



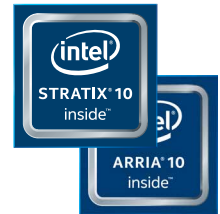
FPGA Cards

Featuring Intel FPGAs



BittWare PCIe Cards with Intel Stratix 10 and Arria 10 FPGAs

BittWare offers a complete range of FPGA cards to meet your needs. Our FPGA cards feature Intel's high-end FPGAs to provide superior development productivity and unmatched performance. Our latest cards feature PCIe x8 and x16 interfaces.



520N-MX



520N / 520C



510T

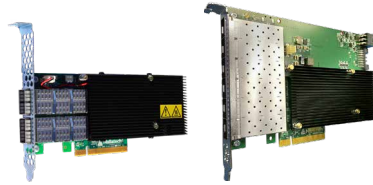
Key features	Stratix 10 MX 2100 FPGA HBM2 up to 512Gbps Up to 256GBytes DDR4	Stratix 10 GX 2800 FPGA Up to 4 QSFP28s for 400 Gbps Up to 32 GBytes DDR4	Dual Arria 10 GX 1150 FPGAs Up to 32 GBytes DDR4
FPGA	Stratix 10 MX MX2100, F2597 package <ul style="list-style-type: none"> • 2 million LEs • 702,720 ALMs • 134Mb M20K memory • 3,960 DSP blocks • 6.3 TFLOPS 	Stratix 10 GX 2800, F1760 package <ul style="list-style-type: none"> • 2.7 million LEs • 933,120 ALMs • 229Mb M20K memory • 5,760 DSP blocks • 9.2 TFLOPS 	Dual Arria 10 GX 1150 GX in F45 package <ul style="list-style-type: none"> • 1.1 million LEs • 427,200 ALMs • 53Mb M20K memory • 1.3 TFLOPS
Form Factor /Interface	<ul style="list-style-type: none"> • 3/4-length, standard- height PCIe dual-slot • x16 Gen3 	<ul style="list-style-type: none"> • 3/4-length, standard- height PCIe dual-slot • x16 Gen3 	<ul style="list-style-type: none"> • 3/4-length, standard- height PCIe dual-slot • x16 Gen3
Memory	<ul style="list-style-type: none"> • 16GB HBM2 • 2x DIMM slots: up to 128GBytes DDR4 each 	<ul style="list-style-type: none"> • 4x 8GByte banks DDR4 SDRAM 	<ul style="list-style-type: none"> • 4x 4GB banks DDR4 SDRAM per FPGA
I/O	<ul style="list-style-type: none"> • 4 QSFPs for 4x100G • OcuLink: 2x @ 12.5G, 2x @ 25G (optional) 	<ul style="list-style-type: none"> • 4 QSFPs for 4x 100G • Also available in 520C configuration with no networking ports 	
Tools	<ul style="list-style-type: none"> • Built-in Self-Test (BIST) • HDL/Verilog, HLS • OpenCL 	<ul style="list-style-type: none"> • Built-in Self-Test (BIST) • HDL/Verilog, HLS • OpenCL 	<ul style="list-style-type: none"> • Built-in Self-Test (BIST) • HDL/Verilog • OpenCL

