BittWare a molex company

520N
PCIe FPGA Board

Stratix 10 FPGA Board with 4x 100G

Introducing ground-breaking single precision floating point performance of up to 10 TFLOPS, the 520N is a PCIe board featuring an Intel Stratix 10 FPGA, along with four banks of DDR4 external memory.

Four network ports enable dramatic FPGA-to-FPGA scaling independent of the PCIe bus, plus support for an array of serial I/O protocols operating up at 10/25/40/100GbE.

Both traditional HDL and higher abstraction C, C++ and OpenCL-based tool flows are supported. Deliverables include an optimized board support package (BSP) for the Intel OpenCL SDK.

Tool Flow Flexibility for Software- or Hardware-Based Development

BittWare OpenCL FPGA Tools

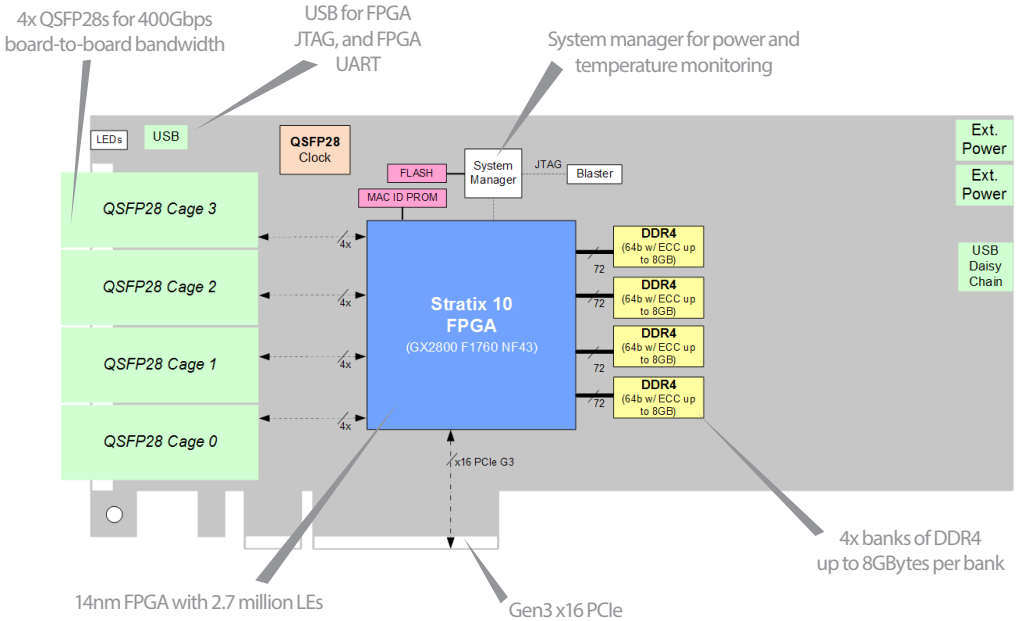
- OpenCL support for software-orientated customers
- Abstration for faster development
- Push-button flow for FPGA executable, driver, and API
- Add optimized HDL IP cores to OpenCL designs as libraries

BittWare HDL FPGA Tools

- Traditional VHDL/Verilog support for hardware-orientated customers
- Hand-code for ultimate performance
- High-Level Synthesis (HLS) available for rapid development
- FPGA card designed to support standard Intel IP cores for Stratix 10

key features

Intel Stratix 10 GX 2800 | **4x QSFP28s for 400Gbps** | **OpenCL BSP**



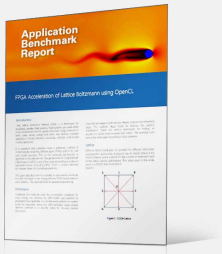
Key Applications

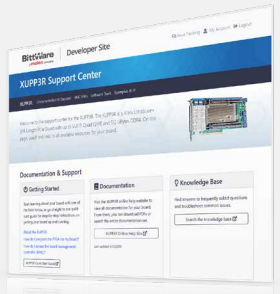
Designed to address a range of compute-intensive and latency-critical applications:

- Machine learning
- Gene sequencing
- Oil and Gas
- Video transcoding

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	• Intel Stratix 10 GX
	  • GX2800 in an F1760 package
	  • L-tile with up to 26Gbps SerDes I/O
	  • H-tile with up to 28Gbps SerDes I/O
	  • Core speed grade -2: I/O speed grade -2
	• Contact BittWare for other Stratix 10 GX options

On-board Flash	• 2Gbit Flash memory for booting FPGA
External memory	• Four banks of DDR4 SDRAM x 72 bits • 8GB per bank (32GB total / 64GB version also available) • Transfer Rate: 2400 MT/s
Host interface	• x16 Gen3 interface direct to FPGA, connected to PCIe hard IP

QSFP cages	• 4 QSFP28 cages on front panel connected directly to FPGA via 16 transceivers
	  • L-Tile: up to 2 100Gbps network ports
	  • H-Tile: up to 4 100Gbps network ports
	• User programmable low jitter clocking supporting 10/25/40/100GbE
	• Each QSFP28 can be independently clocked
	• Jitter cleaner for network recovered clocking
	• 2 QSFP28s have available 100GbE MAC hard IP

System manager	• On-board Intel USB Blaster • Power and temperature monitoring • Fault condition reporting to FPGA

Cooling	• Standard: double-width active heatsink (with fan) • Optional: double-width passive heatsink
Electrical	• On-board power derived from 12V PCIe slot & two AUX connectors (one 8-pin, one 6-pin) • Power dissipation is application dependent • Typical max power consumption 225W
Environmental	• Operating temperature: 5°C to 35°C
Quality	• Manufactured to ISO9001:2015 IPC-A-610-Class III • RoHS compliant • CE, FCC & ICES approvals
Form factor	• Standard-height PCIe dual-slot board • 4.376 x 10.5 inches (111 x 266.7 mm)

Development Tools

FPGA development	BIST - Built-In Self-Test for CentOS 7 provided with source code (pinout, gateware, PCIe driver & host test application)
Application development	Supported design flows - Intel FPGA OpenCL SDK, Intel High-Level Synthesis (C/C++) & Quartus Prime Pro (HDL, Verilog, VHDL, etc.)

Deliverables

- 520N FPGA board
- USB cable (front panel access)
- Built-In Self-Test (BIST)
- OpenCL HPC Board Support Package (BSP)
- 1-year access to online Developer Site
- 1-year hardware warranty

intel STRATIX 10 inside

intel FPGA Design Solutions Network Platinum

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

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