RadiSys EPC-9
High-Integration Pentium Processor-based
VMEbus Embedded Computer

Feature Summary

- High performance 100MHz, 133MHz, 166MHz and 200MHz Pentium Processor
- Field Upgradable
- Dual 10/100BaseT ethernet controller with front panel RJ45 connector
- Enhanced IDE on-board hard-drive option
- PCIbus expansion via two PCI mezzanine card (PMC)sites
- Four 72-pin SODIMM sockets for up to 256MB DRAM
- EPConnect/VME software tools for Windows NT
- ISAbus expansion via EXM interface
- Fast SCSI II controller with front-panel connector
- Two USB ports via front panel
- Optional RadiSys SVGA PMC module
- CE Mark adherence
- Access to all VMEbus memory in real or protected modes
- 256K secondary cache
- Floppy support via header
- IEEE 1284 ECP/EPP parallel port; two serial RS-232 ports with front panel connectors
- Front panel PS/2-style keyboard and mouse connector
- Full 32-bit VMEbus interface with P1 and P2 connectors
- Real-time clock with on-board battery
- On-board speaker
- Watchdog timer

System Overview

The EPC-9 brings a new level of performance to the RadiSys family of VMEbus CPU boards and sets a new standard for rugged, embedded computers. Compatible with Windows NT® and based on the Intel Pentium processor, the EPC-9 is the first VME product that can be field-upgraded.

The EPC-9 exemplifies high integration, reliability and performance. Its flexible design allows for customization to fit specific applications. It uses the Peripheral Component Interconnect (PCI) local bus for maximum performance and integration. Through advanced silicon technology, RadiSys incorporates the PCI local bus as a low latency interface between the microprocessor/memory subsystem and peripheral components. For applications requiring video, RadiSys also provides an optional PCI-based SVGA PMC module based on the Cirrus Logic CL GD5446.

The EPC-9 uses the 16-bit PC/AT-like EXM expansion bus in addition to the 32-bit PCIbus and 32-bit VMEbus. The EXM expansion bus design facilitates local embedded PC expansion without interfering with the host VMEbus, maximizing system performance. I/O, mass storage, 8-bit PC add-in short cards, and other expansion modules can be added easily. Since EXM modules are electrically similar to the PC/AT bus, they can be customized to accommodate the EPC-9 mechanical configuration.

Technical Overview

EPC-9 Block Diagram
Specifications

Board Style  
VME, Eurocard Size "B"

CPU  
Pentium processor at 100MHz, 133MHz, 166MHz, 200MHz

Cache  
256KB L2 cache using synchronous pipeline burst SRAM

System Memory  
Capacity  
Four 72-pin sockets for gold DRAM SODIMM; 64-bit memory bus, which must be populated with identical pairs of 32 bit SODIMMs
Size  
8MB min (two 4MB SODIMMs); 256MB Max (four 64MB SODIMMs)
SIMM Types  
60 ns or 70 ns Fast Page Mode or EDO DRAM SODIMMs; system will auto-detect and optimize for EDO if present
Memory Parity  
DRAM parity checking or ECC not supported at this time
Memory Voltage  
3.3V

Integrated PCI IDE  
Number of Devices  
Two independent channels; four IDE devices
On-Board IDE Drive  
On-Board 2.5-in IDE hard-drive option uses primary channel
Connectors  
One 40-pin header uses secondary channel for support up to two 3.5-in external drives
Device Types  
Mode 0, PIO Mode 3, Mode 4 IDE hard drives and CD-ROM supported

Integrated Super I/O
| **Controller** | SMC FDC37C655IR |
| **Serial Ports** | Async, RS-232C, 9-pin 16C550 compatible with send/receive 16-byte FIFOs; meets electrical specifications of EIA/TIA-232-E and EIA/TIA-574-E |
| **Parallel** | Bi-directional IEEE-1284-1994 compatible; Centronics-compatible, 25-pin, ECP, EPP |
| **Floppy Controller** | 34-pin header on-board 2.88MB, 765A-compatible |

**Keyboard and Mouse**
- **Keyboard Controller**: 8042-compatible (part #82C42PE)
- **Mouse**: PS2-style mouse

**RTC**
- **Real Time Clock**: Accurate to ±13 minutes/yr, 10-year life expectancy
- **Battery**: Field-replaceable 3.0V, 250mAh Panasonic BR2330 battery

**System BIOS**
- **BIOS Type**: Phoenix BIOS with 4MB flash and battery-backed CMOS SRAM
- **Special Features**: PC’95- and PCI 2.1-compliant; Windows 95-ready; Plug and Play; APM 1.2; IDE drive autoconfigure; multilingual support; DMA support

**PCI Chip Set**
- **Intel82430HX PCI Chip Set**: Bus at 33MHz; first level USB hub allows connection of two USB peripherals

**Ethernet**
- **10/100MBit Ethernet**: Digital 21143 for 10/100Mbit Ethernet in conjunction with QSI 6611 Physical Interface; symbol interface provided by the Digital 21143;

**PMC**
- **Two Slots**: Adheres to p1386.1; PMC1 shares Ethernet (REQ/GNT[0] and Interrupt B); PMC2 uses REQ/GNT[3] and Int.0

**SCSI II**
- **Fast SCSI**: 8-bit fast SCSI interface provided by AMD 53C974A, 10MB/second synchronous and 7MB/second asynchronous; 50-pin standard connector on front panel

**Connectors**
- **Front Panel**: Two PMC Slots, 10/100Mbit ethernet, two USB ports, SCSI II, two serial ports, one parallel port, keyboard, mouse
- **Headers**: Floppy, IDE

**SVGA Graphics Module (Optional)**
- **Form Factor**: PMC Module
- **Resolution**: 640 x 480/1280 x 1024
- **Chip Set**: Cirrus Logic