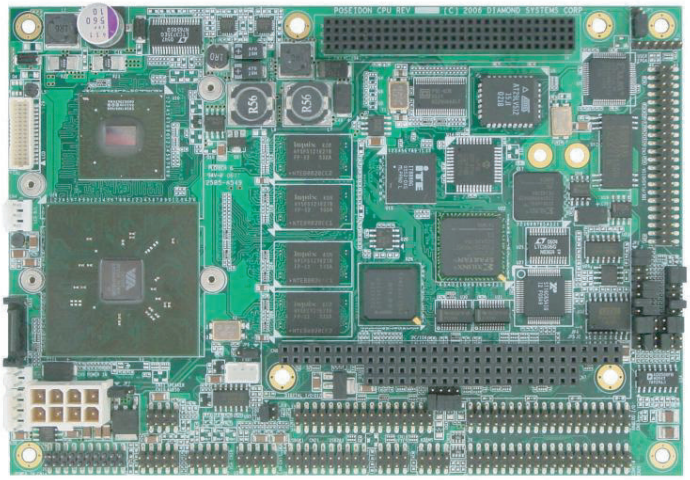
DIAMOND SYSTEMS CORPORATION

POSEIDON

2.0GHz EPIC SBC WITH DATA ACQUISITION



- Low power, high performance PC/104-Plus expandable SBC to 2.0GHz with 400MHz FSB
- Fully featured, including Gigabit Ethernet, CRT and LVDS support, USB 2.0, 4 serial ports and SATA/ IDE
- Optional data acquisition featuring 32 16-bit A/D with auto-autocalibration, 4 12-bit D/A, 24 DIO and two counter/timers
- Extremely rugged, with soldered RAM and -20°C to +85°C operating temperature

DESCRIPTION

Poseidon is a high performance EPIC form factor single board computer combining state of the art CPU and peripheral technology with Diamond Systems renowned high accuracy data acquisition circuitry on a single board. Poseidon utilizes the new VIA C7® and VIA Eden® ULV processors operating at speeds up to 2.0GHz along with VIA's advanced CX700 single chip digital media chipset.

Poseidon incorporates advanced features such as a 400MHz Front Side Bus (FSB), four USB 2.0 ports, S-ATA hard drive interface and advanced 2D / 3D graphics with AGP 8x level performance and integral MPEG-2 hardware acceleration. The dual graphics display engines on Poseidon support Dual Independent Display functionality with simultaneous CRT and LVDS flat panel displays (up to dual channel 24-bit). Poseidon also provides an Intel 82541 Gigabit Ethernet controller, four RS-232 serial ports (two have RS-422/485 multiprotocol capability) and legacy keyboard / mouse and IDE hard drive interfaces.

Poseidon's optional integrated data acquisition section has 32 analog inputs with 16-bit A/D and 250KHz sample rate, 4 12-bit analog outputs with 100KHz waveform output capability, 24 digital I/O lines, and 2 counter/timers. It supports both interrupt and DMA A/D transfers, and it uses an enhanced 1,024-sample FIFO with programmable threshold for maximum flexibility and data reliability.

The analog circuitry utilizes Diamond Systems' patented Automatic Autocalibration technology to calibrate its A/D and D/A circuits automatically whenever required, without user

CPU SPECIFICATIONS

Processor	1.0GHz VIA Eden ULV		2.0 GHz VIA C7	
Power Consumption	Worst	Idle	Worst	Idle
	24 w/ DAQ 22 w/o DAQ	19 w/ DAQ 17 w/o DAQ	31 w/ DAQ 29 w/o DAQ	23 w/ DAQ 21 w/o DAQ
Cooling	Heatsink, no fan		Heatsink, fan	
Op. Temperature	-20°C to +85°C		-20°C to +65°C	
Chipset	VIA CX700			
FSB	400MHz			
Memory	Up to 1GB 533MHz DDR2			
Bus Interface	PC/104-*Plus* (ISA + PCI)			
Display Type	CRT and / or 24-bit dual channel LVDS flat panel			
CRT Resolution	2048 x 1536			
Flat Panel Resolution	UXGA 1600 x 1200			
Video Memory	128MB UMA			
USB Ports	(4) USB 2.0			
Serial Ports	(2) RS-232, (2) RS-232/422/485			
Networking	Gigabit Ethernet			
Mass Storage LFC	(1) S-ATA, (1)IDE UDMA 100, Flashdisk interface			
Keyboard/Mouse	PS/2			
Audio	MC '97, Line-in, Line-out, Mic amplified speaker interface			
Dimensions	4.528" x 6.496" (115mm x 165mm)			
Weight	PSDE10-512N			
	8.3 oz			
Input Power	5V +/-5%			

