

Applied Data Sciences / VMEHSD® *High Speed Data Link Between VME & Encore computer HSDII*

The VMEHSD board provides a VME controlled emulation of the Encore HSDII board. This board also provides a high speed data link between the VME bus and an Encore computer HSDII interface board or compatible device. Transfer rates between the VMEHSD's HSD port and the external device's HSD port are in excess of 12 Mbytes per second. Transfer rates between the VMEHSD board and the VME bus is dependent upon the VME system configuration and tasks in progress.

Ordering Information:

Specify **VMEHSD, P/N: 0700345**. Includes: technical documentation, 20' cables, interactive test/diagnostic program (binary), and source driver. You can E-mail us at sales@appdatasci.com or call us at 972-242-7944 for pricing information.

Applications:

- Data Link
- Gateway
- Network
- Device Test
- Drive HSD peripherals from a VME system
- Interface workstations to Encore host
- Data Link between a VME system and Encore host

Benefits:

- **Save on installation time** - simple to install and easy to use software source drivers.
- **Save money** - continue to use your existing HSD peripherals without having to make changes.
- **Save on evaluation time** - simple to use interactive diagnostic/test program supports wrap around self tests.
- **Save on host overhead** - the VMEHSD has much lower overhead for networking or communication applications and is faster than conventional Ethernet.

Features:

- VIC/VAC bus chip set for VME compatibility.
- Timing is deterministic.
- Emulation of the following Encore HSD modes:
 - HSD normal device mode,
 - IBL mode,
 - External mode,
 - Device emulation mode (optional).

- Supports the following modes of operation on the VME bus:
 - VME Master,
 - VME Slave,
 - VME Block Transfers (32 bits).
 - VME addressing is 24 or 32 bits.
 - VME data is 16 or 32 bits.
- On-board FIFO:
 - 4kwords (32-bit words).
- Standard 6U form factor.
- Compatible with Encore HSD or IBL cables.
- Built in self-test for memory and data paths.
- Selectable VME bus address.
- Selectable 68020 processor clock:
 - 16 MHZ
 - 32 MHZ
- Support for UNILINK devices (optional)

Interactive Test Program:

A UNIX compatible interactive Test & Diagnostic program supplied with the VMEHSD has an Encore IOCB compatible format. A device driver is not required. This program can be installed on any UNIX system allowing direct user level access to the VME bus memory space - usually without rebuilding the kernel. The user can create a list of up to 20 Encore compatible IOCBs (where each IOCB is composed of four 32-bit words) and then execute the list. This IOCB list may also be validated and saved for future usage. The user can create IOCBs on a UNIX system, execute and verify that they are correct and provide the required results. The user can then transfer them to the Encore computer for incorporation into the respective program under development. This includes programs for either HSD or IBL mode of operation.

Installation:

Installation of the VMEHSD is easy:

1. Set the appropriate jumpers on the VMEHSD board.
2. Plug the VMEHSD into any 6U slot in the VME chassis.
3. Attach two 50-conductor ribbon cables between the VMEHSD, and the Encore host or external device.

The jumpers on the VMEHSD provide for setting the VME bus address, processor speed, addressing mode, data width, System Fail Drive and VME System Controller. Each VMEHSD comes complete with installation and programming instructions, and the supporting software.

Software Support:

The VMEHSD comes with source code drivers. Drivers available for Motorola UNIX Sys V/68 R3, SGI IRIX V4.0.1, V5.0.1, V5.3, V6.5 and Sun Solaris 2.2. There are typically 3 simple system calls supported.

- **OPEN** opens one process and calls the desired device file with the appropriate file descriptor.
- **CLOSE** terminates access to the device file.
- **IOCTL** provides for reading and/or setting the device configuration and operating mode, issuing commands to and reading status from the external device, starting and controlling I/O operations.

Data Formats:

The VMEHSD 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: .06 inch thick FR-4 flame retardant epoxy glass - six layers.
- **Dimensions:** Length: 6.3 inches, Width: 9.2 inches, Thickness: .50 inches.
- **Connectors:** HSD Interface: Two 50-pin IDC compatible male headers.
- **Weight:** 1.2 pounds.

Electrical:

- Power is supplied via the VME chassis backplane. **VOLTAGE:** +5 VDC and **CURRENT:** 2.4 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:** VME to VME or VME to Host.
- **HSD:** VME to External Device.
- **EXT MODE:** VME to External Device.
- **EMULATION:** VME to Host Device.

Transfer Rates:

- **VMEHSD to VME bus:** Determined by VME Host processes and the VIC/VAC chip set (typically >30Mbytes per second).
- **VMEHSD to HSD bus:** In excess of 12 Mbytes per second.