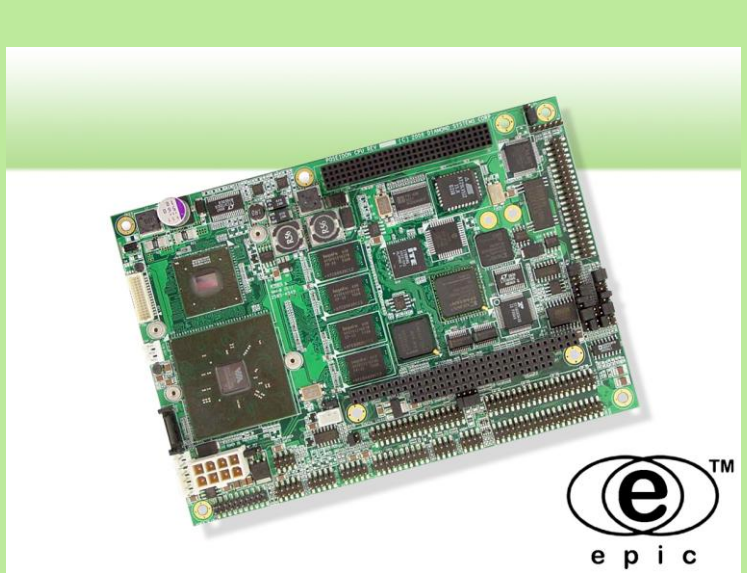


# POSEIDON



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.

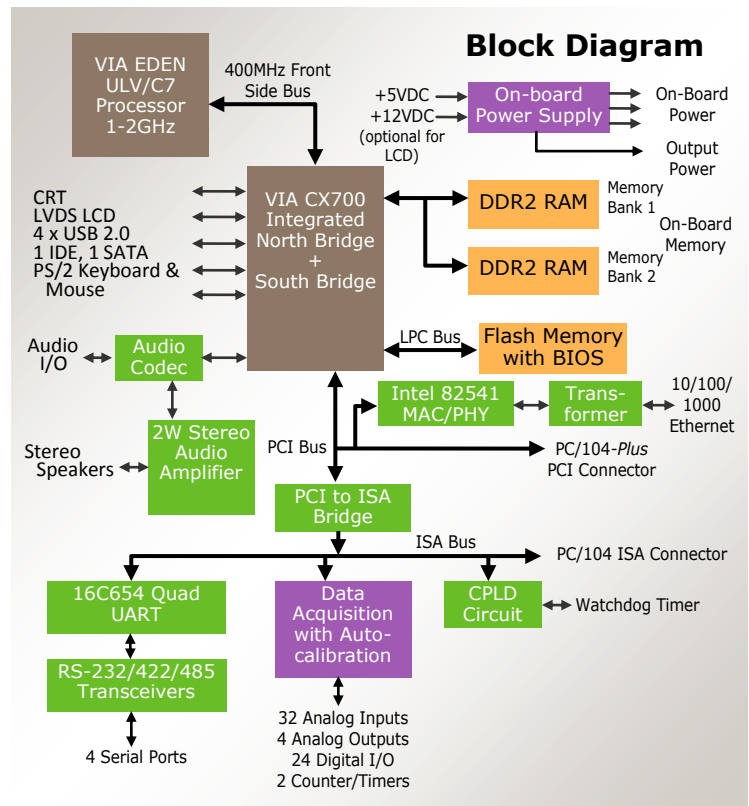
## Fully Integrated Systems

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

<b>Processor</b>	VIA Eden ULV at 1.0GHz	VIA C7 at 2.0GHz
<b>Cooling</b>	Heatsink, fan-less	Heatsink with fan
<b>Memory</b>	512MB or 1GB 533MHz DDR2 DRAM	
<b>Chipset</b>	VIA CX700	
<b>Front side bus</b>	400MHz	
<b>Expansion bus</b>	PC/104-Plus (ISA & PCI)	
<b>Display type</b>	VGA CRT and 24-bit LVDS LCD	
<b>Display resolution</b>	CRT: 2048 X 1536 LVDS: UXGA 1600 x 1200	
<b>Video memory</b>	128MB UMA	
<b>USB ports</b>	4 USB 2.0	
<b>Serial ports</b>	2 RS-232; 2 RS-232/422/485	
<b>Networking</b>	10/100/1000Mbps Ethernet	
<b>Mass storage</b>	1 IDE UDMA-100 port; (1) SATA port Flashdisk interface	
<b>Keyboard/Mouse</b>	PS/2	
<b>Audio</b>	MIC'97, line-in, line-out, Mic, amplified speaker	
<b>Input power</b>	5V ±5%	
<b>Power consumption</b>	24W with DAQ 22W without DAQ	31W with DAQ 29W without DAQ
<b>Operating temp</b>	-40°C to +75°C (-40°F to +167°F)	
<b>Dimensions</b>	4.5 x 6.5 in. (115 x 165 mm)	
<b>Weight</b>	8.6oz / 244g	9.0oz / 255g
<b>RoHS</b>	Compliant	

## Data Acquisition Specifications

<b>ANALOG</b>	
<b>No. of inputs</b>	32 single-ended or 16 differential, user selectable
<b>A/D resolution</b>	16 bits
<b>Input ranges</b>	±10V, ±5V, ±2.5V, ±1.25V, ±0.625V, 0-10V, 0-5V, 0-2.5V, 0-1.25V, 0-0.625V programmable
<b>Max sample rate</b>	250KHz
<b>Protection</b>	±35V on any analog input without damage
<b>Nonlinearity</b>	±3LSB, no missing codes
<b>On-board FIFO</b>	1024 samples, programmable threshold
<b>A/D and D/A calibration</b>	Automatic autocalibration using on-board microcontroller and temperature sensor
<b>No. 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 (selectable)
<b>Waveform buffer</b>	1024 samples
<b>DIGITAL I/O</b>	
<b>Number of lines</b>	24 lines programmable direction
<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>	32-bit down counter (2 cascaded 82C54 counters)
<b>Clock source</b>	10MHz on-board clock or external signal
<b>General purpose</b>	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

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