

# COM-HPC Ampere Altra

Server Type COM-HPC Size E Module with ARM-based Ampere Altra Processor

## Features

- Up to 80 Arm-based cores at 150W TDP
- Up to 768GB DDR4 with 6 individual memory channels
- EDK II, seamless support for popular OS, hypervisors, and software
- 64 PCIe Gen4 lanes (3 x16 available)
- Dedicated PCIe and IPMB for remote management

Preliminary



## Specifications

### Core System

#### SoC

Ampere Computing, Ampere® Altra® Series Processors

- Q80-26 80 cores, 2.6GHz, 150W TDP
- Q64-22 64 cores, 2.2GHz, 95W TDP
- Q32-17 32 cores, 1.7GHz, 65W TDP

Note: Additional SKUs are supported by project basis

#### Memory

Six DIMM sockets with individual memory channels

Up to 768GB (6x 128GB) DDR4 RDIMM memory, up to 3200MT/s

#### Embedded BIOS

Open Source TianoCore EDK II

#### Cache

1 MB L2 cache per core, 32 MB System Level Cache

#### Expansion Buses

64 PCI Express Gen4 Lanes

- 8 PCI Express Lanes 0-7 (J1): configurable to x8, x4, x2
- 8 PCI Express Lanes 8-15 (J1): configurable to x8, x4, x2
- 16 PCI Express Lanes 16-31 (J2): configurable to x16, x8, x4
- 16 PCI Express Lanes 32-47 (J2): configurable to x16, x8, x4
- 16 PCI Express Lanes 48-63 (J2): configurable to x16, x8, x4

CCIX for heterogeneous computing (by project basis, TBC)

SMBus (system), 2x I2C (user), GP\_SPI

#### Module Management Controller (MMC)

Supports IPMB for communication with carrier BMC for remote management usage. Monitors module voltage/current, manages power sequence, AT/ATX mode control, board information, watchdog timer, fan control.

#### Debug Headers

- 40-pin multipurpose flat cable connector for use with DB40-HPC debug module providing BIOS POST code LED, MMC/EC access, SPI BIOS flashing, power testpoints, debug LEDs
- JTAG connector for CPU diagnostics

### Ethernet KR

#### MAC

External LAN controller

#### Interface

Up to 4x 10GBASE-KR or 10GbE SFI (TBC)

### NBASE-T Ethernet

#### Intel MAC/PHY

Intel® Ethernet Controller I210

#### Interface

10/100/1000 Mbit/s Ethernet connection

### Remote Management Dedicated Interfaces

#### PCIe\_BMC

Dedicated PCIe for carrier BMC, mainly used for KVM (carrier BMC emulates graphics card)

#### IPMB

Provided by MMC, dedicated connection between carrier BMC and module MMC

### Multi I/O and Storage

#### USB

4x USB 3.0/2.0/1.0 (USB 0,1,2,3), by PCIe-to-USB host controller

#### Serial

2x UART ports with console redirection

#### GPIO

12x GPIO (GPI with interrupt, TBC)

### TPM

#### Chipset

Infineon (build option)

#### Type

TPM 2.0 (SPI based)

### Power

#### Standard Input

ATX: 12V±5% / 5Vsb ±5%; or AT: 12V±5%

#### Management

ACPI 5.0 compliant

#### Power States

TBC

## Specifications

- **Mechanical and Environmental**

**Form Factor**

PICMG COM-HPC: Rev 1.0 Server Type

**Dimension**

Size E: 200 mm x 160 mm

**Operating Temperature**

Standard: 0°C to 60°C (storage: -20°C to 80°C)

**Humidity**

5-90% RH operating, non-condensing

5-95% RH storage (and operating with conformal coating)

**Shock and Vibration**

IEC 60068-2-64 and IEC-60068-2-27

MIL-STD-202F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D (TBC)

**HALT**

Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

- **Operating Systems**

**Standard Support**

Yocto Hardknott project based Linux 64-bit

Ubuntu Server for ARM - 20.04.3 LTS 64-bit

CentOS 8 Stream

- **Ordering Information**

**Modules**

Module Number	Description/Configuration
COM-HPC-ALT-Q32-17	Server Type COM-HPC Size E module with Ampere Altra Q32-17, 32C

\* For processor SKUs not listed, please contact your ADLINK representative for availability.

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## Functional Diagram

