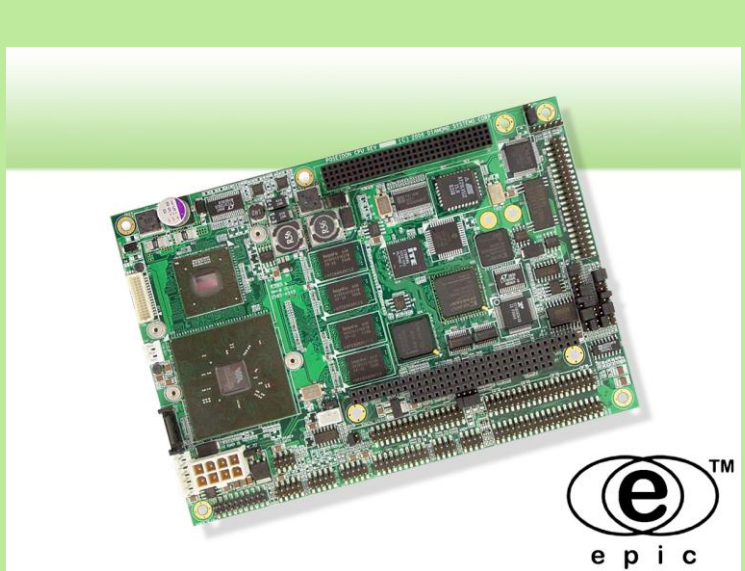


POSEIDON



Rugged, low-power, high-performance EPIC Single Board Computer featuring integrated data acquisition, Ethernet, and CRT/LCD video



Highly Integrated SBC

Poseidon combines the functionality of an embedded-PC, analog and digital I/O data acquisition circuit, and an on-board DC/DC power supply into a single board, offering the most functionality available in an EPIC form-factor SBC.

Price/Performance Advantage

Poseidon utilizes the VIA Eden ULV and C7 processors operating at speeds up to 2.0GHz, along with VIA's advanced CX700 single chip digital media chipset.

Rugged Design

Poseidon was designed with rugged applications in mind. From its operating temperature of -40°C to +75°C, to its soldered-on SDRAM, this highly-reliable SBC thrives in the most extreme environments.

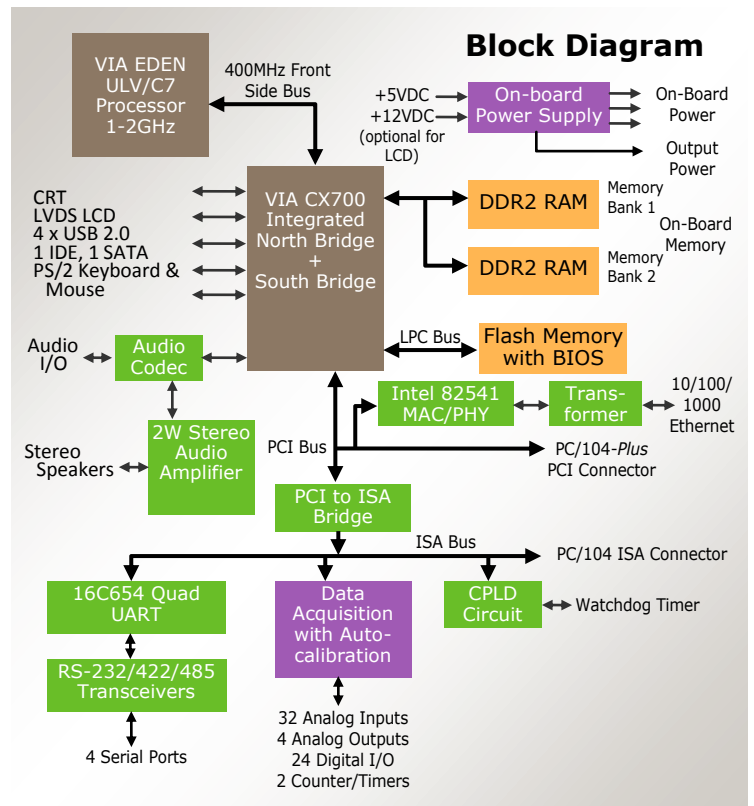
Fully Integrated Systems

Combining Diamond's Triton EPIC enclosure with Poseidon creates a complete system, ready for deployment. Poseidon's panel I/O board presents the on-board I/O at the face of the system as industry standard connectors. Triton also allows for two PC/104-Plus expansion modules to be added to the system.



