

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Mercury Computer Systems / Myriad Logic HIPPI-830* at our website: ***Click HERE***

HIPPI-830

VME64/RACEway HIPPI Interface

The Myriad Logic model HIPPI-830 provides a 100-Mbyte/second ANSI-standard interface between VME/RACEway systems and high performance workstations, supercomputers, mass storage devices and other high-speed peripherals. Low overhead HIPPI protocols enable sustained transfer rates of up to 95 Mbytes/ sec (using the ANSI standard RACEway host interface), making the HIPPI-830 an excellent solution for connecting systems in demanding real-time applications. Compatibility has been demonstrated with Silicon Graphics, Sun, Cray, Digital, HIPPI disks, HIPPI switches, fiber converters, frame buffers, and various VME systems.

Features

- Sustained system-to-system data transfer:
  95 MBytes/second - RACEway
  45 MBytes/second - VME64
- ANSI X3T9.3 compliant HIPPI channel
- Compatible with a wide spectrum of standard COTS systems.
- 68030 control processor running VxWorks
- Burst transfer rates:
  160 MBytes/second - RACEway
  50 MBytes/second - VME64
- Software support for popular VME systems
- Comprehensive on-board firmware suite supporting full duplex operation
- Single 6u x 160 mm form factor

Product Description

The Myriad Logic model HIPPI-830 is a high-performance single-board HIPPI adapter for VME and RACEway systems. Optimized for real-time applications requiring high bandwidth and low latency, the HIPPI-830 provides ANSI X3T9.3 compliant, point-to-point, dual simplex channels compatible with a wide variety of high performance workstations, supercomputers, and mass storage devices.

The HIPPI-830 supplies a full-featured VME64 master/slave interface (implemented with the Cypress VIC64), capable of sustaining 45 Mbytes/second transfers in VME64 BLT mode. Equipped with an optional MLR-1470 RACEway module, the HIPPI-830 also provides RACEway master/slave capability, sustaining 95 Mbytes/second transfers between RACEway memory and other HIPPI devices. The MLR-1470 mates flush to the HIPPI-830 base-board without requiring additional slots in the VME chassis. Support for the MLR-1470 is fully integrated into the HIPPI-830 standard firmware packages.

A comprehensive suite of standard firmware operates on an on-board 33 MHz 68030, providing an efficient control interface for a VME host processor. The host interface is implemented entirely with data structures which reside in VME-addressable memory on the HIPPI-830. Separate command and response data structures are provided for both HIPPI Source and Destination channels. The VME host can chain up to 31 commands, allowing the HIPPI-830 to autonomously transfer data between several areas in VME memory and the HIPPI channel. The data structures also allow the user to specify independent signalling mechanisms for normal and abnormal completion of each command The HIPPI framing protocol is also supported by the standard firmware.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



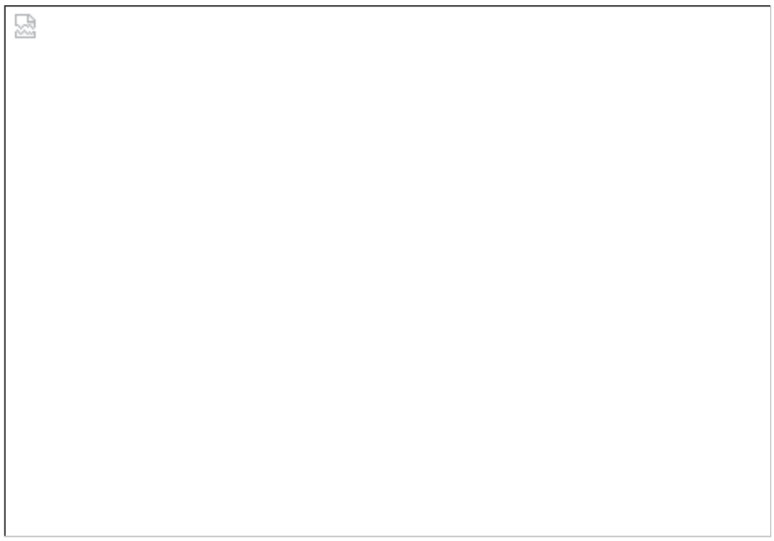
The software architecture brings major benefits to our users. First, the HIPPI-830 can set up DMAs, control the HIPPI channel, and transfer data without direct involvement by the host CPU (with its inherent operating system overhead) . Second, unique host-based drivers are not required. As long as the host can access the HIPPI-830 data structures via VME addressing, it can control HIPPI data transfers. In addition, the HIPPI-830 is 100% software compatible with Myriad HIPPI-1830 serial HIPPI interface, enabling simple upgrade from electrical to fiber optic data transmission. Please refer to Controlling the HIPPI-830/HIPPI-1830 with a VME CPU or DSP for a description of theHIPPI-830 applications programming interface.

Application Notes

Controlling the HIPPI-830 with a VME CPU or DSP board

The HIPPI-830 Standard Firmware (830-SF) provides a simple mechanism for a VME single board computer, DSP, or other processor (host) to transfer data between VME memory buffers and the HIPPI-830 Source (output) and Destination (input) channels. The 830-SF includes many features designed to maximize flexiblity and minimize host overhead (Table 1). The following is an overview of the operation and features of the 830-SF.

