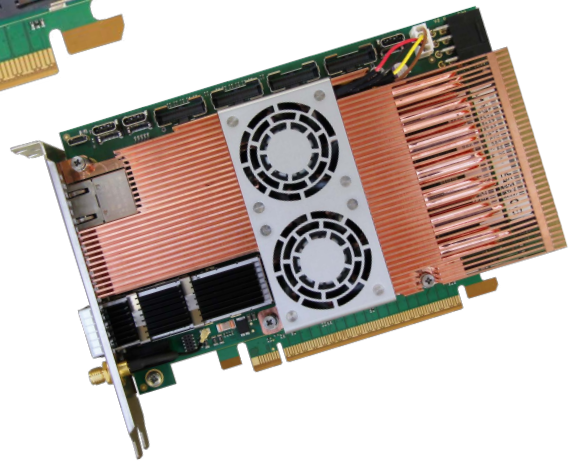
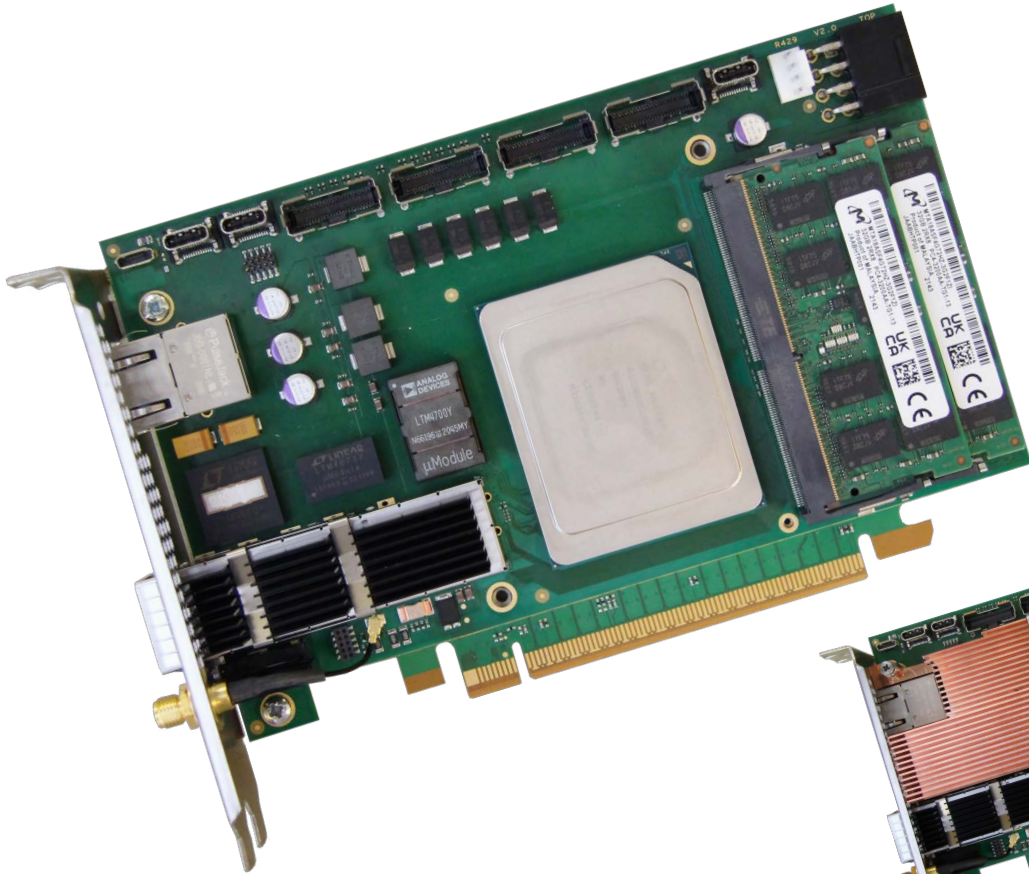


