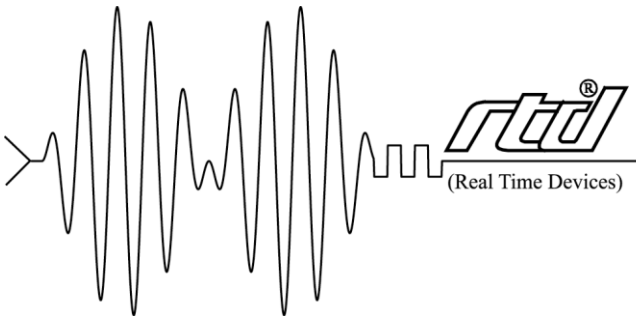
CF15118
CompactFlash Carrier
utilityModules

User's Manual



RTD Embedded Technologies, Inc.
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CF15118
CompactFlash Carrier utilityModules
User's Manual

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Chapter 1 INTRODUCTION

This manual gives information on the CF15118 CompactFlash Carrier utilityModule. This module attaches to the EIDE interface connector of RTD cpuModules, allowing a high speed CompactFlash drive interface.

CF15118 CompactFlash Carrier utilityModule

The CF15118 utilityModule was designed to provide a CompactFlash drive in a stack when used as a companion to RTD's family of cpuModules that have integrated EIDE controllers. It is very similar in function to the CMT56106.

Note:	The CF15118 is not an IDE controller - It is a drive carrier. The CF15118 must be used with a cpuModule that has an on-board IDE controller.
Warning:	Because the CompactFlash connector uses an ATA/IDE interface, hot-swapping is not supported.

Features

The following are major features of the CF15118 utilityModule.

- Provides a drive interface up to UDMA Mode 2 (Ultra ATA/33) if supported by the cpuModule
- A standard +3.3V or +5V CompactFlash drive can be mounted directly onto the module
- An optional retention bracket provides a mechanism to prevent unwanted removal of the CompactFlash device
- A 0.1" 40-pin connector is provided to connect to a second drive, i.e. a CD-ROM drive.
- A stack-through connector is provided to allow for the combination of multiple boards from the CF15118, CMT36106, and CMT56106 utilityModule families in one system.

Connectors

Connectors provided are:

- CN1: CompactFlash drive connector
- CN4: EIDE stack-through connector
- CN5: EIDE cable connector

Recommended Cables

A 40-conductor EIDE cable can be used to connect an external drive (hard drive or CD-ROM drive) to connector CN5 on the CF15118.

General Specifications

The following operating conditions do not apply to the CompactFlash drive and may be limited by the IDE controller of the cpuModule

- Operating temperature: -40 to +85ºC
- Relative humidity: 0 - 95%, non-condensing
- Storage temperature: -55 to +125ºC

Chapter 2 INSTALLING THE UTILITYMODULE

Since the utilityModule uses an EIDE stack-through bus, it must be stacked directly above the cpuModule.

Recommended Procedure

We recommend you follow the procedure below to ensure that stacking of the modules does not damage connectors or electronics.

- Turn off power to the PC/104-*Plus* or PCI-104 system or stack.
- Select and install standoffs to properly position the utilityModule on the PC/104-*Plus* or PCI-104 stack.
- Touch a grounded metal part of the stack to discharge any buildup of static electricity.
- Remove the utilityModule from its anti-static bag.
- Verify the jumper settings of the utilityModule.
- Hold the utilityModule by its edges and orient it so the bus connector pins line up with the matching connector on the stack.
- Gently and evenly press the utilityModule onto the stack.

CAUTION: Do not force the module onto the stack! Wiggling the module or applying too much force may damage it. If the module does not readily press into place, remove it, check for bent pins or out-of-place keying pins, and try again.

Chapter 3 CONNECTING THE UTILITYMODULE

The following sections describe the connectors and jumpers of the utilityModule.

Connector and Jumper Locations

A white area silk-screened on the top side of the PC board indicates where pin 1 is located on the connectors. A square solder pad visible on the bottom of the PC board also shows where pin 1 is located. Make certain pin 1 is correctly identified before connecting to it. The connector locations of the CF15118 are shown below.