Intel FPGA Cards

Stratix 10 and Arria 10 FPGAs



A10SA4 / A10PL4



385A / 385A-SFP



385A-SoC

Key features	Arria 10 GX 1150 FPGA Up to 2x QSFP28 for 10/40 GBps	Arria 10 GX 1150 FPGA 2x QSFP28 for 10/40 GBps or 6x SFPs	Arria 10 SX 660 FPGA 2x QSFP28 for 10/40 GBps
FPGA	Arria 10 GX 1150 GX in NF40 package <ul style="list-style-type: none"> • 1.1 million LEs • 427,200 ALMs • 53Mb M20K memory • 1.3 TFLOPS 	Arria 10 GX 1150 GX in F45 package <ul style="list-style-type: none"> • 1.1 million LEs • 427,200 ALMs • 53Mb M20K memory • 1.3 TFLOPS 	Arria 10 SX 660 GX in F34 package <ul style="list-style-type: none"> • 660K LEs • 250,540 ALMs • 42Mb M20K memory • 1.5 TFLOPS • Dual-core Arm Cortex-A9 MPCore processor
Form Factor /Interface	<ul style="list-style-type: none"> • Low-profile (half-height, half-length) PCIe single-slot • x8 Gen3 	<ul style="list-style-type: none"> • 385A <ul style="list-style-type: none"> • Low-profile (half-height, half-length), PCIe single-slot • x8 Gen3 • 385A-SFP <ul style="list-style-type: none"> • 3/4-length, standard- height, PCIe dual-slot • x16 Gen3 	<ul style="list-style-type: none"> • Low-profile (half-height, half-length) PCIe single-slot • x8 Gen3
Memory	<ul style="list-style-type: none"> • A10SA4: 2x 8GB banks DDR4 • A10PL4: 2x 16GB banks DDR4 	<ul style="list-style-type: none"> • 385A: 2x 4GB banks DDR3 SDRAM • 385A-SFP: 2x 4GB banks DDR4 SDRAM 	<ul style="list-style-type: none"> • One bank of DDR4 SDRAM x72 for FPGA fabric • One bank of DDR4 SDRAM x40 for ARM processor
I/O	<ul style="list-style-type: none"> • A10SA4: QSFP28 for 10/40G • A10PL4: 2x QSFP28 for 2x 10/40G 	<ul style="list-style-type: none"> • 385A: 2x QSFP28 for 2x 10/40G • 385A-SFP: 6x SFPs 	<ul style="list-style-type: none"> • 2x QSFP28 for 2x 10/40G
Tools	<ul style="list-style-type: none"> • BittWorks II Toolkit • HDL/Verilog • OpenCL 	<ul style="list-style-type: none"> • Built-in Self-Test (BIST) • HDL/Verilog • OpenCL 	<ul style="list-style-type: none"> • Built-in Self-Test (BIST) • HDL/Verilog • OpenCL

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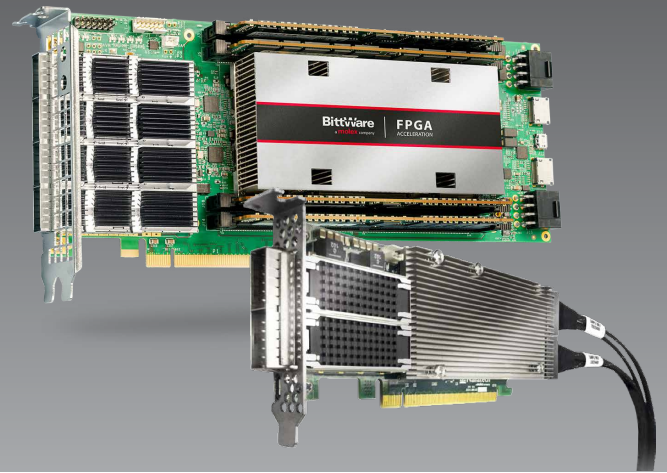
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FPGA Cards

Featuring Xilinx FPGAs



BittWare PCIe Cards with Xilinx UltraScale+ FPGAs

BittWare offers a complete range of FPGA cards to meet your needs. Our FPGA cards feature Xilinx's high-end FPGAs to provide superior development productivity and unmatched performance. Our latest cards feature PCIe x8 and x16 interfaces.



XUP-VV8



XUP-VVH



XUP-P3R

Key features	Virtex VU13P FPGA 4x QSFP-DD for 8x 100Gbps	Virtex VU37P FPGA Up to 8 GBytes HBM2	Virtex VU9P FPGA Serial Expansion interface
FPGA	Virtex UltraScale+ VU9P or VU13P, D2104 package <ul style="list-style-type: none"> Up to 3.8 million LCs Up to 1,728 CLB LUTs Up to 360Mb UltraRAM Up to 12,288 DSP slices 	Virtex UltraScale+ VU35P or VU37P <ul style="list-style-type: none"> Up to 2.8 million LCs Up to 1,304 CLB LUTs Up to 270Mb UltraRAM Up to 9,024 DSP slices 	Virtex UltraScale+ VU9P, D2104 package <ul style="list-style-type: none"> 2.5 million LCs 1,182 CLB LUTs 270Mb UltraRAM 6,840 DSP slices
Form Factor /Interface	<ul style="list-style-type: none"> 3/4-length, standard- height PCIe dual-slot x16 Gen3 PCIe 	<ul style="list-style-type: none"> 3/4-length, standard- height PCIe dual-slot x16 Gen3 PCIe 	<ul style="list-style-type: none"> 3/4-length, standard- height PCIe dual-slot x16 Gen3 PCIe
Memory	<ul style="list-style-type: none"> 4x DIMM slots: up to 128GBytes DDR4 each 	<ul style="list-style-type: none"> 2x DIMM slots: up to 128GBytes DDR4 each 8GB HBM2 	<ul style="list-style-type: none"> 4x DIMM slots: up to 128GBytes DDR4 each
I/O	<ul style="list-style-type: none"> 4x QSFP-DD for 8x 100G 2x OCuLink 	<ul style="list-style-type: none"> 4x QSFP28s for 4x 100G 2x UltraPort SlimSAS 	<ul style="list-style-type: none"> 4x QSFP28s for 4x 100G Serial Expansion interface to FPGA
Tools	<ul style="list-style-type: none"> BittWorks II Toolkit HDL/Verilog, HLS 	<ul style="list-style-type: none"> BittWorks II Toolkit HDL/Verilog, HLS 	<ul style="list-style-type: none"> BittWorks II Toolkit HDL/Verilog, HLS SDAccel

