

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Emerson / Motorola CPV5300* at our website: ***Click HERE***

CPV5300 CompactPCI®
Single Board Computer and Transition Module Installation Guide

CPV5300A/IH1

May 17, 1999

Summary of Changes

Change Date	Description
5/11/99	Table 1-4 - Corrected operating vibration specification by changing from .1G to 1G.
5/14/99	Table 1-2 - Added clock speed information
5/14/99	Page 2-2 - Removed information about verifying connection of CPU fan under “Before Installing the CPV5300”
5/14/99	Page 2-2, 2-3 - Revised “outward” and “inward” position of the injector/ejectors under, “Installing the CPV5300”

Notice

While reasonable efforts have been made to assure the accuracy of this document, Motorola, Inc. assumes no liability resulting from any omissions in this document, or from the use of the information obtained therein. Motorola reserves the right to revise this document and to make changes from time to time in the content hereof without obligation of Motorola to notify any person of such revision or changes.

No part of this material may be reproduced or copied in any tangible medium, or stored in a retrieval system, or transmitted in any form, or by any means, radio, electronic, mechanical, photocopying, recording or facsimile, or otherwise, without the prior written permission of Motorola, Inc.

It is possible that this publication may contain reference to, or information about Motorola products (machines and programs), programming, or services that are not announced in your country. Such references or information must not be construed to mean that Motorola intends to announce such Motorola products, programming or services in your country.

Restricted Rights Legend

If the documentation contained herein is supplied, directly or indirectly, to the U.S. Government, the following notice shall apply unless otherwise agreed to in writing by Motorola, Inc.

Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013.

Motorola, Inc.
Computer Group
2900 South Diablo Way
Tempe, Arizona 85282

Preface

This CPV5300 Single Board Computer and Transition Module Installation and Reference Guide describes the installation, components and configurations of the CPV5300 Single Board Computer and CPV5300 Transition Module. Use this guide for general and technical information about the CPV5300 CompactPCI System CPU.

Motorola® and the Motorola symbol are registered trademarks of Motorola, Inc.

Intel® and the Intel logo are registered trademarks of Intel Corporation.

Pentium® is a registered trademark of Intel Corporation.

MMX™ and the MMX logo are trademarks of Intel Corporation.

Windows NT® is a registered trademark of Microsoft in the US and other countries

CompactPCI® is a registered trademark of PCI Industrial Computer Manufacturers Group.

Phoenix® is a registered trademark of Phoenix Technologies Ltd.

All other products mentioned in this document are trademarks or registered trademarks of their respective holders.

The software and documentation are copyrighted materials. Making unauthorized copies is prohibited by law. No part of the software or documentation may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means without the prior written permission of Motorola, Inc.

Disclaimer of Warranty

Unless otherwise provided by written agreement with Motorola, Inc., the software and the documentation are provided on an “as is” basis and without warranty. This disclaimer of warranty is in lieu of all warranties whether express, implied, or statutory, including implied warranties of merchantability or fitness for any particular purpose.

© Copyright Motorola 1999
All Rights Reserved
Printed in the United States of America

Safety Summary
Safety Depends On You

The following general safety precautions must be observed during all phases of operation, service, and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the equipment. Motorola, Inc. assumes no liability for the customer's failure to comply with these requirements.

The safety precautions listed below represent warnings of certain dangers of which Motorola is aware. You, as the user of the product, should follow these warnings and all other safety precautions necessary for the safe operation of the equipment in your operating environment.

Ground the Instrument.

To minimize shock hazard, the equipment chassis and enclosure must be connected to an electrical earth ground. For AC supplies the equipment requires a three-conductor power cable. The power cable must be plugged into an approved three-contact electrical outlet. The power jack and mating plug of the power cable must meet Electrical Code requirements for the intended area of use and also comply with International Electrotechnical Commission (IEC) safety standards.

Do Not Operate in an Explosive Atmosphere.

Do not operate the equipment in the presence of flammable gases or fumes. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

Keep Away From Live Circuits.

Only Factory Authorized Service Personnel or other qualified maintenance personnel may remove equipment covers for internal subassembly or component replacement or any internal adjustment. Do not replace components with power cable connected. Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power and discharge circuits before touching them.

Do Not Service or Adjust Alone.

Do not attempt internal service or adjustment unless another person capable of rendering first aid and resuscitation is present.

Use Caution When Exposing or Handling the CRT.

Breakage of the Cathode-Ray Tube (CRT) causes a high-velocity scattering of glass fragments (implosion). To prevent CRT implosion, avoid rough handling or jarring of the equipment. Handling of the CRT should be done only by qualified maintenance personnel using approved safety mask and gloves.

Do Not Substitute Parts or Modify Equipment.

Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification of the equipment. Contact your local Motorola representative for service and repair to ensure that safety features are maintained.

Dangerous Procedure Warnings.

Warnings, such as the example below, precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed. You should also employ all other safety precautions which you deem necessary for the operation of the equipment in your operating environment.



WARNING

Dangerous voltages, capable of causing death, are present in this equipment. Use extreme caution when handling, testing and adjusting.

All Motorola PWBs (printed wiring boards) are manufactured by UL-recognized manufacturers, with a flammability rating of 94V-0.

WARNING

This equipment generates, uses, and can radiate electromagnetic energy. It may cause or be susceptible to electromagnetic interference (EMI) if not installed and used in a cabinet with adequate EMI protection.

If any modifications are made to product, the modifier assumes responsibility for radio frequency interference issues. Changes or modifications not expressly approved by Motorola Computer Group could void the user's authority to operate the equipment.

CE

European Notice: Board products with the CE marking comply with the EMC Directive (89/336/EEC). Compliance with this directive implies conformity to the following European Norms:

EN55022 "Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment". Tested to Equipment Class B.

EN50082-1:1997 "Electromagnetic Compatibility -- Generic Immunity Standard, Part 1. Residential, Commercial and Light Industry".

This board product was tested in a representative system to show compliance with the above mentioned requirements. A proper installation in a CE-marked system will maintain the required EMC/safety performance.

For minimum RF emissions, it is essential that you implement the following conditions:

- Install shielded cables on all external I/O ports
- Connect conductive chassis rails to earth ground to provide a path for connecting shields to earth ground
- tighten all front panel screws

Lithium battery cautions

The board contains a lithium battery to power the clock and calendar circuitry.



CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the equipment manufacturer, Dispose of used batteries according to the manufacturer's instructions.



Attention

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.



Vorsicht

Explosionsgefahr bei unsachgemäBem Austausch der Batterie.

Ersatz nur durch denselben oder einen vom Hersteller empfohlenen gleichwertigen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.



CAUTION

Do not service or replace the lithium battery in the field. Contact your Motorola service representative to arrange for service or battery replacement.



Attention

Prière de ne pas essayer vous-même l'entretien ou le remplacement sur place de la batterie au lithium. Contactez votre représentant de service Motorola pour faire remplacer ou entretenir la batterie conformément aux instructions du fabricant.



Vorsicht

Bitte nehmen Sie vor Ort keine Wartung bzw. Austausch der Lithium-Batterie selber vor. Um die Batterie sachgemäß warten oder auswechseln zu lassen, setzen Sie sich mit Ihrem Motorola-Servicevertreter in Verbindung.

Table of Contents

Summary of Changes 2

CHAPTER 1 CPV5300 Single Board Computer Overview

Introduction 1-1
Additional Features 1-1
Input/Output Interfaces 1-2
Special Functions 1-5
Specifications 1-6
Additional Information Resources 1-8

CHAPTER 2 Getting Started

Antistatic Precautions 2-1
Before Installing the CPV5300 2-2
Installing the CPV5300 2-2
Powering up the CPV5300 2-5
Lithium Battery 2-5
Front Panel Connectors on the CPV5300 2-6
Rear Panel Connectors on the CPV5300 Transition Module 2-8

CHAPTER 3 Components on the CPV5300

Components for the CPV5300 Single Board Computer 3-1
Components for the CPV5300 Transition Module 3-3
Connecting to and Configuring Headers 3-6
CPU Speed Settings 3-6

CHAPTER 4 Installing Options

System Memory Configurations 4-1
Installing DRAM DIMMS 4-1
Installing the CPV5300 DIMM 4-2
Upgrading the CPU 4-3
Installing the On-board Disk Drives 4-3
Installation Instructions 4-3
Installing Ethernet Controllers 4-7

APPENDIX A Pin Assignments

Pin Assignments for CPV5300 SBC Front Panel and CPV5300 TM Rear Panel Connectors A-2
Keyboard/Mouse PS2 Connectors A-3
CPV5300 Keyboard/Mouse A-3
CPV5300 Transition Module Keyboard/Mouse A-4
Ethernet Connectors A-5
Parallel Connector A-6
Serial Port Connector A-8
Universal Serial Bus (USB) Connectors A-9
Video Connector A-10
SCSI Connector A-11
Pin Assignments for CPV5300 SBC and CPV5300 TM Headers and Jumpers A-13
EIDE Headers A-14
Floppy Headers A-17
Fan Tachometer Headers A-20
SM Bus and LM78 Header A-20
Pin Assignments for CPV5300 SBC and CPV5300 TM Backplane Connectors A-22
J4 and P4 Connectors A-23
J5 and P5 Connectors A-27

List of Figures

Figure 1-1. Block Diagram of the CPV5300 Single Board Computer 1-4
Figure 2-1. Installing the CPV5300 Single Board Computer In Your Computer Chassis 2-4
Figure 2-2. Front Panel Connectors and LEDs on the CPV5300 SBC.....2-7
Figure 2-3. Rear Panel Connectors on the CPV5300 Transition Module.....2-9
Figure 3-1. Location of Major Components on the CPV5300 Single Board Computer.....3-1
Figure 3-2. Location of Major Components on the CPV5300 TM.....3-4
Figure 4-1. Inserting a DIMM 4-2
Figure 4-2. EIDE (J9) and Floppy Drive (J11) Headers on the CPV5300 4-4

