

StorLink Semiconductors, Inc.

Centroid™ SL3316 Secure NAS Router with PCI

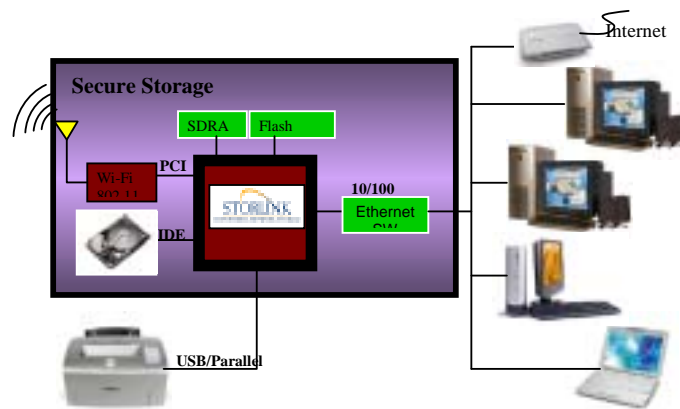
SL3316 Features

- The SL3316 comprises a PCI master and slave controller, an IDE controller, an Ethernet MAC, an USB Host Controller and an ARM9 Processor
- 32-bit 225+ MIPS ARM9 RISC Processor with embedded MMU and 4K/8K data/instruction cache
- Dual internal back-plane busses with aggregate peak performance of greater than 8Gbps for wire-speed operation
- Supports 16Mbyte of serial or parallel external flash memory
- Supports 128Mbyte of external DDR/SDR SDRAM
- IDE interfaces support up to two Ultra ATA 133 Hard Drives (Master/Slave)
- 32-bit PCI 2.2 bus interface at 66MHz with 3 master device support
- 802.3 compliant Ethernet MAC with 10/100 MII
- USB 1.1 Host interface
- LPC interface available for connection to a Super IO chipsets
- Timer, GPIO, UART, Watch Dog Timer
- Embedded Real Time Clock
- Hardware Security Acceleration Engine performs DES, 3DES and AES encryption/decryption with CBC or ECB mode operation; authentication with SHA1, MD5, HMAC-SHA1 and HMAC-MD5 hashing algorithm
- Hardware 32-bit true random number generator
- Proprietary TCP/IP Hardware Acceleration Engine
- Integrated OSC/PLL circuits
- Complete NAS, Printer Server solutions based on Linux OS, provided by StorLink
- 0.18um standard CMOS with approximately 1W dissipation
- Low cost and small foot print 256-pin FBGA

