

OPERATIONS MANUAL

PCM-DOC

NOTE: *This manual has been designed and created for use as part of the WinSystems' Technical Manuals CD and/or the WinSystems' website. If this manual or any portion of the manual is downloaded, copied or emailed, the links to additional information (i.e. software, cable drawings) will be inoperable.*

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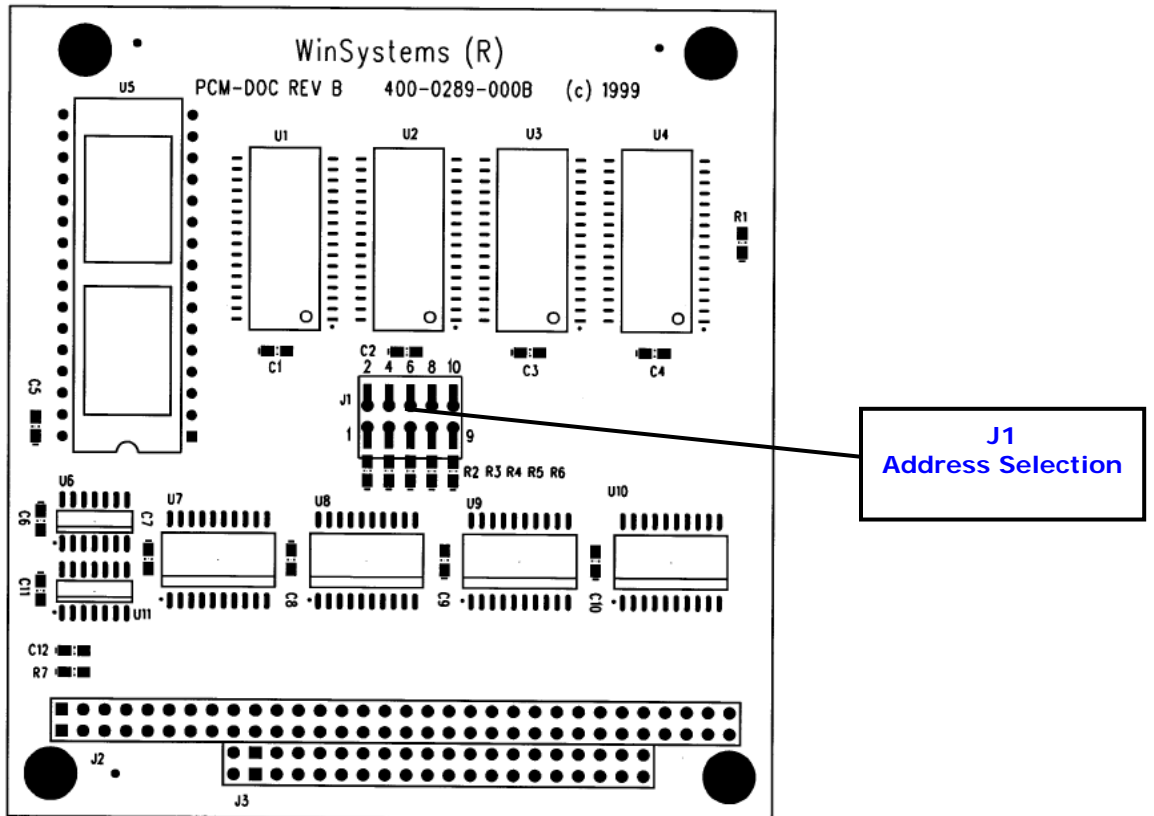
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Visual Index – Quick Reference

For the convenience of the user, a copy of the Visual Index has been provided with direct links to connector and jumper configuration data.