List of Tables

Table 1-1. Input/Output Interfaces 1-2
Table 1-2. Power Requirements for the CPV5300 Single Board Computer 1-6
Table 1-3. Physical Characteristics of the CPV5300 Single Board Computer 1-6
Table 1-4. Environmental Specifications 1-7
Table 3-1. List of Board components for the CPV5300 Single Board Computer 3-2
Table 3-2. List of Board Components for the CPV5300 Transition Module 3-5
Table A-1. Pin Assignment Locator Table A-1
Table A-2. Front and Rear Panel Connectors on the CPV5300 Single Board Computer and CPV5300 Transition Module A-2
Table A-3. Keyboard/Mouse P/S2 Connector Pin Assignments for the CPV5300 Single Board Computer A-3
Table A-4. Keyboard P/S2 Connector Pin Assignments for the CPV5300 Transition Module (TM) A-4
Table A-5. Mouse P/S2 Connector Pin Assignments for the CPV5300 Transition Module (TM) A-4
Table A-6. Ethernet Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module A-5
Table A-7. Parallel Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module A-6
Table A-8. Serial Port Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module A-8
Table A-9. USB Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module A-9
Table A-10. Video Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module A-10
Table A-11. SCSI Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module A-11
Table A-12. On Board Headers on the CPV5300 Single Board Computer and CPV5300 Transition Module A-13
Table A-13. EIDE Header Pin Assignments for the CPV5300 Single Board Computer (J9) A-14
Table A-14. EIDE Header Pin Assignments for the CPV5300 Transition Module (Primary - J8), (Secondary - J5) A-15

Table A-15. Floppy Header Pin Assignments for the CPV5300 Single Board Computer (J11) A-17
Table A-16. Floppy Header Pin Assignments for the CPV5300 Transition Module (J9) A-18
Table A-17. Fan Tachometer Header Pin Assignments for the CPV5300 Transition Module (J3 and J4) A-20
Table A-18. SM Bus and LM78 Header Pin Assignments for the CPV5300 Transition Module A-20
Table A-19. CPV5300 SBC (J4)/CPV5300 TM (P4) Backplane Connector Pin Assignments A-23
Table A-20. Signal Descriptions for CPV5300 SBC (J4)/CPV5300 TM (P4) Backplane Connector Pin Assignments A-25
Table A-21. CPV5300 (J5)/CPV5300 TM (P5) Backplane Connector Pin Assignments A-27
Table A-22. Signal Descriptions for CPV5300 SBC (J5)/CPV5300 TM (P5) Backplane Connector Pin Assignments A-28

CPV5300 Single Board Computer Overview 1

Introduction

The CPV5300 Single Board Computer (SBC) is a CompactPCI (Compact Peripheral Communication Interface) board. It is powered by a PICMG (PCI Industrial Computer Manufacturers Group) compatible Pentium® II processor Mobile Module. The CPV5300's 6U (160mm x 233mm x 61mm), 8HP (1.6 inch) CompactPCI standard form factor is designed for installation into PICMG CompactPCI compliant backplanes.

The integrated processor provides standard PC I/O plus USB, PCI EIDE, Ultra SCSI, AGP graphics and dual fast Ethernet controllers with optional on-board ultra-thin floppy and 2.5 inch EIDE drives.

The CPV5300 meets the needs of embedded application developers addressing high-bandwidth industrial control and telephony applications.

Additional Features

The CPV5300 gives you these features:

- Pentium® II processor Mobile Module for high end embedded applications
- Two 168-pin DIMM sites for on-board memory expansion
- 3D AGP graphics for 2D and 3D accelerated graphics performance
- Dual Ethernet controllers provide redundant ports for telecom applications
- Hot-Swap compatibility allows non-system slot boards to be removed or added while the chassis is powered up
- An array of on-board I/O that is available from the front panel of the CPV5300 and/or the rear panel via the CPV5300TM80 transition board

Input/Output Interfaces

Refer to Table 1-1 for brief descriptions of the input/output interfaces on the CPV5300

Note When the identical function is available through the CPV5300's front panel and the rear transition module, you can use either the front or the rear, **not both**.

Table 1-1. Input/Output Interfaces

Function	**CPV5300**		**CPV5300TM80 Transition Module**	
	Front Panel	**On-board**	**Rear Panel**	**On-board**
Ethernet	two - RJ-45 connectors	none	two - RJ-45 connectors	none
Ultra SCSI	Mini D-sub	none	68-pin high density connector[1]	68-pin high density connector[1]
Video	15-pin high sensitivity D-sub	none	15-pin high density D-sub	none
Keyboard/Mouse	6-pin PS/2 female connector	none	6-pin PS/2 female connectors	12-pin header
LPT1	D-sub	none	none	none
COM 1 (serial port 1)	9-pin D-sub	none	9-pin D-sub	none
COM 2 (serial port 2)	9-pin D-sub	none	9-pin D-sub	none
USB 1 and USB 2	two - stacked 4-pin connectors	none	two - stacked 4 -pin connectors	none

Table 1-1. Input/Output Interfaces (Continued)

Function	CPV5300		CPV5300TM80 Transition Module	
	Front Panel	**On-board**	**Rear Panel**	**On-board**
EIDE interface	none	primary (high density connector)	none	40-pin shrouded header (primary)
	none	none	none	40-pin shrouded header (secondary)
Floppy interface	none	none	none	34-pin shrouded header
Parallel Port	25-pin D-sub	none	25-pin D-sub	none

[1] Do not use the internal and rear panel connectors at the same time.

Refer to Figure 1-1 for a block diagram of the CPV5300 SBC.

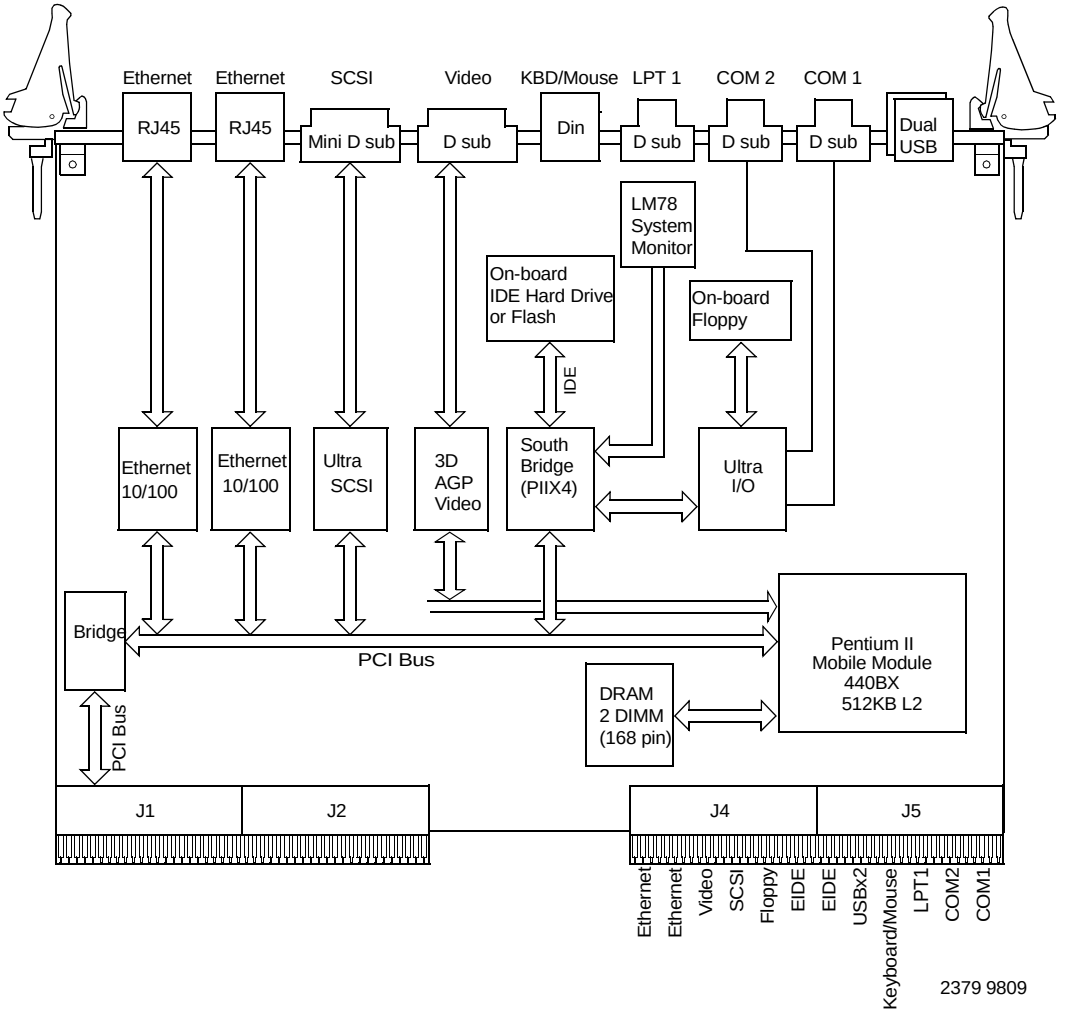


Figure 1-1. Block Diagram of the CPV5300 Single Board Computer

Special Functions

The CPV5300 uses these functions designed for use in certain applications:

- Watchdog Timer

  The watchdog timer can operate in four modes:

  - Disabled
  - Set a flag in a register in ISA I/O memory map
  - Set a flag in a register in ISA I/O memory map + Assert a selectable interrupt (ISA, NMI, SMI, SCI)
  - Set a flag in a register in ISA I/O memory map + Assert NMI followed by a system reset

  You can program the watchdog timer via registers in the ISA I/O memory map. The watchdog timer is protected from being accidentally enabled. The timer supports a range of count down time-outs from 17.8ms to 4.86 minutes.

- Advanced System Monitoring

  The CPV5300 monitors the following system events:

  - On-card temperature
  - Enclosure fan under speed
  - MMC2 thermal fault
  - On-card voltages +5V, +3.3V, +/-12V and the processor core voltage
  - System Management Bus (SMBUS) alert signal
  - Chassis power supply loss of regulation
  - Chassis intrusion

Fault status information is available to the system through a register mapped in the ISA I/O space. You can also select events to generate System Management Input (SMI), Non-Maskable Interrupt (NMI), Interrupt Request (IRQ) or System Management Bus Alert (SMBUS) interrupt signals and an external alarm signal.

Specifications

Refer to Table 1-2 for input current specifications and to Table 1-3 for physical characteristics for the CPV5300 Single Board Computer.

Table 1-2. Power Requirements for the CPV5300 Single Board Computer

Input power	Clock speed
+5V @ 3A	266MHz w/64 or 128MB SDRAM 333MHz w/64 or 128MB SDRAM
+12V @ 100mA	
-12V @ 1mA	
+3.3V @ 3A	

Table 1-3. Physical Characteristics of the CPV5300 Single Board Computer

Form Factor	CompactPCI Standard 6U Conforms to PICMG Compact PCI 2.1 and PCI SIG 2.1 specifications
Dimensions	8 HP (1.6 inches) wide (233mm x 160mm x 61mm)

Refer to Table 1-4 for environmental specifications

Table 1-4. Environmental Specifications

Parameter	Condition	Specification
Temperature	Operating	0°C to 55°C (32°F to 130°F)[1]
	Non-operating	-40°C to 65°C (°-40F to 150°F)
Humidity	Operating	5% to 90% @ 40°C, non-condensing
	Non-operating	5% to 95% @40°C, non-condensing
Shock	Operating	10G, 3 axis
	Non-operating	per ASTM 0775
Vibration	Operating	1G, 3 axis
	Non-operating	1.5G, 3 axis
Altitude	Operating	6,000 feet (1,829 m)
	Non-operating	40,000 feet (12,192 m)
Maximum wet bulb	Operating	28°C (82°F)
	Non-operating	32°C (90°F)
MTBF (MIL-HDBK-217F)	na	300,000 hours at 30°C 100,000 hours at 50°C

[1] Derate the maximum operating temperature by 1°F (1.8°C) per 3280 feet (1000m) above sea level.

