



# Arria 10 GX/SX 3/4-Length PCIe FPGA Board

with Quad QSFP and DDR4

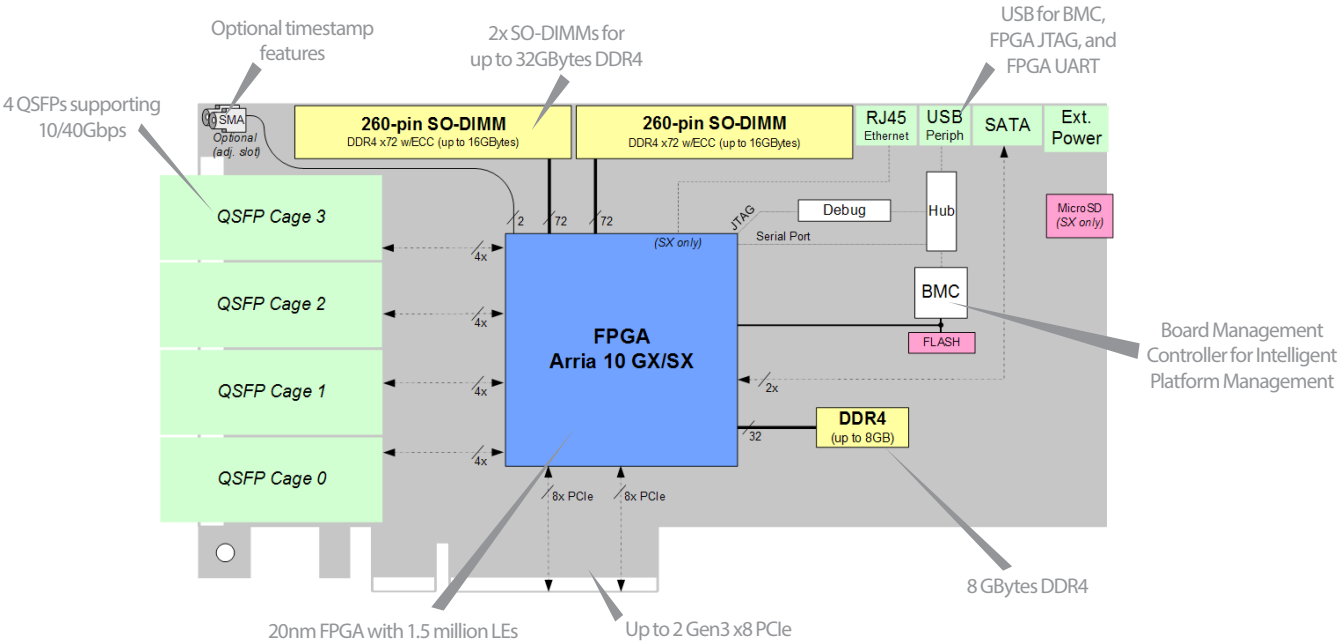
BittWare's A10P3S is a 3/4-length PCIe x8 card based on the Intel Arria 10 GX/SX FPGA and SoC. The Arria 10 boasts high densities and a power-efficient FPGA fabric married with a rich feature set including high-speed transceivers, hard floating-point DSP blocks, and embedded Gen3 PCIe x8. The Arria 10 SX variant also features a dual-core ARM® Cortex™-A9 MPCore™ hard processor system (HPS).

The board offers flexible memory configurations supporting over 40 GBytes of memory, sophisticated clocking and timing options, and four front panel QSFP

cages, each supporting up to 40 Gbps. The A10P3S also incorporates a Board Management Controller (BMC) for advanced system monitoring, which greatly simplifies platform management. All of these features combine to make the A10P3S ideal for a wide range of applications, including network processing and security, compute and storage, instrumentation, broadcast, and SigInt.

## key features

- Intel Arria 10 GX/SX
- 4 QSFPs for 10/40Gbps
- Dual Core Arm Cortex A-9



# 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.



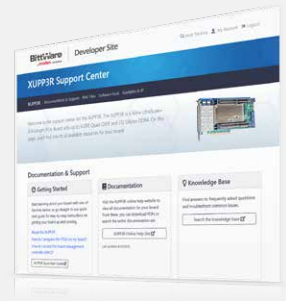
## Server Integration

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 Arria® 10 SX FPGA             <ul style="list-style-type: none"> <li>SX 660 FPGA</li> <li>Core speed grade - 2; I/O speed grade -3</li> </ul> </li> <li>Contact BittWare for Arria 10 GX 1150 FPGA option</li> </ul>
External memory	<ul style="list-style-type: none"> <li>2 SO-DIMM sites, each supporting up to 16 GBytes DDR4 x72 with ECC</li> <li>One bank of up to 8 GBytes DDR4 (x32)</li> <li>64 MBytes flash for FPGA images</li> </ul>
MicroSD card	<ul style="list-style-type: none"> <li>MicroSD card containing ARM/SoC OS and filesystem (SX only)</li> </ul>
Host interface	<ul style="list-style-type: none"> <li>Two x8 Gen3 interfaces direct to FPGA (one x8 interface in a standard slot; two x8 interfaces requires bifurcated slot)</li> </ul>
USB	<ul style="list-style-type: none"> <li>Micro USB port (USB 2.0) for debug and programming FPGA and Flash</li> <li>Built-in Intel USB-Blaster</li> <li>FPGA serial port</li> </ul>
Timestamping (optional)	<ul style="list-style-type: none"> <li>1 PPS input/output</li> <li>Reference clock input/output</li> </ul>
I/O	<ul style="list-style-type: none"> <li>Two SATA connectors, connected to FPGA</li> <li>RJ-45 Ethernet jack for 1000BASE-T connection to the SoC (SX only)</li> </ul>
QSFP cages	<ul style="list-style-type: none"> <li>4 QSFP cages on front panel connected directly to FPGA via 16 SerDes (no external PHY)</li> <li>Each supports 40GbE or 4x 10GbE</li> <li>Backward compatible with QSFP and can be optionally adapted for use as SFP+</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>I<sup>2</sup>C bus access</li> <li>USB 2.0 and JTAG access</li> <li>Voltage overrides</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>Standard: single-width fansink</li> <li>Optional: single-width heatsink</li> </ul>
Electrical	<ul style="list-style-type: none"> <li>On-board power derived from 12V PCIe slot</li> <li>AUX connector (6-pin) also available</li> <li>Power dissipation is application dependent</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>Operating temperature 5°C to 35°C</li> </ul>
Size	<ul style="list-style-type: none"> <li>3/4-length, standard-height PCIe board</li> <li>241mm x 111.15mm</li> </ul>

## Development Tools

Application development	<ul style="list-style-type: none"> <li><b>HDL development - BittWorks II Toolkit:</b> host, command, and debug tools for BittWare hardware</li> </ul>
FPGA development	<ul style="list-style-type: none"> <li><b>FPGA Examples</b> - example Quartus projects</li> <li><b>Intel Tools</b> - Quartus II software</li> </ul>

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

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Platinum

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