General Information

Features

- PC/104-16 Compatible Flash Disk Adapter Module
- Supports M-Systems' DiskOnChip[®] and DiskOnChip Millennium[®]
- Replaces M-Systems' PC-104-FD-XX-V-T-S board
- 8Mbyte to 288Mbyte capacity
- Full hard disk read/write boot capability
- +5Volt only operation
- Multi-Operating System support
- EDC/ECC for high data reliability
- Third generation wear leveling
- Automatic management of bad blocks
- Zero power data retention
- Low power standby
- Optional Extended Temperature -40°C to +85°C

General Information

The WinSystems' PCM-DOC is an efficient, reliable, and easy-to-integrate solid state disk that utilizes the M-Systems' DiskOnChip[®] 2000 or DiskOnChip Millennium[®] devices, offering full hard disk emulation and functionality. Two versions of the PCM-DOC module are available to support different packaging styles of Flash memory: DIP or TSOP. The first version has a 32-pin DIP socket that is populated with the DiskOnChip[®] 2000 series of flash memory. It offers a wide selection from 8 Mbytes to 288 Mbytes, which is ideal for applications with limited space and modest disk capacity requirements. The board is offered with either no DOC installed or with a DOC preinstalled and tested at the factory. The second version is populated with up to four TSOP DiskOnChip Millennium[®] parts. The advantage of TSOP parts is, since the parts are soldered directly to the board, the mounting is more rugged and can withstand more shock and vibration than a socketed part.

Specifications

Electrical

PC/104 Bus : 8-bit or 16-bit compatible
Power Requirements : +5V +/-5% at 100mA typ.

Mechanical

Dimensions : 3.6" X 3.8" (90mm x 96mm)
PC Board : FR4 Epoxy Glass with 2 signal layers and 2 power-planes with screened component legend and plated through holes
Jumpers : 0.025" square posts on 0.100" center

Environmental

Operating Temperature : 0°C to 70°C using commercial temperature DOCs
-40°C to +85°C using extended temperature DOCs
Non-condensing relative humidity : 10% to 90%

PCM-DOC Technical Reference

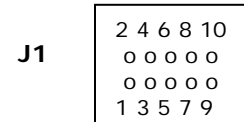
Introduction

This manual is intended to provide the necessary information regarding configuration and usage of the PCM-DOC board. WinSystems maintains a Technical Support Group to help answer questions regarding usage, or programming of the board. For answers to questions not adequately addressed in this manual, contact Technical Support at (817) 274-7553 between 8AM and 5PM Central Time.

Memory Address Selection Jumper

The PCM-DOC requires 16Kbytes of consecutive memory. Addresses must begin on an even 16Kbyte boundary. The jumper block at **J1** allows for user selection of the memory address. Address selection is made by placing a jumper on a pair of pins for the address bit if a '0' is desired or leaving the address bit open (NC= no connect) is a '1' is required for the desired address. The table on the following page shows the user-selectable memory addresses.

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Visual Index](#)



Memory Address Selection Table

Starting Address	Jumper Pair				
Address	1-2	3-4	5-6	7-8	9-10
C000	X	X	X	X	X
C200	X	X	X	X	NC
C400	X	X	X	NC	X
C600	X	X	X	NC	NC
C800	X	X	NC	X	X
CA00	X	X	NC	X	NC
CC00	X	X	NC	NC	X
CE00	X	X	NC	NC	NC
*D000	X	NC	X	X	X
D200	X	NC	X	X	NC
D400	X	NC	X	NC	X
D600	X	NC	X	NC	NC
D800	X	NC	NC	X	X
DA00	X	NC	NC	X	NC
DC00	X	NC	NC	NC	X
DE00	X	NC	NC	NC	NC
E000	NC	X	X	X	X
E200	NC	X	X	X	NC
E400	NC	X	X	NC	X
E600	NC	X	X	NC	NC
E800	NC	X	NC	X	X
EA00	NC	X	NC	X	NC
EC00	NC	X	NC	NC	X

