



# HiprAcc™ NC225

## Intel Agilex Low Profile PCIe Card

### Key Features

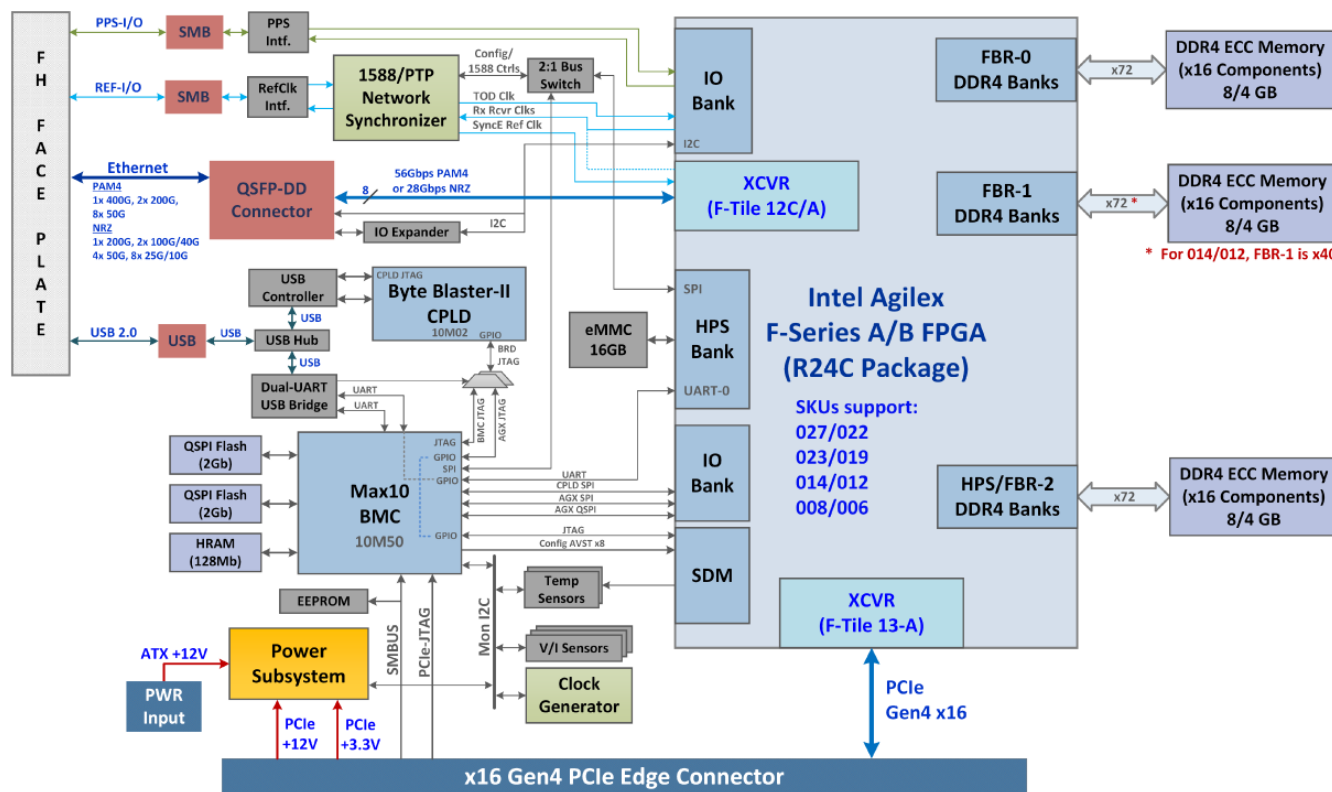
- PCIe low profile (half-length, full-height) form factor (6.6" x 4.376")
- Available with single-slot passive cooling configuration
- Agilex device support from lowest density 006 through 027 high density FPGAs (027/022, 023/019, 014/012, 008/006)
- 16x PCIe Gen4 (256Gbps) host interface
- Up to 400Gbps network interface via a single QSFP-DD network interface
- Skyworks Si5402 network synchronizer based PTP/1588 synchronization with support for external PPS/clock interfaces
- 3 banks of 72-bit DDR4 memory (12GB/24GB Total)
- Agilex ARM HPS support with 16GByte eMMC
- Up to 75W card load with edge power and up to 100W card load with 6-pin PCIe power connector
- Integrated USB Blaster II, Agilex debug and module monitor interfaces through a single micro-USB connector on PCIe bracket
- Extensive power, voltage and temperature telemetry with SMBus based access for host server board management controller (BMC)
- Supports oneAPI for high level abstracted development flow



High performance Data Center accelerator, edge AI and 5G DU/CU low profile PCIe card with Intel's 10nm Agilex FPGA. 2x F-Tile FPGA with up to 400Gbps (8x56Gbps PAM-4) Ethernet interface and 16x PCIe Gen4 support. Full support for PTP/1588 network synchronization.

### Target Applications

- Designed for Data Center workloads and scale out architectures
- Machine learning, network, compute and storage acceleration
- Bump-in-Wire networking and high-performance computing
- 5G infrastructure DU and CU



## Interfaces

- x16 Gen4 PCIe card edge Interface
  - Backwards compatible with Gen3
  - Supports bifurcation as two x8 Gen4/Gen3
  - Gen2 and Gen1 supported via link down-training
- QSFP-DD network interface port with hard IP support for:
  - PAM4: 1x 400G
  - PAM4: 2x 200G
  - PAM4: 4x 100G
  - PAM4: 8x 50G
  - NRZ: 1x 200G
  - NRZ: 2x 100G
  - NRZ: 2x 50G/40G
  - NRZ: 8x 25G/10G
- Unified micro-USB 2.0 interface with on-board USB hub for:
  - Integrated USB Blaster II
  - UART interface to HPS or FPGA fabric (DIP switch selectable)
  - UART interface to module control CPLD for card monitor and remote board control
- Two SMB coaxial connectors for external clock and PPS reference input and outputs

## Product Ordering Codes

Stocked SKU:

AGF-NC225-B74-02; FHHL, AGFB027R24C2E2V Agilex FPGA w/ HPS, -2 Core, -2XVR, 3x 8GB DDR4, 16GB eMMC, Passive single-wide full-height heat sink

## For sales or more information:



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## Memory, Storage and Configuration Interfaces

- Three 72-Bit DDR4 interfaces, 4GB or 8GB component memory per bank
- One DDR4 port routed to HPS accessible banks
- 16GB eMMC for HPS
- x8 AVST configuration interface from module control CPLD
- Dual 2Gbit QSPI flash memories for FPGA configuration and BMC controller connected to the module control CPLD
- 128Mbyte HyperRAM for BMC controller

## Network Synchronization

- Skyworks Si5402 network synchronizer based high performance PTP/1588 support
- On-boards TCXO based reference with option for OCXO support
- 2x SMB connectors for external PPS and reference clocks. Run time configurable as inputs or outputs

## On-board Development and Debug Support

- Integrated USB Blaster II
- UART access to the FPGA and module control CPLD
- Temperature, voltage and current monitoring sensors to module control CPLD
- Module input power measurement for profiling and verification in target servers/environment
- Automatic over-temp FPGA de-configuration
- Support for server Board management controller (BMC) with MTCP protocol support via SMBus through integrated module control CPLD processor
- Tri-color module status LED at PCIe bracket edge
- Multiple on-board diagnostic and status LEDs

## Power and Heatsink Options

- PCIe edge power with support for 6-Pin microFIT connector power input
- Single-slot passive full-height heat sink
- 75W with PCIe edge power
- >100W with 6-Pin microFIT connector power