Triton EPIC Enclosure

- ◆ Low-power, high-performance PC/104-Plus expandable SBC
- ◆ Based on a VIA Eden CPU at 1GHz or C7 CPU at 2GHz
- ◆ 2-in-1 design (CPU + DAQ) reduces size and cost, increases ruggedness and reliability
- ◆ 512MB or 1GB soldered-on memory
- ◆ Comprehensive set of I/O interfaces:
 - four USB 2.0 ports
 - two RS-232/422/485 and two RS-232 serial ports
 - Gigabit Ethernet
 - One SATA and one IDE mass storage interface
 - Optional on-board IDE flashdisk
 - VGA CRT or LVDS LCD display
 - Audio
 - PS/2 keyboard/mouse interfaces
- ◆ Optional data acquisition circuitry featuring multiplexed 32 channel 16-bit A/D with autocalibration, four 12-bit D/A, 24 digital I/O, and two counter/timers
- ◆ EPIC form-factor
- ◆ Extremely rugged with soldered-on RAM and -40°C to +75°C (-40°F to +167°F) extended operating temperature



Poseidon: EPIC Single Board Computer



CPU Specifications

Processor	VIA Eden ULV at 1.0GHz	VIA C7 at 2.0GHz
Cooling	Heatsink, fan-less	Heatsink with fan
Memory	512MB or 1GB 533MHz DDR2 DRAM	
Chipset	VIA CX700	
Front side bus	400MHz	
Expansion bus	PC/104-Plus (ISA & PCI)	
Display type	VGA CRT and 24-bit LVDS LCD	
Display resolution	CRT: 2048 X 1536 LVDS: 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	10/100/1000Mbps Ethernet	
Mass storage	1 IDE UDMA-100 port; (1) SATA port Flashdisk interface	
Keyboard/Mouse	PS/2	
Audio	MIC'97, line-in, line-out, Mic, amplified speaker	
Input power	5V ±5%	
Power consumption	24W with DAQ 22W without DAQ	31W with DAQ 29W without DAQ
Operating temp	-40°C to +75°C (-40°F to +167°F)	
Dimensions	4.5 x 6.5 in. (115 x 165 mm)	
Weight	8.6oz / 244g	9.0oz / 255g
RoHS	Compliant	

Data Acquisition Specifications

ANALOG	
No. of inputs	32 single-ended or 16 differential, 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, 0-0.625V programmable
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 autocalibration using on-board microcontroller and temperature sensor
No. 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 (selectable)
Waveform buffer	1024 samples
DIGITAL I/O	
Number of lines	24 lines 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 cascaded 82C54 counters)
Clock source	10MHz on-board clock or external signal
General purpose	16-bit down counter (82C54 counter)

Data Acquisition

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

The analog circuitry utilizes Diamond's patented Automatic Autocalibration technology to calibrate its A/D and D/A circuits automatically whenever required, without user intervention. This means you get analog I/O performance with the best possible accuracy over the full operating temperature range of the product without interrupting system operation.

Software Support

Poseidon supports Linux, Windows XP, QNX, and DOS. All necessary drivers are shipped with the product. Diamond's free industry-leading Universal Driver software provides a C programming library for the integrated data acquisition circuit. It includes demo programs and example code for each supported OS to assist in rapid application development. A complete QNX Software Development Kit is available with a bootable QNX image.

Development Kit

Complete Development Kits, DK-PSDE10-02 and DK-PSDC20-02, are available with all the components you need to get started on your embedded design project. Each kit contains a Poseidon SBC, flashdisk with Linux pre-loaded, cable kit, AC adapter, panel I/O board, and software CD.



Poseidon Development Kit

Ordering Information

PSDE10-512A	Poseidon SBC, 1.0GHz VIA Eden ULV CPU, 512MB RAM, full data acquisition
PSDE10-512N	Poseidon SBC, 1.0GHz VIA Eden ULV CPU, 512MB RAM, no data acquisition
PSDC20-1024A	Poseidon SBC, 2.0GHz VIA C7 CPU, 1024MB RAM, full data acquisition
DK-PSDE10-02	Poseidon 1GHz Development Kit with PSDE10-512A SBC, cables, panel I/O board & flashdisk
DK-PSDC20-02	Poseidon 2GHz Development Kit with PSDC20-1024A SBC, cables, panel I/O board & flashdisk
SDK-PSD-QNX	Poseidon QNX 6.4 Software Development Kit
C-PSD-KIT	Poseidon Cable Kit for all on-board I/O