

## Multi-Core MIPS64® Processors

# OCTEON™ Plus CN57XX 6 to 12-Core MIPS64 Storage Processors

Product Brief



### OVERVIEW

The OCTEON™ Plus CN57XX family of Multi-Core Storage Services processors targets mid to high-end intelligent storage array, storage networking, and storage appliance applications. The family includes eight different software-compatible parts, with six to twelve cnMIPS64 cores on a single chip that integrate high-density, high-bandwidth standard interfaces along with the most advanced storage security, RAID, and storage application acceleration to deliver a scalable platform for developing next-generation storage products.

### FEATURES

- 6-12 cnMIPS Plus cores, up to 1 GHz on a single chip
  - Up to 24 Billion MIPS64 instructions per second
  - Up to 2MB L2 Cache
- High-density, high-bandwidth serial I/O for storage and system connectivity
  - 16 high-speed SERDES
  - Flexible combinations of PCI Express x4, x8, XAU1 (10GbE), SGMII (GbE)
- Complete hardware acceleration for storage, networking, and security
  - Support for AES-XTS IEEE1619 Data at Rest and IPsec (3DES, AES-GCM, AES up to 256), SHA-1, SHA-2 up to SHA-512, RSA up to 8192, DH
  - Compression/decompression engine with up to 1.2 GBps throughput and highest compression ratios
  - RAID/XOR Acceleration coprocessor for RAID 5 and 6
  - Key Reliability/Availability/Serviceability features

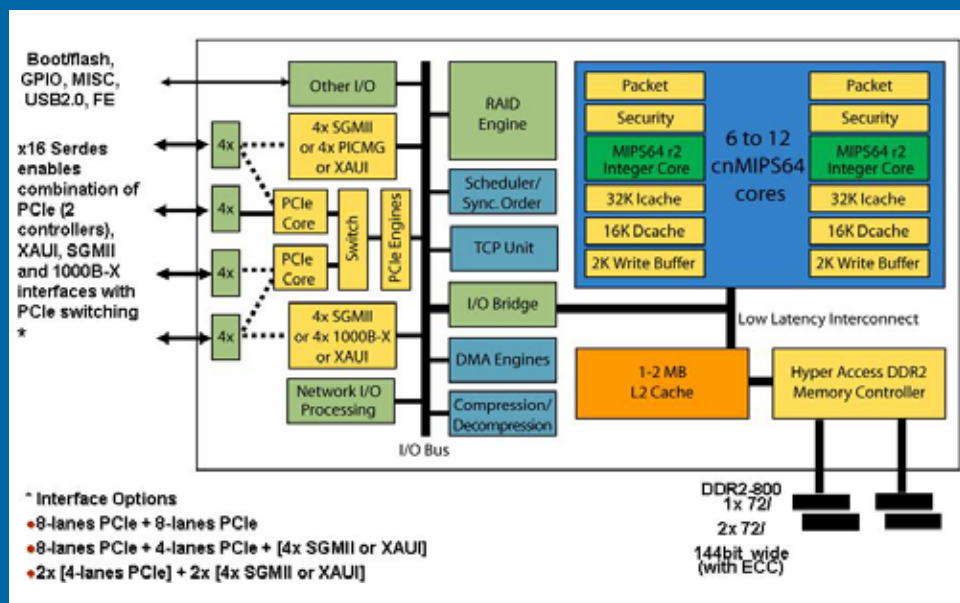
Optimized power consumption: 10W – 30W

- Package: 40 x 40 mm 1217 FCBGA

### BENEFITS

- Powerful DMA engines for maximum I/O and system performance
- Industry leading performance
  - Virtual IOPS up to 3M
  - iSCSI to disk IOPS up to 280
- Dual integrated DDR2 memory controllers up to DDR2-800 with ODT features
  - Increased memory performance with simplified layout and timing
- Standard OS and C/C++ based programming model
- Linux, VxWorks
  - Allows for quick porting and new development
  - No proprietary tools or micro-coding
- Software compatible
  - Single software code based across performance points ranging from 1 Gbps iSCSI/FC to 8 Gbps FC
- Highest performance and integration for next-generation storage equipment requirements

