

# **C Data**

# **Solutions**

**Compact Flash Computer**

**Getting Started**

**Issue 1.0**

**23 Nov 2004**

## **Notice**

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## **Overview**

This document shows you how to set up the Compact Flash Computer and begin to use it. The steps you will follow are:

- Attaching the RS232/BDM header
- Connecting the power supply
- Connecting the serial port
- Verify correct operation
- Downloading software via serial port
- Connecting an Ethernet CF card
- Set parameters in flash memory to configure Ethernet CF card
- Downloading software via Ethernet port

## ***Required Hardware***

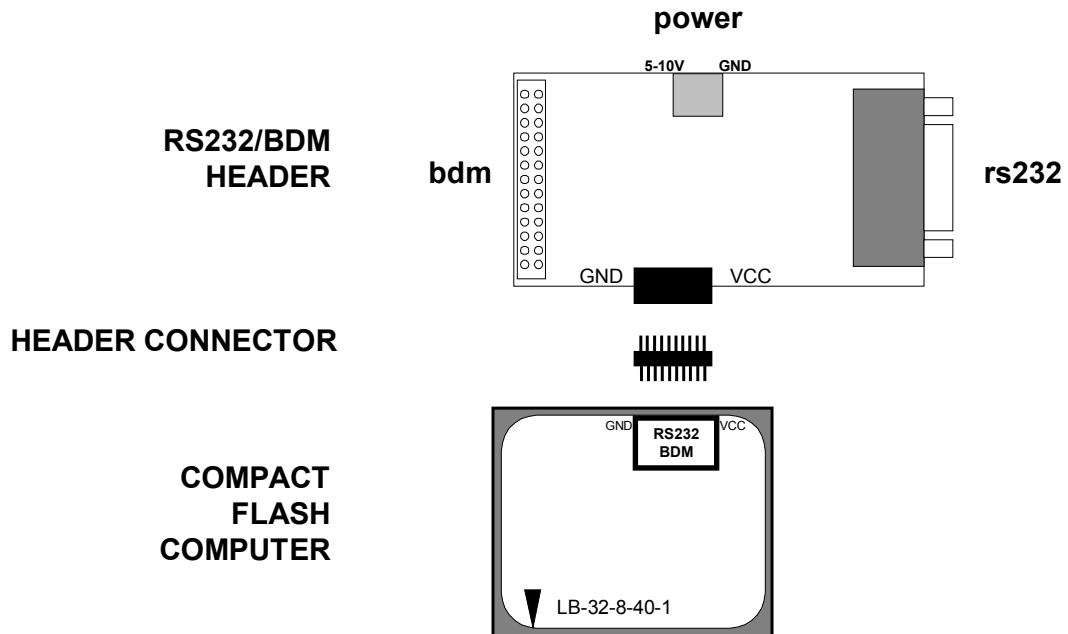
You will need the following hardware to use the Compact Flash Computer:

- Compact Flash Computer
- RS232/BDM header
- Header connector
- RS232 serial cable
- Host computer
- Software on host computer. This includes:
  - Terminal emulator
  - TFTP (Trivial File Transfer Protocol) server.

**Hyperterm on Windows exhibits inconstant behaviour. The Compact Flash Computer generates a 'break character' on power up. This may lock Hyperterm.**

**This has not been observed with any linux terminal emulator or 'PComm Terminal Emulator' from Moxa Technologies Co Ltd on Windows. You can download PComm2k.zip from 'support' at <http://web4.moxa.com/>**

## ***Connecting the RS232/BDM header***



Attach the Compact Flash Computer to the RS232/BDM header via the header connector.

## ***Connecting the Serial Cable***

Connect the serial cable with RJ11 connector into the RS232/BDM header connector. Plug the other end into a serial port connector of your host computer. The RS232/BDM Header is configured as DTE.

## ***Connecting the Power Supply***

Connect the power cable to the Power connector on the RS232 header. Power may also be supplied to the Compact Flash Computer via the Compact Flash Bus.

## ***Testing the Compact Flash Computer***

Start the terminal emulator on your host computer, and connect to your serial port. Apply power to get a prompt. You can also cycle power, or press its manual reset, to get a boot prompt. If you don't receive characters by this point, carefully check all connections. Also make sure that your serial port is correctly configured. The Compact Flash Computer is shipped with default parameters: 19200 baud, no parity, 8 bits, and no stop bits.

