

Applied Data Sciences / PCHSD2®
High Speed Data Link between an ISA PC and Encore HSD

The PCHSD2 board is a new enhanced version of the industry proven PCHSD®. The PCHSD2 is functionally compatible with the PCHSD providing an ISA bus PC controlled emulation of the Encore HSD II board. All that is required to use this board in place of the PCHSD is to relink the applications program with the new I/O routines.

Transfer rate between the PCHSD2's HSD port and the external device's HSD port is in excess of 9MBytes per second. Transfer rate between the PCHSD2 board and the ISA bus is dependent upon the PC's system configuration and tasks in progress.

This product has a special feature whereby an external device can interrupt the PC through the PCHSD2. The interrupt signal is configured as either a differential or single ended edge triggered pulse.

Ordering Information:

Specify **PCHSD2, Part number: 0700415**. Includes Adapter Board, technical and user documentation, 20' cables, binary interactive test and diagnostic program, and binary "C" callable I/O routines for DOS and software examples. You can E-mail us at sales@appdatasci.com or call us at 972-242-7944 for pricing information.

Applications:

- Network
- Interfacing
- Gateway
- Drive HSD peripherals from an ISA bus PC
- Data Link between an ISA PC and Encore host
- Test existing HSD compatible devices with a PC
- Monitor Encore host memory via external mode

Benefits:

- **Save on host overhead** - the PCHSD2 has much lower overhead for networking or communication applications and is significantly faster than conventional ethernet.
- **Save money** - continue to use your exiting HSD peripherals without having to make changes.
- **Save on installation time** - simple to install and easy to use software I/O routines.
- **Save on evaluation time** - simple to use interactive diagnostic/test program performing wrap around self tests.
- **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, or
 - Device emulation mode (optional)
- Short 9 inch (3/4 length) PC ISA board form factor.
- Byte or Word swapping.
- 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 - ISA bus data transfers.
- Software configurable interrupts.
- Software configurable HSD/IBL mode.
- Direct interface to popular visual systems.
- External device interrupt.
- No hardware or software additions/modifications required on the Encore computer.

Functional Description:

The PC initiates all transfers with the external device. Once transfer begins, the PCHSD2 executes and monitors the flow of control, status, and data between the PC's memory and the external device.

The PC and external device which is connected to the PCHSD2 operate independently of each other. Transfers between the PCHSD2 and the PC are at the speed of the PC I/O bus. Control and status transfers are by I/O. Data transfers are by DMA or Programmed I/O. Transfers between the PCHSD2 and the external device are at the speed of the 32 bit transfers between the FIFO and external device.

Software Support:

The PCHSD2 comes with a Microsoft C, FORTRAN or PASCAL compatible relocatable object code device driver which is used to control the board. It is written for DOS version 3.1 or higher. There are 6 separate subroutines for the HSD and the IBL modes. The subroutine names and functions are: HSDOPEN/IBLOPEN: installs the driver in the DOS interrupt structure and initializes the data structures.

- **HSDSTRT/IBLSTRT:** starts a data transfer.
- **HSDTEST/IBLTEST:** waits for completions of a NOWAIT operation.
- **HSDTERM/IBLTERM:** terminates any existing transfer in progress.
- **HSDCTL/IBLCTL:** direct control of functions that are not available through other I/O routines.

- **HSDCLOS/IBLCLOS:** restores the DOS interrupt structure back to its normal configuration.

Optional File Transfer software is available.

Interactive Test Program:

A DOS compatible Interactive Test/Diagnostic program supplied with the PCHSD2 has an Encore HSD IOCB structure compatible format. It does not require a device driver and can be installed on any DOS system allowing direct user level access to the PC ISA bus memory space. The user can create IOCBs on a PC system which can then be executed, automatically verified, and saved for future usage. The user can then transfer the IOCBs to the Encore computer for incorporation into the respective program under development, including programs for either HSD or IBL mode of operation.

Installation:

Installation of the PCHSD2 is easy because the board configuration is software selectable. Only the I/O Base Address is preset via DIP switches. Just plug the PCHSD2 into any ISA slot in the PC chassis. Attach the adapter board to the PCHSD2. Then attach two 50-conductor ribbon cables to the adapter board and the Encore host or external device. Each PCHSD2 comes complete with installation and programming instructions, and the supporting software includes software example programs for the Encore host. The PCHSD2 is typically configured via software in one of the four following ways.

Data Formats:

The PCHSD2 can reformat the 32-bit data transferred between the VME and Encore host or its external device. The data can be:

1. Byte swapped,
2. 16-bit word swapped,
3. Byte and word swapped or
4. Passed straight through.

Specifications:

Physical:

- **Board:** PCB is .06 inch thick FR-4 flame retardant epoxy glass. Four layers.
- **Dimensions:** Length: 9.00 inches, Height: 4.5 inches, and Thickness: .60 inches.

- **Connectors:**
 - **PC to Chassis:** Two edge connectors - 62-pin and 36-pin gold edge wiping contacts.
 - **PC to Adapter Board:** One 100-pin hi-density connector on rear edge of board.
 - **Adapter Board to HSD Interface:** Two 50-pin IDC compatible male headers.
- **Weight:** 1.2 pounds.

Electrical:

- Power is supplied via the PC ISA chassis backplane. Voltage: +5 VDC, and Current: 2.0 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:** PC to PC, or PC to Host (Encore, MBHSD, PCEHSD or VMEHSD)
- **HSD:** PC to External Device
- **EMULATION:** PC to Host Device (Optional)

Transfer Rates:

- **PCHSD2** to ISA bus: Determined by PC Host processes and internal bus. Burst rate in excess of 2.5 MBytes per Second.
- **PCHSD2** to HSD bus: In excess of 9 MBytes per Second.