Additional Information Resources

For additional information, go to this Web site:

Motorola Computer Group:

http://www.mcg.mot.com

Getting Started 2

This chapter gives you basic installation information.

Note This document treats the CPV5300 as a component of a system, and assumes installation into a PICMG CompactPCI compliant CompactPCI backplane.

Antistatic Precautions



Caution

Take care when handling the CPV5300. The CPV5300 and its active components are sensitive to electrostatic discharge (ESD), and can easily be damaged. Motorola recommends that you use an antistatic wrist strap when handling the CPV5300 and associated components. Also, follow these rules:

- Do not allow any circuit board or component to touch non-conductors.
- Make sure that your clothing does not make contact with any circuit board or component.
- Keep any loose circuit boards inside or on top of their conductive plastic wrappers.
- Before you touch a loose circuit board or component, discharge any static electricity.

2

Before Installing the CPV5300

After removing the CPV5300 from its packaging:

- ❏ Check for obvious physical damage.
- ❏ Verify that the coin cell battery is in its holder and inserted correctly.
- ❏ Install main memory DIMMs. Refer to Chapter 4, “Installing Options” for information about the DIMMs and their installation.

Warning

Make sure that you disconnect the chassis from the main power supply before you continue.

Installing the CPV5300

Use these steps to install the CPV5300 into your computer chassis. Refer to Figure 2-1.

1. Follow the instructions in your chassis user manual to remove any outer cover.
2. Locate the “system slot” (normally slot one - the far right slot when viewed from the front).
3. Remove any filler panel (or existing CPU board) that might fill that slot.
4. Install the top and bottom edge of the CPV5300 in the guides of the chassis.
5. Ensure that the levers of the two injector/ejectors are in the outward position.
6. Slide the CPV5300 into the chassis until resistance is felt.

7. Simultaneously move the injector/ejector levers in an inward direction.
8. Verify that the CPV5300 is properly seated and secure it to the chassis using the two screws located adjacent to the injector/ ejector levers.
9. Connect the appropriate cables to the CPV5300.

10. Repeat steps 3 through 8 for installing the transition module.

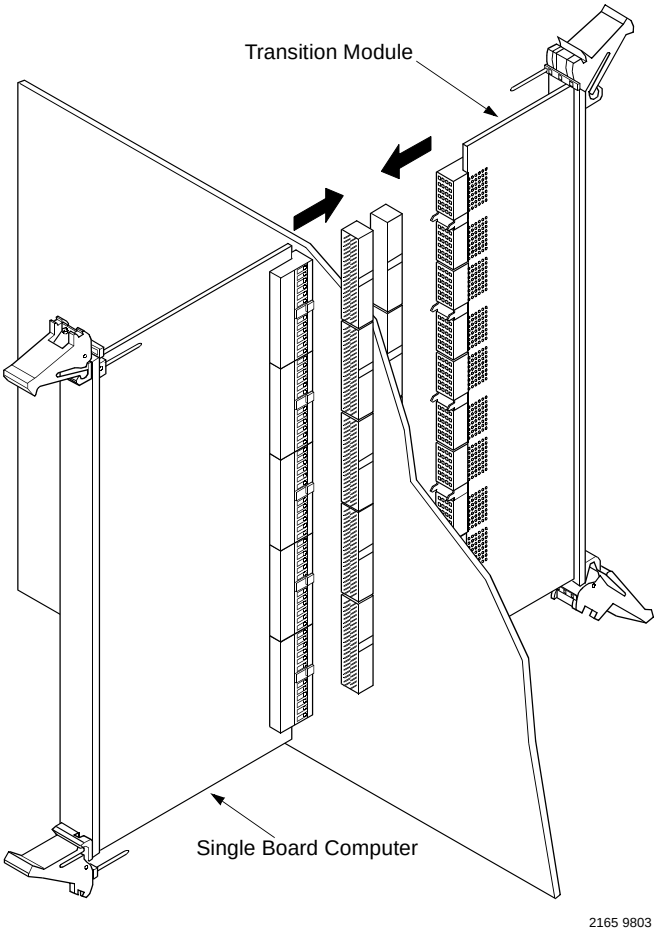


Figure 2-1. Installing the CPV5300 Single Board Computer In Your Computer Chassis

Powering up the CPV5300

When you are ready to power up the CPV5300:

- Verify that the chassis power supply voltage setting matches the voltage present in the country of use (if the power supply in your system is not auto-sensing).
- On powering up, the CPV5300 displays the PhoenixBIOS banner and then runs a memory test.

Lithium Battery

The CMOS backup battery for the real time clock is socketed. The battery rates at 280mA/hour and has a ten year expected shelf life.



Caution

Do not service or replace the lithium battery in the field. Contact your Motorola service representative to arrange for service or battery replacement.

2

Front Panel Connectors on the CPV5300

The CPV5300's front panel has connectors for:

- keyboard/mouse
- SCSI
- video
- parallel printer
- COM1 and COM2 (serial ports)
- Ethernet 1 and Ethernet 2
- USB1 and USB2

LED Indicator lights on the front panel display of the CPV5300 include:

- watchdog alarm
- speaker status
- hard disk drive activity
- power

Refer to Figure 2-2 for front panel connectors and LEDs on the CPV5300.

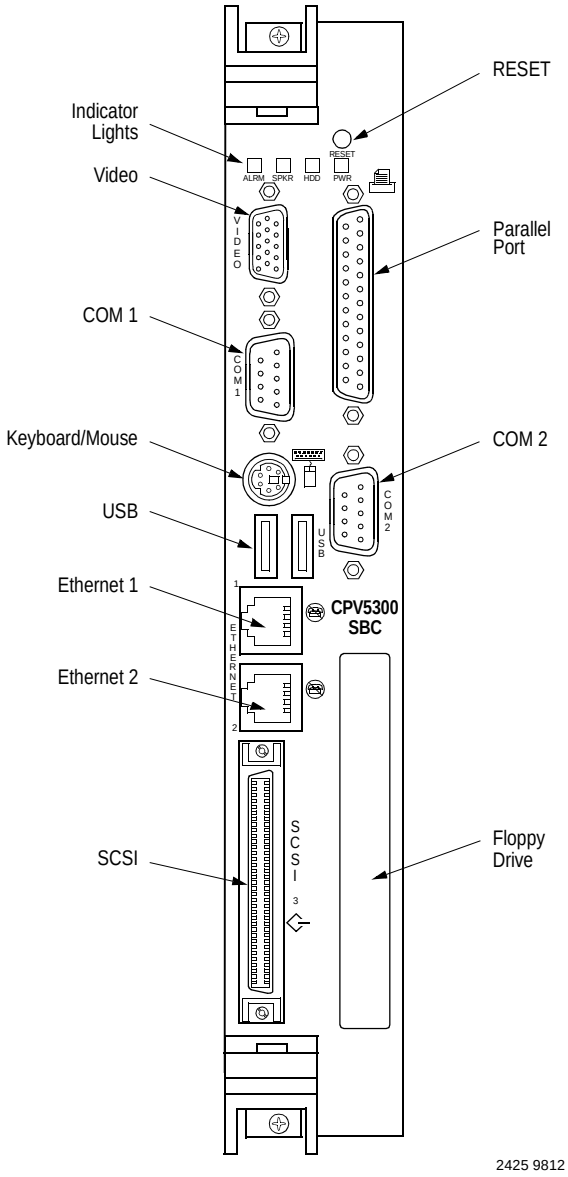


Figure 2-2. Front Panel Connectors and LEDs on the CPV5300 SBC

2

Rear Panel Connectors on the CPV5300 Transition Module

The CPV5300 Transition Module has connectors on the rear panel for:

- keyboard/mouse
- USB
- Ethernet 1 and Ethernet 2
- COM1 and COM2 (serial ports)
- parallel printer
- video
- SCSI

Refer to Figure 2-3 for rear panel connectors on the CPV5300 Transition Module.

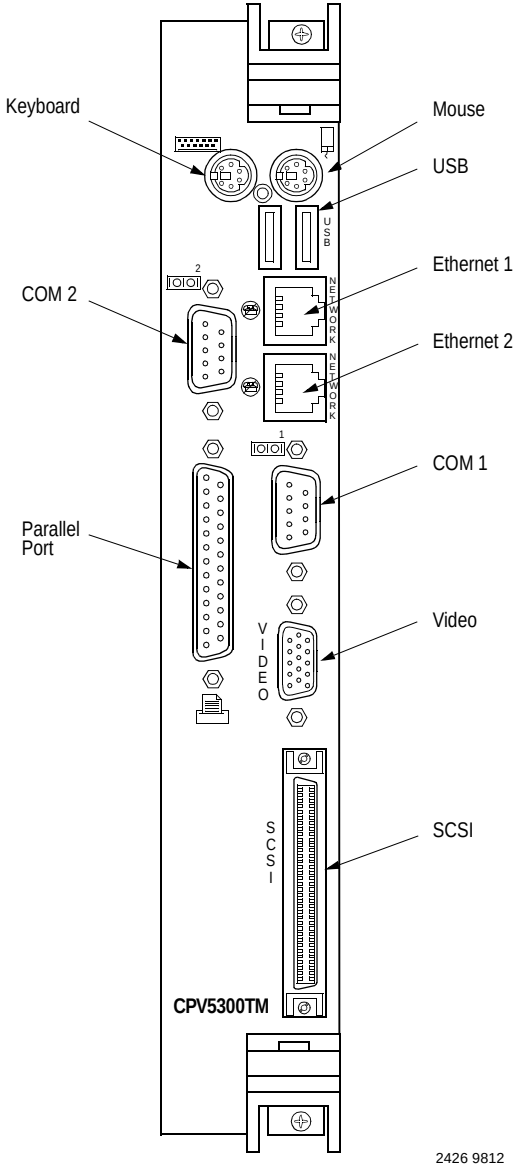


Figure 2-3. Rear Panel Connectors on the CPV5300 Transition Module

Components on the CPV5300 3

Components for the CPV5300 Single Board Computer

The CPV5300 Single Board Computer (SBC) carries components on both sides. Figure 3-1 shows the location of the jumpers and headers.