The Compact is by default shipped to autoboot uclinux after 5 seconds. Press any key to cancel the operation.

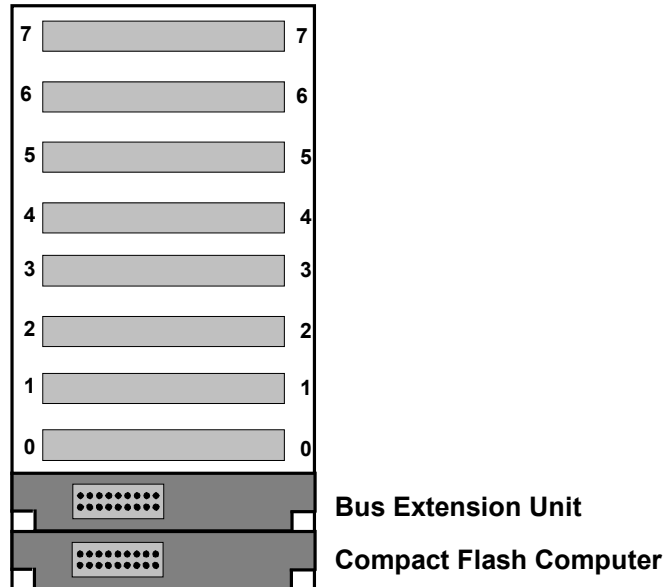
```
PPCBoot 1.1.5a (Nov 1 2004 - 06:04:22)
C Data Solutions Ltd LittleBoy Board
Adapted by paulz@cdatas.com

CPU:      MOTOROLA Coldfire MCF5272
Board:    C Data Solutions LittleBoy Board
          http://www.cdatas.com/
DRAM:     32 MB
FLASH    8 MB
In:       serial
Out:      serial
Err:      serial
Net:      00:00:00:00:00:00
Probing slot 0
Probing slot 1
Probing slot 2
Probing slot 3
Probing slot 4
Probing slot 5
Probing slot 6
Probing slot 7
Hit any key to stop autoboot: 5
LittleBoy>
```

Code can be loaded via the serial connection. The following switches to the Kermit terminal emulation program to send the program to the Compact Flash Computer.

```
LittleBoy>loadb 40000  
ctl\  
spi>send spi.bin
```

## ***Adding the Bus Expansion Unit***



Insert the Compact Flash Computer into slot C of the motherboard.  
Insert the Bus Extension Unit into slot E of the motherboard.

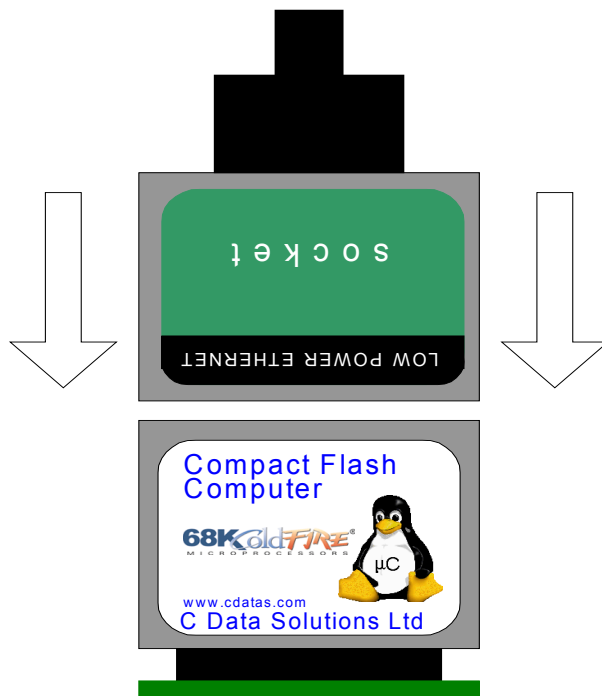
Ensure the boards are inserted into the correct slots with the correct orientation, as the boards/motherboard are not polarised.

The RS2323/BDM header can be reattached.