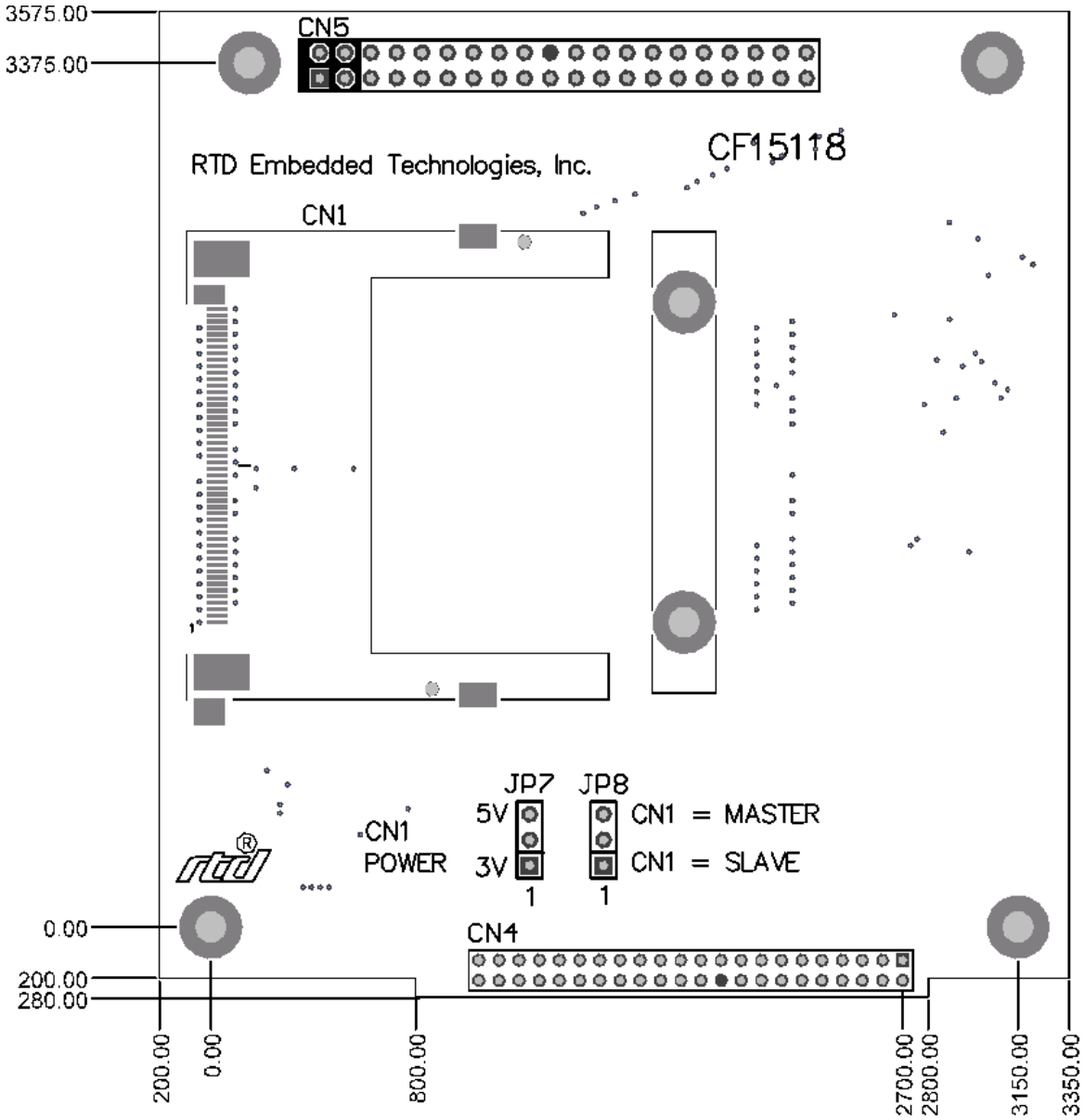

Figure 3.1 CF15118 Connector and Jumper Locations

CF15118 Top Side Connectors and Jumpers		
Designator	**Function**	**Size**
CN1	CompactFlash Connector	50 pin
CN4	EIDE Stack-through Connector	44 pin
CN5	EIDE Cable Connector	40 pin
JP7	CompactFlash voltage selection	3 pin
JP8	CompactFlash master/slave selection	3 pin

CompactFlash Connector, CN1

Connector CN1 supports +3.3V and +5V CompactFlash devices. For information on configuring the supply voltage and master/slave setting of a device installed in the connector, refer to 0.

