

NAT-AMC-ARRIA10-FMC

The **NAT-AMC-ARRIA10-FMC** is a FMC carrier board in AMC form factor. It features an Intel Arria10 SX SoC or GX FPGA, high dense memory interfaces, and an FMC slot, which supports High (HPC) and Low Pin Count (LPC) connectors as defined by VITA 57.1.

Main processing resource is the Intel Arria10 (ARRIA10) FPGA in NF40 BGA-1517 package with high count I/O to connect all pins of the HPC FMC connector to the FPGA core. It combines up to 1.5M logic elements and high speed SERDES interconnects

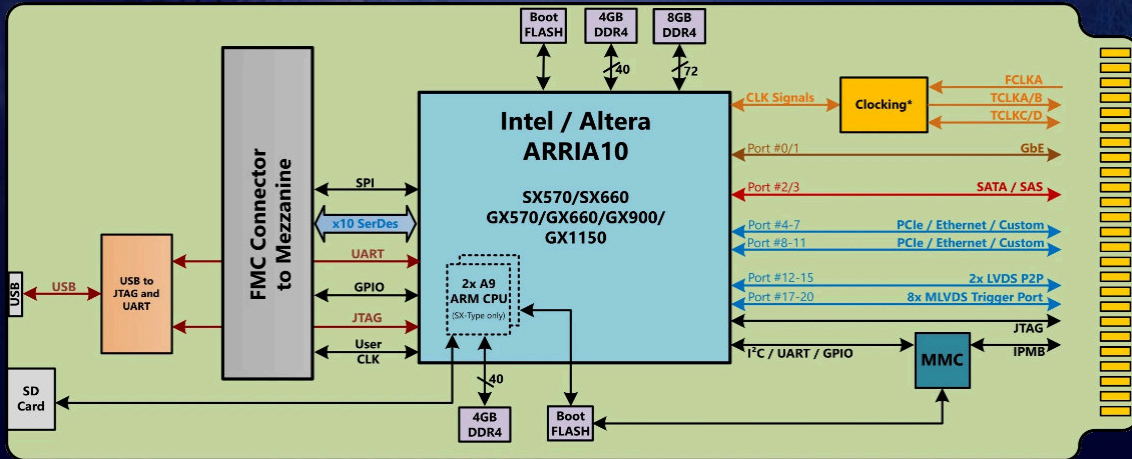
The ARRIA10 GX variants are common FPGAs, whereas the SX types are so-called SoCs (System on a Chip). This means, they combine an FPGA portion with dual-core ARM Cortex-A9 CPU cores (Hard Processor System – HPS).

This FPGA family provides a comprehensive set of advanced power saving features like power-optimized MultiTrack routing and core architecture. This results in considerably lower power consumption compared to the previous generation of mid- and high-range FPGAs with even higher performance at the same time.

The **NAT-AMC-ARRIA10-FMC** is available in various FPGA configurations starting from SX570 over SX660 (with embedded dual ARM core CPU) up to GX1150. It provides three FPGA/CPU-dedicated high-density DDR4 memory interfaces with a total amount of up to 16 GB.

The single-width AMC is available with mid-size or full-size front panels to allow FMCs to use the capabilities of the onboard FPGA to the full extent.

Thus, the **NAT-AMC-ARRIA10-FMC** is suited for a wide range of tasks providing data acquisition, networking, RF, or other functionality. Typical applications might be wireless base stations, camera systems, or generic research applications which require high speed sensor data conversions from analogue to digital.



Key Features

Processing Resources

- Intel/Altera ARRIA10 FPGA GX1150 / GX900 / GX660 / 570 or
- Intel/Altera ARRIA10 SoC SX660 / SX570 with dual ARM Cortex A9 CPU @1.5GHz
- Atmel Atxmega128 as MMC

Front Panel Connectivity

- USB JTAG Connector via Micro-USB
- FPGA Status LED (red/green)
- Standard AMC LEDs for Status, Fault, Hot-Swap

Memory

- 8GB (x72) DDR4 RAM with ECC (FPGA)
- 4GB (x40) DDR4 RAM with ECC (FPGA)
- 4GB (x40) DDR4 RAM with ECC (HPS or FPGA)
- 128MB HPS boot memory (QSPI)
- 128MB FPGA configuration memory (QSPI)
- MicroSD-Card

Backplane Connectivity

- TCLKA-D and FCLKA
- AMC Ports 0/1: GbE
- AMC Ports 2/3: SATA/SAS
- AMC Ports 4/8: PCIe/Ethernet/custom
- AMC Ports 12-15: 2x 4 LVDS to FPGA
- AMC Ports 17-20: 8x MLVDS Trigger
- IPMI for module management
- JTAG

Miscellaneous

- Single, mid- or full-size AMC form factor
- Linux boot - Linux drivers
- API for all internal/external interfaces
- Compliance to AMC.0 R2.0, AMC.1, AMC.2, AMC.3, AMC.4, IPMI V1.5, HPM.1, VITA 57.1
- EN60950, UL1950, CE, RoHS, REACH

FMC Slot

- Single LPC/HPC FMC slot
- HPC differential pairs routed to FPGA
- DP0 to DP9 routed to FPGA
- Support of Region 1, 2, and 3 modules