OCTAVIO-HLV

DIAMOND SYSTEMS CORPORATION

Compact, rugged, low-power Embedded Application Server featuring 800MHz Vortex86 CPU and integrated data acquisition

- Smallest embedded server with integrated data acquisition
- Based on 800MHz Vortex86DX CPU
- 256MB soldered-on DRAM
- Standard I/O interfaces:
  - four USB 2.0 ports
  - two RS-232/422/485 and two RS-232 serial ports
  - 10/100Mbps Ethernet
  - VGA CRT display
  - PS/2 keyboard/mouse ports
  - 16 digital I/O lines
- Optional data acquisition circuitry provides:
  - multiplexed 16 channel 16-bit A/D with autocalibration
  - four 12-bit D/A outputs
  - 24 digital I/O lines
  - two counter/timers
- Optional integrated DC/DC power supply module
- Bootable Linux 2.6 image pre-loaded in flashdisk
- Compact standalone or wall-mount enclosure with optional DIN rail adapter
- -40ºC to +85ºC (-40°F to +185°F) fanless operation

2 in 1 CPU+DAQ

Embedded Application Server

Octavio-HLV is a configurable system ready to power on and run out of the box. It is based on Diamond's proven Helios single board computer integrated into our popular Pandora enclosure.

Flexibility of Configuration

Octavio-HLV systems can be configured to meet the needs of your application. You may choose from various Helios SBC models, flashdisk sizes, power supply options, and case heights. Fully customized versions of Octavio-HLV can also be configured.

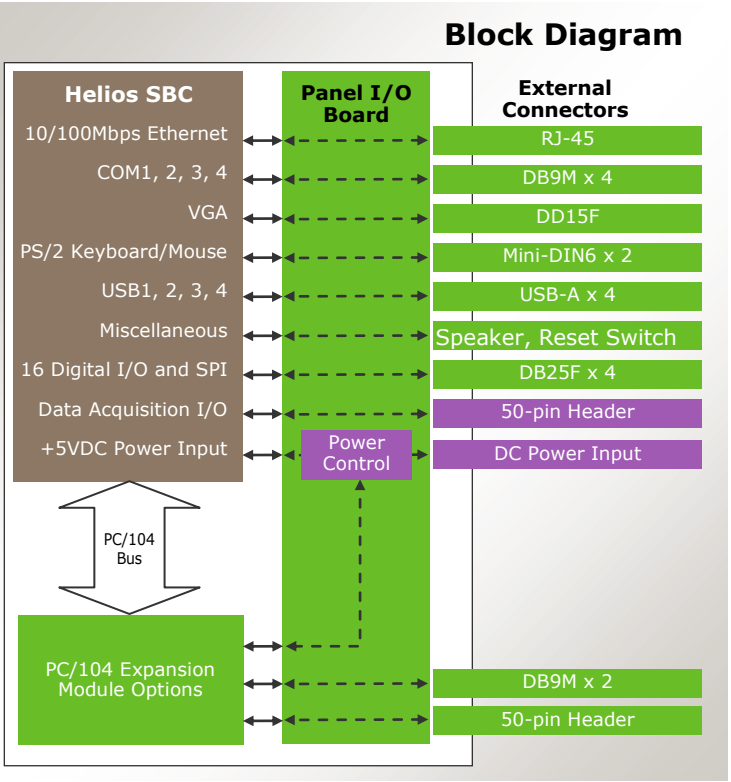
Rugged Design

Octavio-HLV is highly resistant to shock and vibration. From a -40°C to +85°C operating temperature, to its soldered SDRAM and cable-free packaging, Octavio-HLV thrives in the most extreme environments.

System Software Included

Octavio-HLV comes pre-loaded with a bootable Linux operating system fully configured with all of the system I/O. It also includes Diamond's Universal Driver software, which provides C programming support for the system's integrated data acquisition circuitry.

