

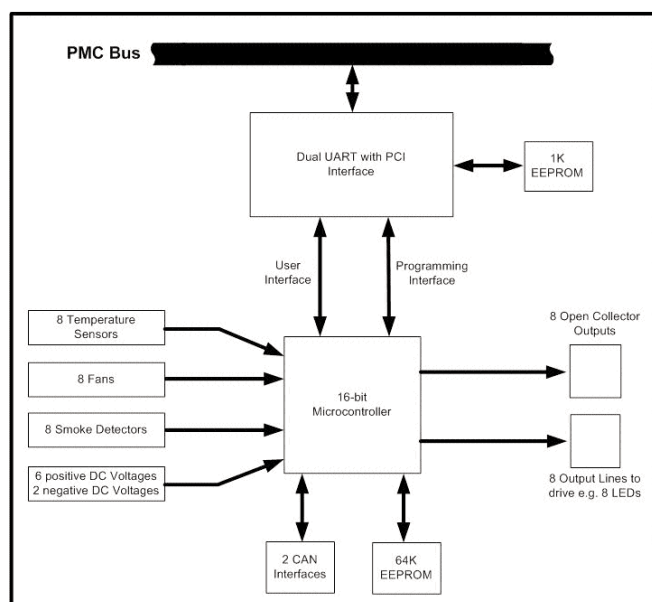
## ► Environmental Monitoring and Control Adapter

The Environmental Monitoring and Control (EMAC) Adapter provides a compact solution for monitoring the health of a system's internal environment, including power supplies, temperatures, smoke detectors and cooling fan operation. Eight open collector and eight digital output lines are also provided for the control of the monitored system.

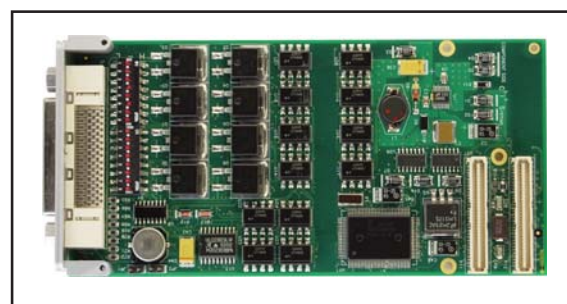
The adapter is available in the following industry standard compliant formfactors :

- **PMC**
  - Air-cooled PMC adapter with front-panel I/O (IEEE Std 1386.1-2001)
  - Conduction-Cooled PMC (CCPMC) adapter with rear panel I/O (ANSI/VITA 20-2001)
- **PC/104-Plus (PC/104-Plus v2.0)**

A standalone EMAC unit (based on the board-level EMAC Adapter) is also available. In the standalone form, the EMAC communicates to its host via an RS-232 serial link.



**EMAC Architecture**



**EMAC PMC**

### Features

The EMAC PMC and CCPMC Adapters employ a PCI-based dual channel, industry standard 16550 compatible UART. The EMAC PC/104-Plus Adapter employs both a PCI and an ISA-based dual channel UART. Either of these can be configured to interface with the EMAC functions, the other UART providing two additional COM ports to the user. Equipped with a Watchdog Timer to restart the EMAC PMC Adapter in case of software failure. The firmware is field upgradeable.

### Functions

- **Monitoring**

#### Power Supply Voltages

Up to six positive and two negative DC (Direct Current) voltages can be monitored via a 10-bit analogue-to-digital converter. The EMAC PMC Adapter is configured to monitor -12 V, +5 V, +12 V and +24 V by default, but can be modified to measure a wider range of DC voltages.



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### Temperature

Up to eight DS18S20 or DS18B20 temperature sensors can be monitored at any time. Power to the sensors is supplied by the EMAC PMC Adapter.

### Fan Speed

The rotation speed of up to eight cooling fans can be monitored at any time. The EMAC PMC Adapter is able to connect to an open collector signal output or a TTL compatible output of a cooling fan sensor equipped with Pulse Width Modulated (PWM) outputs. The output signal of each cooling fan is isolated by a photocoupler.

### Smoke Detectors

The status of up to eight smoke detectors can be monitored at any time by the EMAC PMC Adapter. The output signal of each smoke detector is isolated by a photocoupler.

