Epsilon™ 8-Port Switch

DIAMOND SYSTEMS

Managed 8-Port Gigabit Ethernet Switch

Standalone PC/104™ module with wide voltage input and serial management port

Highly Advanced Gigabit Ethernet Switch

Epsilon is an 8-port Gigabit Ethernet switch implemented in the compact PC/104 form factor. Epsilon can be used standalone without any connection to a single board computer, or in conjunction with a host CPU.

Layer 2+ Managed Switch

Epsilon's advanced Ethernet switch chip includes a built-in microcontroller for configuration and management. It can be accessed either out-of-band, through the on-board RS-232 port, or via one of the Ethernet ports.

Wide Input DC/DC Power Supply

Input power can be provided through the built-in, wide-range +7-36VDC power supply, enabling operation using industrial power sources. Alternatively, Epsilon can be powered from a +5VDC source.

Rugged Design

Extended temperature operation of -40°C to +85°C is tested and guaranteed. Epsilon was designed with harsh applications in mind. Latching connectors are used to further improve reliability.

Innovative Power Management

Epsilon's advanced Ethernet switch controller includes two innovative features that enable automatic power savings. The switch can detect unused Ethernet ports on network devices and power them down or place them in stand-by mode. Additionally, the switch actively adjusts the power level needed based on cable length, saving energy on links shorter than the 100m maximum specified length.

Software Support

Epsilon is loaded with all required firmware, enabling its immediate operation without any development effort. The included web interface provides an intuitive GUI for use in configuring and managing switch functionality.

Key Features

- Eight 10/100/1000Mbps copper-twisted Ethernet ports with non-blocking wire-speed performance

- PC/104 form factor (3.55 x 3.775 in.)

- Built-in 8051 CPU for configuration management; RS-232 serial port provides out-of-band management interface

- Can operate autonomously or in conjunction with host SBC

- 176KB on-board frame buffer; jumbo frame support at all speeds

- 8K MAC addresses and 4K VLANs (IEEE 802.1Q), as well as 8K IP multicast group support

- Programmable multi-layer classifier with 4 QoS classes

- DSCP remarking for IPv4 and IPv6 frames

- Rapid Spanning Tree Protocol

- Multicast and broadcast storm control, as well as flooding control

- Full-duplex flow control (IEEE 802.3X) and half-duplex backpressure, symmetric and asymmetric

- Flexible link aggregation support based on Layer-2 through Layer-4 information (IEEE802.3ad)

- Multiple protocol support: IEEE 802.1D, IEEE 802.1w, IEEE 802.1s, and IEEE 802.1X

- Extremely rugged temperature range of -40°C to +85°C with heat spreader or -40°C to +71°C with heat sink
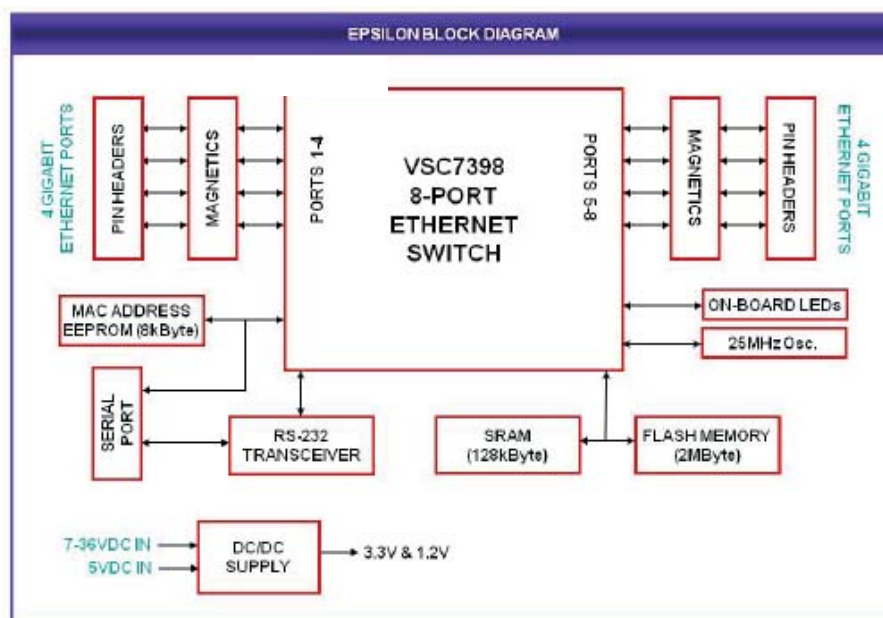
SPECIFICATIONS

Ethernet switch	8-port, Layer 2+ switch Built-in 8051 microcontroller for configuration and management
Number of ports	8 10/100/1000Mbps Ethernet ports with non-blocking wire-speed performance
On-board memory	2MB flash for boot and application code 128KB SRAM; 8KB EEPROM
Frame buffer	176KB onboard frame buffer Jumbo frame support at all speeds
DSCP	DSCP remarking for both IPv4 and IPv6 frames
Rapid Spanning Tree Protocol	IEEE 802.1W
Serial port	1 RS-232 port for host interface
Indicator LEDs	16 status LEDs, 2 per port 2 general-purpose LEDs
Classifier	Programmable multi-layer classifier with 4 QoS classes
Standalone capable	Can operate standalone or in conjunction with a host SBC
Power input	+7V to +36V DC/DC power supply +5VDC input or from optional PC/104 bus
Power consumption	5.4W typical at +5VDC
Bus interface	Optional PC/104 (ISA) bus passthrough
Form-factor	PC/104 (3.55 x 3.775 in.)
Operating temp	-40°C to +85°C with heat spreader -40°C to +71°C with heat sink
Weight	2.4 oz, or 5.8 oz with heatspreader
RoHS	Compliant

ORDERING INFORMATION

EPS-8000-XT	8-Port Gigabit Ethernet Switch PC/104 Module, heatspreader, -40°C to +85°C
EPS-8000	8-Port Gigabit Ethernet Switch PC/104 Module, heatsink, 0°C to +60°C
C-EPS8000-KIT	Epsilon Cable Kit: Ethernet (8), power and serial cables
6981052	Ethernet cable (1 per port)
6981050	Serial cable
6981051	Power cable

EPSILON BLOCK DIAGRAM

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