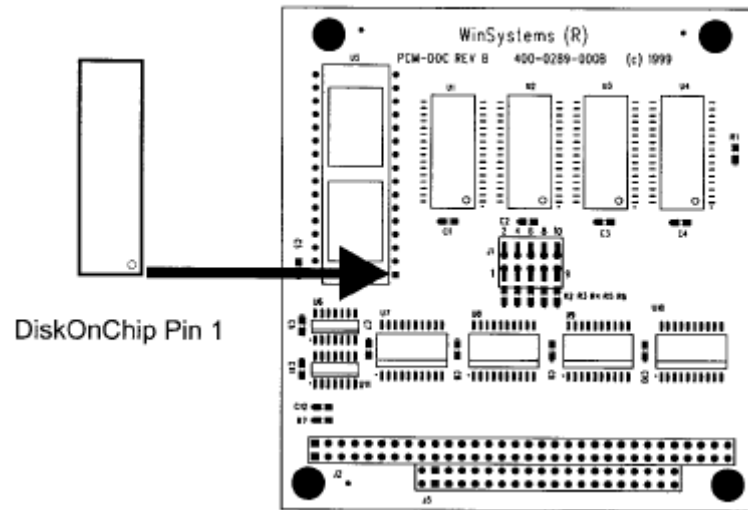
* = Default setting (D000) as shipped from the factory

X = Jumpered

NC= Open

Shaded region is not compatible with WinSystems CPUs that support on-board Silicon disk.

DiskOnChip Installation



1. Make sure power is off.
2. Plug the DiskOnChip into the socket U5 on the PCM-DOC.
IMPORTANT: Make sure the DiskOnChip is inserted in the right direction.
3. Plug the PCM-DOC onto the host's PC/104 16-bit connector.
4. Power up the host system. The DiskOnChip drivers' messages will appear on the screen after the memory test. If this does not occur, the DiskOnChip may not have been programmed, or the card's setup may be wrong.
5. The DiskOnChip is now available as a standard disk drive, and can be used to store any standard software.

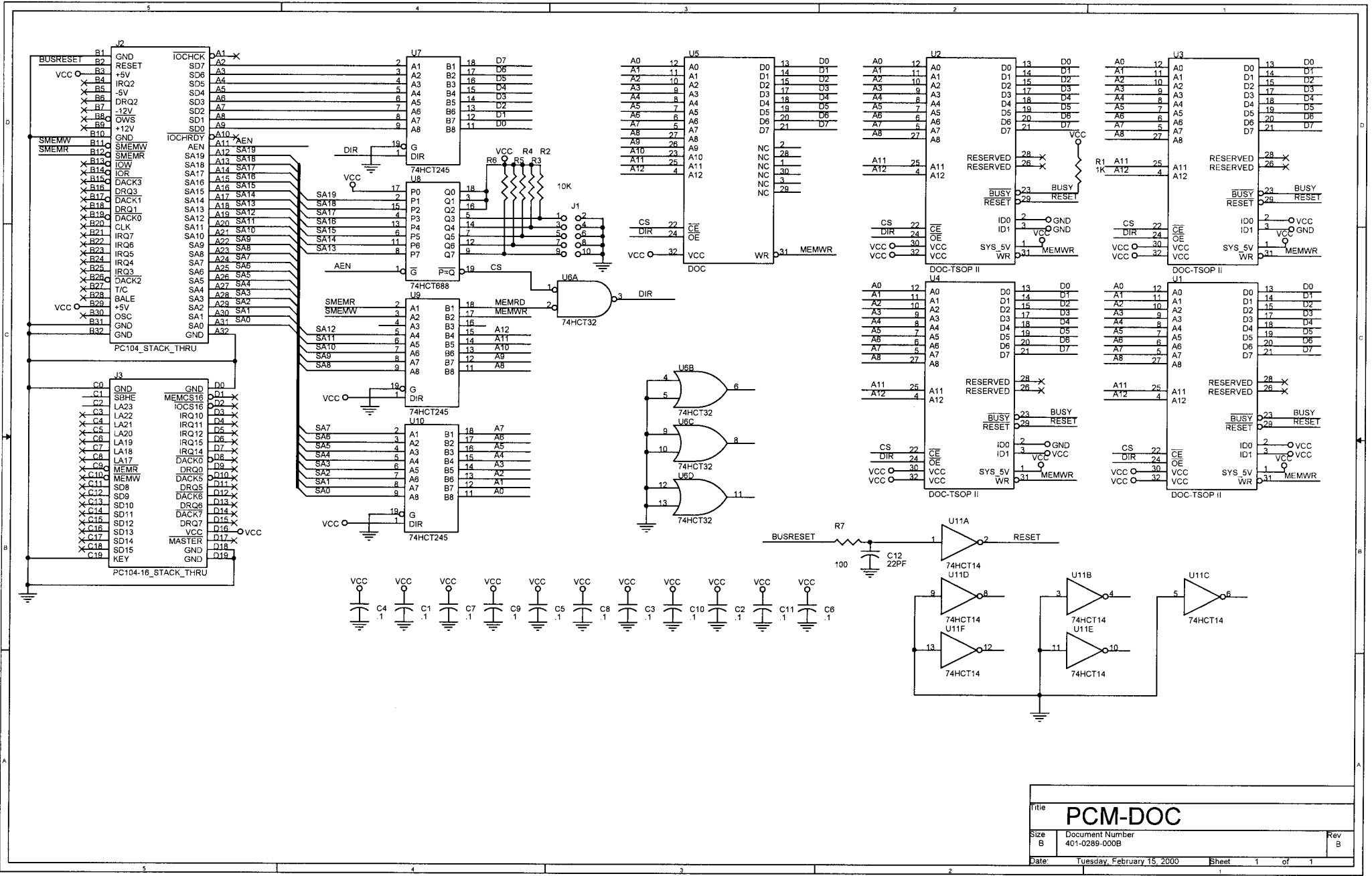
NOTE: The DiskOnChip may need to be formatted in order to be used with a specific operating systems. Refer to <http://www.m-sys.com> for the latest non-DOS drivers and utilities.