# XpressSX AGI-FH401GT

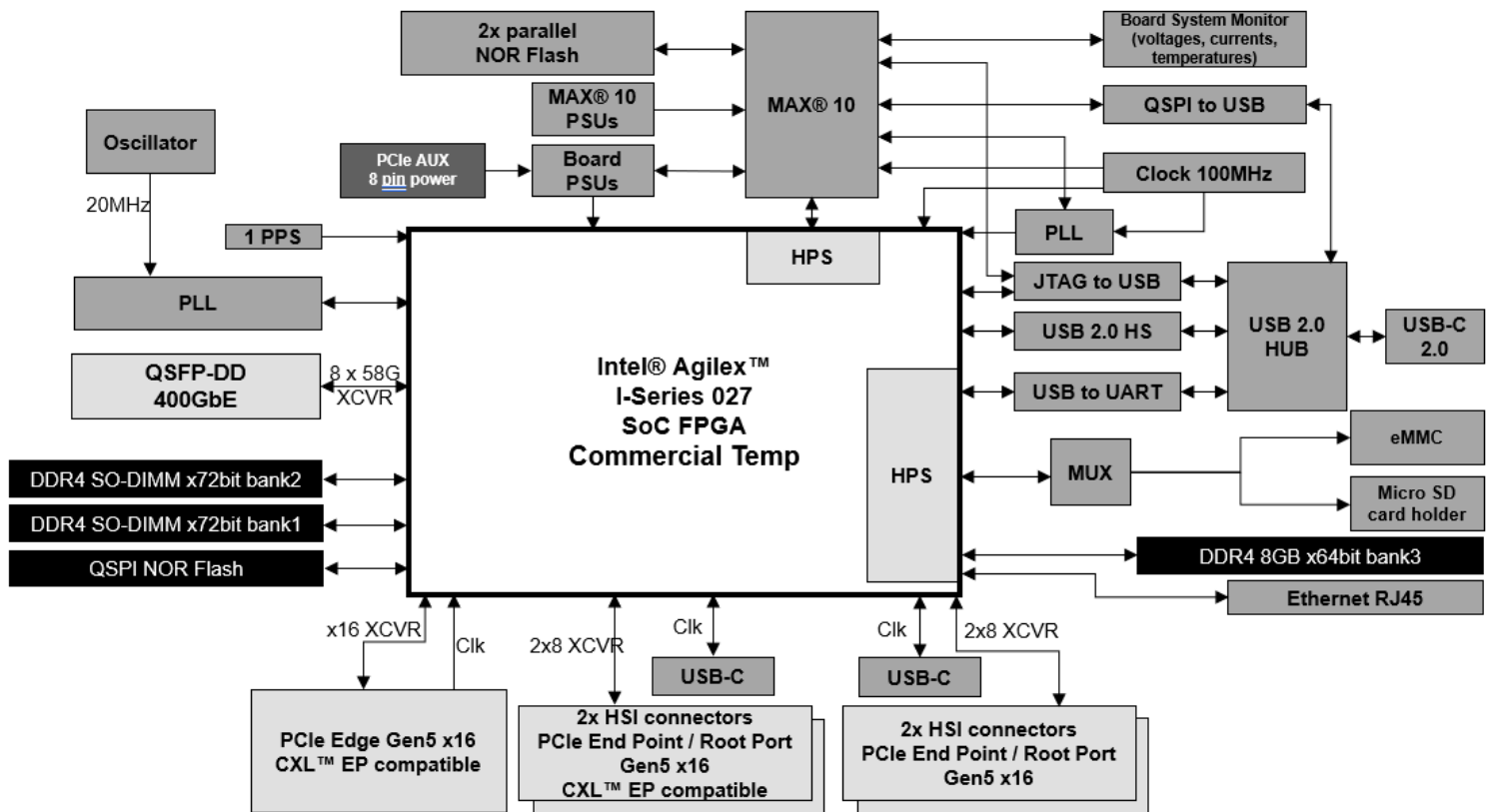
Full height, half length PCIe Gen5 Network  
Processing board



- Intel® Agilex™ I-Series SoC
- Quad Core ARM® Cortex® A53
  - 2700 KLE
- PCIe Edge Gen5 x16
- CXL™ EP compatible

- 400GbE (8 x 58G)
- 3x DDR4 banks, up to 72GB
- 4x HSI connectors (2x PCIe Gen5 x16 EP/RP, 1x CXL™ EP compatible)

