

# Workload Optimized<sup>®</sup> ARMv8 Processors – Secure Compute & Secure Networking

## ThunderX\_SC<sup>™</sup> Family of Workload Optimized Secure Processors



### Product Brief

#### OVERVIEW

The ThunderX\_SC<sup>™</sup> product family is the best in class 64-bit ARMv8 Data Center & Cloud Secure 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, scalable Ethernet fabric, 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\_SC<sup>™</sup> family includes multiple SKUs that enable secure servers & appliances that are optimized for secure 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 in dual socket config

##### I/ O Interfaces:

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

##### Virtualization:

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

##### Accelerators:

- Integrated accelerators secure computing

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

- Server Base Boot Requirements (SBBR), UEFI, ACPI support
- SBSA compliant
- Ubuntu V14.04 LTS and later
- Red Hat Early Access for ARMv8
- Fedora F20
- OpenSUSEV13

##### Management:

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

##### 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.

Optimized for secure computing workloads through integrated security accelerators, scalable core count, integrated 10/40 GbE networking and core to IO virtualization.

##### Applications:

- Secure Web Front End Servers
- Cloud RAN Servers
- Security Appliances and Blades
- Wireless Infrastructure
- Load Balancers