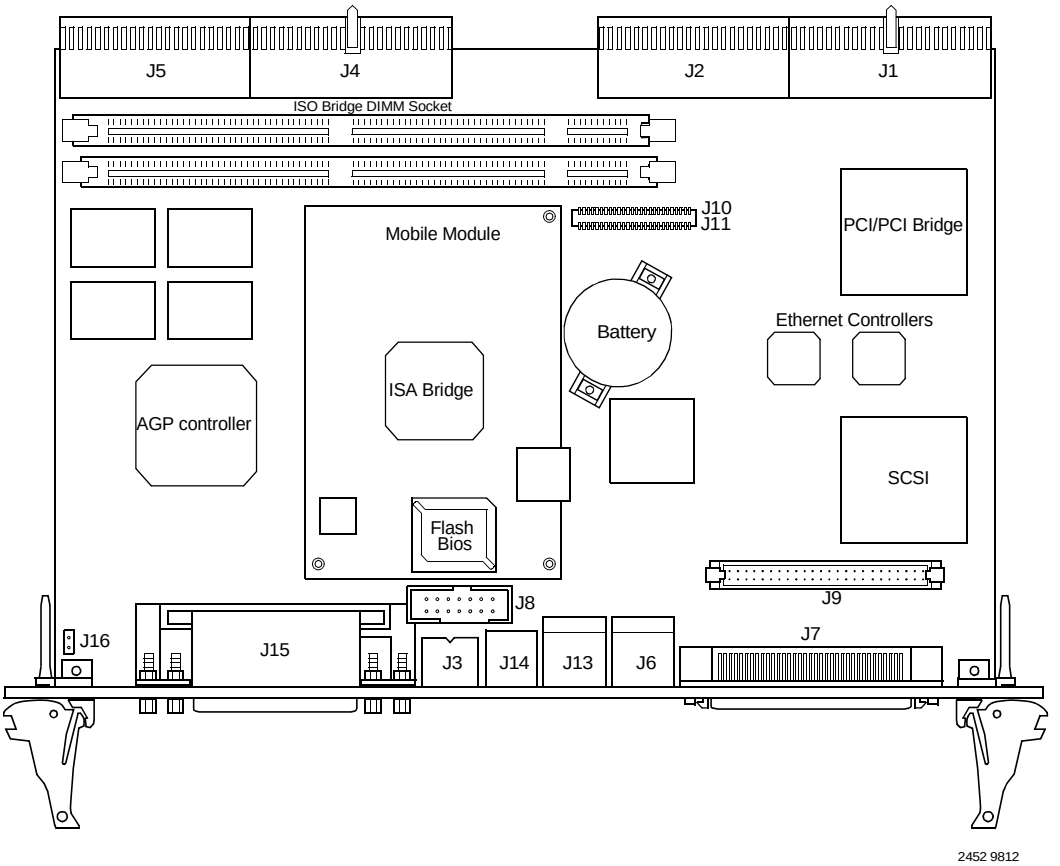


Figure 3-1. Location of Major Components on the CPV5300 Single Board Computer

Table 3-1 lists the connectors available to support devices on the CPV5300. Refer to Appendix A for connector pin assignments.

Table 3-1. List of Board components for the CPV5300 Single Board Computer

Figure 3-1 callout	Description
J1	CPCI backplane connector
J2	CPCI backplane connector
J3	USB
J4	I/O Transition Module backplane connector
J5	I/O Transition Module backplane connector
J6	Ethernet 2
J7	SCSI
J8	COM2 (Serial Port 2)
J9	EIDE
J10	reserved (in-circuit programming)
J11	Floppy
J12	reserved (in-circuit emulator)
J13	Ethernet 1
J14	Keyboard/Mouse
J15	Video LPT (printer) COM1 (Serial Port 1)
J16	Reset (connected to pushbutton on the front panel)

Components for the CPV5300 Transition Module

Figure 3-2 shows major components on the CPV5300 Transition Module (TM) board.

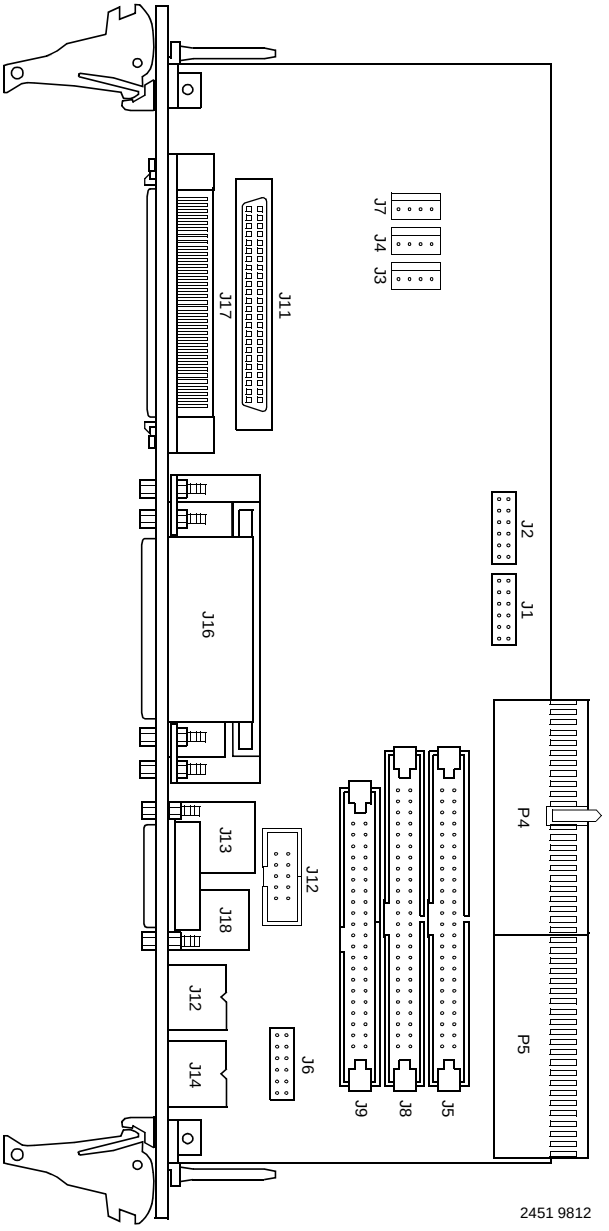


Figure 3-2. Location of Major Components on the CPV5300 TM

Table 3-2 lists components on the CPV5300 Transition Module

Table 3-2. List of Board Components for the CPV5300 Transition Module

Figure 3-2 callout	Description
J1	reserved for future alarm expansion
J2	reserved for future alarm expansion
J3	Fan Tach
J4	Fan Tach
J5	EIDE Channel (secondary)
J6	keyboard expansion header (for future expansion
J7	Miscellaneous Power
J8	EIDE Channel (primary)
J9	Floppy Drive
J10	COM 2 (Serial Port 2)
J11	Internal SCSI
J12	Dual USB
J13	Ethernet 1
J14	Keyboard/Mouse
J16	Video Port Parallel Port COM 1 (Serial Port 1)
J17	External SCSI
J18	Ethernet 2

Connecting to and Configuring Headers

The CPV5300 provides several headers for attaching peripheral devices. Before installing the CPV5300, you may want to connect your peripheral cables to the headers. Headers are circuit board mounted components, as opposed to connectors which are located on the CPV5300's front panel and the CPV5300 Transition Module's rear panel. Refer to Appendix A for pin assignment information.

Note When the identical function is available through the CPV5300's front panel and rear transition module, you can use either the front or the rear, not both.

Please note the following cautions when connecting peripherals to the CPV5300.



Warning Always remove power from the system before connecting peripherals to the CPV5300. To reduce the risk of personal injury, disconnect the power cord from the power source. Only qualified, experienced electronics personnel should access the interior of a chassis.



Caution The components of the CPV5300 are sensitive to static discharge. While out of the unit, the CPV5300 should be placed on a static-dissipative surface or into a static-shielding bag.

CPU Speed Settings

The Mobile Module determines CPU speed. You cannot configure the speed settings.

Installing Options 4

System Memory Configurations

The CPV5300 has two 168-pin DIMM sites for memory expansion, organized as two memory banks (Bank 0 and Bank 1). Each bank consists of one socket providing a 64-bit wide data path and eight ECC bits.

The DIMM sites accept industry standard PC100 compliant DIMM modules (8, 16, 32, 64, 128 or 256Mb) with or without ECC. Modules can be mixed to give any memory configuration between 0Mb and 512Mb. You can use either registered or unbuffered memory modules.

Note If you mix ECC and non-ECC DIMM modules the system does not support ECC.

Installing DRAM DIMMS

To install DIMMs, locate the memory banks on the single board computer.

Before installing DIMMs, remove power from the system and disconnect all power cords. After power is removed. remove the CPV5300 from the chassis.



Caution

Only qualified, experienced electronics personnel should access the interior of a chassis. The components of the CPV5300 are sensitive to static discharge. Place components on a static-dissipative surface or into a static-shielding bag after removing them from the chassis.

Installing the CPV5300 DIMM

You do not need tools for this procedure.

1. Remove power from the chassis and disconnect all power cords.
2. Remove the CPV5300 from the chassis.
3. Locate the DIMM sockets on the CPV5300. Refer to Figure 3-1.
4. Hold the DIMM so the keyed notch aligns with the tab on the socket.
5. Insert the DIMM at a 90 degree angle. Refer to Figure 4-1.

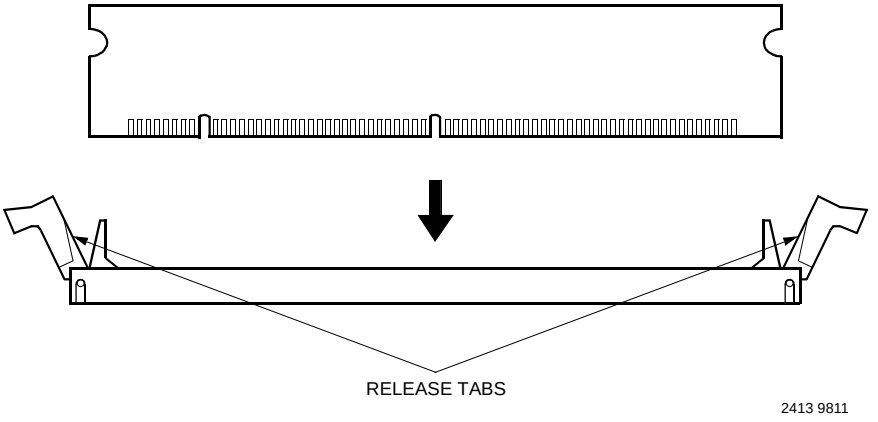


Figure 4-1. Inserting a DIMM

6. Gently push the DIMM in until the ejector ears lock in place.
7. Install the CPV5300 in the chassis and connect the power cords.
8. Apply power to the chassis.