- Security SmartNIC
- Memory expansion & storage
- Networking Switch



## Full Specifications

FPGA Configuration	<ul style="list-style-type: none"> <li>Intel® Agilex™ I-Series : AGIB027R29A1E1VC including SoC Quad Core ARM® Cortex® A53</li> <li>R29A/D package compatibility</li> <li>HPS interface : Ethernet RJ45, UART, USB Device, SDCARD/EMMC, 2x LED, SPI to MAX10</li> <li>Flash configuration</li> <li>USB 2.0 Hub for JTAG, UART, BMC, USB2</li> </ul>	<b>Board Dimensions</b> <ul style="list-style-type: none"> <li>Full height half length: 167.7mm x 111.15mm</li> </ul>
Memory	<ul style="list-style-type: none"> <li>1x on-board DDR4 (mutual SoC / FPGA), x64 bit bus, 8GBytes up to 3200 MT/s</li> <li>2x DDR4 SO-DIMM sockets (for FPGA), each capable up to 32GBytes SO-DIMM, with ECC, up to 3200 MT/s</li> <li>eMMC or SD Card holder (if used) for SoC</li> </ul>	<b>Communication Interfaces</b> <ul style="list-style-type: none"> <li>PCIe Edge Gen5 x16</li> <li>CXL™ EP standard compatible*: <ul style="list-style-type: none"> <li>Open standard interconnection for high-speed CPU-to-device and CPU-to-memory</li> <li>Built on the PCIe physical and electrical interface</li> </ul> </li> <li>8x QSFP-DD (8x 58G: 400G total)</li> <li>2x HSI connectors (ARF6-16-L-RA): Total of 16 transceivers for PCIe Gen5 End Point / Root Port, CXL™ End Point standard compatible</li> <li>2x HSI connectors (ARF6-16-L-RA): Total of 16 transceivers for PCIe Gen5 End Point / Root Port</li> <li>2x USB-C connectors for HSI Clocks &amp; control signals</li> </ul>
Power	<ul style="list-style-type: none"> <li>200W max, delivered with 2-slot active cooling heatsink</li> <li>Powered by the PCIe slot and an 8 pin PCIe Aux ATX external connector (additional power)</li> </ul>	<b>Other Resources</b> <ul style="list-style-type: none"> <li>Board Management Controller (Max® 10 device)</li> <li>Programmable PLL</li> </ul>
Operating Range	<ul style="list-style-type: none"> <li>0°C to 35°C</li> </ul>	<b>Standards and Compliance</b> <ul style="list-style-type: none"> <li>RoHS/REACH compliant</li> <li>UL certified</li> <li>ISO9001 certified</li> </ul>
Storage Range	<ul style="list-style-type: none"> <li>0°C to 70°C</li> </ul>	

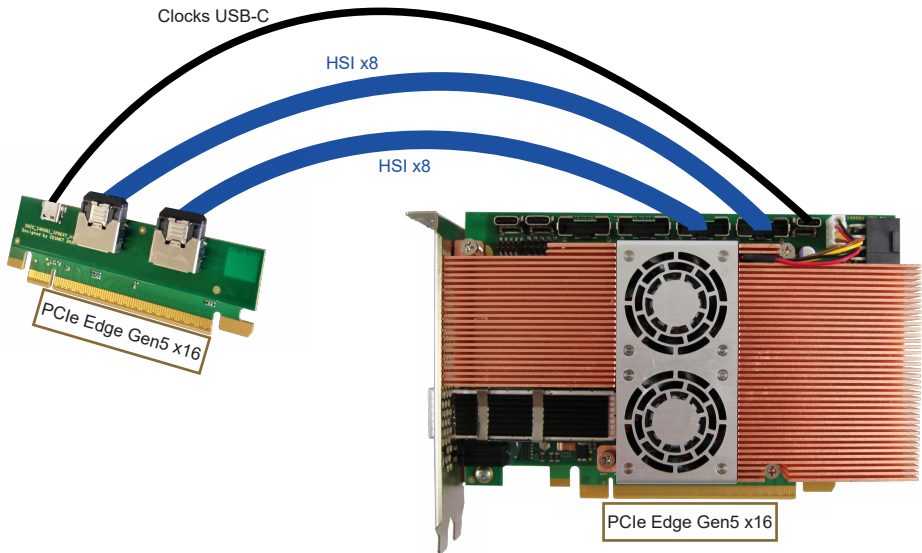
\*Use of CXL™ features might require separate CXL™ IP license purchase. Please contact Intel® for details.

# Additional PCIe Gen5 x16 daughter card

The XpressSX AGI-FH401G board is delivered with accessories : a PCI Edge Gen5 x16 daughter card, two HSI cables and a USB-C cable.

This PCIe Edge Gen5 x16 daughter card needs to be inserted in a PCIe Gen5 compatible server to deliver the full PCIe Gen5 x16 performances.

