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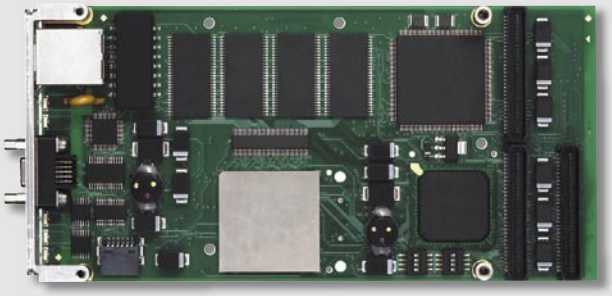
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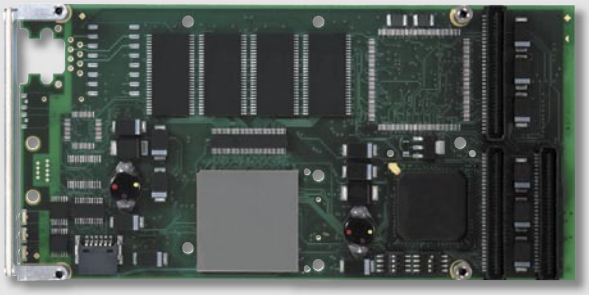
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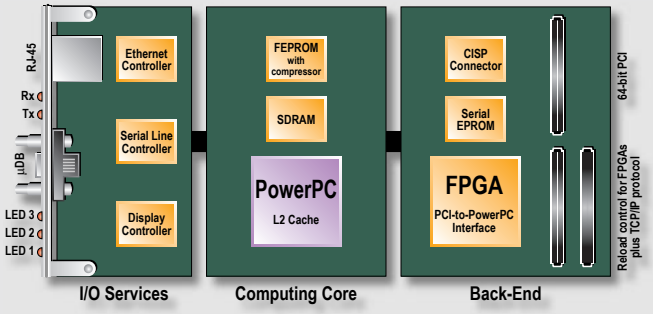
PMC PROCESSORS

MFCC 8442

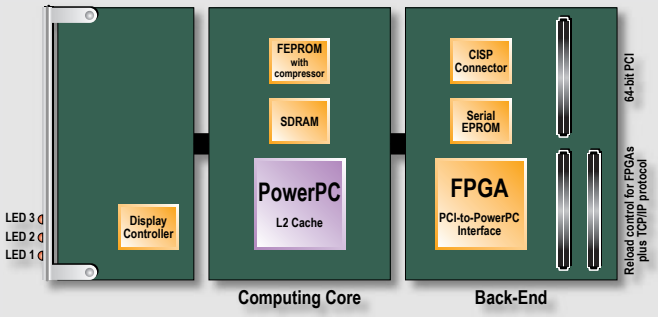
PowerPC-Based PrPMC Multifunction Computing Core







MFCC 8442BD



MFCC 8442FD

APPLICATIONS

Telecom

The MFCC 8442 is used to reduce the size of multiprocessor-based systems often required in communication. It also provides a solution for maintaining performance, regardless of the network load. Complete high-power multi-channel ATM interfaces with a dedicated PowerPC-per-channel can be obtained from CES.

Aerospace

Many command and control packages use the MFCC 8442 as the elementary computing element, which are grouped in arrays to provide a high-capacity scalable computer.

Physics

The MFCC 8442 is commonly used for processing raw data or for reducing the main processor load by sharing tasks with it.

HIGHLIGHTS

BRUTE FORCE COMPUTING POWER

- Most advanced computing element in a PMC form factor (PrPMC compliant)
- Fastest PowerPC, largest memory, scalable multiprocessor design
- PowerPC 750CXe at up to 600 MHz with 256 KBytes internal L2 cache

ACQUISITION

- Full duplex 10/100 Base-Tx Ethernet with RJ-45 front panel connector (MFCC 8442BD only)
- Serial controller with mini DB-9 front panel connector (MFCC 8442BD only)
- 256 MBytes SDRAM with burst support
- 16 Mbits Serial Flash data memory
- 16 MBytes Flash EPROM
- 64-bit PowerPC data bus

HIGH-PERFORMANCE INTERFACE

- CES-optimized PowerPC-to-PCI bridge with independent DMA controller
- Up to six MFCCs supported by the same VME or CompactPCI motherboard at full speed
- Ultra-high-speed data flow control and message passing mechanisms

STATE-OF-THE-ART SOFTWARE

- Comprehensive set of software tools and services
- Runs either stand-alone or under LynxOS®, VxWorks®, Integrity®, TimeSys® and Linux®
- Multiprocessing extensions available using CES BP-Net

