

# Stratix 10 FPGA Board with HBM2 and 480Gbps Optical Input

Optimized for sensor processing applications with massive real-time data ingest requirements

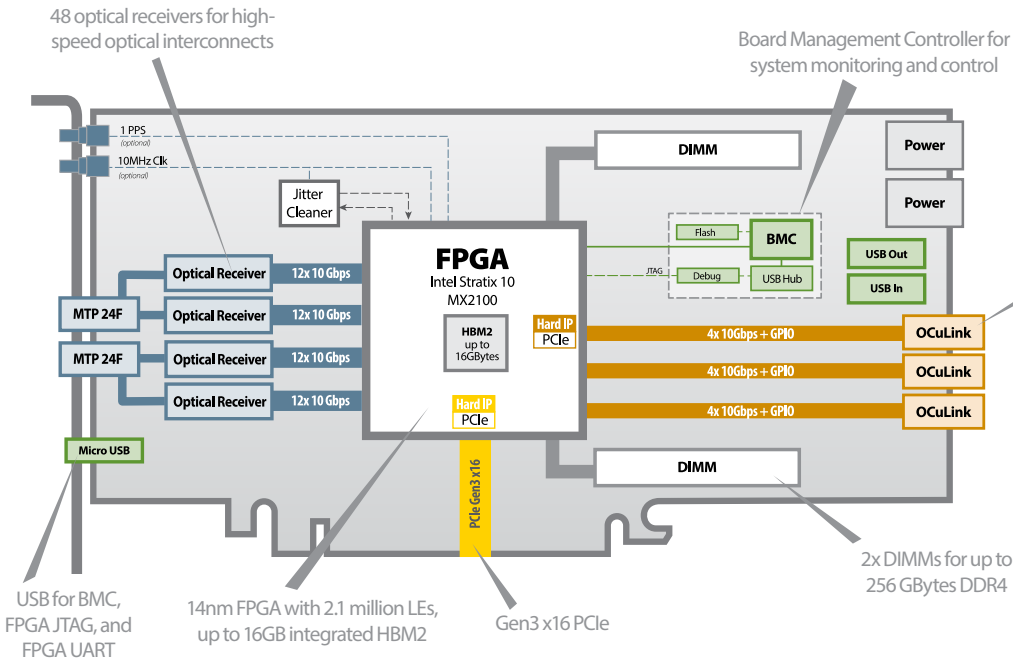
Designed for compute acceleration of high-speed sensor data, the 520R-MX is a PCIe board featuring Intel's Stratix 10 MX2100 FPGA with integrated HBM2 memory. The size and speed of HBM2 (up to 16GB at up to 512GB/s) enables acceleration of memory-bound applications. 48 optical receivers provide high-speed input to the FPGA, and OCuLink connectors allow expansion.

The 520R-MX features a Board Management Controller (BMC) for advanced system monitoring and control, which greatly simplifies platform integration and management.



## key features

- Intel Stratix 10 MX2100
- up to 16GB HBM2 up to 512GB/s
- 48 10Gbps optical receivers



**OCuLink Expansion Ports**

Optimize the 520R-MX for your application with expansion:

- Board-to-board interconnect
- NVMe access for storage acceleration
- Connect to accessory boards for customization options
- Includes GPIO

Inquire about customized Molex connectors/cables as required for your application.

# 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.



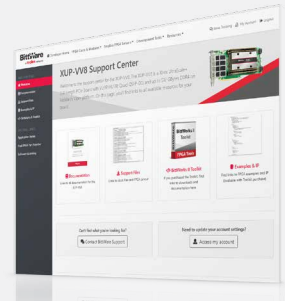
## Server Integration

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	<ul style="list-style-type: none"> <li>Intel Stratix 10 MX MX2100             <ul style="list-style-type: none"> <li>8GBytes on-chip High Bandwidth Memory (HBM2) DRAM, 410 GB/s (speed grade 2)</li> <li>Core speed grade -2: I/O speed grade -3</li> </ul> </li> <li>Contact BittWare for other Stratix 10 MX options (16GBytes HBM2, speed grades)</li> </ul>
On-board Flash	<ul style="list-style-type: none"> <li>2Gbit Flash memory for booting FPGA</li> </ul>
External memory	<ul style="list-style-type: none"> <li>2 288-pin DIMM slots each fitted with a 64GB DDR4-2400 LRDIMM by default, i.e., 128GB total on board (options up to 256GB total)</li> </ul>
Host interface	<ul style="list-style-type: none"> <li>PCIe Gen3 x16 interface direct to FPGA, connected to PCIe hard IP</li> </ul>
Optical Receivers	<ul style="list-style-type: none"> <li>4 12-channel 10.3125Gbps optical receivers, each connected to the FPGA via 12 SerDes channels</li> </ul>
OCuLink	<ul style="list-style-type: none"> <li>3 x4 edge connectors (A, B, C) @ 10.3125Gbps per lane; one lane (C) supports PCIe Gen3 x4 hard IP</li> </ul>
Board Management Controller	<ul style="list-style-type: none"> <li>Voltage, current, temperature monitoring</li> <li>Power sequencing and reset</li> <li>Field upgrades</li> <li>FPGA configuration and control</li> <li>Clock configuration</li> <li>Low bandwidth BMC-FPGA comms with SPI link</li> <li>USB 2.0</li> <li>PLDM support</li> </ul>

Cooling	<ul style="list-style-type: none"> <li>Double-width passive heatsink</li> </ul>
Electrical	<ul style="list-style-type: none"> <li>On-board power derived from 12V PCIe slot &amp; two AUX connectors (one 8-pin, one 6-pin)</li> <li>Power dissipation is application dependent</li> <li>Typical max power consumption 200W</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>Operating temperature: 5°C to 40°C at card inlet</li> </ul>
Quality	<ul style="list-style-type: none"> <li>Manufactured to IPC-A-610 Class 2</li> <li>RoHS compliant</li> <li>CE, FCC &amp; ICES-003 approvals</li> </ul>
Form factor	<ul style="list-style-type: none"> <li>Standard-height PCIe dual-slot board</li> <li>111 x 266.7 mm (4.376 x 10.5 inches)</li> </ul>

## Development Tools

System development	BittWare SDK including PCIe driver, libraries, and board monitoring utilities
FPGA development	<b>Supported design flows</b> - Intel High-Level Synthesis (C/C++) & Quartus Prime Pro (HDL, Verilog, VHDL, etc.)

## Deliverables

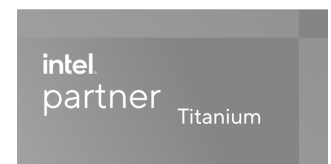
- 520R-MX FPGA board
- 1-year access to online Developer Site
- 1-year hardware warranty

To learn more, visit [www.BittWare.com](http://www.BittWare.com)

Rev 2021.11.23 | November 2021

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