

Applied Data Sciences / PC Gateway®
HSD to Ethernet Via PC GATEWAY

The HSDENGW2 provides a high-speed bi-directional data link between the Encore High Speed Digital Interface (HSDII) or any 32-bit external device using the Encore High Speed Digital Interface (HSDII) protocol and a Local Area Network employing the TCP/IP network protocols with Ethernet hardware. In this manual, the HSD-connected computer is referred to as the Host.

The HSDENGW2 communicates with the Host by emulating a device, which would normally be connected to an HSD. Each data transfer from the host is transmitted to the LAN as a packet, using the User Datagram Protocol (UDP). Packets received from the LAN are held, space permitting, until the Host initiates a read operation.

The HSDENGW2 can typically transfer data on the IBL link at rates between 1.0 and 1.25 Megabytes per second. The maximum data transfer size is fixed by the maximum allowable UDP packet size and the overall transfer rate is determined by the TCP/IP protocol stack and loading on the LAN.

The HSDENGW2 consists of a standard ISA-bus Personal Computer in either a desktop or rack mount enclosure with PCHSD2 and Ethernet interfaces installed. The software controlling the HSDENGW2 runs under MS-DOS and starts automatically on system boot-up. Configuration of the gateway is controlled by parameters read from text files that may be changed with any standard text editor.

The HSDENGW2 requires 110/220 VAC power only.

Data Formatting:

The PCHSD2 provides a 32-bit data bus transfer from the HSDII or compatible external device. The data is then transferred via 16-bit data bus transfer to the PC memory. The relationship between the most significant and least significant bits for the PC and the HSD words are illustrated in the following sketch.

The data may also be byte or 16-bit word swapped between the PCHSD2 board's FIFO and HSD/IBL port. As the illustration below shows, if byte swap is enabled, bytes 0 & 1 and 2 & 3 are swapped. If word swap is enabled, bits 31 - 16 and 15 - 00 are swapped. Also, byte and word swap can be enabled simultaneously.

Byte and word swapping in the PCHSD2 is controlled by configuration parameters. No other byte order transformation is done before data is presented to the network interface.