## ***Adding a CF Ethernet card.***

The Compact Flash Computer is pre-configured for ne2000 compatible CF+ cards. It has been tested with SOCKET ETHERNET L-PE, p/n 8510-00114C ([www.socket.com](http://www.socket.com))

Insert the CF Ethernet into slot on the motherboard. Ensure the orientation is correct, as there is no polarisation.



Apply power go get the prompt.

```
PPCBoot 1.1.5a (Nov 1 2004 - 06:04:22)
C Data Solutions Ltd LittleBoy Board
Adapted by paulz@cdatas.com

CPU:      MOTOROLA Coldfire MCF5272
Board:    C Data Solutions LittleBoy Board
          http://www.cdatas.com/
DRAM:     32 MB
FLASH    8 MB
In:       serial
Out:      serial
Err:      serial
Net:      00:00:00:00:00:00
Probing slot 0
Probing slot 1
Probing slot 2
Probing slot 3
Probing slot 4
Probing slot 5
Probing slot 6
Probing slot 7 00:C0:1B:05:FA:2D
Hit any key to stop autoboot: 5
LittleBoy>
```

The Compact Flash Computer has detected an Ethernet card on slot 7 of the motherboard.

The first time you use networking on the Compact Flash Computer you must set network parameters to its flash memory.

In this session, the following parameters will be defined:

- Ethernet address
- IP address of the Compact Flash Computer
- Network netmask
- Host address of the TFTP server
- Gateway IP address

Before starting, determine the parameters that you will use for this session. Your host computer will probably act as the TFTP server. In the example, the TFTP server has address 192.168.0.3, the gateway address is 192.168.0.100, the netmask is 255.255.255.0 and the Compact Flash Computer will be assigned 192.168.0.10.

Start the terminal emulator on your host computer, and connect to your serial port.

Define the parameters by typing the following

```
LittleBoy>setenv ethaddr 00:c0:1b:05:fa:2d
LittleBoy>setenv ipaddr 192.168.0.10
LittleBoy>setenv netmask 255.255.255.0
LittleBoy>setenv gatewayip 192.168.0.100
LittleBoy>setenv ipaddr 192.168.0.10
LittleBoy>setenv serverip 192.168.0.3
LittleBoy>saveenv
```

The response will be

```
Saving Enviroment to Flash...
Un-Protected 1 Sectors
Erasing Flash...
Erasing sector 9 ... ok.
Erased 1 sectors
Writing to Flash ... done
Protected 1 sectors
LittleBoy>
```

## Re-start the Compact Flash Computer

```
PPCBoot 1.1.5a (Nov 1 2004 - 06:04:22)
C Data Solutions Ltd LittleBoy Board
Adapted by paulz@cdatas.com

CPU:      MOTOROLA Coldfire MCF5272
Board:    C Data Solutions LittleBoy Board
          http://www.cdatas.com/
DRAM:     32 MB
FLASH    8 MB
In:       serial
Out:      serial
Err:      serial
Net:      00:C0:1B:05:FA:2D
Probing slot 0
Probing slot 1
Probing slot 2
Probing slot 3
Probing slot 4
Probing slot 5
Probing slot 6
Probing slot 7 00:C0:1B:05:FA:2D *
Hit any key to stop autoboot: 5
LittleBoy>
```

The ‘\*’ indicates that the Compact Flash Computer will use the Ethernet card on slot 7. This allows multiple Ethernet cards to be present on the motherboard, the one used will correspond to the one defined by ethaddr.

Code can now be loaded onto the Compact Flash Computer via Ethernet

```
LittleBoy>tftp 20000 image.bin
00:c0:1b:05:fa:2d
probing slot 0
probing slot 1
probing slot 2
probing slot 3
probing slot 4
probing slot 5
probing slot 6
probing slot 7 00:C0:1B:05:FA:2D *
ARP broadcast 1
```

## ***Changing the Ethernet MAC address***

The ethaddr variable cannot be overwritten. It must first be set to a null value. Then written.

```
LittleBoy>setenv ethaddr  
00:11:22:33:44:55  
Can't overwrite "ethaddr"  
LittleBoy>setenv ethaddr=  
LittleBoy>setenv ethaddr  
00:11:22:33:44:55  
LittleBoy>
```