



General Purpose Input/Output – High-Speed Device II (GPIO-HSD II)

The General Purpose Input/Output - High-Speed Device II (GPIO-HSDII) provides a full 32-bit parallel interface to a customer-designed device at rates up to 2,150K transfers per second. The GPIO-HSD includes a PCI interface to connect it to the host computer. It also includes a simple 32-bit bidirectional data bus and appropriate internal storage registers for exchanging data with the customer device.

The board includes a local microprocessor for controlling internal HSD data flow, PCI bus traffic, and the external I/O handshake interface. The high-speed Intercomputer Bus Link (IBL) mode connects two GPIO-HSD boards for high-speed, inter-system communication.

FEATURES

- Device Mode and IBL Mode
- 32-Bit, 33 MHz PCI
- Built-In Self Tests
- Software Configuration of HSD/IBL Mode
- Plug-compatible with Existing HSD Devices
- Direct Interface to Visual Systems
- Comprehensive Software Package

BENEFITS

- Low Host Overhead
- Plugs into Existing Cables
- Quick Installation
- High Reliability
- Full Hardware and Software Support

Physical Description

The GPIO-HSD is a multi-layer, universal, 32-bit PCI board. A 100-pin, high-density connector on the board's faceplate connects to two 2 X 50 pin standard HSD cables. An array of six LED indicators on the printed circuit board provides status information.

Functional Description

- High-speed data transfers (up to 2,150K words per second; maximum rate of 465 nanoseconds per transfer); up to 64K (256 Kbytes) transfers per block
- Simple handshake protocol between HSD and customer-designed equipment
- Maximum data transfer rates for cable lengths up to 50 feet; slower rates for cable lengths up to 250 feet
- Standard IOCL commands including command chaining, data chaining, transfer-in- channel
- Intercomputer Bus Link (IBL) capability
- Linux® operating system

Supported Legacy 913x HSD Features

- External Mode operation where the customer device has complete control over the HSD interface
- On-board processor minimizes software overhead; full external mode support
- Can operate in Compatible mode and IBL mode
- Supports 44 valid I/O HSD Operation Code variations
- I/O Command Lists built up in host memory
- Automatic status posting
- PCI interrupts to report status information



Enhanced GPIO-HSD Features

- Transfer rates up to 8.5 Mbytes/second
- Can operate in Internal Loopback mode and External Loopback mode
- Software-controlled multiplexers to change signal assignments for IBL modes with straight cables or crossed IBL cables
- 16 Mbytes of onboard memory
- Programmable interface clock rates to ensure operation with slower devices
- Memory Buffer Address Registers allow PCI transfers between other PCI boards and GPIO-HSD
- Queued interrupt structure practically prevents loss of interrupts
- Supports all IOCB/IOCL commands; emulates Encore HSDI IOCB/IOCL data structures
- Programmable external mode operation notification by PCI interrupt
- Software-controlled Online/Offline capability
- All “jumper” configuration accomplished via software
- State of HSD bus control signals accessible to software
- Built-in Self-test
- Remote HSD interrupt capability through IBL Link Request Acknowledge handshake

Physical Characteristics:	
Depth	4.2 inches (10.67 centimeters)
Height	6.95 inches (17.65 centimeters)
Weight	1.2 lbs (0.54 kilograms)
Environmental Characteristics:	
Operating	
Temperature:	32° F to 131° F (0° C to 55° C)
Relative Humidity:	0% to 90%
Altitude:	0 to 10,000 AMSL (0 to 3,048 meters)
Storage	
Temperature:	-40° F to 176° F (-40° C to 80° C)
Relative Humidity:	0% to 90%
Altitude:	0 to 40,000 AMSL (0 to 12,192 meters)
Electrical	
Voltage	5.0 VDC ± 5% 3.3 VDC ± 5%



Physical Characteristics	
Depth	4.2 inches (10.67 centimeters)
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Environmental Characteristics	
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Temperature:	32° F to 131° F (0° C to 55° C)
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Compro is known worldwide for its customer-focused leadership in technology, support solutions and innovative "industry-firsts."

Prior to Compro's origin, System Engineering Laboratories (SEL) was established in 1961, providing high-performance 32-bit minicomputer systems used in mission-critical, real-time applications. In 1980, Gould Electronics acquired SEL, becoming their Computer Systems Division (Gould CSD). Independently, Encore Computer Corporation was formed in 1983, creating massively scalable systems using open systems, merchant microprocessors and parallel technologies.

In 1988 Nippon Mining purchased most Gould assets, while Encore purchased Gould CSD. In 1998 Gores Technology Group acquired Encore Computer Corporation, and renamed it Encore Real Time Computing. Compro began separately in 1985, providing comprehensive multi-vendor logistics and support services (including SEL/Gould/Encore) to computer and flight simulation sectors world-wide. In 2002, Compro purchased Encore Real Time.

Compro continues the tradition of long-term product support by offering replacement solutions (e.g., the Legacy Computer Replacement System, or LCRS) that emphasize backward-compatibility coupled with future-proofing. Our Real-Time Environment (RTE) is the world's fastest, most deterministic, lowest-latency real time computing solution available. COMPRO's Technology Obsolescence Protection (TOP) and Guaranteed Long-Term Support (GLTS) services assure that COTS solutions remain viable throughout decades-long program life cycles.

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