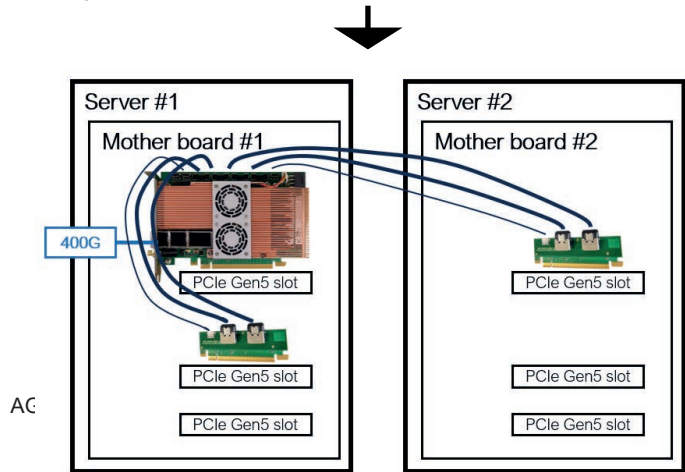
The daughter card can also be used in PCIe Gen4 slot in case the server is not supporting Gen5, and it also supports x8x8 bifurcation mode.



## Uses cases

### Multi EndPoint use case: PCIe Gen5 FPGA switch card

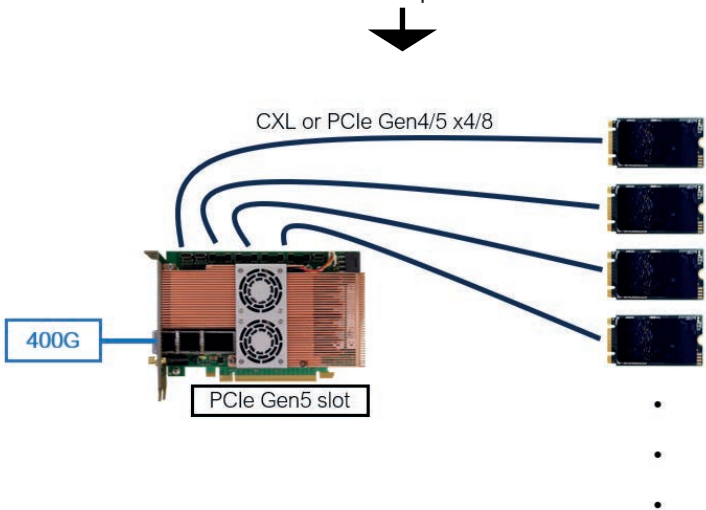
- 3x PCIe Gen5 x16 End Point interfaces (2 are CXL End Point capable)
- PCIe Gen5 enumeration tested on the 3 interfaces
- HSI cable signal integrity tested at 32Gbps up to 18 inches cable length



### Multi EndPoint use case:

### PCIe Gen5 FPGA memory expansion & storage card

- PCIe Gen5 x16 End Point, CXL End Point capable
- Additional interfaces for NVMe storage or DDR memory expansion:
  - 4x PCIe Gen4/5 x8 Root Port capable
  - Or 8x PCIe Gen4/5 x4 Root Port capable



## Deliverables

- Full height half length 2-slot PCIe board with active heatsink and PCIe bracket
- 2x DDR4 SO-DIMM 32GByte each, one SD card
- 2x HSI cables (ARC6-16-10.0-LU-LD-2-1) and 1x USB-C to USB-C cables (0.72ft), 3.1 Gen2 to connect the PCIe Gen5 x16 daughter card
- PCIe Gen5 x16 (Gen4 x16 compliant) daughter card
- 1-year technical support and 1-year warrantee
- Online support at support.reflexces.com
- NDK package (including DPDK NIC application) provided separately by BrnoLogic
- Board Support Package (download it from reflex ces online support) :
  - Reference Manual
  - FPGA HDL Full feature Design (Quartus Prime Pro Edition 24.3)
  - HPS Software :
    - Built with Yocto Project version 5.0 (scarthgap)
    - U-Boot bootloader (v2024.04), ATF (v2.11.0), linux Kernel (v6.6.37-lts), and linux Yocto Poky Scarthgap (v5.0.5)
  - BMC Software
  - Mechanical files: 3D DWF/STEP models and 2D CAD drawing (upon request)

## Ordering information

XpressSXAGI-FH401GT = Intel® Agilix™ SoC I-Series based on Production Silicon (AGIB027R29A1E1VC)

### Contact sales for availability and pricing