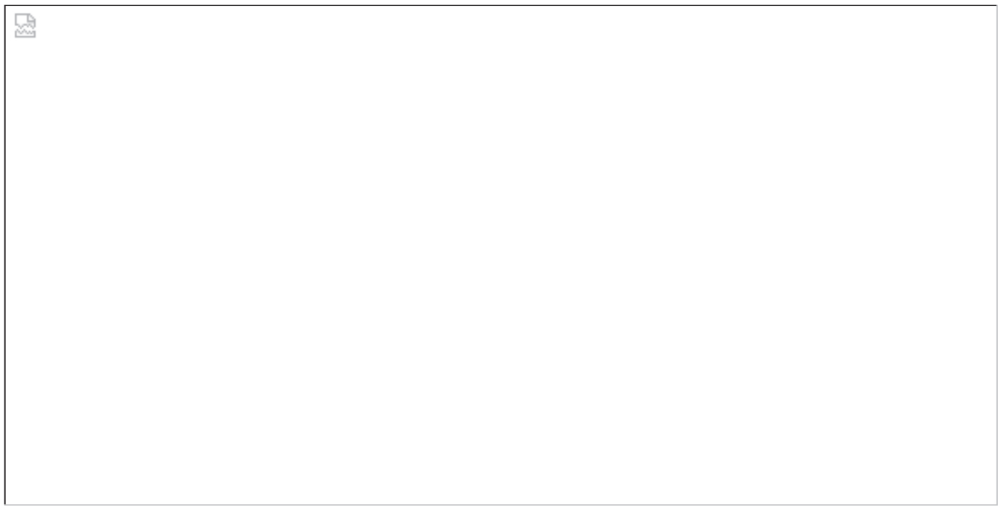
Table 1- HIPPI-830 Standard Firmware Features



VME CPU or DSP (host) boards control operation of the HIPPI-830 by placing commands in VME-accessible command buffers located in HIPPI-830 DRAM (Figure 1). The 830-SF interprets these commands, implements the requested function, and generates a response to the host processor. Data structures that contain commands and responses are located in VME-accessible memory on the HIPPI-830 and are defined in the HIPPI-830 Standard Firmware Document. A signalling mechanism is also defined , allowing the host to notify the 830-SF that a new command is available and similarly allowing the 830-SF to notify the host that processing for a specific command has been completed. Separate command and response data structures and signalling mechanisms are defined for HIPPI Source and Destination functions.

Figure 1

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



In order to initiate output on the HIPPI-830 Source channel, the host places a list of commands (Table 2) in the HIPPI Source Command Buffer (Table 3) and signals the 830-SF by accessing the 830-SF Source Mailbox. Accessing the 830-SF Source Mailbox causes an interrupt, which activates the 830-SF Source Task. The Source Task implements the commands, and generates response messages in the Source Response Buffers, and signals the host for each. The host signal is defined in the Source Command Buffer as either a specific VME interrupt or as a value defined in a specific VME address (potentially a host mailbox). Each command defines independent signals for normal command completion and exception notification. This host signalling mechanism provides maximum flexibility for the user.

Table 2- HIPPI Commands and Responses

Type	Identification	Description
Source Commands (Issued by Host)	Control Request Transfer Request	Initalize HIPPI output channel. Define output buffer, define response signal and initate transfer
Source Responses (Issued by 830-SF)	Control Confirm Transfer Confirm Status Indicate	Command processed Define transfer completion status Notifies host an event (such as a connection) has occurred
Destination Commands (Issued by host)	Control Request Transfer Response	Initalize HIPPI Input Channel Define input buffer and response signal. Transfer begins when the next HIPPI packet is received
Destination Responses (Issued by 830-SF)	Control Confirm Transfer D1 Indicate Transfer D2 Indicate Status Indicate	Command Processed Notifies host D1 section has been received. Notifies host D2 has been received. Notifies host that an event (such as a connection) has occurred

Table 3-Data Structures and Signals

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



The command/response/signalling interface between a VME host and the 830-SF for HIPPI Destination (input) functions is mechanically the same as for HIPPI Source functions. The 830-SF supports two distinct modes of operation: sequential and pre-queued. The sequential mode is used when the user needs to interpret the HIPPI-FP header before deciding where to store in-coming HIPPI packets. In the pre-queued mode, the user must set aside buffers in VME/VSB memory where HIPPI packets can be stored.

In the sequential mode, the host processor initializes the HIPPI Destination channel and waits for a HIPPI packet to be received. When the 830-SF detects the next packet header has been received it generates a "D1 Indicate" response incorporating the packet header in the Destination Response Buffer. Based on the information in the packet header, the host prepares a Transfer Response, commanding the 830-SF to copy the packet from the HIPPI channel to a specific buffer in VME/VSB memory and signals completion with a VME interrupt or mailbox access.

In the pre-queued mode, the host processor defines a set of buffers in VME/VSB memory and identifies to the 830-SF by sending a set of unsolicited Transfer Response commands. As HIPPI packets are received 830-SF immediately copies the packets to the pre-queued VME/VSB buffers. If a received packet is smaller than the pre-queued buffer the transfer terminates at the actual size of the HIPPI packet. If the receive packet is larger than the pre-queued buffer multiple buffers are used.

The 830-SF supports simple transfers, scatter/gather transfers and page mode transfers. Scatter/gather and page mode operations allow a single HIPPI packet to be assembled from "n" discontiguous data segments in VME memory. In scatter/gather mode the segments must all be of the same size and the offset from one segment to another is fixed. Page mode is more flexible in which a "page map" defines arbitrary VME addresses and lengths for each segment. In both scatter/gather and page modes, segments must be multiples of 256 bytes and must start on 256 byte boundaries.

Please contact Myriad Logic for additional information:

EMAIL. info@myriadlogic.com

Return to Myriad Logic, Inc. Home Page. Click here to return to the Products Page

---

Copyright 1997 by Myriad Logic, Inc.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP