

# OCTAVIO-ATHM



Compact, rugged, low-power Embedded Application Server featuring 500MHz VIA Mark CPU and integrated data acquisition



## Embedded Application Server

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

## Flexibility of Configuration

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

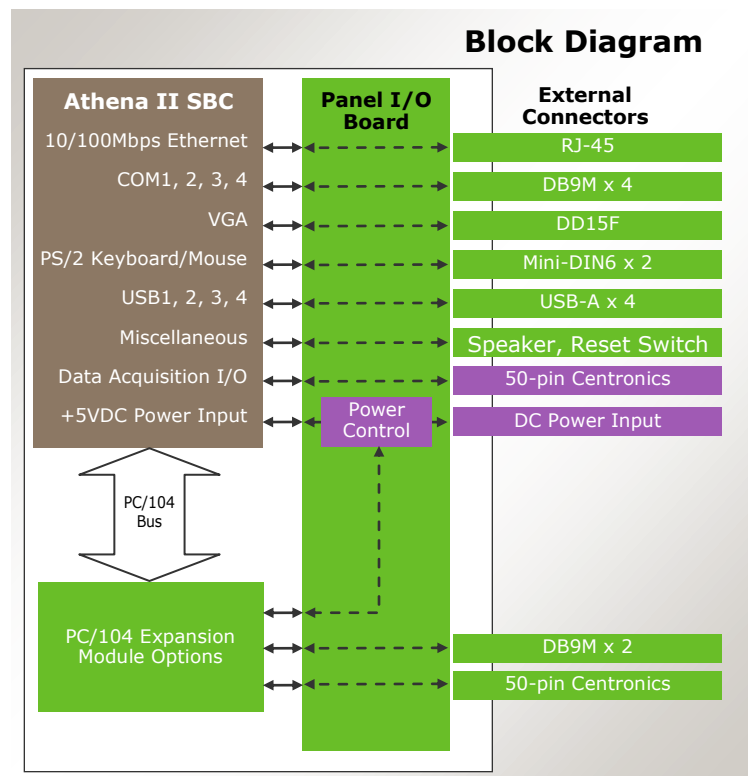
## Rugged Design

Octavio-ATHM 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-ATHM thrives in the most extreme environments.

## System Software Included

Octavio-ATHM 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.

- ◆ Smallest embedded server with integrated data acquisition
- ◆ Based on 500MHz VIA Mark CPU
- ◆ 256MB soldered-on DRAM
- ◆ Standard I/O interfaces:
  - four USB 1.1 ports
  - two RS-232/485 and two RS-232 serial ports
  - 10/100Mbps Ethernet
  - VGA CRT display
  - PS/2 keyboard/mouse ports
- ◆ Optional data acquisition subsystem 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
- ◆ -40°C to +85°C (-40°F to +185°F) fanless operation



# Octavio-ATHM: Embedded Application Server



## System Specifications

<b>Processor</b>	VIA Mark CPU at 500MHz
<b>Memory</b>	256MB DRAM soldered on board
<b>Operating System</b>	Linux 2.6.23
<b>System Software</b>	Universal Driver 6.02
<b>Display type</b>	VGA CRT
<b>Display resolution</b>	1600 X 1200 maximum
<b>USB ports</b>	4 USB 1.1
<b>Serial ports</b>	2 RS-232 2 RS-232/485
<b>Networking</b>	10/100Base-T Ethernet
<b>Mass storage</b>	Integrated 512MB or 4GB flashdisk
<b>Keyboard/Mouse</b>	PS/2
<b>Input power</b>	5V ±5%
<b>Power consumption</b>	10W (base system)
<b>Operating temperature</b>	-40°C to +85°C (-40°F to +185°F)
<b>Dimensions (L x W x H)</b>	5.5 x 5.75 x 1.7 in. (138 x 145 x 43 mm) Height varies by selected enclosure
<b>Weight</b>	30oz / 863g
<b>RoHS</b>	Compliant

## Data Acquisition Specifications

<b>ANALOG</b>	
<b>Number of inputs</b>	16 single-ended or 8 differential, user selectable
<b>A/D resolution</b>	16 bits
<b>Input ranges</b>	±10V, ±5V, ±2.5V, ±1.25V, 0-10V, 0-5V, 0-2.5V, 0-1.25V programmable
<b>Max sample rate</b>	100KHz
<b>Protection</b>	±35V on any analog input without damage
<b>Nonlinearity</b>	±3LSB, no missing codes
<b>On-board FIFO</b>	2048 samples, programmable threshold
<b>A/D and D/A calibration</b>	Autocalibration with software support
<b>Number of outputs</b>	4, 12-bit resolution
<b>Output ranges</b>	±5V, ±10V, 0-5V, 0-10V
<b>Output current</b>	±5mA max per channel
<b>Settling time</b>	6µS max to 0.01%
<b>Relative accuracy</b>	±1 LSB
<b>Nonlinearity</b>	±1 LSB, monotonic
<b>Reset</b>	Reset to zero-scale or mid-scale (jumper selectable)
<b>DIGITAL I/O</b>	
<b>Number of I/O lines</b>	24 lines
<b>Input voltage</b>	Logic 0: 0.0V min, 0.8V max Logic 1: 2.0V min, 5.0V max
<b>Input current</b>	±1µA max
<b>Output voltage</b>	Logic 0: 0.0V min, 0.33V max Logic 1: 2.4V min, 5.0V max
<b>Output current</b>	Logic 0: 64mA max per line Logic 1: -15mA max per line
<b>COUNTER / TIMERS</b>	
<b>A/D Pacer clock</b>	24-bit down counter
<b>Clock source</b>	10MHz on-board clock or external signal
<b>General purpose</b>	16-bit down counter

## Key Features

Octavio-ATHM 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 Athena II single board computer, which combines a 500MHz VIA Mark CPU and integrated peripheral interface functions along with Diamond's industry-leading high-accuracy data acquisition circuitry.

Octavio-ATHM comes with 256MB of soldered DRAM for increased resistance to shock and vibration. It also has a 512MB or 4GB 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 1.1 ports, two RS-232 serial ports, two RS-232/485 ports, and PS/2 keyboard and mouse interfaces.

## Data Acquisition Features

When ordered with its optional data acquisition (DAQ) subsystem, Octavio-ATHM provides 16 16-bit A/D inputs with 100KHz sample rate, four 12-bit D/A outputs, 24 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

<b>OCTAVIO-P-F-D-S-R</b>	Octavio-HLV Embedded Application Server (Please select from the options below)
<b>P = A5A</b>	Athena II SBC, 500MHz VIA Mark, DAQ
<b>A5N</b>	Athena II SBC, 500MHz VIA Mark, no DAQ
<b>F = AL512</b>	512MB flashdisk with Linux pre-loaded
<b>AL4G</b>	4GB flashdisk with Linux pre-loaded
<b>D = 00</b>	No integrated DC/DC power supply
<b>LP</b>	25W integrated DC/DC power supply
<b>J5</b>	50W integrated power supply (Options LP or J5 require S=30 or greater)
<b>S = 17</b>	1.7 inch enclosure height
<b>30</b>	3 inch enclosure height
<b>50</b>	5 inch enclosure height
<b>70</b>	7 inch enclosure height
<b>R = 00</b>	No DIN rail adapter
<b>DR</b>	Add DIN rail adapter