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TeraBox 2102D
2U FPGA Server

2U FPGA Server with PCIe Gen4

We've integrated one of the most popular 2U data center servers from Dell EMC with our full lineup of Achronix, Intel, and Xilinx FPGA-based cards. BittWare's TeraBox 2102D combines a high-powered dual-CPU (3rd Generation Intel Xeon Scalable) host with high-density FPGA resources.

Configurations include two of BittWare's large double-width cards using Achronix Speedster 7t, Intel Agilex, or Xilinx Virtex UltraScale+ FPGAs. The system can also be configured with six** low-profile cards or up to eight of BittWare's U.2 accelerators. No matter which configuration you choose, you're getting BittWare's installation and support, plus options for Dell server support.

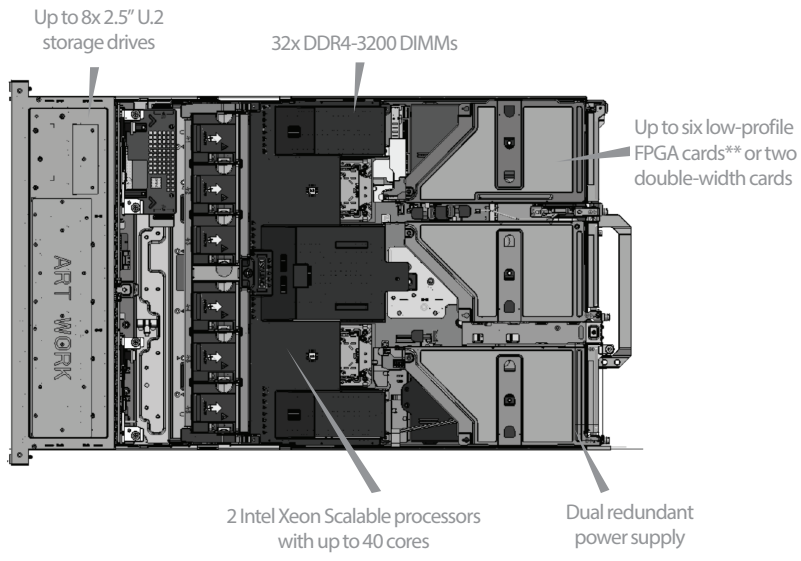Up to **two** double-wide FPGA cards can be configured or **six**** low-profile cards

key features

Up to **6 QSFP-DDs** for 12x 100G or 48x 10/25G	Up to **8x U.2 NVMe** slots and **32x DDR4 DIMMs**	Support for BittWare's full range of FPGA cards

chassis key specs

Up to 8x 2.5" U.2 storage drives

32x DDR4-3200 DIMMs

Up to six low-profile FPGA cards** or two double-width cards

2 Intel Xeon Scalable processors with up to 40 cores

Dual redundant power supply

2U, depth 27.58 in (700.7mm)

Processor: (2) 3rd Generation Intel® Xeon® Scalable processors

Memory: 32x ECC DDR4-3200 MT/s DIMMs

Slots: (2) DW/FH/FL Gen 4 x16 PCIe slots, (2) SW/HH/HL Gen 4 x16 PCIe slots, (2) SW/FH/HL Gen 4 x8 PCIe slot

Storage: up to 8x 2.5" U.2 NVMe Slots

Power supply: Platinum up to 2400W, redundant (1+1)

The TeraBox 2102D is a 2U FPGA server based on the Dell PowerEdge R750 chassis. This server offers dual 3rd generation Intel Xeon Scalable CPUs along with high PCIe slot density. With configurations of up to six low-profile cards or two of BittWare's large double-width cards, this server is an excellent premium option for the 2U form factor. Dell ProSupport options are also available.

System Management

For system management, BittWare's FPGA cards are equipped with a Board Management Controller (BMC), which accepts IPMI 2.0 commands. Use it along with BittWare's BittWorks II Toolkit to program the FPGA over USB, monitor card power and temperature, and re-program the onboard clocks. You'll also be able to set points to shut down the card when it gets too hot, access JTAG, or access the software tools remotely.

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 cards 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.

Example System Configuration

The TeraBox 2102D supports many of BittWare's Achronix, Intel, or Xilinx FPGA-based PCIe cards. The table below lists specifications for some of our certified cards*:

	FPGA	Cards per Server	Memory	Front Panel System I/O	Processing
S7t-VG6	Achronix Speedster7t	2	• 4 banks GDDR6 (up to 16 GBytes)	• 1x QSFP-DD, 1x QSFP • 6x 100/50/40/25/10 GbE	• 692K 6-input lookup tables (LUTs) • 375 Mbits embedded RAM
IA-840F	Agilex AGF027	2	• 4 banks DDR4 (up to 128 GBytes)	• 3x QSFP-DDs • 6x 100 GbE, or 24x 25/10 GbE	• 2.6 million system logic elements • Up to 8,528 DSP blocks
IA-420F	Agilex AGF014	6**	• 2 banks DDR4 (up to 32 GBytes)	• 1x QSFP-DD • 2x 100 GbE, or 8x 25/10GbE	• 1.4 million system logic elements • Up to 4,510 DSP blocks
IA-220-U2	Agilex AGF014	7***	• 2 banks DDR4 (up to 16 GBytes)		• 1.4 million system logic elements • Up to 4,510 DSP blocks

Subject to availability. Contact BittWare for additional FPGA card options.
*** 4 cards with PCIe x16, 2 cards with PCIe x8*
**** 8 cards possible but will lose the 960GB storage drive*

Server Configurations

Low
- (2) Intel Xeon Silver 4309Y (2.8GHz, 8C/16T) Processors
- 16GB DDR4-2666
- BOSS-S2 controller card + with 2 M.2 Sticks 240GB (RAID 1)
- (1) 960GB Data Center NVMe Read Intensive AG Drive U2 Gen4
- (1+1) 1400W Power Supplies

Medium
- (2) Intel Xeon Gold 6334 (3.6GHz, 8C/16T) Processors
- 128GB DDR4-3200
- BOSS-S2 controller card + with 2 M.2 Sticks 240GB (RAID 1)
- (1) 960GB Data Center NVMe Read Intensive AG Drive U2 Gen4
- (1+1) 2400W Platinum Power Supplies

High
- (2) Intel Xeon Platinum 8358P (2.6GHz, 32C/64T) Processors
- 256GB DDR4-3200
- BOSS-S2 controller card + with 2 M.2 Sticks 240GB (RAID 1)
- (1) 960GB Data Center NVMe Read Intensive AG Drive U2 Gen4
- (1+1) 2400W Platinum Power Supplies

Ultra
- (2) Intel Xeon Platinum 8380 (2.3GHz, 40C/80T) Processors
- 512GB DDR4-3200
- BOSS-S2 controller card + with 2 M.2 Sticks 240GB (RAID 1)
- (1) 960GB Data Center NVMe Read Intensive AG Drive U2 Gen4
- (1+1) 2400W Platinum Power Supplies

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

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