear edge, each connected to FPGA via 4x GTY transceivers</li> </ul>
QSFP cages	<ul style="list-style-type: none"> <li>4 QSFP-DD cages on front panel</li> <li>Each supports 2x 100GbE, 2x 40GbE, 8x 25GbE, or 8x 10GbE</li> <li>Jitter cleaner for network recovered clocking</li> </ul>

### 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: dual-width passive heatsink
- Optional: single-width passive heatsink\*
- Optional: dual-width active heatsink
- Optional: dual-width liquid cooling

### Electrical

- On-board power derived from 12V PCIe slot & two AUX connectors (8-pin)
- Power dissipation is application dependent

### Environmental

- Operating temperature 5°C to 35°C

### Form factor

- ¾-length, standard-height PCIe dual-width board
- Single-width option\*
- 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, available with the BittWorks II Toolkit
- **Xilinx Tools** - Vivado® Design Suite

\* Available on boards with no external memory

To learn more, visit [www.BittWare.com](http://www.BittWare.com)

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