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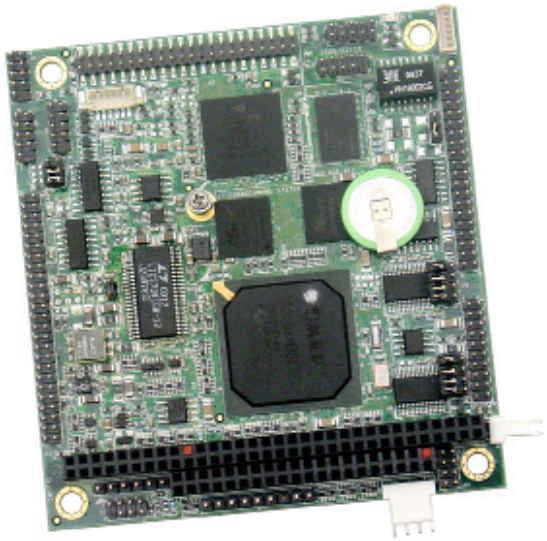
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Find the *Diamond Systems HLV800-256DV* at our website: ***Click HERE***

# Helios™ PC/104 SBC

## Rugged PC/104™ Single Board Computer featuring integrated data acquisition, Ethernet, and CRT/LCD video



### Highly Integrated SBC

Helios™ combines all the functionality of a single board computer with a complete analog and digital data acquisition circuit into a single board, offering the most functionality available in the PC/104 form-factor

### Price/Performance Advantage

The Vortex86DX system-on-a-chip offers an excellent balance of performance, power consumption and price, making Helios an ideal choice for a wide variety of embedded computing applications.

### Rugged Design

Helios was designed with rugged applications in mind. From its operating temperature of -40°C to +85°C to its soldered SDRAM, Helios thrives in extreme environments.

### Fully Integrated Systems

Helios is available as a complete system, with your choice of operating system, in a specially-designed enclosure that eliminates all cables and provides a rugged, compact, wide-temperature box PC ready for application download and deployment.

### Software Support

Helios runs Linux, Windows CE™, and DOS. All necessary drivers are shipped with the product. Diamond's Universal Driver software provides a C programming library for the integrated data acquisition circuit, and it includes demos and sample code for each supported OS to assist in rapid application development.

### Development Kit

A complete Helios Development Kit is available with all of the components you need to get started on your embedded design project. The kit contains a Helios SBC, flashdisk with Linux pre-loaded, cable kit, AC adapter, and software CD.

### Key Features

- Low-power PC/104-expandable SBC
- Vortex86DX CPU at 1GHz or 800MHz
- 2-in-1 design (CPU + DAQ) reduces size and cost, increases ruggedness, and enhances reliability
- 256MB soldered-on DRAM
- Comprehensive set of I/O interfaces:
  - four USB 2.0 ports
  - two RS-232/422/485 and two RS-232 serial ports
  - 10/100Mbps Ethernet
  - IDE port for hard drive or solid-state flashdisk
  - 2MB on-board flashdisk with FreeDOS pre-loaded
  - VGA CRT or LVDS LCD display
  - 16 digital I/O lines
- Optional data acquisition subsystem with multiplexed 16-channel, 16-bit A/D with autocalibration, four 12-bit D/A, 24 additional digital I/O, and two counter/timers
- PC/104 form factor with stackthrough PC/104 (ISA) bus
- Extremely rugged with soldered-on DRAM and -40°C to +85°C (-40°F to +185°F) operating temperature