At bootup the BIOS automatically detects the new memory configuration.

Upgrading the CPU

If you need to remove/replace your CPU contact your field sales representative.



Caution

Do not try to remove/replace your system CPU. The EMC2 socket on the board is delicate and could be damaged during removal and replacement.

Installing the On-board Disk Drives

The CPV5300 has an optional, on-board EIDE drive and a floppy drive.

Installation Instructions

Use the following procedure to install the on-board disk and floppy drives.

You need a number one Phillips screwdriver for this procedure.

1. Remove power from the chassis and disconnect all power cords.
2. Remove the CPV5300 from the chassis.

3. Locate the EIDE (J9) and Floppy (J11) drive headers on the CPV5300. Refer to Figure 4-2.

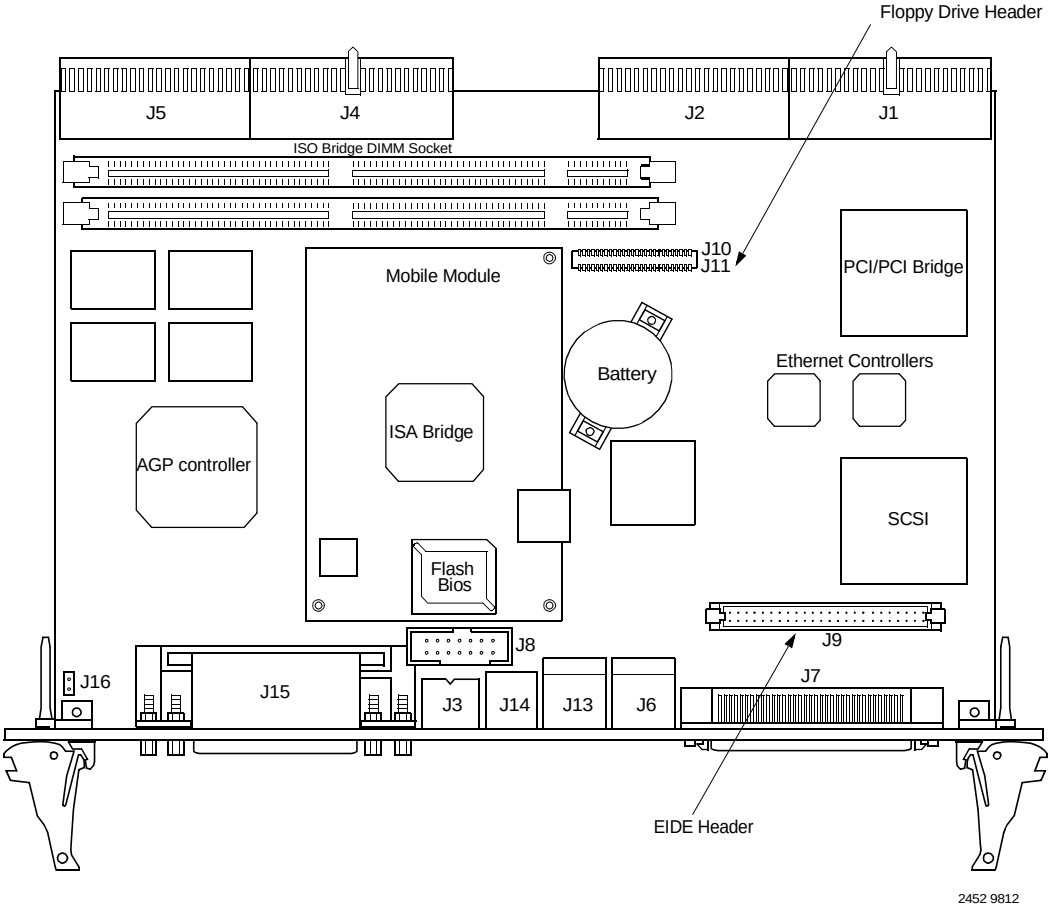
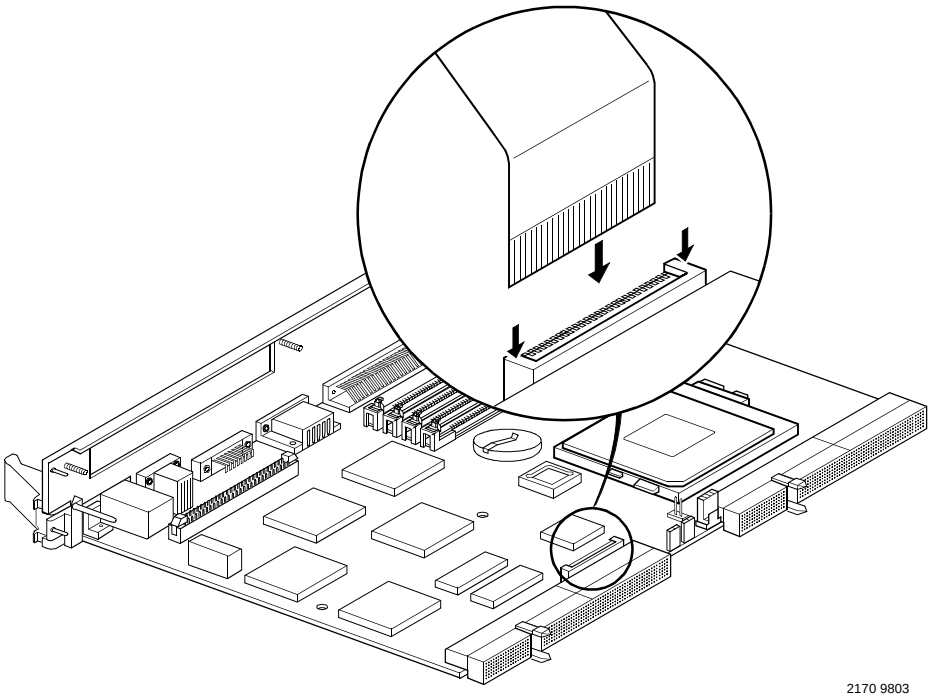


Figure 4-2. EIDE (J9) and Floppy Drive (J11) Headers on the CPV5300

Note The flex cable going from the floppy drive to the CPV5300 has contacts on one side only. The shiny contacts go toward the front panel at both ends and the blue side goes toward the backplane connectors.

4. If installing a floppy drive, attach one end of the cable to its connector on the CPV5300. To attach the cable, push up on each end of the plastic connector. The connector releases so that the cable can be inserted in the connector. Insert the cable into the connector and push down on each end. Attach the other end of the cable in step 8.

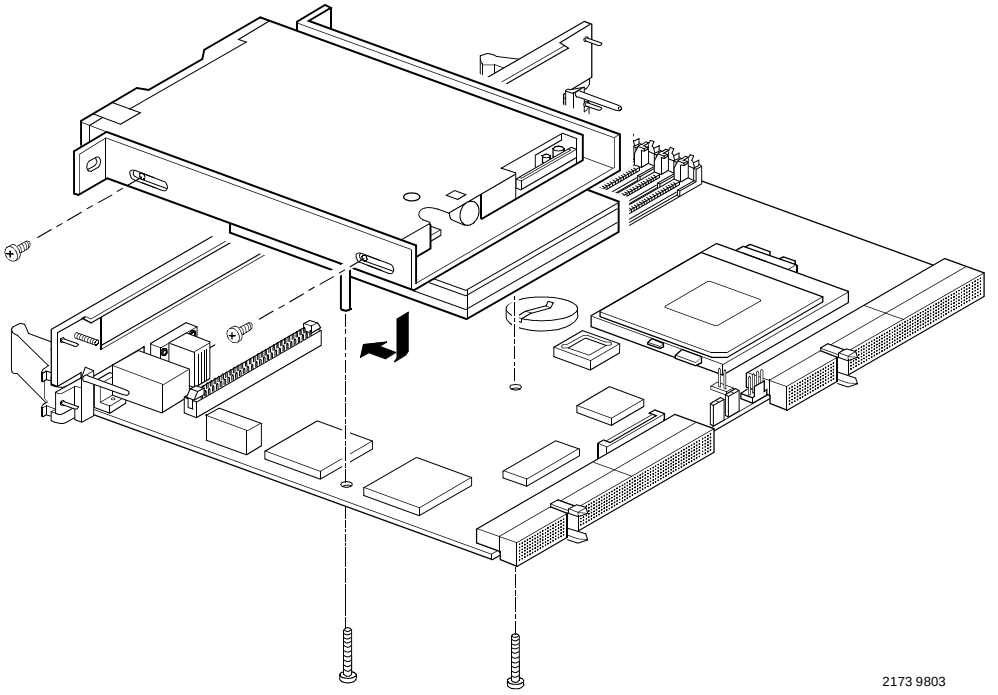


2170 9803

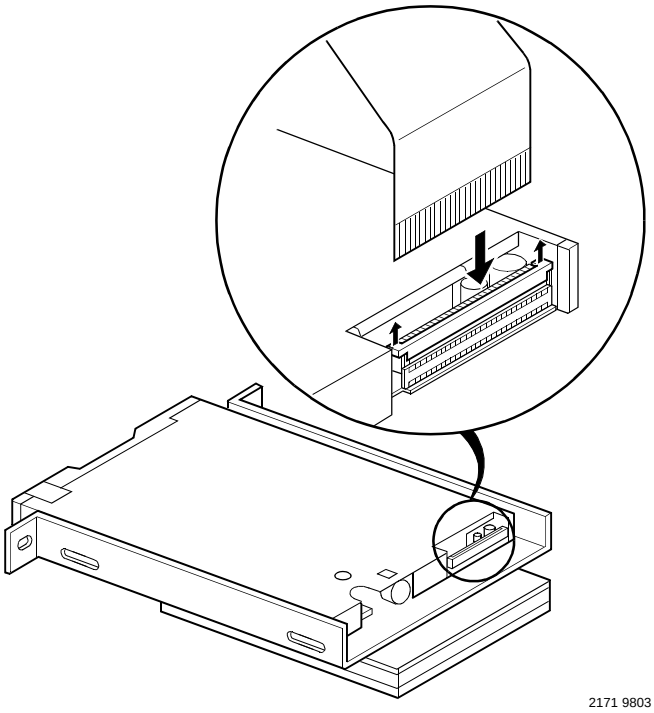
5. Install the floppy drive in the drive carrier. Attach the floppy drive to the carrier with two screws on each side. Refer to the figure below.