Warning: A 32-pin DIP DOC will not work if the TSOP-II parts are installed. The PCM-DOC will not be the boot device if another IDE drive is installed.

Since TSOP-II components are surface mounted at the factory, no installation instructions will be necessary.

APPENDIX A

PCM-DOC Schematic Diagram



Title		
PCM-DOC		
Size	Document Number	Rev
B	401-0289-000B	B
Date:	Tuesday, February 15, 2000	Sheet 1 of 1

WARRANTY

WinSystems warrants that for a period of two (2) years from the date of shipment any Products and Software purchased or licensed hereunder which have been developed or manufactured by WinSystems shall be free of any material defects and shall perform substantially in accordance with WinSystems' specifications therefore. With respect to any Products or Software purchased or licensed hereunder which have been developed or manufactured by others, WinSystems shall transfer and assign to Customer any warranty of such manufacturer or developer held by WinSystems, provided that the warranty, if any, may be assigned. The sole obligation of WinSystems for any breach of warranty contained herein shall be, at its option, either (i) to repair or replace at its expense any materially defective Products or Software, or (ii) to take back such Products and Software and refund the Customer the purchase price and any license fees paid for the same. Customer shall pay all freight, duty, broker's fees, insurance changes and other fees and charges for the return of any Products or Software to WinSystems under this warranty. WinSystems shall pay freight and insurance charges for any repaired or replaced Products or Software thereafter delivered to Customer within the United States. All fees and costs for shipment outside of the United States shall be paid by Customer. The foregoing warranty shall not apply to any Products or Software which have been subject to abuse, misuse, vandalism, accidents, alteration, neglect, unauthorized repair or improper installations.

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WARRANTY SERVICE

All products returned to WinSystems must be assigned a Return Material Authorization (RMA) number. To obtain this number, please call or FAX WinSystems' factory in Arlington, Texas and provide the following information:

1. Description and quantity of the product(s) to be returned including its serial number.
2. Reason for the return.
3. Invoice number and date of purchase (if available), and original purchase order number.
4. Name, address, telephone and FAX number of the person making the request.
5. Do not debit WinSystems for the repair. WinSystems does not authorize debits.

After the RMA number is issued, please return the products promptly. Make sure the RMA number is visible on the outside of the shipping package.

The customer must send the product freight prepaid and insured. The product must be enclosed in an anti-static bag to protect it from damage caused by static electricity. Each bag must be completely sealed. Packing material must separate each unit returned and placed as a cushion between the unit(s) and the sides and top of the shipping container. WinSystems is not responsible for any damage to the product due to inadequate packaging or static electricity.