Block Diagram



Octavio-HLV: Embedded Application Server

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System Specifications

Processor	Vortex86DX CPU at 800MHz
Memory	256MB DRAM soldered on board
Operating System	Linux 2.6.23
System Software	Universal Driver 6.02
Display type	VGA CRT
Display resolution	1280 X 1024 maximum
USB ports	4 USB 2.0
Serial ports	2 RS-232 2 RS-232/422/485
Networking	10/100Base-T Ethernet
Mass storage	Integrated 128MB or 1GB flashdisk
Keyboard/Mouse	PS/2
Input power	5V ±5%
Power consumption	5.4W (base system)
Operating temperature	-40°C to +85°C (-40°F to +185°F)
Dimensions (L x W x H)	5.5 x 5.75 x 1.7 in. (138 x 145 x 43 mm) Height varies by selected enclosure
Weight	30oz / 863g
RoHS	Compliant

Data Acquisition Specifications

ANALOG	
Number of inputs	16 single-ended or 8 differential, user selectable
A/D resolution	16 bits
Input ranges	±10V, ±5V, ±2.5V, ±1.25V, 0-10V, 0-5V, 0-2.5V programmable
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 and 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	10µS max to 0.012%
Relative accuracy	±2 LSB
Nonlinearity	±2 LSB, monotonic
Reset	Reset to zero-scale or mid-scale (jumper selectable)
DIGITAL I/O	
Number of I/O lines	Model H8A: 40 lines Model H8D: 16 lines
Input voltage	Logic 0: -0.5V min, 0.8V max Logic 1: 2.0V min, 5.5V max
Input current	±3µA max
Output voltage	Logic 0: 0.0V min, 0.4V max Logic 1: 2.4V min, 3.3V max
Output current	Logic 0: 12mA max per line Logic 1: -8mA max per line
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

Key Features

Octavio-HLV embedded application servers are compact, rugged systems aimed at a wide variety of data acquisition and control applications. The systems are based Diamond's field-proven Helios PC/104 single board computer, which combines an 800MHz Vortex86DX CPU and integrated peripheral interface functions along with Diamond's industry-leading high-accuracy data acquisition circuitry.

Octavio-HLV comes with 256MB of soldered DRAM for increased resistance to shock and vibration. It also has a 128MB or 1GB solid state IDE flashdisk pre-loaded with Linux 2.6.23 and Diamond's Universal Driver data acquisition programming software, leaving ample room for your application on the flashdisk.

Standard system I/O includes VGA graphics, a 10/100Base-T Ethernet interface, four USB 2.0 ports, two RS-232 serial ports, two RS-232/422/485 ports, and PS/2 keyboard and mouse interfaces.

Data Acquisition Features

When ordered with its optional data acquisition (DAQ) subsystem, Octavio-HLV provides 16 16-bit A/D inputs with 250KHz sample rate, four 12-bit D/A outputs, 40 digital I/O lines, and two counter/timers. Multi-range autocalibration on both A/D and D/A ensures maximum accuracy over time and temperature.

Enclosure Features

Octavio's enclosure was designed to eliminate most internal cables, resulting in enhanced ruggedness and reliability in both fixed and mobile environments. All of the system's standard interfaces are accessible on the front of the enclosure via industry standard connectors, which are mounted on a panel I/O board. The panel I/O board also accommodates I/O from selected PC/104 add-on modules. The system is highly shock and vibration tolerant, and operates fan-less over -40°C to +85°C.

Ordering Information

OCTAVIO-P-F-D-S-R	Octavio-HLV Embedded Application Server (Please select from the options below)
P = H8A	Helios SBC, 800MHz Vortex86DX, DAQ
H8D	Helios SBC, 800MHz Vortex86DX, no DAQ
F = HL128	128MB flashdisk with Linux pre-loaded
HL1G	1GB flashdisk with Linux pre-loaded
D = 00	No integrated DC/DC power supply
LP	25W integrated DC/DC power supply
J5	50W integrated power supply (Options LP or J5 require S=30 or greater)
S = 17	1.7 inch enclosure height
30	3 inch enclosure height
50	5 inch enclosure height
70	7 inch enclosure height
R = 00	No DIN rail adapter
DR	Add DIN rail adapter