520N-MX FPGA Accelerator Card

Stratix 10 MX2100 FPGA with integrated HBM2 memory

Product Overview

09-02-2022

For the most up-to-date information, visit www.mouser.com or the supplier's website.

Description

The 520N-MX FPGA Accelerator Card from BittWare features Intel's Stratix 10 MX2100 FPGA with integrated HBM2 memory. This Accelerator Card offers an HBM2 with 16GB at up to 512GB/s, allowing for the acceleration of memory-bound applications. The 520N-MX is equipped with a Board Management Controller (BMC) for advanced system monitoring and control, which streamlines platform integration and management. The device supports both traditional HDL and higher abstraction C, C++, and OpenCL-based tool flows. The BittWare 520N-MX board has four 100G QSFP28 ports, which are ideal for clustering, and OCuLink connectors allow expansion.

Features

- Intel Stratix 10 MX2100
- 16GB HBM2 up to 512GB/s
- Board Management Controller (BMC)
- Intel FPGA OpenCL software development kit (SDK):
  - OpenCL support for software-orientated customers
  - Abstraction for faster development
  - Push-button flow for FPGA executable, driver, and API
  - Add optimized HDL IP cores to OpenCL designs as libraries
- BittWare-optimized OpenCL BSP
- Hardware Description language (HDL):
  - 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

Part Specifications

520N-21CMX-2A-00-0000	Mouser PN 538-520N21CMX2A00000 520N-MX PCIe board One Intel Stratix 10 MX 2100-2 Production Silicon FPGA (PN:1SM21CHU2F53E2VG) FPGA features 16GB HBM2 total Four QSFP28 network ports Two unpopulated DIMM slots PCIe Gen3 x16 host interface Active double-width heatsink BittWare “HPC” OpenCL Board Support Package
520N-21CMX-2A-00-R4R4	Mouser PN 538-520N21CMX2A00R4R 520N-MX PCIe board One Intel Stratix 10 MX 2100-2 Production Silicon FPGA (PN: 1SM21CHU2F53E2VG) FPGA features 16GB HBM2 total Four QSFP28 network ports Two 16GB RDIMM PCIe Gen3 x16 host interface Active double-width heatsink BittWare “HPC” OpenCL Board Support Package
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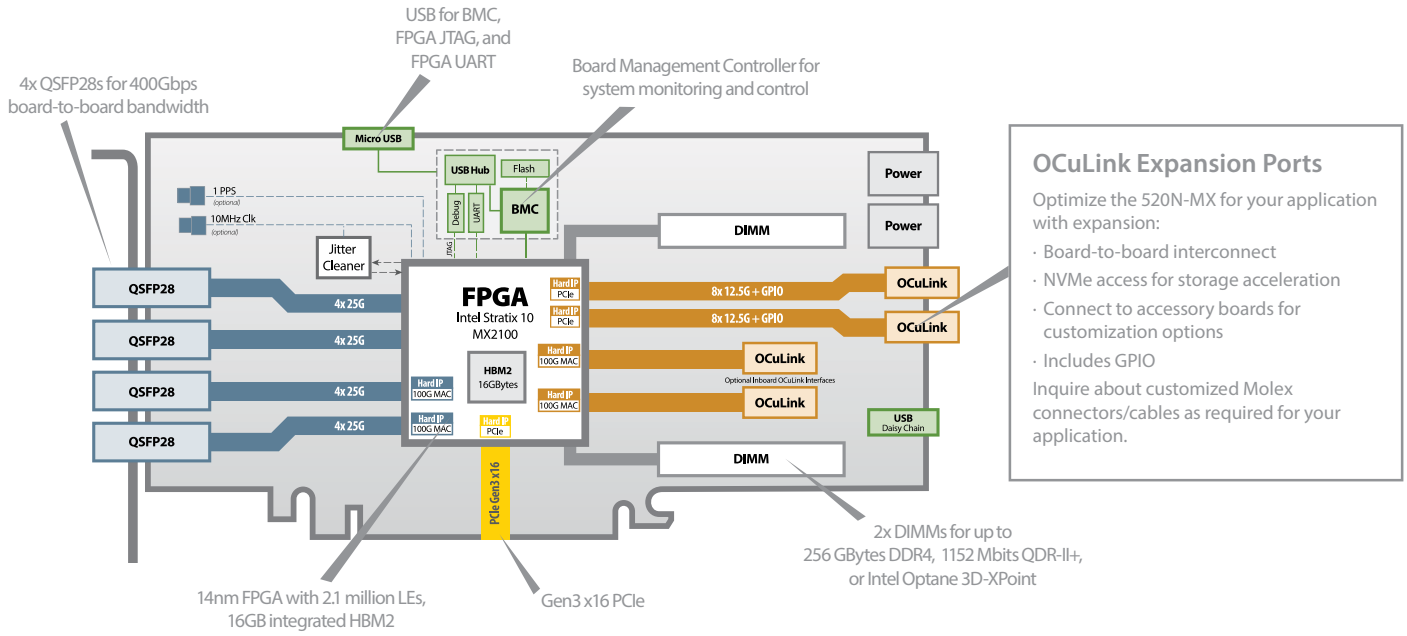
Board Specifications

- **Intel Stratix 10 MX:**
  - MX2100 in an F2597 package
  - 16GBytes on-chip High Bandwidth Memory (HBM2) DRAM, 410GB/s (speed grade 2)
  - Core speed grade -2: I/O speed grade -2
- **External memory:**
  - 2x 288-pin DIMM slots each fitted with 16GB modules by default, i.e., 32GB total onboard
- **Host interface:**
  - x16 Gen3 interface direct to FPGA, connected to PCIe hard IP
  - 2 QSFP28s have available 100GbE MAC hard IP
- **OCuLink:**
  - 2x edge connectors (A, B) @ 12.5G per lane (default); each supports PCIe Gen 3 x8 hard IP, GPIO, and PCIe master and optional input clocking
  - 2x inner connectors (C, D) @ 25G per lane (optional); 1x 100GbE MAC hard IP per OCuLink
- **Board Management Controller:**
  - Voltage, current, temperature monitoring
  - Power sequencing and reset
  - Field upgrades
  - FPGA configuration and control
  - Clock configuration
  - Low bandwidth BMC-FPGA comms with SPI link
  - USB 2.0
  - PLDM support
  - Voltage overrides
- **Cooling:**
  - Double-width active heatsink (with fan) - standard
  - Double-width passive heatsink - optional
- **Electrical:**
  - On-board power derived from a 12V PCIe slot & two AUX connectors (one 8-pin, one 6-pin)
  - Power dissipation is application dependent
  - Typical max power consumption 225W
- **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 266.7mm)

Board Specifications

- **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.)
    Note: OpenCL BSP does not support the DDR4 DIMMs.

Block Diagram



Mouser Part Numbers

View all Parts

To learn more, visit https://www.mouser.com/new/bittware/bittware-520n-mx-card/