BittWare
a **molex** company

TeraBox 1400B
1U FPGA Server

Extreme Density 1U FPGA Server
4 Boards with 16x QSFPs

At the extreme of FPGA server density, the TeraBox 1400B gives the highest level of compute and network capability in a 1U chassis. This server provides up to 1.6 Terabits/second of I/O and the power of 4 of our largest Xilinx UltraScale+ or Intel Statix 10 FPGAs. The CPU host also provides premium performance with two Intel Xeon processors.
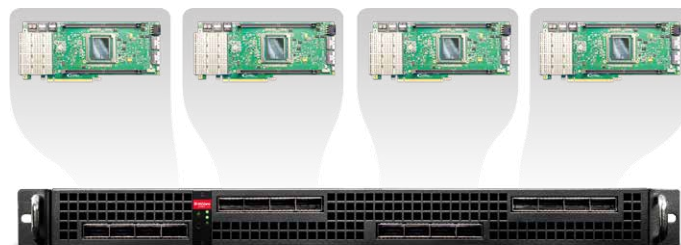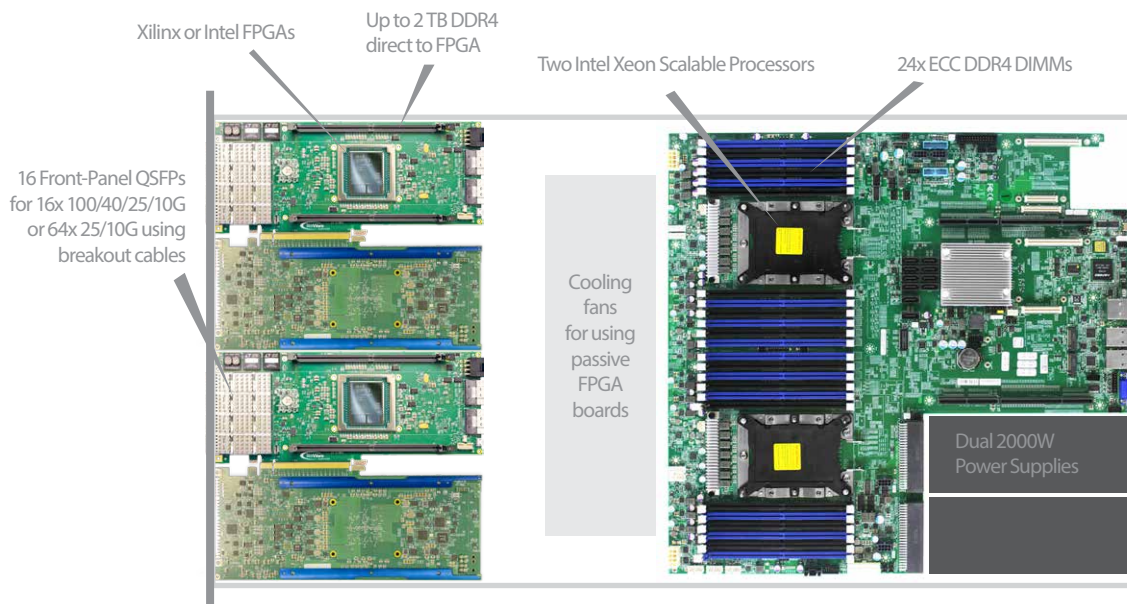

Four Xilinx UltraScale+ or Intel Stratix 10 FPGA Boards in a 1U rackmount chassis

key features

Up to **16 QSFPs** for 16x 100G or 64x 10/25G

1U 4 FPGAs in a 1U server

Standard Height Double Slot
Fits any BittWare PCIe Board using Xilinx or Intel FPGAs

