

Complete Embedded Flexibility

Accelerating Storage System RAS & Performance

EMBEDDED STORAGE SWITCH

The InSpeed® SOC 422 Embedded Storage Switch is the only storage switch that delivers an integrated 4Gb/s drop-in switched infrastructure for fastest time to market for storage system providers. Unlike in-house development efforts that use port bypass circuitry, InSpeed Embedded Storage Switches create Switched Bunches of Disks (SBOD®) that drastically improve the reliability, availability and serviceability (RAS) and performance while scaling of storage systems.



Available to OEMs only

With the introduction of the InSpeed SOC 422, the industry's first 4Gb/s Embedded Storage Switch, Emulex has once again advanced back-end switching to enable the next generation of storage systems using higher speeds and 2.5" Small Form Factor disk drives.

KEY BENEFITS:

- ⦿ Increase Availability and Reliability by 20%
- ⦿ Lower Service Costs by 10-15%
- ⦿ Reduce the Total Cost per MB of the Storage Offering by 20%
- ⦿ Increase Overall Storage System Performance up to 5x while Scaling

KEY FEATURES:

- ⦿ 4, 2 or 1Gb/s Non-Blocking Speeds Enable Next Generation Storage Systems
- ⦿ 22 Ports Support Emerging 2.5" Disk Drives in SBODs
- ⦿ Automatic Trunking Fully Multiplies Bandwidth with Failover Pathing
- ⦿ Integrated Fibre Channel Controller Delivers In-Band Communications—including SES
- ⦿ Fairness and Prioritization Ensures All Devices Have Guaranteed Equal Access
- ⦿ Advanced Diagnostics Continually Perform Tests and Automatically Take Corrective Actions
- ⦿ Compatible with Previous Generation InSpeed SOCs and FibreSpy® Embedded Storage Switches

Specifications

STANDARDS

Fibre Channel Protocols:
FC-AL, FC-AL2, FC-PH, FC-PH2, FC-PI
Interoperability:
Connects to any FC-AL compliant device
Compatible with the InSpeed API
Compatible with InSpeed Embedded Storage Switches and previous generation InSpeed SOCs

ARCHITECTURE

Fibre Channel Ports: 22
Interfaces:
Parallel bus microprocessor interface
I²C interface for access to internal Registers:
LED interface
Testability interface
Scalability:
Up to 8 InSpeed SOCs
Trunking:
Automatic trunking fully multiplies throughput and bandwidth with failover pathing
Zoning:
Port- or ALPA-based overlapping and port-based non-overlapping
Stability:
Stealth Intelligent Change Manager automatically eliminates state and configuration change notification disruptions—zone and port-based management
Integration:
Integrated Fibre Channel Controller for in-band monitoring and control, including SES
Switch-on-a-chip (SOC) with integrated support chips
Embedded SERDES on each port
Selectable termination/swing
Equalization per port serial EEPROM restores system configuration on power-up—configured in standalone operation eliminates external microprocessor requirement
Reference clock:
106.25 MHz LVTTI

PERFORMANCE

Port Speed:
4.25, 2.125 or 1.0625Gb/s
bi-directional (800MBps per port, full duplex)
Latency:
Less than 1µSec with no contention, cut-through routing at 4Gb/s
Performance:
Full wire-speed switching
Aggregate Bandwidth:
176Gb/s
Switch Core:
23x23 non-blocking Crossbar switch core dynamically delivers multiple concurrent port-to-port connections
Retiming:
Architecture ensures jitter compliance and cleanest signals
Fairness & Prioritization:
Ensures all devices have guaranteed access to all other devices, or explicitly have prioritized access

PHYSICAL ATTRIBUTES

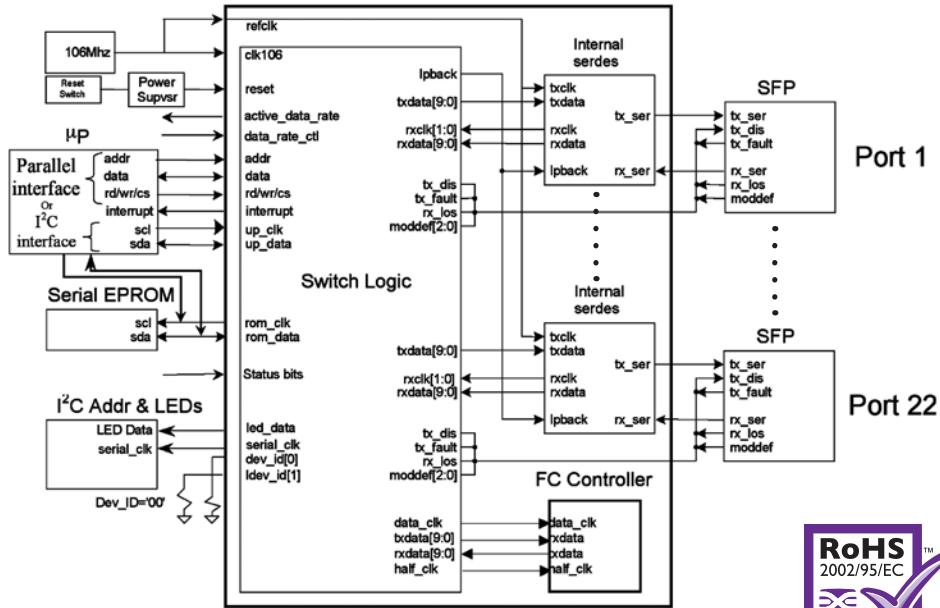
Package:
35mm x 35mm footprint, 772-pin BGA
Power & Nominal Dissipation:
3.3V / 2.5V / 1.2V; 6W

DIAGNOSTICS

Continuous Diagnostic Operations:
power on self-test, port test before insertion, traffic & utilization monitoring, continuous link health monitoring, clock delta monitoring, pinpoint detection of drive problems, trend monitoring of device behavior, preventative action before failure, automatic bypass for rogue and unused ports

Diagnostic Troubleshooting Tools: CRC error monitoring & counting, ordered set detectors, counters on every port, ordered set capture, ordered set transmit, port snoop, internal and external loopback

¹Patent pending



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