Xilinx FPGA Cards

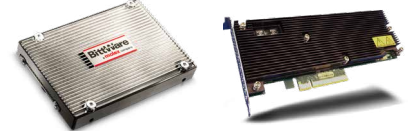
Virtex and Kintex UltraScale+ FPGAs



XUP-PL4



250-SoC



250-U2/250S+

Key features	Virtex VU3P FPGA Low profile	UltraScale+ Zynq MPSoC Ideal for NVMe storage arrays	UltraScale+ KU15 FPGA Ideal for NVMe storage arrays
FPGA	Virtex UltraScale+ VU3P, C1517 package <ul style="list-style-type: none"> • 0.8 million LCs • 394 CLB LUTs • 90Mb UltraRAM • 2,280 DSP slices 	Zynq UltraScale+ ZU19EG, FFVD1760 package <ul style="list-style-type: none"> • 1.1 million LCs • 523 CLB LUTs • 36Mb UltraRAM • 1,968 DSP slices • Quad-core ARM® Cortex™-A53 MPCore™ up to 1.5GHz 	Kintex UltraScale+ KU15P, FFVA1156 package <ul style="list-style-type: none"> • 1.1 million LCs • 523 CLB LUTs • 36Mb UltraRAM • 1,968 DSP slices
Form Factor /Interface	<ul style="list-style-type: none"> • Low-profile (half-height, half-length) PCIe single-slot • x16 Gen3 PCIe 	<ul style="list-style-type: none"> • Low-profile (half-height, half-length) PCIe single-slot • x16 Gen3 PCIe 	<ul style="list-style-type: none"> • 250-U2 <ul style="list-style-type: none"> • U.2 compliant 2.5" Drive Form Factor • x8 Gen3 PCIe • 250S+ <ul style="list-style-type: none"> • Low-profile (half-height, half-length), PCIe single-slot • x8 Gen3 PCIe
Memory	<ul style="list-style-type: none"> • 2x 16GB banks DDR4 (x72) 	<ul style="list-style-type: none"> • One bank 4GB DDR4 SDRAM x72 for FPGA fabric • One bank 4GB DDR4 SDRAM x72 for MPSoC 	<ul style="list-style-type: none"> • 250-U2: 8GB DDR4 SDRAM (x72) • 250S+: 8GB DDR4 SDRAM (x80)
I/O	<ul style="list-style-type: none"> • 2x QSFP28 for 2x 100G 	<ul style="list-style-type: none"> • 2x QSFP28 for 2x 100G • Up to 4x OcuLink for NVMe, PCIe, 100/40/10GbE 	<ul style="list-style-type: none"> • 250S+: up to 4x NVMe storage drives
Tools	<ul style="list-style-type: none"> • BittWorks II Toolkit • HDL/Verilog, HLS 	<ul style="list-style-type: none"> • Built-in Self-Test (BIST) • HDL/Verilog, HLS 	<ul style="list-style-type: none"> • Built-in Self-Test (BIST) • HDL/Verilog, HLS