Benefits and Applications

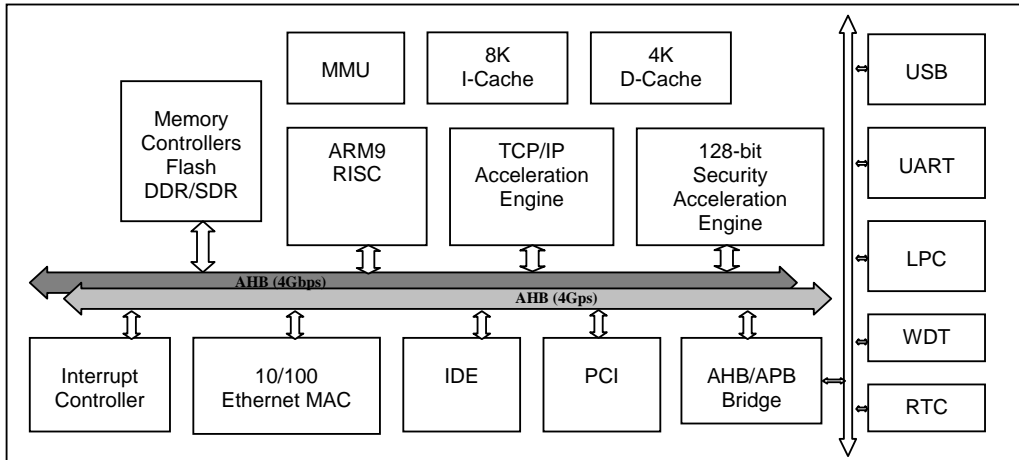
- Ideal single chip solution for cost effective and high performance Wireless NAS Router systems
- Configurable external memory interfaces provide system integrators maximum flexibility to achieve best price performance ratio
- Integrated IDE interface provides 4x the performance compared to an external PCI-IDE configuration
- PCI bus interface to support external peripheral components such as 802.11a/g modules and MPEG codec
- Standard Ethernet MAC provides flexible connection to single channel Ethernet PHY or multiple channel Ethernet switch
- Print Server software with the selectable USB port and the LPC interface allows quick and inexpensive addition of a network printer
- Comprehensive peripheral device interfaces such as UART and GPIO allow maximum flexibility in LCD, LED, and other slave device programming
- Embedded Real Time Clock enables easy system management
- The built-in hardware security accelerator engine enables significant performance improvement in VPN tunneling, IPSec and secure file transfers by processing packet encryption, decryption, hashing and authentication functions in hardware
- True 32-bit random number generator enables high fidelity IPSec and VPN communication
- TCP/IP processing assisted by a proprietary hardware acceleration engine significantly improves overall network throughput
- Internal multi-PLL circuits simplify designs and requires a simple crystal (25MHz) which reduces overall system cost

Typical Application



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Product Description



The SL3316 of the *Centroid* Product Family is a System-on-a-Chip (SoC) NAS Router device that provides superior performance and functionality for the Small and Medium Size Enterprise (SME) and the home network storage markets. It has a 32-bit ARM9 RISC Processor with over 225MIPS performance. The device integrates an USB for printer sharing, an IDE Controllers, a 66MHz 32-bit PCI interface, a 10/100 Ethernet MAC, a Real Time Clock for system management, an UART port for modem connection, and a LPC interface for parallel printer or a Super IO chipset connection.

The PCI bus allows versatile system configurations. Connect an 802.11a/b/g MAC and a Base Band processor to the SL3316, a system integrator can build a comprehensive and yet cost effective Wireless NAS VPN Gateway/Router.

Compared with the configuration of a PCI-IDE device connected a processor through the PCI interface, the integrated IDE with dual back-plane bus architecture within SL3316 offers a 4x performance advantage.

The embedded 10/100 MAC with the industry standard MII allows the system integrators the flexibility of configuring a traditional NAS server system with one single channel 10/100 Ethernet PHY, or a NAS server plus router gateway capabilities with a multi-port Ethernet switch to deliver wire-speed routing and storage functions. The high speed routing and storage functions are made possible by the high performance 225MIPS ARM9 embedded processor.

An included proprietary TCP/IP Hardware Acceleration Engine further improves overall network throughput by approximately 25% through calculating TCP/IP packet checksum in hardware.

The Security Acceleration Engine has a performance of over 450/150Mbps running DES/3DES; 178/148/127Mbps running 128/192/256bits AES encryption which enables IPsec and VPN tunnel transactions to run at full wire-speed. This Security Acceleration Engine also performs hardware acceleration on SHA1, MD5, HMAC-SHA1, and HMAC-MD5 authentication.

Centroid Foundation Software Package

StorLink provides accompanied turnkey firmware solutions that are full-featured, and yet easily customizable.

- Device Drivers
 - WAN Interface: Ethernet
 - LAN Interface: Ethernet and wireless LAN
 - Wireless AP driver including WEP support
- IP Routing
 - TCP, UDP, ICMP, ARP and RARP support
 - Linux kernel networking and routing
 - DHCP server and client
 - DNS Server
- NAT/NAPT
- NAS
 - CIFS
 - FAT/FAT32
- HTTP Web Server
- Basic Management
- Command Line Interface (CLI)
- Packet filtering firewall

For more information, visit www.storlinksemi.com or www.storlink.com.tw