### • **Controlling**

Eight outputs to drive, for example, LEDs. Eight open collector outputs can sink 24 V @ 1,6 A each to control, for example warning lamps and alarms or for other functions. The default configurations are :

Power Warning : When any one of the power modules exceeds the user-specified operating temperature.

Temperature Warning : When any one of the temperature sensors indicates temperatures outside the user-specified range.

Voltage Warning : When any one of the power modules operates outside the user-specified voltage limits.

User Warning : Any function can be implemented in firmware on request.

### **Environmental Monitoring and Control Adapter Specifications**

<b>Bus Interface</b>	32-bit, 33/66 MHz Electrically : PCI Rev.2.3, 3,3 V and 5,0 V signalling
<b>I/O Addresses</b>	Automatic assigned to the slot by PCI Rev. 2.3 Plug-and-Play.
<b>EEPROM</b>	1 K EEPROM for board PCI ID (Plug-and-Play) and configuration options. 64 K EEPROM for configuration and user parameters, accessed via the embedded firmware.
<b>Interrupts</b>	PCI INT A
<b>I/O Interface</b>	Various front panel (PMC and PC/104+) and rear connector (PMC and CCPMC Jn4) pin assignments.
<b>Data Rate</b>	4 800 baud to 38,4 kbaud (9 600 baud standard)
<b>CAN Interface</b>	Two Controller Area Network (CAN) interfaces provided, conforming to CAN Specification Version 2.0 Part A and B, with a maximum bit rate of 1 MHz.
<b>Power</b>	5,0 V @ 0,60 A (PCI / ISA supply) 6,0 V to 60,0 V @ 0,45 A (external supply)
<b>MTBF</b>	TBD
<b>Software Drivers</b>	The EMAC uses an industry standard UART to the user. As such, no specific driver is required for most Operating Systems. VxWorks source code to locate the device in PCI spates and obtain a pointer to the UART is supplied as an example.

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### Physical Characteristics

Formfactor	Dimensions	Weight
PMC (IEEE Std 1386.1-2001)	149,00 mm x 74,00 mm, conforming to CMC envelope	92 ± 10 g
CCPMC (ANSI/VITA 20-2001)	143,65 mm x 74,00 mm, conforming to VITA 20 envelope	TBD
PC/104-Plus (PC/104-Plus v2.0)	95,89 mm x 90,17 mm x 23,80 mm	TBD

### Environmental Specifications

	Commercial	Industrial	Conduction-Cooled
<b>Temperature</b>			
- Operating	0 C to +55 C	-15 C to +75 C	-40 C to + 85 C
- Storage	-40 C to +85 C	-40 C to +85 C	-55 C to +125 C
<b>Humidity</b>	0% - 90%	0% - 95%	0% - 95%
<b>Shock</b>	N/A	30 g peak for 11 ms	40 g peak for 11 ms
<b>Vibration</b>			
- Sine	2 g (peak) 10 Hz to 100 Hz	10 g (peak) 5 Hz to 2 kHz	10 g (peak) 5 Hz to 2 kHz
- Random	0,04 g <sup>2</sup> /Hz at 15 Hz to 2 kHz	0,1 g <sup>2</sup> /Hz at 15 Hz to 2 kHz	0,1 g <sup>2</sup> /Hz at 15 Hz to 2 kHz

### Part Designations

Part Number	Formfactor	Grade	I/O Options
CCII/EMAC/PMC/FP/COM	PMC	Commercial	Front-panel or Backplane I/O
CCII/EMAC/PMC/FP/IND	PMC	Industrial	Front-panel or Backplane I/O
CCII/EMAC/PMC/FP/RGD	PMC	Ruggedised	Front-panel or Backplane I/O
CCII/EMAC/PMC/BP/CC	CCPMC	Conduction-Cooled	Backplane I/O
CCII/EMAC/PC104/FP/COM	PC/104-Plus	Commercial	Front-panel I/O
CCII/EMAC/PC104/FP/IND	PC/104-Plus	Industrial	Front-panel I/O
CCII/EMAC/PC104/FP/RGD	PC/104-Plus	Ruggedised	Front-panel I/O