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Find the *Diamond Systems Hercules HRC550-5A128* at our website: *Click HERE*

HERCULES™ EBX

PENTIUM III PERFORMANCE WITH ETHERNET, VIDEO, AUDIO, AND DATA ACQUISITION



CPU SECTION

- VIA Eden Pentium III class 550-750MHz processor
- 128-256MB SDRAM soldered on board
- VGA support up to 1920x1440
- Integrated S3 Savage 4 graphics with advanced 3D rendering capabilities
- LCD (LVDS) support up to 1600x1200
- AC97 audio with 2W per channel stereo amplifier
- TV out feature
- UDMA-100 IDE support
- 4 USB ports
- 4 RS-232/485 ports
- Dual IDE with ATA-100 support
- PS/2 keyboard and mouse
- Watchdog timer
- Low power fanless operation (<10W @ 550MHz)
- PC/104-plus ISA and PCI expansion
- -40 to +85°C operation

DATA ACQUISITION SECTION

- 32 channel 16-bit A/D
- 250KHz max sample rate
- Programmable input ranges
- Multi-channel scan sampling with interrupts and FIFO support
- 2K FIFO with programmable threshold
- 4 channel 12-bit D/A
- Multi-range autocalibration of A/D and D/A
- 40 digital I/O lines
- 16-bit and 24-bit counter/timers
- Field-upgradeable logic circuit

POWER SUPPLY SECTION

- 5-28VDC input range standard
- 20-48VDC input range optional
- 40 watts output power (10 watts used by CPU)
- Switched auxiliary power for IDE drives and accessories

FEATURE	BENEFIT
Low-power VIA Eden processor	High computing power with reduced power consumption Fanless operation (550MHz)
Memory soldered on board	Increased reliability and ruggedness Guaranteed compatibility
Integrated LCD, CRT, Ethernet, and system I/O	Complete PC on a single board
On-board DC/DC power supply	Suitable for vehicle applications Reduced size and weight
Integrated data acquisition circuit with autocalibration	Single-board solution for increased reliability Increased measurement accuracy
-40 to +85°C operation	Compatible with vehicle and outdoor applications
Ruggedization capability	Customizable for harsh environment applications

Operating System Compatibility

DOS
Linux
RTLinuxPro
QNX
Window 98/NT/XP/2000
Windows CE.Net
VxWorks

3 in 1 CPU + DC/DC POWER SUPPLY + DATA ACQUISITION

Hercules introduces a new level of integration in EBX format CPU boards. Combining processor, data acquisition, and power supply onto one board results in a thinner, lighter, more rugged, and easier to assemble embedded system. This 3-in-1 design addresses the needs of mobile and vehicle applications by offering the benefits of reduced size, weight, cost, and power consumption.

CPU Features

Hercules uses the VIA Eden processor chipset, featuring Pentium III class performance with dramatically reduced power consumption. The 550MHz board consumes only 10 watts and requires only a small heat sink to operate at temperatures up to 85°C.

System I/O includes a 10/100Mbps Ethernet port, 4 RS-232/485 ports, 4 USB ports, 2 IDE channels, and PS/2 keyboard/mouse.

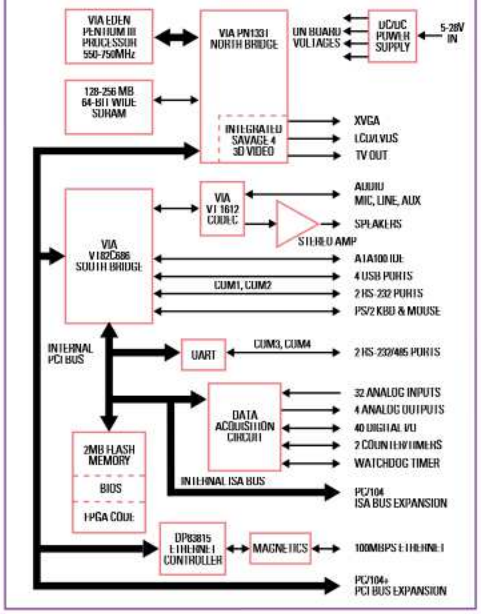
Hercules contains an integrated S3 Savage 4 video circuit. This advanced design provides hardware 2D and 3D acceleration, 32MB video buffer using shared system memory, 128-bit architecture, full internal AGP 4x performance, 3Dnow! and MMX instruction sets, and high-quality DVD video playback. The video circuit supports CRTs up to 1920x1440 and LVDS LCD panels up to 1600x1200 resolution. Simultaneous CRT and LCD display is supported.

Audio features include an integrated AC97 digital audio controller and codec. A built-in low-noise stereo speaker amplifier provides 2 watts per channel output power and hardware volume control. Audio I/O signals include mic in, CD in, line in/out, and speaker out.

Built-In DC/DC Power Supply

The built-in DC/DC power supply enables Hercules to be used in a wide range of applications without requiring a separate add-on power module. The on-board supply has 40 watts of output power, enough to power the CPU as well as peripherals and add-on boards. The standard input range of 5-28VDC means that Hercules is compatible with a standard off-the-shelf 5V supply as well as a vehicle, battery, or industrial power source. An optional 20-48VDC input range is also available. The on-board supply has ACPI compatibility for intelligent power management.

HERCULES EBX BLOCK DIAGRAM



Flashdisk Solid-State Storage

Install an IDE flashdisk module onto Hercules and Prometheus for lightweight, rugged mass storage. The flashdisk module works like a hard drive and provides high-speed nonvolatile solid-state storage in sizes of 32MB, 64MB, or 128 MB.



