

- ARM v8 64-bit architecture
- FlexSPARX™ accelerators
- Two (2) 10G Ethernet SerDes integrated in the processor
- Hardware virtualization support
- NIC interface
- BroadSAFE™ secure architecture
- Broadcom Linux Development Kit

#### BCM5871X

✓	Enterprise Routers
✓	NAS
✓	SDN Open Flow Switching
✓	NFV Solutions
✓	Wireless Access
✓	Control Plane CPU
✓	Wireless Controllers
✓	Data Center Processing
✓	Carrier Ethernet Control Plane
✓	Mobile Backhaul
✓	MTU/MDU Access

BROADCOM® STRATAGX®

# BCM5871X Series Processors

Quad-Core 64-bit ARMv8 Communications Processor

## OVERVIEW

The BCM5871X series of processors are the first wave of SoCs that provide server-class performance using the latest and most advanced ARM v8 64-bit CPU core.

The Broadcom® BCM5871X series of processors are designed to enable incredibly fast control plane and data plane performance for the next generation of 10G enterprise routers and for use as a high-performance control plane CPU with StrataXGS® switches.

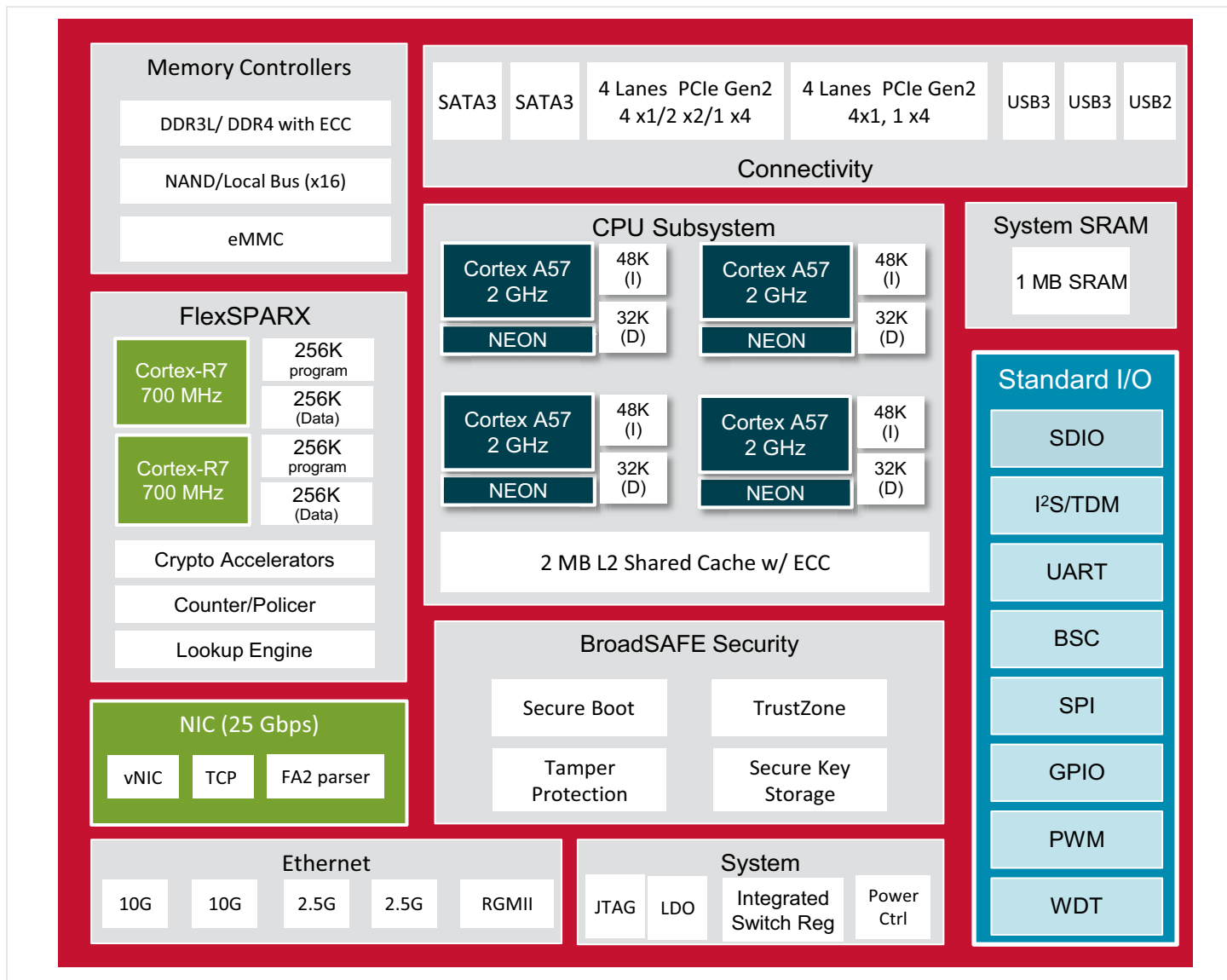
The BCM5871X series of processors represent a new generation of 64-bit ARM-based SoCs that set a new bar on performance and power efficiency. The new ARM architecture provides native virtualization support. The CPU cores provide full software compatibility with 32-bit v7 ARM architecture. At the center of the BCM5871X device is a high-performance 1.8 GHz ARM Cortex-A57 quad-core with a 48 KB four-way set associative instruction cache and a 32 KB four-way set associative data cache. The memory system supports the latest DDR4 memories in addition to DDR3 and DDR3L. Optional ECC support is provided as well. The device has a highly flexible programmable acceleration engine that can process packets and leave the main CPU cores to do other application and service-level processing.

## BENEFITS

- Address space beyond 4 GB
- FlexSPARX accelerators offload packet processing from main CPU cores freeing them for application and service processing
- High-speed connectivity and network offload
- High-performance execution of multiple virtual machines with native support for shared memory and interfaces
- 16 Gbps cryptographic accelerator, secure boot, tamper protection—protects sensitive data on chip and across network
- Highly optimized software with support for data path acceleration, security coprocessors and other hardware accelerators

## FEATURES

- CPU
  - Quad-core Cortex-A57 64-bit ARMv8 up to 1.8GHz
  - Two-stage address translation for virtualization with I/O memory management unit (MMU)
  - 48 KB I-cache and 32 KB D-cache per core
  - 2 MB shared L2 cache
- Interconnect
  - Coherent interconnect with I/O
  - Per-master memory IP address virtualization
- Memory
  - 1MB of platform SRAM
  - 72-bit wide DDR3/3L/4 memory controller with error correction coding (ECC) (64b data, 8b ECC) up to DDR4-2400
- Virtual NIC/DMA functions
  - 16 multichannel virtualized NICs with dedicated direct memory access (DMA) rings
  - Class of service (CoS), flow-, TSS-, and RSS-based ring assignment
  - TCP/UDP offload [Transmit Send Offload (TSO), Large Receive Offload (LRO)]
  - Four Ethernet interfaces
- Secure Boot Engine
  - Secure key storage, Public Key Algorithm (PKA) engine, random number generator, timers
- High-speed I/O connectivity
  - Four (4) SerDes ports – 10G/5G/2.5G/1G
  - Dedicated RGMII Ethernet management port
  - Eight PCIe Gen 2 root complex (configurable as 8 by 1, 4 by 2, 2 by 4, 1 by 8)
  - Two USB3 (SS/HS/FS/LS) host controllers with integrated PHY
  - USB2 (HS/FS/LS) dual role (DRD) controller with integrated PHY
  - Two-port SATA3.0 (6 Gbps) AHCI controller with integrated PHY
- Standard connectivity
  - Two SDIO/e.MMC 4.41
  - NAND SLC/MLC Flash interface
  - 4x UART, two BSC, two SPI, MDIO, GPIO (32), Local Bus, TDM



BCM5871X Block Diagram



For more information, visit:  
[www.broadcom.com](http://www.broadcom.com)

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Broadcom Corporation (NASDAQ: BRCM), a FORTUNE 500® company, is a global leader and innovator in semiconductor solutions for wired and wireless communications. Broadcom® products seamlessly deliver voice, video, data, and multimedia connectivity in the home, office, and mobile environments. With the industry's broadest portfolio of state-of-the-art system-on-a-chip and embedded software solutions, Broadcom is changing the world by Connecting everything®. For more information, go to [www.broadcom.com](http://www.broadcom.com).

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