6. If you are installing a hard drive, attach the cable to the drive and the IDE connector on the CPV5300.

7. Attach the drive carrier to the CPV5300 using two screws.



8. Attach the remaining end of the floppy cable. Push up on the tabs on the connector and insert the floppy cable. Push down on the tabs to secure the cable.



9. Install the CPV5300 in the chassis and connect the power cords.

Installing Ethernet Controllers

The CPV5300 has two on-card Ethernet controllers called:

- Ethernet 1 (LAN 1)
- Ethernet 2 (LAN 2)

Depending on the method the operating system uses to detect on-card devices, Ethernet 1 may not correspond to the first Ethernet controller reported by the system.



Caution

If Ethernet connection is critical, we recommend installing and testing only one Ethernet connection at a time to determine the operating system to hardware binding for the LAN controllers.

Ethernet 1 settings in the BIOS always correspond to Ethernet controller 1 on the card regardless of what order the operating system reports the controllers.

Pin Assignments

A

Refer to Table A-1 to locate pin assignment information in this appendix.

Table A-1. Pin Assignment Locator Table

For pin assignments for the:	Go to page:
• CPV5300 Single Board Computer (SBC) front panel connectors • CPV5300 Transition Module (TM) rear panel connectors	A-2
• CPV5300 Single Board Computer headers and jumpers • CPV5300 Transition Module headers and jumpers	A-13
• CPV5300 Single Board Computer backplane connectors • CPV5300 Transition Module backplane connectors	A-22

Pin Assignments for CPV5300 SBC Front Panel and CPV5300 TM Rear Panel Connectors

This section gives you pin assignment information for CPV5300 Single Board Computer front panel connectors and CPV5300 Transition Module (TM) rear panel connectors. Refer to Table A-2.

Table A-2. Front and Rear Panel Connectors on the CPV5300 Single Board Computer and CPV5300 Transition Module

For Connector:	Type	Description	Go to:
J14	6 pin PS/2 female connector	Keyboard/Mouse (single PS/2 connector)	Table A-3
	7 pin PS/2	Keyboard	Table A-4
	7 pin PS/2	Mouse	Table A-5
J13	RJ45 connector	Ethernet 1	Table A-6
J6	RJ45 connector	Ethernet 2	Table A-6
J17	25 pin D-sub	Parallel Connector	Table A-7
J15	2 x 9 pin D-sub	COM1 (serial port 1)	Table A-8
J8	2 x 9 pin D-sub	COM2 (serial port 2)	Table A-8
J3	2 x 4 pin USB	USB port1, USB port 2	Table A-9
J15	15 pin high density D-sub	Video Connector	Table A-10
J7	68 pin high density	SCSI Connector	Table A-11

Keyboard/Mouse PS2 Connectors

Refer to Table A-3, Table A-4, and Table A-5 for pin assignments for the CPV5300 and CPV5300 Transition Module (TM) keyboard and mouse connectors.

CPV5300 Keyboard/Mouse

- CPV5300 keyboard/mouse PS2 connector (J14)

Table A-3. Keyboard/Mouse P/S2 Connector Pin Assignments for the CPV5300 Single Board Computer

Pin Number	Signal Mnemonic	Signal Description
1	KBDDAT	Keyboard Data
2	AUXDAT	Auxiliary Data
3	GND	Ground
4	KBDVCC	Keyboard Power (current limited to .75 Amp)
5	KBDCLK	Keyboard Clock
6	AUXCLK	Auxiliary Clock
7	CGND	Common Ground

CPV5300 Transition Module Keyboard/Mouse

- CPV5300 Transition Module (TM) keyboard P/S2 connector

Table A-4. Keyboard P/S2 Connector Pin Assignments for the CPV5300 Transition Module (TM)

Pin Number	Signal Mnemonic	Signal Description
1	KBDDAT	Keyboard Data
2	-	-
3	GND	Ground
4	KBDVCC	Keyboard Power
5	KBDCLK	Keyboard Clock
6	-	-
7	CGND	Common Ground

- CPV5300TM mouse P/S2 connector

Table A-5. Mouse P/S2 Connector Pin Assignments for the CPV5300 Transition Module (TM)

Pin Number	Signal Mnemonic	Signal Description
1	AUXDAT	Auxiliary Data
2	-	-
3	GND	Ground
4	KBDVCC	Keyboard Power
5	AUXCLK	Auxiliary Clock
6	-	-
7	CGND	Common Ground

Ethernet Connectors

Refer to Table A-6 for pin assignments for the:

- CPV5300
  - Ethernet 1 (J13)
  - Ethernet 2 (J6)
- CPV5300TM
  - Ethernet 1 (J13)
  - Ethernet 2 (J18)

Table A-6. Ethernet Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module

Pin Number	Signal Mnemonic	Signal Description
1	TX+	Differential transmit lines
2	TX-	Differential transmit lines
3	RX+	Differential receive lines
4	--	--
5	--	--
6	RX-	Differential receive lines
7	--	--
8	--	--

Parallel Connector

Refer to Table A-7 for pin assignments for the:

- CPV5300 parallel port
- CPV5300TM parallel port

Table A-7. Parallel Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module

Pin Number	Signal Mnemonic	Signal Description
1	STROBE-	Data at parallel port is valid
2	D0	Parallel data lines
3	D1	Parallel data line
4	D2	Parallel data line
5	D3	Parallel data line
6	D4	Parallel data line
7	D5	Parallel data line
8	D6	Parallel data line
9	D7	Parallel data line
10	ACK-	Acknowledge data retrieval
11	BUSY	Printer cannot accept more data
12	PE	Printer out of paper
13	SELECT	Set high when selected
14	AFD-	Causes printer to add a line feed
15	ERR-	Set low when an error is detected
16	INIT-	Initializes the printer
17	SLIN-	Selects the printer
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground

Table A-7. Parallel Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module (Continued)

Pin Number	Signal Mnemonic	Signal Description
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground

Serial Port Connector

Refer to Table A-8 for pin assignments for the:

- CPV5300
  - COM 1 (Serial Port 1) (J15)
  - COM 2 (Serial Port 2) (J8)
- CPV5300 Transition Module (TM)
  - COM 1 (Serial Port 1) (J16)
  - COM 2 (Serial Port 2) (J10)

Table A-8. Serial Port Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module

Pin Number	Signal Mnemonic	Signal Description
1	DCD-	data set has detected the data carrier
2	RX	Receives serial data input from communication link
3	TX	Sends serial output to communication link
4	DTR-	data set is ready to establish a communication link
5	GND	Ground
6	DSR-	data set is ready to establish a communication link
7	RTS-	Indicates to data set that UART is ready to exchange data
8	CTS-	data set is ready to exchange data
9	RI-	modem has received a telephone ringing signal

Universal Serial Bus (USB) Connectors

Refer to Table A-9 for pin assignments for the:

- CPV5300 Port 1 and Port 2 (J3)
- CPV5300TM Port 1 and Port 2 (J12)

Table A-9. USB Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module

Pin Number	Signal Mnemonic	Signal Description
1	+5V	Current limited USB power
2	DATA+	USB serial communication differential
3	DATA-	USB serial communication differential
4	GND	USB port common

Video Connector

Refer to Table A-10 for pin assignments for the:

- CPV5300 (J15)
- CPV5300TM (J16)

Table A-10. Video Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module

Pin Number	Signal Mnemonic	Signal Description
1	RED	Red signal
2	GREEN	Green signal
3	BLUE	Blue signal
4	NC	Not connected
5	DACVSS	Video return
6	DACVSS	Video return
7	DACVSS	Video return
8	DACVSS	Video return
9	NC	Not connected
10	DACVSS	Video return
11	NC	Not connected
12	DDCDAT	Display data channel data signal for DDC2 support
13	HSYNC	Horizontal synchronization
14	VSYNC	Vertical synchronization
15	DDCCLK	Display data channel clock signal for DDC2 support

SCSI Connector

Refer to Table A-11 for pin assignments for the:

- CPV5300 SCSI connector (J7)
- CPV5300 Transition Module (TM) SCSI connector (J17)

Table A-11. SCSI Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module

Pin Number	Signal Mnemonic	Signal Description	Pin Number	Signal Mnemonic	Signal Description
1	GND	Ground	35	D12	SCSI data lines
2	GND	Ground	36	D13	SCSI data lines
3	GND	Ground	37	D14	SCSI data lines
4	GND	Ground	38	D15	SCSI data lines
5	GND	Ground	39	DPH-	odd parity for D8 through D15
6	GND	Ground	40	D0	SCSI data lines
7	GND	Ground	41	D1	SCSI data lines
8	GND	Ground	42	D2	SCSI data lines
9	GND	Ground	43	D3	SCSI data lines
10	GND	Ground	44	D4	SCSI data lines
11	GND	Ground	45	D5	SCSI data lines
12	GND	Ground	46	D6	SCSI data lines
13	GND	Ground	47	D7	SCSI data lines
14	GND	Ground	48	DPL-	odd parity for D0 through D7
15	GND	Ground	49	GND	Ground
16	GND	Ground	50	GND	Ground
17	TERMPWR	Power	51	TERMPWR	Power
18	TERMPWR	Power	52	TERMPWR	Power
19	-	-	53	-	-
20	GND	Ground	54	GND	Ground

Table A-11. SCSI Connector Pin Assignments for the CPV5300 Single Board Computer and CPV5300 Transition Module (Continued)

Pin Number	Signal Mnemonic	Signal Description	Pin Number	Signal Mnemonic	Signal Description
21	GND	Ground	55	ATN-	Driven as an initiator when a special condition occurs.
22	GND	Ground	56	GND	Ground
23	GND	Ground	57	BUSY-	Driven by initiator as a hand-shake during arbitration
24	GND	Ground	58	ACK-	An initiator asserts ACK to indicate a byte is ready for or was received from the target
25	GND	Ground	59	RESET-	hard reset
26	GND	Ground	60	MSG-	asserted = message phase deasserted = command/data phase
27	GND	Ground	61	SEL-	Driven after a successful arbitration to select as an initiator or reselect as a target
28	GND	Ground	62	CD-	asserted = command or message phase deasserted = data phase
29	GND	Ground	63	REQ-	Target asserts REQ to indicate a byte is ready or is needed by target
30	GND	Ground	64	IO-	asserted = In deasserted = Out
31	GND	Ground	65	D8	SCSI data lines
32	GND	Ground	66	D9	SCSI data lines
33	GND	Ground	67	D10	SCSI data lines
34	GND	Ground	68	D11	SCSI data lines

Pin Assignments for CPV5300 SBC and CPV5300 TM Headers and Jumpers

This section gives you pinout information for CPV5300 Single Board Computer and CPV5300 Transition Module (TM) headers and jumpers. Refer to Table A-12.