Octavio-HLV Embedded Application Server

# **HELIOS:** PC/104 Single Board Computer

## SPECIFICATIONS

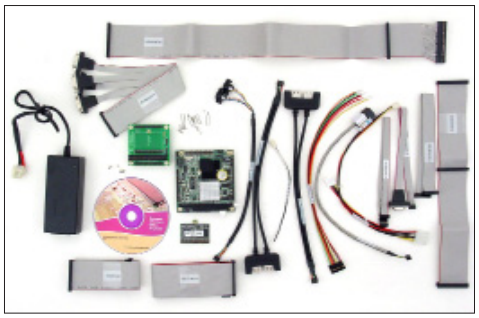
| | |
|---|---|
| **Processor** | Vortex86DX at 1GHz or 800MHz |
| Cooling | Heat sink, fanless |
| Memory | 256MB DDR2 DRAM |
| Expansion bus | PC/104 (ISA) |
| Display type | VGA CRT or LVDS LCD |
| Display resolution | 1280x1024 maximum |
| USB ports | 4 USB 2.0 |
| Serial ports | 2 RS-232/422/485, 2 RS-232 |
| Networking | 10/100Base-T Ethernet |
| Mass storage | 1 IDE UDMA-100 port, flashdisk interface |
| Keyboard/Mouse | PS/2 |
| Audio | Speaker out |
| Input power | 5V ±5V% |
| Power consumption | HLV800-256AV: 5.4W |
| Operating temperature | -40°C to +85°C (-40°F to +185°F) (800MHz)<br>-40°C to +71°C (-40°F to +160°F) (1GHz) |
| Dimensions | 3.55" x 3.78" (90mm x 96mm) |
| Weight | Model DV: 2.5oz / 71g<br>Model AV: 3.1oz / 88g |
| MTBF | HLV800-256AV: 65,535 hours |

## ORDERING INFORMATION

| | |
|---|---|
| HLV800-256AV | Helios SBC, 800MHz Vortex86DX, 256MB RAM, full data acquisition, VGA/LCD video, -40/+85°C |
| HLV800-256DV | Helios SBC, 800MHz Vortex86DX, 256MB RAM, digital I/O, VGA/LCD video, -40/+85°C |
| HLV1000-256AV | Helios SBC, 1GHz Vortex86DX, 256MB RAM, full data acquisition, VGA/LCD video, -40/+71°C |
| HLV1000-256DV | Helios SBC, 1GHz Vortex86DX, 256MB RAM, digital I/O, VGA/LCD video, -40/+71°C |
| DK-HLV800A-01 | Helios Development Kit with HLV800-256AV SBC, cables, and Linux software |
| SDK-HLV-LNX | Helios Linux Software Development Kit |
| SDK-HLV-WCE | Helios Windows CE Software Development Kit |
| C-HLV-KIT | Helios Cable Kit for all on-board I/O |

## DATA ACQUISITION SPECIFICATIONS

| ANALOG | |
|---|---|
| Number of Inputs | 16 single-ended or 8 differential, user selected |
| A/D resolution | 16 bits |
| Input ranges | ±10V, ±5V, ±2.5V, ±1.25V, 0-10V, 0-5V, |
| Max sample rate | 250KHz |
| Protection | ±35V on any analog input without damage |
| Nonlinearity | ±3LSB, no missing codes |
| On-board FIFO | 2048 samples, programmable threshold |
| A/D, D/A calibration | Autocalibration with software support |
| Number of outputs | 4, 12-bit resolution |
| Output ranges | ±5V, ±10V, 0-5V, 0-10V |
| Output current | ±5mA max per channel |
| Settling time | 10mS max to 0.012% |
| Relative accuracy | ± 2 LSB |
| Nonlinearity | ±2 LSB, monotonic |
| Reset | Reset to zero-scale or mid-scale (jumper |
| **DIGITAL (for standard 16 DIO lines)** | |
| Number of I/O lines | Model AV: 40 lines |
| Input voltage | Logic 0: 0V min, 0.8V max |
| Input current | 1mA at 3.3V, -5mA at 0V |
| Output voltage | Logic 0: 0.0V min, 0.55V max |
| Output current | Logic 0: 64mA max at 0.55V |
| **COUNTER/TIMERS** | |
| A/D Pacer clock | 24-bit down counter |
| Clock source | 10MHz on-board clock or external signal |
| General purpose | 16-bit down counter |



**Helios Development Kit**

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