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HERCULES™ EBX

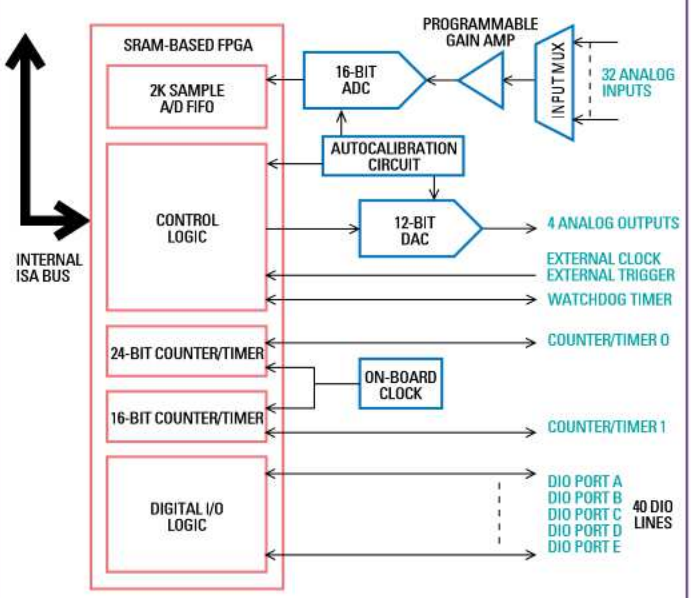
PENTIUM III PERFORMANCE WITH ETHERNET, VIDEO, AUDIO, AND DATA ACQUISITION

Built-In Data Acquisition

Hercules includes a top-of-the-line autocalibrating analog and digital I/O circuit, fully supported by our Universal Driver software for Linux, DOS, QNX, and Windows 95/98/NT/2000/XP. It has 32 analog inputs with 16-bit resolution and 250KHz sample rate, backed by a 2K-sample FIFO with programmable threshold. Programmable input ranges from a wide-range +/-10V down to 0-1.25V are provided. The analog circuitry also includes 4 D/A channels with 12-bit resolution and jumper-selected output ranges. Multi-range autocalibration of both A/D and D/A ensures maximum accuracy over time and temperature and enables reliable, maintenance-free performance over the life of the board.

On the digital side, Hercules provides 40 digital I/O lines with programmable direction, as well as two counter/timers for A/D sample rate control, pulse counting, frequency generation, or other applications. Its advanced control logic has the features and flexibility to fit almost any application, such as internal/external A/D clock source, scan and single-sample modes, and our exclusive programmable FIFO threshold that lets you tune the board's performance to your application.

HERCULES DATA ACQUISITION BLOCK DIAGRAM



Development Kit

A development kit is available with all the hardware you need to get started on your embedded design project. The kit contains a CPU board, flashdisk module, cable kit, software CD, AC power adapter, and USB floppy drive.



SPECIFICATIONS

CPU	
Processor	VIA Eden P-3, 550-750MHz
Display type	CRT and LDS LCD
Resolution	Up to 1280 x 1024 x 32 bits per pixel
Memory	8/16/32MB shared with system memory
LCD Interface	36-bit TFT / DSTN
SDRAM memory	128-256MB on board
Flash memory	2MB
System I/O	4 USB 1.1, PS/2 keyboard/mouse
Serial ports	2 fixed RS-232 or RS-485; / 2 configurable RS-232/485
Max data rate	460.8kbps all ports
IDE connections	1 44-pin connector for flashdisk; 1 40-pin dual-channel UDMA-100; Compact flash socket
Ethernet	10/100Mbps; NE2000 compatible
Serial console	Selectable COM1 / COM2
Floppy drive	USB legacy support
Parallel port	Not present
PC/104+ bus	+5V/+3.3V selectable
DATA ACQUISITION CIRCUITRY	
Analog inputs	32, 16-bit A/D resolution
Max sample rate	250KHz total
Input modes	Single-ended, differential
Input ranges	±10V, ±5V, ±2.5V, ±1.25V / 0-10V, 0-5V, 0-2.5V, 0-1.25V
Accuracy	< ±2LSB after autocalibration
Analog outputs	4, 12-bit D/A resolution
Settling time	7µS to ±.01%
Output current	±5mA max, 2kΩ min load
Digital I/O	40 lines, 5V logic compatible
Direction	Programmable in 8-bit ports
Output current	0: 12mA max; 1: -4mA max
Counter/timers	1 24-bit A/D sample rate control; 1 16-bit general purpose
POWER SUPPLY	
Input voltage	5-28VDC standard, 20-48VDC optional
Output power	40W total, 30W available
Power consumption	10W max
Output voltages	+5V, +3.3V (on PCI bus)
Switched outputs	+5V, +12V, +3.3V
GENERAL	
Dimensions	8.00" x 5.75" EBX format
Operating temp.	-40 to 85°C
Weight	10oz / 285g

ORDERING GUIDE

Contact factory for additional combinations of processor / memory / input voltage.

HRC550-5A128	550MHz CPU, 5-28V in, data acquisition, 128MB RAM
HRC550-5N128	550MHz CPU, 5-28V in, no data acquisition, 128MB RAM
HRC750-5A128	550MHz CPU, 5-28V in, data acquisition, 256MB RAM
HRC750-5N128	550MHz CPU, 5-28V in, no data acquisition, 256MB RAM
DK-HRC-01	HRC400-5A128 development kit
C-HRCEBX-KIT	Hercules cable kit
PS-12V-01	AC adapter for Hercules CPU

For flashdisks, cables and accessories, see pages 46-47.

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