Table A-12. On Board Headers on the CPV5300 Single Board Computer and CPV5300 Transition Module

Connector	Type	Description	Go to:
J9	44 (2 x 22) pin shrouded header	EIDE header, Single Board Computer	Table A-13
J5, J8	40 pin header	EIDE header, Transition Module	Table A-14
J11	26 pin flex cable connector	Floppy header, Single Board Computer	Table A-15
J9	34 pin header	Floppy header, Transition Module	Table A-16
J3, J4	4 pin header	Fan Tachometer header, Transition Module	Table A-17
	12 pin header	SM Bus and LM78 header, Transition Module	Table A-18

EIDE Headers

Refer to Table A-13 and Table A-14 for EIDE header pin assignments for the:

- CPV5300 Single Board Computer (SBC) (J9)
- CPV5300 Transition Module (TM), primary - (J8), secondary - (J5)

Table A-13. EIDE Header Pin Assignments for the CPV5300 Single Board Computer (J9)

Pin Number	Signal Mnemonic	Signal Description	Pin Number	Signal Mnemonic	Signal Description
1	RESET	reset signal to drive	2	GND	ground
3	D7	drive data line	4	D8	drive data line
5	D6	drive data line	6	D9	drive data line
7	D5	drive data line	8	D10	drive data line
9	D4	drive data line	10	D11	drive data line
11	D3	drive data line	12	D12	drive data line
13	D2	drive data line	14	D13	drive data line
15	D1	drive data line	16	D14	drive data line
17	D0	drive data line	18	D15	drive data line
19	GND	ground	20	-	-
21	REQ	drive DMA request	22	GND	ground
23	WR	drive I/O write	24	GND	ground
25	RD	drive I/O read	26	GND	ground
27	IORDY	drive is ready for I/O cycles	28	CS	cable select
29	ACK	drive DMA acknowledge	30	GND	ground

Table A-13. EIDE Header Pin Assignments for the CPV5300 Single Board Computer (J9) (Continued)

Pin Number	Signal Mnemonic	Signal Description	Pin Number	Signal Mnemonic	Signal Description
31	IRQ	drive interrupt request	32	-	-
33	A1	drive register and data port address lines	34	-	-
35	A0	drive register and data port address lines	36	A2	drive register and data port address lines
37	CS1	chip select drive 0, also command register block select	38	CS3	chip select drive 1, also command register block select
39	ACT	drive active	40	GND	ground
41	+5V	drive power	42	+5V	drive power

Table A-14. EIDE Header Pin Assignments for the CPV5300 Transition Module (Primary - J8), (Secondary - J5)

Pin Number	Signal Mnemonic	Signal Description	Pin Number	Signal Mnemonic	Signal Description
1	Reset	reset signal to drive	2	GND	ground
3	DD7	drive data line	4	DD8	drive data line
5	DD6	drive data line	6	DD9	drive data line
7	DD5	drive data line	8	DD10	drive data line
9	DD4	drive data line	10	DD11	drive data line
11	DD3	drive data line	12	DD12	drive data line
13	DD2	drive data line	14	DD13	drive data line

Table A-14. EIDE Header Pin Assignments for the CPV5300 Transition Module (Primary - J8), (Secondary - J5) (Continued)

Pin Number	Signal Mnemonic	Signal Description	Pin Number	Signal Mnemonic	Signal Description
15	DD1	drive data line	16	DD14	drive data line
17	DD0	drive data line	18	DD15	drive data line
19	GND	ground	20	-	-
21	DMARQ	drive DMA request	22	GND	ground
23	IOW	drive I/O write	24	GND	ground
25	IOR	drive I/O read	26	GND	ground
27	IORDY	drive is ready for I/O cycles	28	CSEL	cable select
29	DMACK	drive DMA acknowledge	30	GND	ground
31	INTRQ	drive interrupt request	32	IOCS16	16 bit register is decoded
33	DA1	drive register and data port address lines	34	PDIAG	output from drive 1 and monitored by drive 0
35	DA0	drive register and data port address lines	36	DA2	drive register and data port address lines
37	CS1	chip select drive 0, also command register block select	38	CS3	chip select drive 1, also command register block select
39	DASP	drive active slave present	40	GND	ground

Floppy Headers

Refer to Table A-15 and Table A-16 for floppy header pin assignments for the:

- CPV5300 Single Board Computer (SBC), (J11)
- CPV5300 Transition Module (TM), (J9)

Table A-15. Floppy Header Pin Assignments for the CPV5300 Single board Computer (J11)

Pin Number	Signal Mnemonic	Signal Description	Pin Number	Signal Mnemonic	Signal Description
1	+5V	drive power	14	STEP	supplies step pulses to move head during seek operations
2	INDEX	beginning of a track	15	GND	drive common
3	+5V	drive power	16	WDATA	writes serial data to disk drive
4	DS0	drive select 0	17	GND	drive common
5	+5V	drive power	18	WGATE	enables head of disk drive to write to disk
6	DCHG	notifies disk drive controller that drive door is open	19	GND	drive common
7	-	-	20	TR0	head of FDD is at track 0
8	-	-	21	GND	drive common
9	-	-	22	WPROT	disk is write protected

Table A-15. Floppy Header Pin Assignments for the CPV5300 Single board Computer (J11) (Continued)

Pin Number	Signal Mnemonic	Signal Description	Pin Number	Signal Mnemonic	Signal Description
10	MTR0	motor enable outputs	23	GND	drive common
11	-	-	24	RDATA	raw read data from disk drive
12	DIR	controls direction of the FDD head during seek operations	25	GND	drive common
13	-	-	26	HDSEL	determines the side of the floppy disk being accessed

Table A-16. Floppy Header Pin Assignments for the CPV5300 Transition Module (J9)

Pin Number	Signal Mnemonic	Signal Description	Pin Number	Signal Mnemonic	Signal Description
1	GND	drive common	2	DRVDENS0	disk density select communication
3	-	-	4	-	-
5	GND	drive common	6	DRVDENS1	disk density select communication
7	GND	drive common	8	INDEX	beginning of a track
9	GND	drive common	10	MTR0	motor enable output
11	GND	drive common	12	DS1	drive select 1
13	GND	drive common	14	DS0	drive select 0
15	GND	drive common	16	MTR1	motor enable output

Table A-16. Floppy Header Pin Assignments for the CPV5300 Transition Module (J9) (Continued)

Pin Number	Signal Mnemonic	Signal Description	Pin Number	Signal Mnemonic	Signal Description
17	GND	drive common	18	DIR	controls direction of the floppy disk drive head during seek operation
19	GND	drive common	20	STEP	supplies step pulses to move head during seek operations
21	GND	drive common	22	WDATA	writes serial data to disk drive
23	GND	drive common	24	WGATE	enables head of disk drive to write to disk
25	GND	drive common	26	TR0	head of floppy disk drive is at track 0
27	GND	drive common	28	WPROT	disk is write protected
29	GND	drive common	30	RDATA	raw read data from disk drive
31	GND	drive common	32	HDSEL	determines the side of the floppy disk being accessed
33	GND	drive common	34	DSKCHG	notifies disk drive controller that the drive door is open

Fan Tachometer Headers

Refer to Table A-17 for tachometer header pin assignments for the CPV5300 Transition Module (TM), (J3 and J4).

Table A-17. Fan Tachometer Header Pin Assignments for the CPV5300 Transition Module (J3 and J4)

Pin Number	Signal Mnemonic	Signal Description
1	VCC	SM bus power
2	TACH	tachometer input for fan
3	GND	ground
4	+12V	12 volt power

SM Bus and LM78 Header

Refer to Table A-18 for SM Bus and LM78 header pin assignments for the CPV5300 Transition Module (TM)

Table A-18. SM Bus and LM78 Header Pin Assignments for the CPV5300 Transition Module

Pin Number	Signal Mnemonic	Signal Description	Pin Number	Signal Mnemonic	Signal Description
1	OPEN	chassis intrusion signal	2	GND	ground
3	GND	ground	4	SMBALERT-	SM bus interrupt signal

Table A-18. SM Bus and LM78 Header Pin Assignments for the CPV5300 Transition Module (Continued)

Pin Number	Signal Mnemonic	Signal Description	Pin Number	Signal Mnemonic	Signal Description
5	GND	ground	6	SMBDATA	SM bus data strobe signal
7	VCC	SM bus power	8	SMBCLK	SM bus clock signal
9	BYPASS	power switch bypass signal	10	VCC	SM bus power
11	BTI	board temperature interrupt signal	12	GND	ground

Pin Assignments for CPV5300 SBC and CPV5300 TM Backplane Connectors

This section gives you pinout information for:

- CPV5300 Single Board Computer backplane connectors (J4, J5)
- CPV5300Transition Module backplane connectors (P4, P5)

J4 and P4 Connectors

Refer to Table A-19 for connector pin assignments and Table A-20 for signal descriptions for the:

- CPV5300 Single Board Computer (SBC), (J4)
- CPV5300 Transition Module (TM), (P4)

Table A-19. CPV5300 SBC (J4)/CPV5300 TM (P4) Backplane Connector Pin Assignments

Pin Number		E	D	C	B	A	
25	GND	VCC	LANB RD-	LANB RD+	LANB TD-	reserved	GND
24	GND	BT1	GND	DASP-	CS3-	CS1-	GND
23	GND	DA2	DA0	GND	DA1	IOCS16-	GND
22	GND	INTRQ	DMACK-	LANB TD+	IORDY	GND	GND
21	GND	DIOR-	GND	DIOW-	GND	DMARQ	GND
20	GND	PDIAG-	GND	DD15	DD0	DD14	GND
19	GND	DD1	DD13	DD2	DD12	DD3	GND
18	GND	DD11	DD4	DD10	DD5	DD9	GND
17	GND	DD6	DD8	DD7	GND	DRESET-	GND
16	GND	GND	RD-	RD	TD-	TD	GND
15	GND	LED1_2	LED3	VCC	VCC	GND	GND
KEY							
11	GND	GND	GND	reserved	DACVSS	BLUE	GND
10	GND	GREEN	RED	VSYNC	HSYNC	DDCCLK	GND
9	GND	LANB LED3	DDCDAT	LANB LED1_2	GND	GND	GND
8	GND	SCD12	SCD13	SCD14	SCD15	SCDPH-	GND
7	GND	SCD0	SCD1	SCD2	SCD3	SCD4	GND
6	GND	SCD5	SCD6	SCD7	SCDPL-	GND	GND
5	GND	GND	VCC	VCC	GND	GND	GND