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BittWare TeraBox Matrix

Server Name			TeraBox 1000S	TeraBox 1100L	TeraBox 1400D	TeraBox 1400B	TeraBox 2000D	TeraBox 4000S	TeraBox X5000TT	LDA e4	
View											
Board Name	View	Device/Interface	Base Server	Suoer Micro	-	Dell	BittWare original	Dell	SuperMicro	Trenton Systems	-
			Description	SuperMicro SC 515-R407 & X11SSW-4TF motherboard Xeon E3-1200 v6/v5 4x DDR4 slots: 4/8/16GB (up to 64GB)	Xeon E5-2600 v4 4x DDR4 slots: 4/8/16GB (up to 64 GB) 800W dual-redundant power supply platinum	Dell EMC PowerEdge C4140 2x Xeon 4114, 6130, 6148 24x DDR4 slots: up to 1.5TB IDSDM or Internal M.2 Boot Module (2 x M.2)	2x Xeon Platinum, Gold, Silver, Bronze 24x DDR4 slots: 3TB max Supports up to 4 double-wide Gen3 x16 boards	Dell PowerEdge R740 1-2 Xeon SP 24x DDR4 slots: 3TB max Up to 6 hot-plug fans for system cooling	SuperMicro 4029GP-TRT & Super X11DPG-OT-CPU Motherboard Dual Gen2 Xeon SP 24x DDR4 slots	Trenton Systems TTX5100 Dual Xeon SP 8x DDR4 slots: 1.5TB max	1U PCIe FPGA board enclosure with 48 front panel I/O ports
			Server warrantie	3 Years and 1 year Advanced replacement *Extended warranty available.	1 year *Extended warranty available.	3 years	3 years *Barebones server 1 year *All other components	3 years	3 Years and 1 year Advanced replacement *Extended warranty available.	ASK	1 year *Extended warranty available.
520N-MX		Stratix 10 MX PCIe Gen3 x16	In-package HBM2 up to 512GB/s 4x 100G, and DDR4	Y			Y	Y	Y	Y	
520N		Stratix 10 PCIe Gen3 x16	PCIe board with Quad QSFP and DDR4	Y			Y Need a new caddy and faceplate	Y	Y	Y	Y
520C		Stratix 10 PCIe Gen3 x16	PCIe board with DDR4	Y			Y	Y	Y	Y	
A10SA4		Arria 10 GX PCIe Gen3 x8	Low Profile PCIe Board with QSFP and DDR4 on BittWare Spider Platform	Y			Y	Y	Y	Y	Y
A10PL4		Arria 10 GX PCIe Gen3 x8	Low Profile PCIe Board with Dual QSFP and DDR4	Y			Y	Y	Y	Y	
510T		Arria 10 GX (Dual) PCIe Gen3 x16	Full-Length PCIe Board with DDR4	Y		Y	Y	Y	Y	Y	
385A		Arria 10 PCIe Gen3 x8	Low Profile PCIe Board with Dual QSFP+ and DDR3	Y			Y	Y	Y	Y	Y
385A-SoC		Arria 10 SX PCIe Gen3 x8	Low Profile PCIe Board with Dual QSFP+ and DDR4	Y			Y	Y	Y	Y	
385A-SFP		Arria 10 GX PCIe Gen3 x8	1/2-Length PCIe Board with Six SFP+ and DDR3	Y			Y	Y	Y	Y	
XUPVV8		UltraScale+ VU13P PCIe Gen3 x16	3/4 Length PCIe Board with Dual QSFP-DD and DDR4	Y			Y Need a new caddy and faceplate	Y	Y	Y	
XUPVVH		UltraScale+ VU37P PCIe Gen3 x16	3/4 Length PCIe Board with Quad QSFP+ and DDR5 on Viper Platform	Y			Y	Y	Y	Y	
XUPVVP		UltraScale+ VU13P PCIe Gen3 x16	3/4 Length PCIe Board with Quad QSFP+ and 300A FPGA Core Power Supply	Y			Y	Y	Y	Y	
XUPVV4		UltraScale+ VU13P PCIe Gen3 x16	3/4 Length PCIe Board with Quad QSFP+ and DDR4 on Viper Platform	Y			Y	Y	Y	Y	
XUPP3R		UltraScale+ VU11P PCIe Gen3 x16	3/4 Length PCIe Board with Quad QSFP+ and DDR4 on Viper Platform	Y	Y		Y	Y	Y	Y	Y
XUPPL4		UltraScale+ VU3P PCIe Gen3 x16	Low Profile PCIe Board with Dual QSFP+ and DDR4	Y			Y	Y	Y	Y	Y