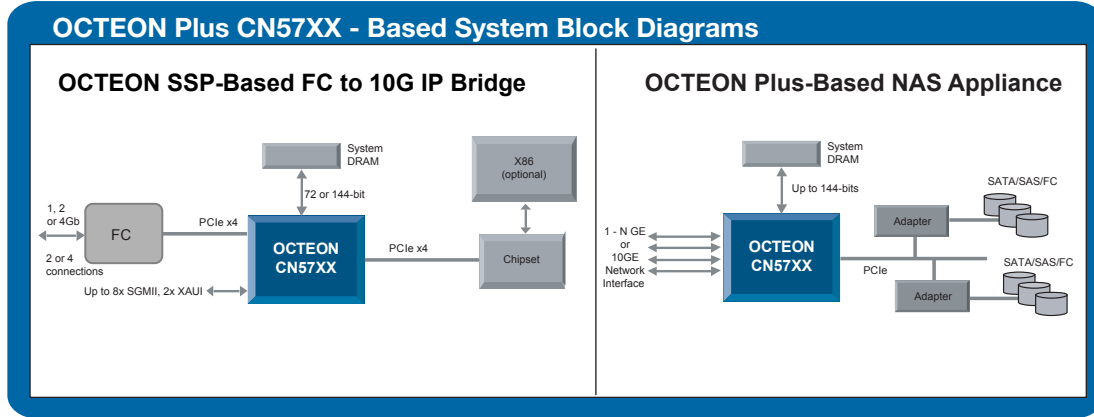
## OCTEON Plus CN57XX - Block Diagram



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**APPLICATIONS**

- Next-generation storage encryption appliance
- Storage bridge - FC to iSCSI
- Storage archival appliance with advanced de-duplication
- Network Attached Storage (NAS)
- 10G iSCSI host bus adapter
- Storage compression appliance
- Intelligent storage router
- RAID, TCP/IP iSCSI, storage security, offload card

**SOFTWARE SUPPORT**

- Cavium Networks SDK includes:
  - Up to 12-way SMP LINUX support
  - Cavium Simple Executive for data plane applications
  - Complete GNU tool-chain, GDB, DDD, and viewzilla for tuning
  - Optimized C libraries for security, regular expression, de/compression processing offload
  - Support for run-to-completion or pipelined software models
- Complete production quality development toolkits for TCP, IP, IPSec, iSCSI, RAID, and others
- Comprehensive ecosystem support
  - Popular third-party operating systems and toolchains, including MontaVista Linux, Wind River VxWorks
  - Linux and Windows host driver
  - Appliance motherboards from leading ODMs
- MIPS64/32 support enables thousands of MIPS and other C/C++ applications to be easily ported to OCTEON

**OCTEON Plus CN57XX - Product Family**

Device	cnMIPS cores	Performance	Option		L2 Cache	Networking Interfaces	PCI-Express Controllers	Memory IO w/ECC	Package
		Max. Available Instructions Per Second	S	S					
CN5734	6	12.0G	Y	Y	1MB	2x [4x SGMII or 1x XAU1]	2x[x4 or x8 Lanes]	1x 72-bit 2x 72-bit 1x 144-bit	1217 FCBGA
CN5740	8	16.0G	Y	Y	2MB				
CN5745	10	20.0G	Y	Y	2MB				
CN5750	12	24.0G	Y	Y	2MB				

Device Options:

Device Speed Grade (600 = 600 MHz, 800 = 800 MHz, 900 = 900 MHz, 1000 = 1 GHz)

Option Code for device family listed below:

- SSP = Secure Storage Processor: Includes RAID, encryption, compression, networking, TCP acceleration and QoS
- SP = Storage Processor: Includes RAID, compression, networking, TCP acceleration and QoS



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