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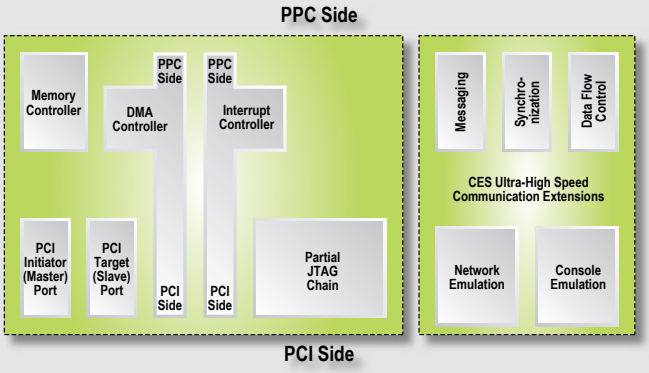
GENERAL DESCRIPTION

The MFCC 8442 has been designed for building dedicated computing elements connected to the PCI bus of the CES VME and CompactPCI real-time platforms, as well as for building a real-time computing subsystem in a PC-based environment.

It incorporates state-of-the-art PowerPC technology coupled to the PCI bus with a unique custom PCI bridge to maximize throughput and to enhance interprocessor communication with unique hardware-level mechanisms and connection elements, all the way up from the hardware-level through the API. All hardware extensions are fully supported by software tools at the monitor, operating system, BSP and API levels.

This approach provides an unprecedented level of performance for distributed multiprocessing applications, offering an extremely compact size and user-controlled dedicated computing power, while maintaining an extremely simple installation and operation.

The user can directly control the dataflows, computing power and real-time synchronization, required by its application. Flexibility is guaranteed, since the connection mechanisms are independent of the physical backplanes (PCI, VME, CompactPCI, PVIC).



CES Multiprocessor PowerPC-to-PCI Interface

MULTIPROCESSING EXTENSIONS

CES BP-Net provides extensions for multiprocessing between the MFCCs (up to six) attached to a motherboard at three levels:

> **Inter-process communication:** This mechanism allows the processes of any processor to share resources and preserve the integrity of these resources. It covers the functionalities of shared memory, semaphores and message queues.

> **Efficient and straightforward message passing system (the channel library):** This functionality is very close to the hardware and fully exploits its potential to optimize the performance (high-speed DMAs).

> **Full TCP/IP stack using the PCI bus as a network device:** This permits an easy development of distributed applications to run on the clusters. This stack gives access to the set of tools associated with TCP/IP (NFS, remote login, etc.) at a very high-speed.

SOFTWARE

The MFCC can work either in stand-alone mode or under a real-time embedded operating system. CES provides all of the tools required for LynxOS®, VxWorks®, Integrity®, TimeSys® and Linux® and can offer support to customers who port their own environment.

The MFCC, which is used for the development of the application, must reside on a CES application-development system which consists of a VME or CompactPCI PowerPC board (RIO4, RIO3, RIOC or RIOS) running a CES LynxOS®, VxWorks®, Integrity®, TimeSys® or Linux®-based system. Once programmed, the MFCC can be put on any machine equipped with a PMC slot.

Software Tools Residing on the PowerPC Motherboard

The RIO4, RIO3, RIOC or RIOS motherboards are equipped with a software suite, which allows generation, download and control of the software embarked on the MFCC. This software suite consists of:

> A low-level extended PowerPC monitor with additional control commands for the monitor of the MFCC.

> A set of tools in the form of a service library containing the calling sequences of all of the MFCC resources. This library also includes the downline loader for the application code.

> A command driver under LynxOS®, VxWorks®, Integrity®, TimeSys® or Linux® to control the MFCC under the operating system.

Software Tools Residing on the MFCC

The MFCC is equipped with a software suite which consists of:

> An embedded monitor accessing all of the resources available on the MFCC and permits the exchanging of information with PPCMon.

> A stand-alone runtime library containing calls to all of the functions of the MFCC in a stand-alone environment.

> A LynxOS®, VxWorks®, Integrity®, TimeSys® or Linux® BSP target environment which supports the backplane drivers with TCP/IP through the PCI bus.

VERSIONS AVAILABLE

MFCC 8442BD	PowerPC 750CXe at 600 MHz 256 MBytes SDRAM 10/100 Base-Tx Ethernet with RJ-45 Serial Controller with DB-9
MFCC 8442FD	PowerPC 750CXe at 600 MHz 256 MBytes SDRAM

RELATED CES PRODUCTS

RIO3 8064	VME Processor Board
RIOC 4065	CPCI Processor Board
RIOC 4068	CPCI Processor Board
MFCC 8443	PrPMC
MFCC 8444	PrPMC
MFCC 8445	PrPMC
GPIO 8405	User-Programmable I/O PMC
PEB 6416	VME PMC Extension Board
PEB 6418	CPCI PMC Extension Board
PEB 6420	CPCI PMC Extension Board

For more detailed information about any of our products, please do not hesitate to contact us.

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CREATIVE ELECTRONIC SYSTEMS

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