

Multi-Core MIPS64® Processors

OCTEON™ Plus CN57XX 8 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 six different software-compatible parts, with eight 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

- 8-12 cnMIPS Plus cores, up to 900 MHz on a single chip
 - Up to 21.6 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, XAUI (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

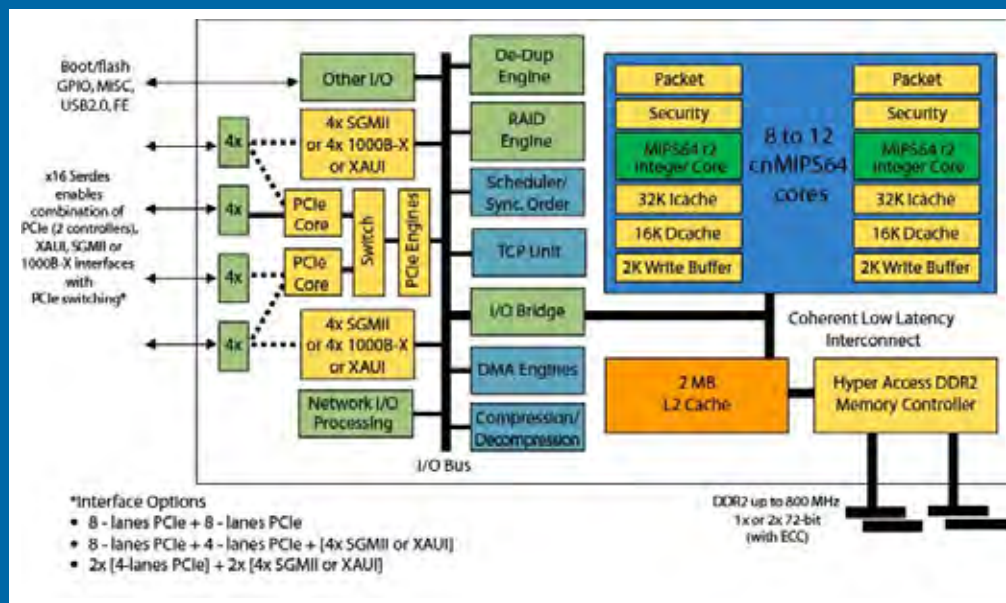
Optimized power consumption: 10W – 30W

- 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
 - 40K iSCSI to disk IOPS with just 4 cores
- 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

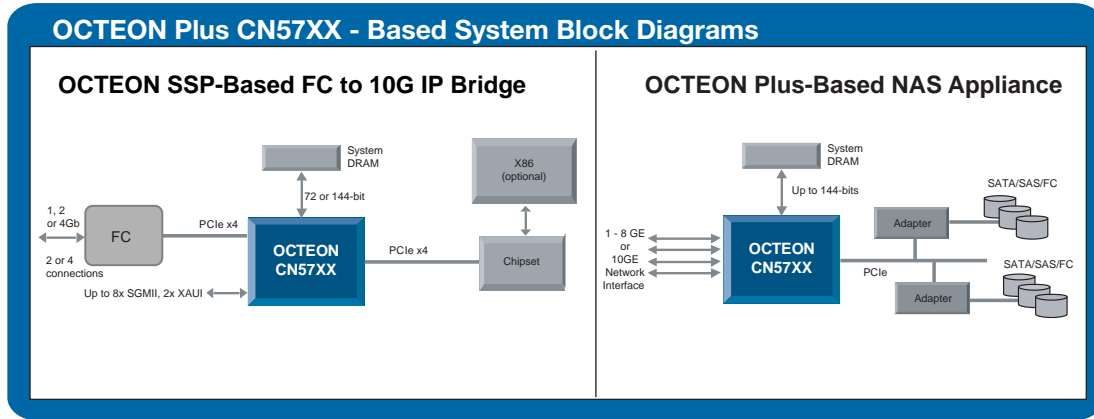
OCTEON Plus CN57XX - Block Diagram



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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 P | S P | | | | | |
| CN5740 | 8 | 14.4G | Y | Y | 2MB | 2x [4x SGMII or 1x XAUI] | 2x[x4 or x8 Lanes] | DDR2 up to 800 MHz 1x or 2x 72-bit wide | 1217 FCBGA |
| CN5745 | 10 | 18.0G | Y | Y | 2MB | | | | |
| CN5750 | 12 | 21.6G | Y | Y | 2MB | | | | |

Device Options:

Device Speed Grade (600LP - 600 MHz Low Power, = 600 MHz, 750 = 750 MHz, 800 = 800 MHz, 900 = 900 MHz)

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