Warning: Because the CompactFlash connector uses an ATA/IDE interface, hot-swapping is not supported.

EIDE Stack-through Connector, CN4

The EIDE stack-through connector is a 44-pin 2mm DIL connector. The pin connections of this connector are shown below.

EIDE Hard Drive Connector, CN4			
Pin	**Signal**	**Function**	**in/out**
1	RESET*	Reset HD	out
2	GND	Ground signal	--
3	HD7	HD data 7	in/out
4	HD8	HD data 8	in/out
5	HD6	HD data 6	in/out
6	HD9	HD data 9	in/out
7	HD5	HD data 5	in/out
8	HD10	HD data 10	in/out
9	HD4	HD data 4	in/out
10	HD11	HD data 11	in/out
11	HD3	HD data 3	in/out
12	HD12	HD data 12	in/out
13	HD2	HD data 2	in/out
14	HD13	HD data 13	in/out
15	HD1	HD data 1	in/out
16	HD14	HD data 14	in/out
17	HD0	HD data 0	in/out
18	HD15	HD data 15	in/out
19	GND	Ground signal	--
20	n.c.		--

21	AEN	Address Enable	out
22	GND	Ground signal	--
23	IOW*	I/O Write	out
24	GND	Ground signal	--
25	IOR*	I/O Read	out
26	GND	Ground signal	--
27	IOCHRDY	I/O Channel Ready	in
28	BALE	Bus Address Latch Enable	out
29	n.c.		
30	GND	Ground signal	--
31	IRQ	Interrupt Request	in
32	IOCS16*	16 bit transfer	in
33	A1	Address 1	out
34	GND	Ground signal	--
35	A0	Address 0	out
36	A2	Address 2	out
37	HCS0*	HD Select 0	out
38	HCS1*	HD Select 1	out
39	LED	HDD activity LED (-)	in
40	GND	Ground signal	--
41	+5V	Logic Power	Pwr
42	+5V	Motor Power	Pwr
43	GND	Power Ground	--
44	n.c.		

EIDE Cable Connector, CN5

The EIDE cable connector is a 40-pin 0.1" DIL connector. The pin out of this connector is the same as pins 1-40 of CN4.

Configuring the utilityModule

The following sections contain information on configuring the utilityModule.

Important: The EIDE bus connection on the CF15118 which provides the electrical connections to the CompactFlash connector (CN1) and the EIDE cable connector (CN5) connects to the CPU's IDE controller via the EIDE stack-through connector (CN4). While this IDE channel connection supports multiple boards, up to two storage devices (e.g., CompactFlash cards, 2.5" disk drives, IDE drives, CD-ROM drives, ATA/IDE Disk Chip) are permitted throughout this electrical bus.

To prevent a conflict with a device already on the bus, it is important to know the number of devices already residing on the bus, as well as their master/slave configuration.

CF Voltage Select Jumper, JP7

Jumper JP7 is a 3-pin jumper used to select the supply voltage for the CompactFlash device residing in connector CN1.

To configure the operating voltage for 3.3V, set JP7 to close pins 1-2. To configure the operating voltage for 5V, set JP7 to close pins 2-3.

Master/Slave Selection Jumper, JP8

Jumper JP7 is a 3-pin jumper used to configure the CompactFlash device in connector CN1 such that it does not conflict with another device connected to the system's EIDE stack-through connector. The bus should have only one master and one slave device.

To set the CompactFlash card as the slave, close pins 1-2 of JP8. To set the CompactFlash card as the master, close pins 2-3.

Connecting External IDE Devices

External EIDE drives such as additional hard drive or CD-ROM drive can be connected to CN5 of the CF15118 with an IDE cable. Only 40-conductor IDE cables are supported, which permit transfer speeds of up to UDMA Mode 2 (Ultra ATA/33).

When connecting an external drive to the CF15118, the device's master/slave jumper must be configured such that it does not conflict with the master/slave setting of any other device connected to the system's EIDE stack-through connector (for example, the CompactFlash connector, when a CF card is present in the socket).

Chapter 4 GETTING TECHNICAL SUPPORT

For help with this product, or any other product made by RTD, you can contact RTD Embedded Technologies via the following methods:

- Phone: +1-814-234-8087
- E-Mail: techsupport@rtd.com

Be sure to check the RTD web site (http://www.rtd.com) frequently for product updates, including newer versions of the board manual and application software.

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