CCII Logo

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Conduction-Cooled PMC FDDI Adapter

The PMC FDDI Adapter developed by C²I² Systems is available in both forced-air and conduction-cooled formats. The conduction-cooled PMC FDDI Adapter is available in industrial grade.

Definition

Conduction-cooling is a method of cooling active and passive components on a PCB (Printed Circuit Board) by direct heat conduction from an area of higher temperature to an area of lower temperature. Host carrier cards provide the thermal interface for the conduction-cooled PMC adapter by means of thermal ribs which conduct heat away from the PMC adapter.

Conformance

The CCPMC (Conduction-Cooled PCI Mezzanine Card) FDDI adapter conforms to the Conduction-Cooled PCI Mezzanine Card (CCPMC) Draft Standard, namely: VITA 20-199x/D1.9a. The CCPMC FDDI adapter has a 32-bit PCI-Bus and complies with the PCI Rev. 2.1 specification and mechanically complies to the PMC formfactor, CMC IEEE P1386.1 specification.

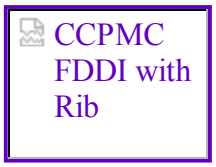
Features

- High data transmission rate (100 Mbps), reliability data transfer efficiency and cost-effectiveness make FDDI the optimum solution for real-time and multimedia networks, as well as corporate backbones
- Deterministic and bandwidth-efficient timed token passing access method
- Fault-tolerant operation provides for ring reconfiguration in cases of problems such as media disruption or node failure
- Optimum data protection and system availability by supporting server mirroring in System Fault Tolerance (SFT) applications
- Synchronous Bandwidth Allocator (SBA)
- Up to 2 km between nodes
- Wide geographic range (100 km maximum circumference in dual ring)
- Large number of supported nodes (up to 500 dual-attached) in the ring
- A high level of protection against tapping and malfunction when using fibre optic cabling
- High-performance PCI data transfer
- Two connector types available, SC or ST
- Optical Bypass Switch Control
- Fully software configurable
- SMT Version 7.3

Architecture

The thermal interfaces on the CCPMC FDDI adapter have thermal vias densely packed to provide an effective heat path from the buried thermal layers in the PCB to the mating thermal interfaces on the surface of the CCPMC PCB. The PMC FDDI adapter uses the AMD Supernet 3 chipset. This chipset offers advanced features such as Synchronous Bandwidth Allocation (SBA) and End Station Support (ESS). The adapter has

an advanced ASIC onboard that performs buffer management and PCI interfacing, thereby achieving high throughput.



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CCPMC FDDI Adapter Specifications

Designation CCII/FDDI/PMC/DAS/ST/CC	**Connector** ST	**Grade** Industrial	**Attachment** Dual
Bus Interface	IEEE 1386.1 D2.0 32-bit PCI-Bus electrical and CMC formfactor		
Network Interface (Fiber)	ANSI X3T9.5 and X3T12 compatible		
LAN Controller	AMD Supernet 3		
RAM	128 kBytes CMOS static		
Flash EPROM	128 kBytes		
I/O Addresses	Automatic by PCI V2.1 Plug-and-Play assigned to the slot		
Interrupts	PCI Int A		
DMA	Automatic depending on PCI slot		
Timer	3 channels @ 6,25 MHz max.		
Dimensions	143,65 mm x 74 mm x 13,5 mm		
Power Consumption	1,45 A @ 5 V		
MTBF	Figures according to MIL-HDBK-217F, Parts Count Method : Ground Mobile T_j = 65 C, T_a = 45 C 20 000 hrs Naval, Sheltered T_j = 60 C, T_a = 40 C 28 000 hrs Airborne, Inhabited Cargo T_j = 75 C, T_a = 55 C 21 000 hrs		
Environmental Specifications	**Temperature** Operating Non-Operating	- 40 C to + 85 C - 60 C to + 125 C	
	Humidity	0% to 95%	
	Shock	20 g for 11 ms	
	Vibration	5 to 500 Hz at 2 g	
Software Drivers	• VxWorks ○ VxWorks V5.3.1 drivers		

	○ VxWorks STREAMS DLPI drivers • DOS ○ Hardware dependent driver for DOS, UPPS ○ Hardware dependent driver for DOS, UPPS-Slim ○ DOS, WfW3.11 (NDIS 2) ○ DOS,Microsoft LAN Manager (NDIS 2) ○ DOS, IBMLAN Server 4.0 (NDIS 2) • NetWare ○ Novell Netware 3.11 (LAN Driver) ○ Novell Netware 3.12 (LAN Driver) ○ Novell Netware 4.1x (LAN Driver) ○ Novell Netware 5.x (LAN Driver) ○ Novell Netware 3.1x / 4.1x incl. FDDI_RAW (LAN Driver) ○ Novell Netware 4.1x SFT III (MSL Driver) ○ Novell ODI (MLID) for DOS Client • Windows ○ Novell Client32 for DOS/Windows 3.1x ○ Novell Client32 for Windows95, Windows NT ○ Windows 95 (NDIS 3) ○ Windows 95 OSR2 (NDIS 4 Miniport) ○ Windows NT x86 (NDIS 3) ○ Windows NT 4.0 x86 (NDIS 4 Miniport) ○ SK-NET FDDI SNMP Extension Agent • OS/2 ○ Novell ODI for OS/2 Client ○ OS/2, IBM LAN Server 4.0 (NDIS 2) • Unix ○ AIX 4.1 ○ RS/6000 Supplemental Disk (Diag) ○ SCO OpenServer 5.0 ○ SCO UnixWare 7 ○ UnixWare 2.1x ○ SUN Solaris 2.5.1 / 2.6 / 2.8 (x86 Edition) ○ Linux
Supporting Tools	• Remote Boot Software • FDDI SMT Diagnostic Program • Hardware Diagnostic Program for DOS • Hardware Diagnostic Program for PPC, Windows NT 3.5.1 and above PP (NDIS 3) • Hardware Diagnostics Program for VxWorks supported host carrier cards • Built-in Test (BIT) > 98% coverage

Application

Conduction-cooled modules are used wherever convection-cooling or forced-air cooling are not possible or appropriate for the end-use application. Conduction-cooled boards are particularly suitable for environments

subject to high shock and vibration levels with the target applications being in rugged embedded systems.

Examples of Applications :

- Distributed real-time applications in harsh environments
- Mission-critical applications
- Vetronics
- Avionics

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