The Era of Cloud Native Platforms is Here

Presenting the Ampere® Mt. Jade Reference Platform with Ampere® Altra® Max™ CPUs
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A Timeline of Computing Disruptions

Mainframes

PCs

Client/Server

Internet

Hypervisors
Open source sw

Hardware Virtualization
High-speed networking

Cloud Computing 1.0

Cloud Computing 2.0

Microservices
CI/CD Big Data/AI

DSAs

Hardware is just starting to respond to
Cloud 2.0 Software paradigms

OPEN POSSIBILITIES.
General Purpose Compute Designed for the Cloud – Some Desirable Attributes

- Performance & Core Count
- vCPU performance
- Predictability
- Energy Efficiency
- I/O Capabilities
- Open [Design, Software,…]
High Core Count

- **80 cores**
  - Ampere® Altra® (7nm)
  - 2020

- **128 cores**
  - Ampere® Altra® Max™ (7nm)
  - 2021

- **128+ cores**
  - Ampere® Next Generation (5nm)
  - 2022
Compelling Performance

Performance on Cloud Workloads

SPEC CPU 2017 Integer Rate (Estimated)  Memcached  Media Encoding  NGINX Web Frontend

Platform A  Platform B  Ampere® Altra® Max™

OPEN POSSIBILITIES.
Competitive per-vCPU Performance

vCPU Performance

- Platform A
- Platform B
- Ampere® Altra® Max™

SPEC CPU 2017 Integer Rate (Estimated)
Predictable Performance and Greater Resistance to Noisy Neighbors

Increasing Load/Noisy Neighbors →

Predictable Performance at High Load
Excellent Energy Efficiency

Lower Power Consumption for Similar Levels of Performance
Mt. Jade Server Baseboard

- Socket spread-core motherboard
- 1U and 2U 19” chassis support
- 128-cores Ampere® Altra Max™ or 80-cores of Ampere® Altra® up to 250W TDP
- 8-channels of DDR4-3200 memory supporting 2DPC
- 128 PCIe Gen4 lanes per processor
  - 32 lanes for CCIX P2P
- 2U has 24x 2.5” bays for NVMe drives
- 2U has 6x fans that are hot-swappable
- Two M.2 slots for NVMe drives
- ASpeed BMC
- OCP NIC 3.0 slot in the middle of the platform
- Two PSUs supporting up to 2kW CRPS
Mt. Jade with 24 NVMe Drives

- Air Duct
- 6056 Fan module
- 12 Bay 3.5" HDDs
- 24 Bay 2.5" SSDs
- 2x 2.5" SSDs
- x32 Riser Module
- x24 Riser Module
- x8 Riser Module
- OCP 3.0 NIC
- PSU
Extreme Storage Capabilities

FIO Optimized Storage Performance:

- Performance scales linearly up to 24 drives
- Random and Sequential operations saturate drive specifications easily
- Low CPU utilization
- Average latency is stable across 24 drive load
- Sequential BW scales linearly up to 82GB/s Read and 21.3 GB/s Write respectively
Complete Mt. Jade Solution Contributed to OCP

- Board specification
- openBMC firmware
- EDK2 UEFI
- Board design files
Ampere’s Expanding Open Ecosystem

Applications Infrastructure Utilities

Operating System Firmware

Single & Dual Socket Servers

Cloud Native | Arm Native | Storage | Computational | Edge

Ampere Solutions Portal
Daily regression updates on open-source and partner ecosystem running on our platforms.

Ecosystem

Ampere® Altra® and Altra® Max
Product Information

- Ampere Platforms [https://solutions.amperecomputing.com/systems/altra](https://solutions.amperecomputing.com/systems/altra)
- Marketplace Link [https://www.opencompute.org/products](https://www.opencompute.org/products)
- Mt. Jade Firmware
Call to Action

• Get involved in the next-generation General Purpose Cloud Server Specification
• Provide feedback on Ampere’s firmware

Where to buy:
https://www.opencompute.org/products

Project Wiki with latest specification:
http://www.opencompute.org/wiki/Server/
Open Discussion