

# Workload Optimized<sup>®</sup> ARMv8 Processors – High Performance Compute

## ThunderX\_CP<sup>™</sup> Family of Workload Optimized Compute Processors



### Product Brief

#### OVERVIEW

The ThunderX\_CP<sup>™</sup> product family is the best in class 64-bit ARMv8 Data Center & Cloud Processors, offering unprecedented level of integration and industry leading SoC performance. The product family comprises of high performance custom ARMv8 cores supporting single and dual socket configuration. The SoC integrates hardware accelerators, feature rich I/O's supporting full level of virtualization along with high memory capacity thereby providing the best in class performance/\$ and performance/watt. The ThunderX\_CP<sup>™</sup> family includes multiple SKUs that enable servers and appliances that are optimized for compute workloads in the cloud. This product family is based on highly efficient full custom processor cores designed by Cavium in 28nm process technology under architectural license from ARM. It is fully compliant with ARMv8 architecture as well as ARM's Server Base System Architecture (SBSA) standard.

#### FEATURES

##### Processor Sub-System:

- Scales from 24 to 48 cores with up to 2.5GHz frequency
- 78K-Icache and 32K-D cache per core, 16 MB shared L2 cache
- Single and Dual socket configuration support via CCPI<sup>™</sup>

##### Memory Interfaces:

- Up to 4 DDR3/4 memory controller
- Up to 1 TB of memory capacity in dual socket config

##### I/ O Interfaces:

- Multiple 10/40GE ports
- Multiple independent SATAv3 controllers
- Multiple PCIe – x4 , x8 support

##### Virtualization:

- End-to-End virtualization from I/O to core (virtSoC<sup>™</sup>)

##### Accelerators:

- Integrated accelerators for virtualization

##### Operating System and Related Software Support:

- Server Base Boot Requirements (SBRR), UEFI, ACPI support
- IPMI 2.0 and SBSA compliant
- Ubuntu V14.04 LTS and later
- Red Hat Early Access for ARMv8
- Fedora F20
- OpenSUSE v13

##### Management:

- External Baseband Management Controller (BMC)
- Supports standard BMC interfaces & functions
- IPMI 2.0 compliant

##### Reference Platforms:

- StratusX: 1U1S in ATX form factor (Single Socket)
- CirrusX: 2U4N in 1/2 SSI form factor (Dual Socket per Node)

#### BENEFITS

Fifth Generation multi-core processor design from Cavium with proven building blocks and architecture.

Delivers Highest VM density & performance through large core count, end to end virtualization including cores, IO and accelerators, large memory capacity, high memory bandwidth and low latency.

Delivers best in class performance/watt and performance/\$ for Cloud compute workloads through high core count and integrated 10/40GbE IO.

##### Workloads:

- Public & Private Cloud
- Web Caching
- Web Serving
- Web Search
- Social Media Data Analytics

