

## **Applied Data Sciences / CPCIHSD®**

### *High Speed Data Link between a CompactPCI bus HOST and the Encore HSD board or HSD device*

The CPCIHSD board is a new enhanced version of the industry proven PCHSD2®. The CPCIHSD is functionally compatible with the PCHSD2 providing a CompactPCI bus controlled emulation of the Encore HSD II board.

The transfer rate between the CPCIHSD and the external HSD device are in excess of 10MBytes/second. The transfer rate between the CPCIHSD board and the PCI bus is dependent upon the host system configuration and tasks in progress.

#### Ordering Information:

Specify **CPCIHSD, P/N: 0700705**. Includes: technical and user documentation, 20' cables. Optional Drivers available include: IRIX 6.5, NT40, and LINUX (at an additional charge). You can E-mail us at [sales@appdatasci.com](mailto:sales@appdatasci.com) or call us at 972-242-7944 for pricing information.

#### Applications:

- Network.
- Gateway.
- Interfacing.
- Drive HSD peripherals from a CompactPCI bus Host or workstation.
- Data Link between a CompactPCI Host and Encore host.
- Test existing HSD compatible devices with a CompactPCI bus Host.
- Monitor Encore host memory via external mode.

#### Benefits:

- **Save on host overhead** - the Compact PCIHSD has much lower overhead for networking or communication applications and is significantly faster than conventional ethernet.
- **Save money** - continue to use your existing HSD peripherals without having to make changes.
- **Save on installation time** - simple to install and easy to use software I/O routines.
- **Save on repair and testing** - fast and economical way to verify the integrity of an existing data link.

## Features:

- Emulation of the following Encore HSD modes:
  - HSD normal device mode
  - IBL mode
- Standard CompactPCI 3U board form factor.
- Handles endian conversions of 32-bit data.
- On-board FIFO.
- Compatible with Encore HSD device or IBL operations using standard flat ribbon cables.
- Wrap around self-tests for data paths.
- Program I/O or DMA-PCI bus data transfers.
- No hardware or software additions/modifications required on the Encore computer.
- Direct interface to popular visual systems.
- Software configurable HSD/IBL mode.

## Functional Description:

The CPCIHSD host computer initiates all transfers with the external device. Once transfer begins, the CPCIHSD executes and monitors the flow of control, status, and data between the host computer memory and the external device.

The host or external device, which is connected to the CPCIHSD, operate independently of each other. Transfers between the CPCIHSD and the host are at the speed of the PCI bus. Control and status transfers are by I/O. Data transfers are by DMA or Programmed I/O. The transfer rate between the CPCIHSD and the external device are dictated by the speed of the 32-bit transfers between the CPCIHSD FIFO and external device.

## Software Support:

Drivers for the CPCIHSD are available for NT4.0 and Linux, kernel version 2.2 or later. The NT driver uses Device I/O Control calls to emulate the behavior of the Encore HSDII, except for the Transfer In channel command. The Linux driver provides IOCTL calls to configure the CPCHSD for HSD or IBL operation. Read and write calls provide basic data transfers, device command and status operations.

## Installation:

Installation of the CPCIHSD is easy because the board configuration is software selectable. Just plug the CPCIHSD into any slot in the CompactPCI chassis. Then attach the dual 50-conductor ribbon cable between the Encore host or external device and the CPCIHSD. Each CPCIHSD comes complete with installation and programming instructions, and the supporting software includes software example programs for the Encore host. The CPCIHSD is typically configured via software in one of the following ways.

## Data Formats:

The PCIHSD2 can reformat the Encore 32-bit data coming from the host or its external device. The data can be:

- Byte and word swapped, or
- Passed straight through.

## Specifications:

### **Physical:**

- **Board:** PCB is .06 inch thick FR-4 flame retardant epoxy glass. Multilayer.
- **Dimensions:** Length: 6.30 inches, Height: 3.94 inches.
- **Connectors:**
  - **CPCIHSD to CompactPCI backplane:** Standard 5V/32-bit shielded, 2mm-pitch, 5-row connector (J1) as defined by IEC60917 & IEC 61076-4-101.
  - **CPCIHSD to HSD Interface:** One 100-pin hi-density latching connector on front edge of board.
- **Cable:** The cable harness attaches to the 100-pin latching connector located on the CPCIHSD board. The other end of the cable has two 50-pin IDC female connectors that attach to the HSD device or Encore computer.
- **Weight:** 1.2 pounds.

### **Electrical:**

- Power is supplied via the Host chassis backplane. Voltage: +5 VDC, and Current: 1.5 amps.

### **Environmental:**

- **Temperature:** 0 to 55 degrees Celsius operating, and -40 to +80 standby.
- **Humidity:** Up to 95% RH without condensation.
- **Altitude:** 0 to 10,000 feet AMSL operating, and 0 to 40,000 feet AMSL standby.
- **Vibration:** Withstands normal transportation stresses.
- **Cooling:** Provided by built-in fans in the Encore chassis.

### **Modes Supported:**

- **IBL:** PCI Host to any HSD supporting IBL mode. PC to Host
- **HSD:** PCI Host to External Device

**Transfer Rates:**

- Product transfers data from the CPCIHSD FIFO to the external device at rates in excess of 10 Mbytes per second.
- All internal transfers are single channel, 32-bits.