Table A-19. CPV5300 SBC (J4)/CPV5300 TM (P4) Backplane Connector Pin Assignments (Continued)

Pin Number		E	D	C	B	A	
4	GND	ATN-	GND	BSY-	SACK-	SRST-	GND
3	GND	MSG-	SEL-	CD-	SREQ-	IO-	GND
2	GND	SCD8	SCD9	SCD10	SCD11	PBYPASS	GND
1	GND	FAN3	FAN2	INTRUDER-	SSDA	SSCL	GND

Table A-20. Signal Descriptions for CPV5300 SBC (J4)/CPV5300 TM (P4) Backplane Connector Pin Assignments

Signal	Signal Mnemonic	Signal Description
Ethernet	RD+, RD-	differential receive lines
	TD+, TD-	differential transmit lines
LED	LED1_2	transmit LED
	LED3	link LED
General	VCC	5 volt power
	GND	ground plane
EIDE (ATA-2), TTL levels	IOCS16	16 bit register is decoded
	DMARQ	drive DMA request
	DMACK	drive DMA acknowledge
	DIOR	drive I/O read
	DIOW	drive I/O write
	DASP	drive active/slave present
	IORDY	drive is ready for I/O cycle(s)
	DD [15:0}	drive data lines, bits 15 - 0
	DRESET	reset signal to drive
	CS1	chip select drive 0, also command register block select
	CS3	chip select drive 1, also command register block select
	DA {2:0]	drive register and data port address lines
	INTRQ	drive interrupt request
	PDIAG	output from drive 1 and monitored by drive 0

Table A-20. Signal Descriptions for CPV5300 SBC (J4)/CPV5300 TM (P4) Backplane Connector Pin Assignments (Continued)

Signal	Signal Mnemonic	Signal Description
SCSI	ATN	driven as an initiator when a special condition occurs
	BSY	driven by initiator as a hand-shake during arbitration
	CD	indicates command or message phase when asserted, data phase when deasserted
	IO	indicates the in direction when asserted, out direction when deasserted
	MSG	indicates a message phase when asserted and a command/data phase when deasserted
	SACK	initiator asserts ACK to indicate a byte is ready for or was received from the target
	SCD[15:0]	SCSI data lines
	SCDPH	provides odd parity for SCD[15:8}
	SCDPL	provides odd parity for SCD[7:0]
	SEL	driven after a successful arbitration to select as an initiator or reselect as a target
	SREQ	a target asserts REQ to indicate a byte is ready or is needed by target
	SRST	interpreted as a hard reset
Video	BLUE	blue signal
	DACVSS	video return
	HSYNC	horizontal synchronization
	GREEN	green signal
	DDCCLK	display Data Channel clock signal for DDC2 support
	DDCDAT	display Data Channel data signal for DDC2 support
	RED	red signal
	VSYNC	vertical synchronization

J5 and P5 Connectors

Refer to Table A-21 for connector pin assignments and Table A-22 for signal descriptions for the:

- CPV5300 Single Board Computer (SBC), (J5)
- CPV5300 Transition Module (TM), (P5)

Table A-21. CPV5300 (J5)/CPV5300 TM (P5) Backplane Connector Pin Assignments

Pin Number	F	E	D	C	B	A	Z
22	GND	SPKR	VCC	DIAG-	GND	PBRESET-	GND
21	GND	MCLK	MDAT	VCC[1]	KBDCLK	KBDDAT	GND
20	GND	reserved	GND[1]	reserved	reserved	VCC[1]	GND
19	GND	UDATA0-	UDATA0+	VCC[1]	GND	STB-	GND
18	GND	VCC[1]	GND	UDATA1-	UDATA1+	AFD-	GND
17	GND	PD0	ERR-	PD1	INIT-	PD2	GND
16	GND	SLIN-	PD3	PD4	PD5	PD6	GND
15	GND	PD7	ACK-	BUSY	PE	SLCT	GND
14	GND	DTR(1)	GND	RI(1)	CTS1	RTS(1)	GND
13	GND	TXD(1)	DSR1	RXD(1)	VCC	DCD(1)	GND
12	GND	DTR(2)	VCC	RI(2)	CTS2	RTS(2)	GND
11	GND	TXD(2)	DSR(2)	RXD(2)	GND	DCD(2)	GND
10	GND	DSKCHG-	HDSEL-	RDATA-	WPROT-	TR0-	GND
9	GND	WGATE-	WDATA-	STEP-	DIR-	MTR1-	GND
8	GND	DS0-	DS1-	MTR0	INDEX	DRVDENS1	GND
7	GND	DRVDENS0	DASP-	DA1	CS3-	CS1-	GND
6	GND	DA2	DA0	PDIAG-	GND	IOCS16-	GND
5	GND	DIOR-	DMACK-	DIOW-	IORDY	DMARQ	GND
4	GND	INTRQ	DD15	GND	DD0	DD14	GND
3	GND	DD1	DD13	DD2	DD12	DD3	GND
2	GND	DD11	DD4	DD10	DD5	DD9	GND
1	GND	DD6	DD8	DD7	DRESET-	RESET-	GND

Table A-22. Signal Descriptions for CPV5300 SBC (J5)/CPV5300 TM (P5) Backplane Connector Pin Assignments

Signal	Signal Mnemonic	Signal Description
General	VCC	5V power supply
	GND	digital signal ground plane
Miscellaneous	SPKR	PC/AT speaker output, open collector
	DIAG	diagnostic/alarm output, open collector
	PBRESET	push button system reset input (pulled up, filtered and debounced on host card)
	RESET	system reset output, TTL totem-pole
Keyboard/Mouse Device, TTL levels	MCLK	clock for PS/2 mouse
	MDAT	serial data line for PS/2 mouse KBDCLK - clock for PC/AT or PX/2 keyboard
	KBDDAT	serial data line for PC/AT or PS/2 keyboard
Universal Serial Bus (USB) (0 and 1), USB levels	UDATAn+	(+) signal of differential data pair for USB channel
	UDATAn-	(-) signal of differential data pair for USB channel
Parallel LPT Port, TTL levels	ACK	pulsed by peripheral to acknowledge data sent
	BUSY	indicates that printer cannot accept more data
	ERR	peripheral detected an error
	PD[7:0]	parallel data lines, bits 7- 0
	PE	paper end, indicates the printer is out of paper
	AFD	auto feed, causes printer to line feed
	INIT	initializes the printer
	SLIN	select in, selects the printer
	STB	data strobe, indicates data is valid
	SLCT	select, peripheral indicates it is selected
Serial COM Ports (1 and 2), RS232 levels	CTS	clear to send
	DCD	data carrier detected
	DSR	data set ready
	DTR	data terminal ready

Table A-22. Signal Descriptions for CPV5300 SBC (J5)/CPV5300 TM (P5) Backplane Connector Pin Assignments (Continued)

Signal	Signal Mnemonic	Signal Description
	RI	ring indicator
	RTS	request to send
	RXD	serial receive data
	TXD	serial transmit data
Floppy Disk Drive, TTL levels	DSKCHG	indicates the drive door has been opened
	DIR	controls direction of the head during step operations
	DRVDENS [1:0]	disk density select communication
	DS[1:0]	drive selects
	HDSEL	selects top or bottom side head
	INDEX	indicates the beginning of a track
	MTR[1:0]	motor enables
	RDATA	data read
	STEP	step, pulses move head in or out
	TR0	indicates that head is positioned above track 00
	WDATA	write data to drive
	WGATE	enables head write circuitry of drive
	WPROT	indicates a disk is write protected
EIDE (ATA-2), TTL levels	IOCS16	indicates a 16 bit register is decoded
	DMARQ	drive DMA request
	DMACK	drive DMA acknowledge
	DIOR	drive I/O read
	DIOW	drive I/O write
	DASP	drive active/slave present
	IORDY	indicates drive is ready for I/O cycle(s)
	DD[15:0]	drive data lines, bits 15 - 0
	DRESET	reset signal to drive
	CS1	chip select drive 0, also command register block select

Table A-22. Signal Descriptions for CPV5300 SBC (J5)/CPV5300 TM (P5) Backplane Connector Pin Assignments (Continued)

Signal	Signal Mnemonic	Signal Description
	CS3	chip select drive 1, also command register block select
	DA[2:0]	drive register and data port address lines
	INTRQ	drive interrupt request
	PDIAG	output from drive 1 and monitored by drive 0

Index

A

additional information 1-8
altitude 1-7
antistatic precautions 2-1

B

block diagram
    CPV5300 1-4

C

components
    CPV5300 3-1
    CPV5300TM 3-3
configurations 4-1
connecting to headers 3-6
CPU
    upgrading 4-3
CPU speed settings 3-6

D

DIMM 4-1
    installation 4-2
    installing 4-1

E

environmental specifications 1-7
ethernet 1-2
ethernet controllers
    installation 4-7

F

features 1-1
front panel connectors 2-6
functions
    advanced system monitoring 1-5
    watchdog timer 1-5

G

getting started 2-1

H

humidity 1-7

I

information 1-8
input/output interfaces 1-2
installing ethernet controllers 4-7
installing options 4-1
installing the CPV5300 2-2
interfaces 1-2
    COM1 (serial port 1) 1-2
    COM2 (serial port 2) 1-2
    EIDE 1-3
    floppy 1-3
    keyboard/mouse 1-2
    LPT1 1-2
    parallel port 1-3
    Ultra SCSI 1-2
    USB1 and USB2 1-2
    video 1-2
introduction 1-1

L

LED indicator lights 2-6
lithium battery 2-5

M

memory configurations 4-1
Motorola Computer Group 1-8
MTBF 1-7

O

options 4-1
overview 1-1

P

physical characteristics 1-6
pin assignments A-1
power requirements 1-6
powering up 2-5

R

rear panel connectors 2-8

S

shock 1-7
special functions 1-5
specifications 1-6
speed settings 3-6
system memory configurations 4-1

T

temperature 1-7

U

upgrading the CPU 4-3

V

vibration 1-7

W

web sites 1-8
wet bulb 1-7

Cover

CPV5300 CompactPCI® Single Board Computer and Transition Module Installation Guide

34 pages
1/8” spine

® ™

36 - 84 pages
3/16” & 1/4” spine

® ™

86 - 100 pages
5/16” spine

® ™

102 - 180 pages
3/8” - 1/2” spine

® ™

182 - 308 pages
5/8” - 1 1/8” spine
2 lines allowed

® ™

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP