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# WinSystems®
PC/104 MODULE

# PCM-CFLASH-2
# Compact Flash Disk
# PC/104 Module

## FEATURES

- PC/104 Compatible Flash disk adapter module
- Supports Type I or II Compact Flash Cards and IBM microdrives. Features offer:
  - Up to 1 Gigabyte capacity
  - Compatible with DOS, Windows, Linux, Qnx and other Operating Systems that support standard IDE/ATA interfaces
  - True IDE Mode compatible means that no special drivers or Flash file system is required
  - On-card automatic power management
  - Small size card
  - Resistant to dirt, shock, vibration and temperature
  - Low power consumption
  - Proven reliability
- Master/Slave operation for multiple drive support
- LED provides visual status during data transfer
- Two 0.1 inch or 2mm IDE connectors provide easy cabling option for multiple board or drives
- Supports 3.3 and 5 volt CF Cards
- Remote mounting configuration available
- Replaces PCM-CFlash module

The PCM-CFlash-2 is an adapter module that links a Type I or II CompactFlash memory card to an IDE (ATA) interface. The adapter is small and designed to mount on a PC/104 stack for use with embedded systems. The result is that a system can support removable solid state mass storage while offering full hard disk software compatibility with nearly all operating systems.

## FUNCTIONAL CAPABILITY

**PCM-CFlash-2 Module** - The PCM-CFlash-2 is a small, PC/104 compatible 3.6" x 3.8" (90mm x 96mm), adapter module. This module enables a user to support a Type 1 or II CompactFlash (CF) memory card or IBM microdrive both mechanically and electrically while providing quick and easy installation and removal. It also operates as the boot disk if no other disk is installed in the system.

**CompactFlash Overview** - CompactFlash (CF) is a small, removable mass storage device for use in commercial and industrial applications. CF cards are a worldwide industry standard which have been shipping since 1995. CF cards are the size of a matchbox, 1.7" x 1.4" (43mm x 36mm) and weigh only a half ounce. CompactFlash cards are designed with Flash technology, a non-volatile storage solution that does not require a battery to retain data indefinitely.




CF cards consume typically less than five percent of the power required by 1.8" and 2.5" disk drives. Compact-CFlash cards support both 3.3V and 5V operation and can be interchanged between either system. However, the PCM-CFlash-2 board requires +5V.

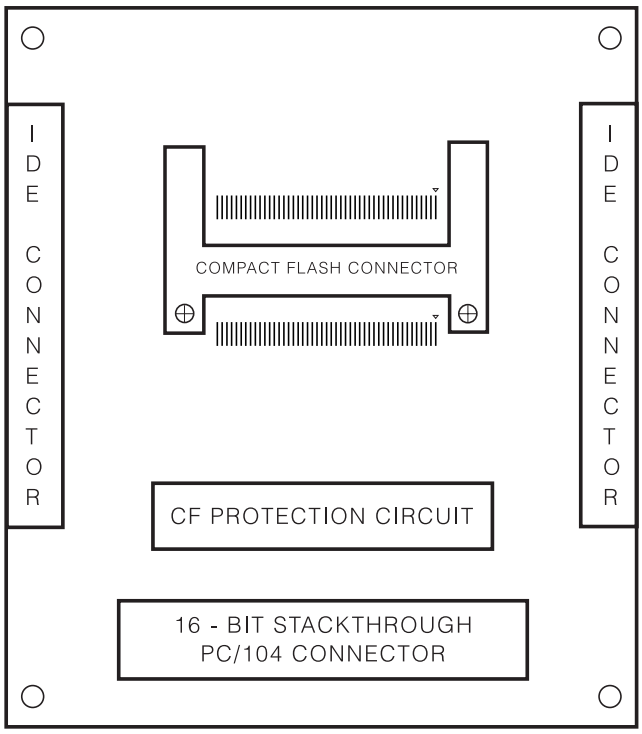
A CF card contains an onboard intelligent controller that manages interface protocols, data storage and retrieval as well as ECC, defect handling and diagnostics, power management and clock control.

CF cards currently are available in capacities from 8MB to 1GB. Storage densities can effectively be doubled with the use of compression software.

CF cards are available in three temperature ranges: Commercial (0°C to +65°C), Enhanced (-25°C to +75°C) and Industrial (-40°C to +85°C). Not all vendors offer these various operational temperature ranges.

To get more information about CF products or members please contact the CompactFlash Association's web site located at http://www.compactflash.org.

**Interface** - The PCM-CFlash-2 module links the CF card to the host computer through its ATA/IDE interface. The PCM-CFlash-2 grounds pin 9 of the 50-pin connector that automatically configures the CF card to support True IDE mode. This mode is electrically compatible with an IDE disk drive. Since the CF memory card's logical interface is based on the long-standing AT Attachment (ATA) standard, software compatibility is not a problem.




**PCM-CFLASH-2 BLOCK DIAGRAM**

CompactFlash cards include an intelligent microcontroller with an ATA/IDE interface so that it appears to be a standard IDE disk drive to the software. Virtually all operating systems including Windows, Linux, DOS, OS-9000, QNX, Lynx, plus utilities and applications programs support an IDE interface.

**Master/Slave Mode -** The PCM-CFlash-2 operates in any of four modes. The first mode is standalone with no other IDE device attached. Second is as a master to a slave PCM-CFlash-2 module. The third is as a secondary drive to another PCM-CFlash-2 module. And the fourth is as a secondary drive to an IDE harddisk. The PCM-CFlash-2 can not be the master to an IDE hard drive

**CF Protection** - A circuit on the PCM-CFlash-2 module protects the CF card if it is removed or inserted while the power is on. If the card is not fully inserted into the socket then power is automatically removed from Vcc pins 13 and 38 on the CompactFlash card connector.

**IDE Cable Interface** - The onboard IDE connectors are keyed to prevent the cable from being plugged in backwards. There are two identical IDE connectors on opposite sides of the PCM-CFlash-2 to allow the maximum flexibility for routing data cables.

**Data Cables** - A 40-pin ribbon cable links the PCM-CFlash-2-40 module and IDE interface. WinSystems offers the optional CBL-126, a #28 AWG 40-pin ribbon cable, in various lengths. Each cable end has a female 40-pin ribbon cable, with strain relief. This cable is not supplied with the module.

**Monitor LED** - A red light emitting diode (LED) provides visual status information during data transfers.

**Mounting Configuration** - The PCM-CFlash-2 can be installed anywhere in a 16-bit PC/104 stack. Only the +5V power is taken from the bus. No address, data or control signals are required. Two 0.6-inch spacers and their corresponding hardware are shipped with each unit to help secure the module in a PC/104 stack.

If PC/104 stack mounting is not desired, then a version of the module is offered called the ADP-CFlash-2. The PC/104 stackthrough connectors are removed and a 4-pin power connector is added to offer other mounting options. The CompactFlash 50-pin connector is then moved by 0.725 inches to allow a CF card to extend beyond the edge of the board.

## SPECIFICATIONS

**Mechanical**

Dimensions: 3.6" x 3.8" (90mm x 96mm)

**Connectors**

IDE Interface: Two, 40-pin 0.100"grid (PCM-CFlash-2-40)
Two, 44-pin 0.100"grid (PCM-CFlash-2-44)
FlashDrive: 50-pin 2mm grid
PC/104: 16-bit stackthrough

**Environmental**

Operating temperature (without drives): -40°C to +85°C

## ORDERING INFORMATION

| | |
|---|---|
| PCM-CFlash-2-40 | CompactFlash PC/104 module, 40-pin (with no CF card) |
| ADP-CFlash-2-40 | Compact Flash Adapter module, 40-pin (with no CF card) |
| PCM-CFlash-2-44 | CompactFlash PC/104 module, 44-pin (with no CF card) |
| ADP-CFlash-2-44 | Compact Flash Adapter module, 44-pin (with no CF card) |
| CBL-126-1 | 5.5 inch 40-pin IDE ribbon cable |
| CF Cards | Contact Crucial Memory via www.winsystems.com |

WinSystems® Inc.
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