intervention. This means you get analog I/O performance with the maximum possible accuracy over the full operating temperature range of the product without doing anything at all.

Diamond Systems' free Universal Driver programming software for Linux, Windows 98/2000/XP/CE.NET, DOS, QNX is included.

Poseidon is extremely rugged, featuring up to 1GB of soldered DDR2 DRAM, optional hardwired jumpers and latching connectors for increased resistance to shock and vibration. With a 1.0GHz CPU Poseidon has an operating temperature range of -20°C to +85°C without a fan. At 2.0GHz, Poseidon operates from -20°C to +65°C with a fan. Conformal coating is available as an extra cost option.

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 Poseidon board, flashdisk module, cable kit, I/O panel board and software CD.

TRANSITION CABLES OR PC-STYLE CONNECTORS

To enhance the use of Poseidon in harsh environments requiring outstanding resistance to shock and vibration, Poseidon is engineered with all on-board I/O brought to pin headers within the I/O zones identified in the EPIC specification. I/O that can utilize PC-style connectors is placed such that a small I/O Panel Board can be utilized to instantly convert Poseidon to PC-style connectors for use in a traditional enclosure.

ORDERING INFORMATION

Part No.	Description
PSDE10-512N	Poseidon SBC, 1.0GHz VIA Eden ULV, 512MB RAM
PSDE10-512A	Poseidon SBC, 1.0GHz VIA Eden ULV, Up to 512MB RAM, Data Acquisition
PSDC20-1024N	Poseidon SBC, 2.0GHz VIA C7, 1GB RAM
PSDC20-1024A	Poseidon SBC, 2.0GHz VIA C7, 1GB RAM, Data Acquisition
DK-PSDE10-02	Poseidon Development Kit with 1.0GHz SBC
DK-PSDC20-02	Poseidon Development Kit with 2.0GHz SBC

DATA ACQUISITION SPECIFICATIONS

ANALOG INPUTS	
Number of inputs	32 single-ended, 16 differential, or 16 SE + 8 DI; user selectable
A/D resolution	16 bits
Input ranges	±10V, ±5V, ±2.5V, ±1.25V, ±0.625V, 0-10V, 0-5V, 0-2.5V, 0-1.25V, 0-.625V
Max Sample Rate	250KHz
Protection	±35V on any analog input without damage
Nonlinearity	±3LSB, no missing codes
On-board FIFO	1024 samples, programmable threshold
A/D and D/A Calibration	Automatic using on-board microcontroller and temp sensor
ANALOG OUTPUTS	
Number of outputs	4, 12-bit resolution
Output ranges	±5V, ±10V, 0-5V, 0-10V
Output current	±5mA max per channel
Settling time	6µS max to 0.01%
Relative accuracy	±1 LSB
Nonlinearity	±1 LSB, monotonic
Reset	Reset to zero-scale or mid-scale (jumper selectable)
Waveform buffer	1,024 samples
DIGITAL I/O	
No. of I/O lines	24 programmable direction
Input voltage	Logic 0: 0.0V min, 0.8V max Logic 1: 2.0V min, 5.0V max
Input current	±1µA max
Output voltage	Logic 0: 0.0V min, 0.33V max Logic 1: 2.4V min, 5.0V max
Output current	Logic 0: 64mA max per line Logic 1: -15mA max per line
COUNTER / TIMERS	
A/D Pacer clock	32-bit down counter (2 82C54 counters cascaded)
Clock source	10MHz on-board clock or external signal

FOR MORE INFORMATION

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