# AMPERE™

The world is adopting the cloud. Almost everything you access today on a technology device (music, photos, games, computing, enterprise apps, retail experiences) resides in a cloud somewhere. Distributed computing environments in data centers with servers that process and manage all these workloads are not new. At Ampere, we believe it is time for a new hardware technology to run this new software world of the cloud. We believe that a new approach is required to run cloud data center servers efficiently and to ensure that consumers have a fast, reliable and secure experience. We believe an innovative and different approach will change the future of everything you do with technology in the cloud. With Ampere's new server chip solution, cloud computing just got a whole lot better.

## Our vision

At Ampere, we believe the future of hyperscale cloud computing requires a new kind of approach, with hardware and software designed for the distinct requirements of the cloud software environment. In our view, this is not something that can be borrowed from legacy systems. New technology designed specifically for the cloud will drive new innovations not even imagined yet, enabling the proliferation of more apps managed in the cloud, ranging from web search and categorization; online retail; content hosting and distribution; social media; communication services; artificial intelligence and machine learning; more secure storage of content; and much more.

Our vision is to become the new standard for hyperscale, cloud computing data centers. This will empower our customers with the freedom to challenge the status quo and accelerate next-generation data centers for the most memory-intensive applications.

Ampere is leveraging the depth and expertise within the cloud and semiconductor industries to push the boundaries of emerging cloud applications. Our world class team of scientists are focused on the development of new semiconductor designs and building out the first software ecosystem for Arm®-based server processors.

## Our story

Like the scientist behind its name, Ampere employees are innovators. We understand the needs of cloud computing and different software requirements. We are inventing what comes next and looking at everything from the structure of memory and how efficient the system is, to considerations on speed, cost of electricity and ability to cool. Power, size, weight and cost are driving the technology requirements and the innovation to come.

**FOUNDED IN OCTOBER 2017**

Chief Executive Officer:
**Renée James**

**HEADQUARTERS**
4555 Great America Pkwy, Ste. 601
Santa Clara, CA 95054
Tel: +1408-542-8600
Fax: +1408-542-8601

Memory performance will make or break the future of the cloud. Workloads moving to next-generation data centers require enormous amounts of memory because they are based on Java and algorithms. We already have the industry's best memory performance and we will not stop there. We will continue to innovate in this area.

We know this will be hard work but we are up to the challenge. We are building a culture of young-spirited entrepreneurs that make sure customers come first. We will be proactive with solutions to solve problems and confront the industry challenges around security, power and performance and surprise you with the results you deserve and that matter most.

## Products born in and built for the cloud

Ampere's custom designed Arm® processors are purpose-built for large-scale public and private cloud environments. Our cloud solutions deliver advantages through our performance cores, high-speed connectivity, memory throughput, and carrier-grade reliability. We raise the bar on retrieve-and-compute capability in an existing data center footprint while lowering power and operating costs substantially.

**PROCESSOR FEATURES**
- A unique, new designed, high-performance custom core Arm® v8 64-bit server operating at up to 3 GHz specifically designed for cloud servers
- High-performance memory bandwidth and leading memory capacity for cloud work loads
  - o Highly-integrated mixed signal I/O features including PCIE Gen 3, SATA Gen 3, USB and workload accelerators, as well as a high-performance on-chip fabric
  - o Enterprise-class features including ECC (error-correcting code) and RAS (reliability, availability and serviceability)
    - High integration and power efficiency
    - Full virtualization support
    - Advanced power management
    - Integrated security features
    - Arm server base system architecture (SBSA) and server base boot requirements (SBBR) standards compliance
    - Unified extensible firmware interface (UEFI) compliant BIOS
    - Enterprise-grade operating system support

The Ampere platform represents a completely new processor architecture tailored for the emerging growth of cloud computing and next-generation data centers. It provides a quick and out-of-box experience to get started with the deployment of any desired workload on the hardware platform.

Featuring custom high-performance Arm v8 cores, the device is the first to couple an advanced 64-bit Arm architecture with unique network and storage offload engines. The highly-integrated, purpose-built Ampere solution delivers the highest performance, lowest total cost of ownership (TCO) for private and public clouds.

**PLATFORM FEATURES**
- 19" chassis with the Skylark evaluation board featuring a built-in power supply, DRAM memory, storage disks and networking
- Boot and power management firmware
- Arm Trusted Firmware (ATF)
- AMI® AptioV UEFI BIOS with support for all the device peripherals, VGA and a configuration GUI
- CentOS Operating System
- GCC and LLVM tool chains
- AMI® MEGARAC BMC firmware for baseboard management
- Built-in support for Skylark's workload accelerators
- Documentation and collateral

## Software ecosystem

The workloads moving to the cloud require enormous amounts of memory and customers have stringent requirements for power, size, weight and costs. At the same time, the software that runs the cloud doesn't have the requirements of the legacy enterprise which allows Ampere to design with a different point of view.

In order to build the software ecosystem customers need to be successful, Ampere works with leading software providers across tools, BIOS/BMC, OS and Java.

## Experienced team

**Renée James, Chairman and CEO**

Renée James is a seasoned technology leader with large-scale, broad international operations experience. She is currently the chairman and CEO of Ampere Computing. Renée had a lengthy career with Intel Corporation where she was the president of the company until her departure in 2016. She is a current operating executive at the Carlyle Group.

**Chi Miller, CFO and COO**

Chi is the chief financial officer and chief operating officer of Ampere. Prior to joining Ampere, he was senior director of finance at Apple Corporation, where he supported the R&D group. Prior to Apple, Chi was with Intel for 25 years, where he held a variety of roles including platform engineering VP of finance, software and services VP of finance, M&A controller and server products controller.

**Atiq Bajwa, Chief Architect**

Atiq is a seasoned technologist with over 30 years of technical leadership experience in product R&D. Prior to joining Ampere, Atiq was VP and GM of product architecture at Intel, where he led the architectural definition and development of Intel's computing products for the data center, PC, workstation and ultramobile markets. Before joining Intel, Atiq was a member of the team that developed the 32000 family of microprocessors at National Semiconductor.

**Rohit Avinash Vidwans, Executive Vice President of Engineering**

Rohit brings over 25 years of experience from Intel where he developed microprocessors, graphics, media and supercomputing processors and platforms, and holds 8 microprocessor design patents. Notable projects that he worked on or led include Intel's™ first 8 and 10 core Xeon™ microprocessors for data center and enterprise servers and Intel's first multi-core phone and tablet SOCs based on the ATOM™ core.

**Greg Favor, Senior Fellow**

Greg brings 25 years of experience developing high-performance microprocessors across multiple ISAs including x86, Arm v8, and PowerPC. He holds over 60 patents. Over the most recent nine years he architected the first Arm v8 CPU implementation and led the hardware engineering team over three generations of Arm v8 CPU development.

AMPERE™

4555 Great America Pkwy,
Ste. 601
Santa Clara, CA 95054

Tel: +1408-542-8600
Fax: +1408-542-8601

TM