



Communications Processor Module

Industrial-grade PC Configured with Server Software Necessary for Remote Communications

Highlights

Pentium III 850 MHz FC-PGA Processor

512 MB PC133 RAM

IDE RAID Controller

2 x 40 GB 7200 RPM Hard Drive disks

1.44MB 3.5" Floppy Disk Drive

Intel 82440BX Chipset

2EIDE/1FDC/1IrDA/PS2 mouse & KB ports

Onboard 10/100Base-T Ethernet

C&T69K Onboard Video

56K Hardware based Modem

PCLTA-20 LonWorks LonTalk Adapter

Configurable Serial card- 2 port

2 USB Ports

AMI PnP Flash BIOS

128KB L2 cache integrated in CPU

DIMM sockets 4 x 168-pin, RAM size up to 1GB



Communications Processor Module

The Encorp Power Communications Processor Module fulfills the critical role of communications bridge between distributed energy resources and centralized control facilities. The CPM has been designed and built to reliably accomplish its mission. A recent additional option includes a RAID controller to guard against data loss. As part of the Encorp Product Architecture, the CPM resides onsite allowing remote operators to access site data and as well as allowing remote maintenance technicians to access the CPM's operating systems and server software.

The CPM employs a rugged tower or wall mount chassis featuring a passive backplane with a 4-slot PCI, 4 slot ISA and 2 slot PICMG for use in industrial environments.

The CPM is constructed with heavy duty steel and includes a standard 400W power supply that is UL, CSA and TUV certified.

The CPM uses the MSC-373, an all-in-one full-sized single board computer which is designed to fit a high performance Socket 370 P-II Celeron/P-III Coppermine based processor for high-end computer system applications with PCI/ISA bus architecture. It is made to meet today's demanding pace, and be completely compatible with hardware and software designed for the IBM PC/AT.

The CPM RAID System makes use of Promise Technologies IDE RAID controller card. The RAID controller card mirrors data onto two hard drives which makes the system tolerant to most drive failures. In case of a failure in one drive, the second drive will continue to function and allow the system to continue to run. The goal of the CPM RAID system is to provide a robust fault tolerant system for Encorp CPM related solutions.

The on-board devices support one AGP-bus VGA and one PCI-bus Network controller. Its benefit is to build a high performance and high data availability system for Encorp's sophisticated family of Gateway Servers residing in the CPM.

This MSC-373 can run with Intel Socket 370 processors, and support up to 1GB SDRAM DIMM modules. The enhanced on-board PCI-IDE interface can support 4 drives up to PIO mode 4 timing, and Ultra DMA/33 synchronous mode feature. The on-board Super I/O chipset integrates a

floppy controller, two serial ports, one FIR (Fast Infrared) port, and one parallel port. Two high performance 16C550-compatible UARTs provide 16-byte send/receive FIFOs, and the multi-mode parallel port supports SPP/EPP/ECP function.

Two Universal Serial Bus ports provide high-speed data communication between peripherals and PC. The PICMG standard makes the MSC-373 work with the legacy ISA, ISA/PCI, or multi-slots PCI bus backplane. The on-board 32-pin DIP socket supports M-System Disk-On-Chip Flash Disk up to 144MB.

Two 6-pin Mini-DIN connectors are provided to connect the PS/2 mouse and keyboard. The on-board Flash ROM is used to make the BIOS update easier. An additional 5-pin shrouded connector is reserved for connecting keyboard interface on the backplane.

The high precision Real Time Clock /Calendar is built to support Y2K for accurate scheduling and storing configuration information.

One 4-pin header is designed to support ATX power function. CPU overheat protection provides security and stability.

Encorp Intelligence Software

Family of Gateway Servers

The Encorp Intelligence Family of Gateway Servers is a powerful collection of data servers built on industry standard communication specifications. The critical mission of power generation requires a number of speciality functions such as OEM engine electronic data monitoring, alarm notification, data logging, and interactive graphical screens. Raw site data for these and other purposes pass through various data filters and processing algorithms and are displayed on remote client programs such as the Virtual Maintenance Monitor and the Virtual Power Plant.

Virtual Maintenance Monitor™

The Virtual Maintenance Monitor (VMM) is a complete energy information management solution. It can be used for control, monitoring, trending analysis, and alarm notification, all aimed at helping managers reduce energy

related costs while improving efficiency. The Virtual Maintenance Monitor allows managers to monitor and control Encorp Power *Gold Box* Generator and Utility Power Controls, analyze data to observe a site's big picture or drill down for more detail.

Much of the technology that makes it possible to manage gensets from a central location resides on-site, near the gensets. This technology includes Encorp's line of generator power controls and an industrial computer called the Communication Processor Module (CPM) Gateway. A typical site will contain one or more Encorp Power *Gold Box* controls and a CPM.

Virtual Power Plant™

Encorp Intelligence Virtual Power Plant Software takes advantage of the emerging trend towards microgrids made up of distributed generation assets, linked together using secure, cost-effective communication network technology and controlled by a remote Dispatch Workstation. The Virtual Power Plant dispatches technology neutral assets such as diesel and natural gas generators, micro-turbines, steam and combustion turbines, wind-diesel hybrid

systems, fuel cells, and other renewable and energy storage technologies. A unique feature of the Virtual Power Plant is its ability to create any number of virtual sites from the total resource set available. This allows power producers to select what kinds and the exact amount of power to be dispatched.