Xilinx or Intel FPGAs

Up to 2 TB DDR4 direct to FPGA

Two Intel Xeon Scalable Processors

24x ECC DDR4 DIMMs

16 Front-Panel QSFPs for 16x 100/40/25/10G or 64x 25/10G using breakout cables

Cooling fans for using passive FPGA boards

Dual 2000W Power Supplies

chassis key specs

Processor: Intel® Xeon® Scalable Processors

Memory: 24x ECC DDR4 DIMMs

Slots: 4x PCIe Gen3 x16 with front panel access

Power supply: 2000W PSU

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FPGA Boards

The TeraBox 1400B supports up to four dual-slot BittWare PCIe FPGA boards. Choose from a variety of boards based on the UltraScale+, or Stratix 10 FPGAs. System specs will vary greatly, depending on the FPGA board you select. For example, with four BittWare UltraScale+ PCIe boards, which support up to 512 Gbytes of DDR4 per board, the chassis can support as much as 2 Terabytes of DDR4 on the FPGA boards in 16 banks. With four Stratix 10 boards, each chassis supports 10 million logic elements.

Development Support

BittWare offers complete development support for the PCIe boards in the TeraBox 1400B system.

Our Xilinx FPGA boards include the BittWorks II Toolkit – a collection of libraries and applications that provides complete hardware and FPGA interfaces – along with BittWare's FPGA examples for traditional HDL FPGA development.

Stratix 10 boards include an OpenCL BSP for a high-level software-like FPGA development flow.

The TeraBox Advantage

Choosing a TeraBox FPGA server means knowing you are getting a pre-configured and tested solution. This includes setup and installation of your FPGA boards and associated hardware, your choice of operating system, and development tools. Your TeraBox arrives ready for use— giving your team more time for development and deployment.

	UltraScale+ FPGA-based System	Stratix 10 FPGA-based System
Memory	• Up to 16 banks DDR4 (up to 2 Terabytes) • Up to 32 banks QDRII+ (up to 9.216 Gbits)	• Up to 8 banks DDR4 (128 GBytes) • Up to 16 banks QDRII+ (up to 9.216 Gbits)
I/O	1.6 Terabits/sec • 16x 100/50/40/25/10 GbE ports • Using breakout cables: 64x 10GbE, 64x 25GbE, or 32x 50GbE	1.6 Terabits/sec • 16x 100/50/40/25/10 GbE ports • Using breakout cables: 64x 10GbE, 64x 25GbE, or 32x 50GbE
Processing	• Up to 15 million system logic cells • Up to 49,152 DSP slices	• Up to 10 million logic elements • Up to 46,080 multipliers
Board Options	• XUPVV4: Xilinx UltraScale+ 3/4-length PCIe card with VU13P, quad QSFP, and up to 512 GBytes DDR4 • XUPVVH: Xilinx UltraScale+ 3/4-length PCIe card with VU37P, 8GB HBM2, quad QSFP, and up to 256 GBytes DDR4	• 520N: Stratix 10 3/4-length PCIe card with quad QSFPs, 32 GBytes DDR4 • 520N-MX: Stratix 10 MX 3/4-length PCIe card with quad QSFPs, 32 GBytes DDR4, and HBM2
Development	• BittWorks II Toolkit: host, command, and debug tools • FPGA examples: board support IP and integration • Vivado: tools for Xilinx FPGAs • SDAccel support	• BIST: Built-In-Self-Test • Quartus II: tools for Intel FPGAs • OpenCL support
Server Specifications	BittWare custom chassis • 1U rackmount • 2000W CRPS PSU (1+1) • Supports up to 4 double-wide Gen3 x16 boards AIC Lynx motherboard • CPU with up to 2x Intel® Xeon® Scalable Family Processors (up to 205W TDP) (Platinum, Gold, Silver, Bronze) • DDR4 DIMMs at up to 2666; 24 DIMM slots: 3TB max • Dual Intel® Ethernet Controller I210 • I/O: 2 RJ45, 2 USB 3.0 + RJ45, VGA, serial console • Embedded management: Onboard Baseboard Management Controller for system management and IPMI control	