ATHENA

400-660MHZ VIA EDEN PROCESSOR, ON-BOARD MEMORY AND DATA ACQUISITION

New size! 4.2" x 4.5"

CPU FEATURES

- VIA Eden 400-660MHz Processor
- Low-power fanless operation: 10 Watts @ 400MHz
- 128MB memory soldered on board
- 10/100Mbps Ethernet
- S3 Savage 4 Chipset with advanced 3D/2D video
- Flat panel, CRT, and LCD display support
- IDE port with UDMA-33 capability
- 4 RS-232 serial ports
- 4 USB 1.1 ports
- PS/2 keyboard/mouse ports
- Real-time clock
- Watchdog timer
- PC/104 ISA expansion bus
- -40 to +85°C operation

DATA ACQUISITION FEATURES

- 16 analog inputs, 16-bit A/D
- 100KHz max sampling rate
- Multi-channel scan sampling with interrupts and FIFO support
- Programmable input ranges
- 4 analog outputs, 12-bit D/A
- 24 programmable digital I/O
- 2 programmable counter/timers
- Supported by Universal Driver software

FEATURE	BENEFIT
Low-power VIA Eden processor	High computing power with reduced power consumption Reduced heat dissipation / no fan required (400MHz)
Integrated LCD, CRT, Ethernet, and system I/O	Small size Light weight
Integrated data acquisition	Single-board solution for increased reliability Guaranteed compatibility
-40/+85°C operation	Compatible with vehicle and outdoor applications
Ruggedization capability	Customizable for demanding applications Increased reliability

Operating System Compatibility

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

2 in 1 CPU + DATA ACQUISITION

The new Athena CPU from Diamond Systems combines the low-power Pentium-III class VIA Eden processor with on-board memory and data acquisition into a new compact form factor measuring only 4.2" x 4.5". The result is a small, low-heat-dissipation, and extremely rugged embedded CPU that fits in tight spaces and survives harsh environments. On-board 128MB RAM, LCD+CRT video, AC97 audio, 4 USB ports, 4 serial ports, a 16-bit low-noise data acquisition circuit, and extended temperature operation make Athena an all-in-one, complete embedded solution for demanding applications.

Athena can be customized for increased ruggedness. Options include latching connectors, hardwired configuration settings, rugged heat sink mounting, conformal coating, and BIOS modifications.

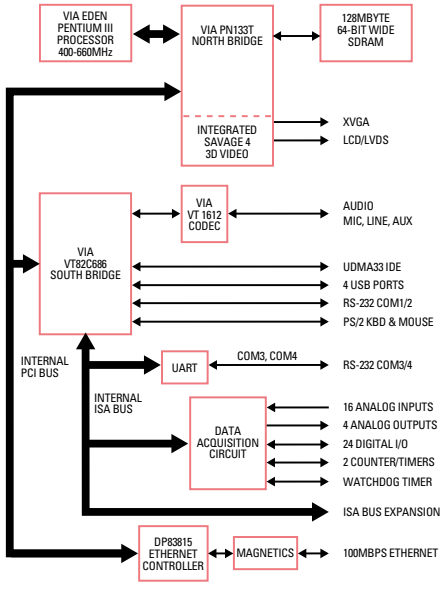
An enhanced set of I/O ports is provided to support any application's requirements, including 10/100Mbps Ethernet, UDMA-33 IDE, parallel port, PS/2 keyboard and mouse ports, and 4 USB 1.1 ports. The board also has 4 16450-compatible RS-232 serial ports. The watchdog timer provides protection from software crashes and is programmable for delays up to 2 seconds.

The built-in PC/104 expansion bus enables Athena to work with almost all the data acquisition and communications modules in this catalog, as well as hundreds of I/O boards from other vendors. The board can be provided with either stackthrough PC/104 connectors (standard) or non-stackthrough connectors for a slim baseboard application. The new compact 4.2" x 4.5" form factor, slightly larger than PC/104, enables Athena to include more features on a single board and still fit inside our Pandora enclosure system.

Cable Kit

The Athena cable kit includes all needed cables for Athena I/O features. All cables are also available individually. See page 47 for a compete list of cables.

ATHENA BLOCK DIAGRAM



CPU Enclosure

The Athena CPU can be mounted inside our Pandora enclosure with cable-free panel I/O board to form a rugged, compact, completely self-contained industrial computer system. See page 44 for information on Pandora enclosures.

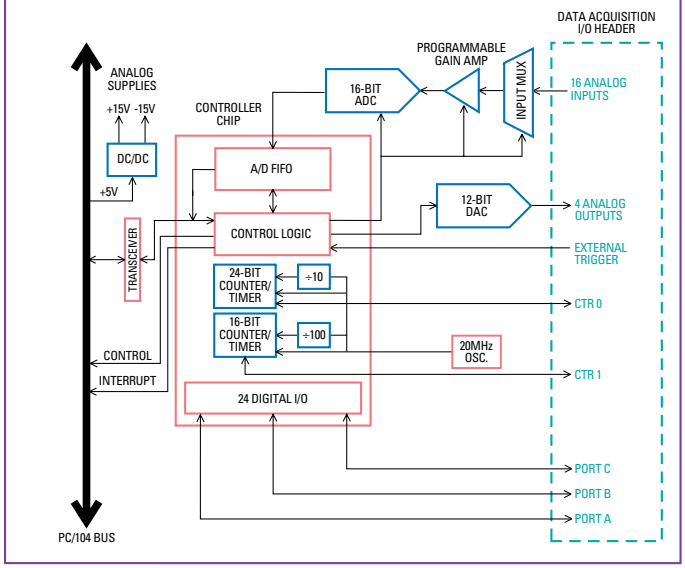
ATHENA

400-660MHZ VIA EDEN PROCESSOR, ON-BOARD MEMORY AND DATA ACQUISITION

Integrated Data Acquisition

The optional data acquisition circuit provides high-accuracy, stable 16-bit A/D performance with 100KHz sample rate, wide input voltage capability up to ±10V, and programmable input ranges. It includes 4 12-bit D/A channels, 24 programmable digital I/O lines, and two programmable counter/timers. A/D operation is enhanced by on-board FIFO with interrupt-based transfers, internal/external A/D triggering, and on-board A/D sample rate clock. Placement of the analog circuitry away from the high-speed digital logic ensures low-noise performance for critical applications. All data acquisition features are fully supported by our Universal Driver software for DOS, Linux, RTLinux, QNX, Windows 98/NT/2000/XP/CE, and VxWorks to simplify application development.

ATHENA DATA ACQUISITION BLOCK DIAGRAM



Solid State Storage

Athena is compatible with our solid state IDE flashdisk modules. These modules provide mass storage that is fully IDE compatible and requires no drivers to work with your operating system. They mount directly onto the board's IDE connector and are held in place with a mounting screw for extra ruggedness. See page 45 for flashdisk information.

Development Kit

A development kit is available with all the hardware you need to get started on your Athena embedded design project. The kit contains an AC power adapter, 128MB flashdisk module and programming adapter, cable kit, PC/104 mounting kit, and USB floppy drive. Kit items are also available individually.

SPECIFICATIONS

CPU AND SYSTEM		
Processor	VIA Eden, low-power Pentium-3 equivalent	
Speed	400MHz	660MHz
Power consumption	10 watts	12.5 watts
Cooling	Heat sink, no fan	Heat sink + fan
Display		
Chipset	VT8606 Savage4 3D and 2D acceleration, 4x AGP, and 128-bit engine	
Type	CRT and LCD	
Resolution	Up to 1280x1024x32 or 1920x1440x16	
Memory	8/16/32MB shared with system memory	
LCD interface	18-bit dual-channel LVDS, 1400x1050	
Memory	128MB soldered on board	
Mass storage		
IDE	44-pin connector, UDMA33 (33MB/sec), up to 2 drives	
Flashdisk	Solid state module, up to 512MB, mounts on board	
Real-time clock	On-board RTC with lithium backup battery	
Watchdog timer	0.15 - 2 sec user programmable	
Ethernet	National Semi DP83815, 10/100Mbps	
Serial ports	4x RS-232	
Ports 1/2	Up to 115.2kbps, 16-byte FIFO, 16C450 compatible	
Ports 3/4	Up to 460.8kbps, 128-byte FIFO, 16C2850 UART	
Parallel port	SPP, EPP, and ECP compatible; BIOS enable/disable	
USB ports	4, version 1.1	
PS/2	2 ports for keyboard & mouse	
DATA ACQUISITION		
Analog inputs	16 single-ended / 8 differential	
A/D resolution/speed	16 bits, 100KHz maximum	
Input ranges	±10V, ±5V, ±2.5V, ±1.25V / 0-10V, 0-5V, 0-2.5V, 0-1.25V	
Analog outputs	4, 12-bit resolution	
Output ranges	±10V, ±5V, 0-10V, 0-5V	
Digital I/O	24 lines, programmable direction	
Counter/timers	1 24-bit and 1 16-bit A/D sample rate control, counting/timing, programmable interrupts	
GENERAL		
Operating temp.	-40 to +85°C	
Power supply	+5VDC ±5% @ 2.0A (400MHz), 2.5A (660MHz)	
Dimensions	4.175"W x 4.475"H	
Weight	5.3oz / 150g	

ORDERING GUIDE

ATH400-128	Athena 400MHz 128MB with data acquistion
ATH400-128N	Athena 400MHz 128MB without data acquistion
ATH660-128	Athena 660MHz 128MB with data acquistion
ATH660-128N	Athena 660MHz 128MB without data acquistion
C-ATH-KIT	Athena cable kit
DK-ATH-01	Athena development kit
PS-5V-03	AC adapter for Athena

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