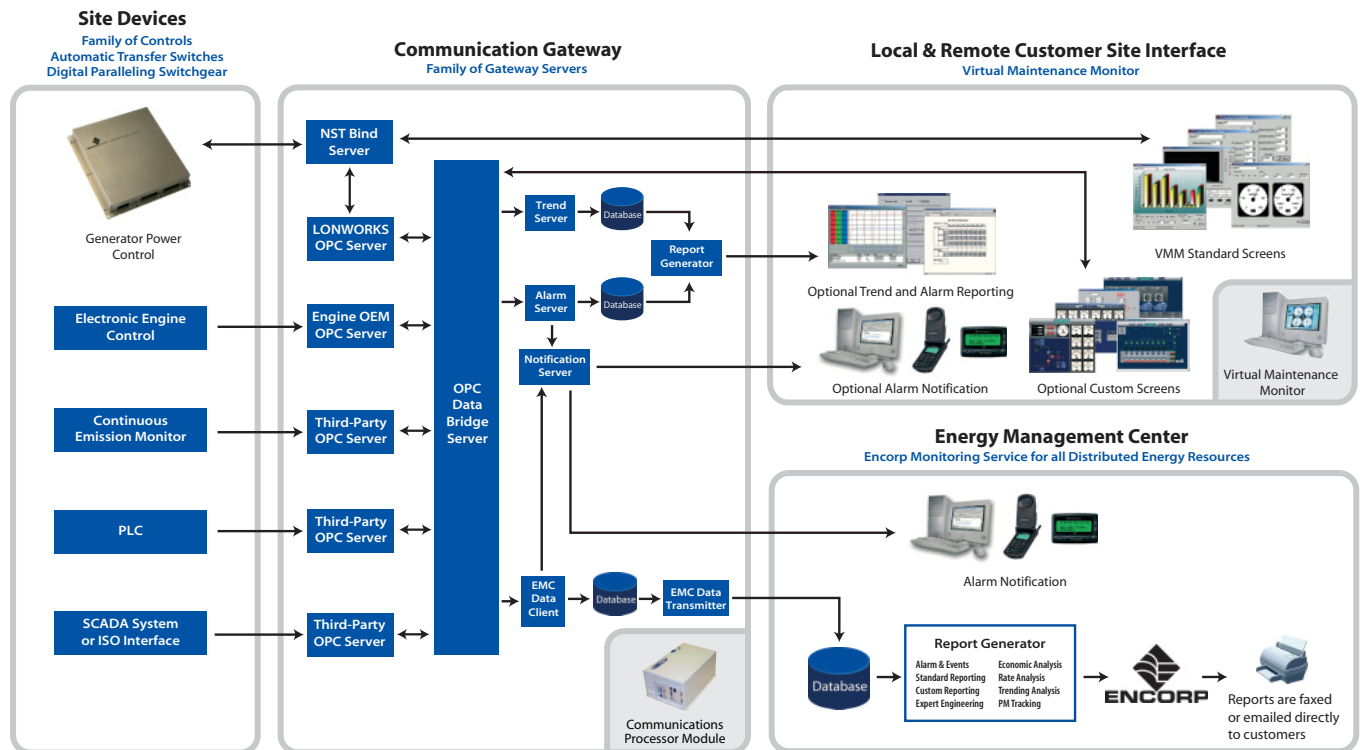
Encorp Support Services

Energy Management Center™

The Encorp Support Energy Management Center has been designed from the ground up to provide turn-key solutions to monitor, report, and optimize the distributed generation efforts of small to large commercial operations.

The Energy Management Center collects operational data at close intervals from on-site CPM's using either a dial-up or persistent connection to automatically transmit at regular, pre-programmed intervals. Data is collected and stored in a database. The data is periodically processed, formatted, and sent to clients via e-mail, fax or secure weblink. Energy quality and usage patterns can easily be tracked and analyzed to optimize power usage.

Encorp Product Architecture



The Communications Processor Module is part of the Encorp Product and Services Architecture

11/02

Specifications:

Physical Dimensions	410 x 330 x 176 mm (L x W x H)
Net Weight	Net Weight: 14.5kg Gross Weight: 15.5 Kg
Construction	Heavy-duty steel
Cooling Fan	Dimensions (L x W x H): 80mm x 80mm x 20mm Capacity: 32.5 CFM with washable air filter
Disk Drive Bay	Capable of housing up to four drives, one 3.5" half-height drive and three 5.25" half-height drives are accessible from the front panel
Power Supply	Rated Input: AC115V / @ 6A AC230V / @ 3A Max Switchable AC Output: AC115V / @ 1A AC230V / @ 0.5A Max Switchable Rated Input Frequency: 47 63 Hz DC Output (Max.): 400 Watt Max. +5V @ 30A +12V @ 10A -5V @ 0.5A -12V @ 0.5A

Bios Battery Life	10 years (from start of battery installation)
Add-on Card Bridge and Card Clamp	Flexible card clamp can protect add-on cards from vibration
Switches	Power On/Off switch Reset switch
Connectors	Front Side: One AT keyboard connector Rear Side: One 9-pin and one 25-pin reserved ports
Operating Temperature	0° ~ 55° C (32° ~ 131° F)
Storage Temperature	0° ~ 75° C (32° ~ 167° F)
Operating Humidity	5% - 95%, non-condensing
Storage Humidity	5% - 75%
Altitude	10,000 ft. (3000m)
Vibration (operating)	1.5G Max. & 0.1" P-P at 5 to 17.1 Hz
Shock	10G peak acceleration 10 ms duration)
MTBF	50,000 hours
Safety	Meets UL, CSA and TUV approval
EMI	FCC Class A and CE approved

