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DIME-II Installation Guide

NT118-0198 - Issue 2

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Document Name: DIME-II Installation Guide

Document Number: NT118-0198

Issue Number: Issue 2

Date of Issue: 22/10/03

Revision History:

Date	Issue Number	Revision
21/04/2003	1	Initial release
22/10/2003	2	PC104 information added, updates to software installation for Linux, changes to roadmap and general structure of document.

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About this Installation Guide

This Installation Guide provides detailed information on installing and using Nallatech DIME-II products. It is designed to provide information which allows you to start using Nallatech's range of motherboards and modules quickly and effectively.

Symbols Used

Throughout this Guide there are symbols to draw attention to important information:

▼ **The red arrow symbol indicates a set of procedures to follow, such as installing software or setting up hardware.**



The blue 'i' symbol indicates useful or important information.



The red '!' symbol indicates a warning, which requires special attention.

Related Documentation

- Nallatech DIMEscript User Guide
- Nallatech DIMEtalk User Guide
- Nallatech FUSE System Software User Guide
- Nallatech FUSE C-C++ API Developers Guide
- Nallatech FUSE Toolbox for MATLAB Developers Guide

Abbreviations

- **API:** Application Programming Interface
- **DHCP:** Dynamic Host Configuration Protocol
- **DIME:** DSP and Image Processing Modules for Enhanced FPGAs
- **FPGA:** Field Programmable Gate Array
- **FUSE:** Field Upgradeable System Environment
- **PCI:** Peripheral Component Interconnect

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- **RPM:** Redhat Package Management
- **SBC:** Single Board Computer

Comments and Suggestions

At the back of this Installation Guide, you will find a remarks form. We welcome any comments you may have on our product or its documentation. Your remarks will be examined thoroughly and taken into account for future versions of Nallatech products.

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Nallatech Systems and Solutions

Nallatech is the leading FPGA-Centric Systems provider, with unrivalled industry expertise in the provision of complete systems including hardware, IP and software. Nallatech's products and services are used in many application areas, including DSP and Imaging, Telecommunications and RF, Aerospace and Defence, and Networking and Storage. Nallatech offers design services for complete systems, in addition to the modular DIME and DIME-II product ranges for electronic systems. The following section provides an overview of these products and services.

Motherboards and Modules

Nallatech provide an extensive range of motherboards and modules which can be used in a variety of applications.

DIME and DIME-II Standards

DIME is a modular standard developed specifically for Field Programmable Gate Arrays(FPGAs) which allows design engineers to develop re-programmable systems with the opportunity to alter or experiment with the partitioning of their designs at any stage of the design cycle. DIME-II has been introduced in response to ever-increasing bandwidth and performance requirements. Building on the success of DIME as a modular standard for FPGA-Centric systems, DIME-II addresses the high performance needs for future generations of reconfigurable computers.

FUSE Operating System

Nallatech's FUSE reconfigurable computer operating system is supplied with all Nallatech motherboards. Using a plug'n'play approach, FUSE software facilitates flexible and scalable functionality for the control and configuration of FPGAs on modules and motherboards, allowing data to be transferred between the motherboard and the host PC and providing data transfer to and from designs running in on-board FPGAs.

FUSE provides several interfaces, including the scripting language, DIMEscript, FUSE Probe tool and the FUSE development APIs for C/C++, with optional APIs also available for Java and MATLAB®. FUSE is available as FUSE for Windows®, FUSE for Linux® and FUSE for VxWorks®. Key features include:

- Fast and simple device configuration
- Multiple card support
- Multiple interface support
- Interfacing and control of Nallatech hardware features

Figure 1 on page 4 provides an overview of the FUSE operating system.

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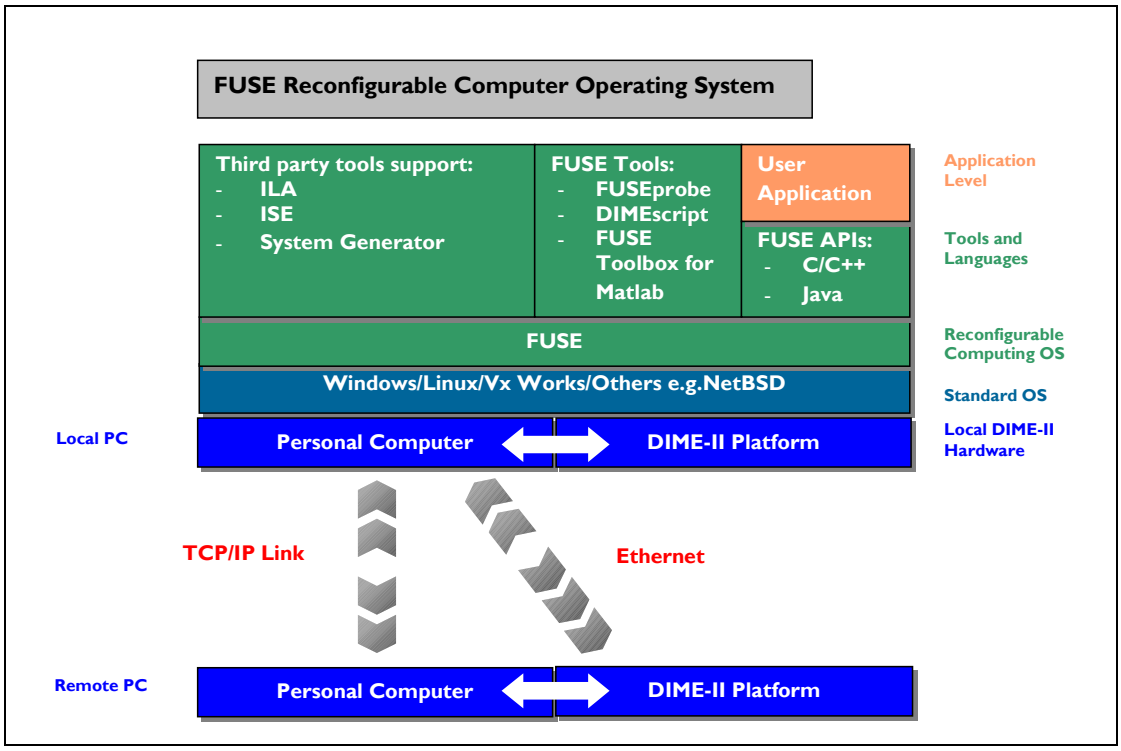


Figure 1: FUSE Overview

MATLAB

The FUSE Toolbox is another level of integration that allows the user to develop applications for a Nallatech DIME board straight from the MATLAB® environment. Each function of the toolbox is a wrapping of the corresponding function from the FUSE C/C++ library where appropriate. The software interface is implemented as a set of mex-files (see FUSE Toolbox for MATLAB Developers Guide). These mex-files provide access to the C/C++ FUSE API through calls from the MATLAB environment.

DIMEscript

DIMEscript has been developed by Nallatech as a simple method of accessing motherboards and modules without the need to resort to programming. DIMEscript is an interpreted language which means that the language is read in line-by-line and appropriate actions taken. This, in turn, means that any errors in the script are only found when the relevant line is executed.

This is in contrast to a compiled language where the required action is checked in advance and made into a more machine friendly form. In the case of the compiled language, syntax and other features can be fully checked before running the code. With DIMEscript you can:

- Open a Nallatech card
- Read data from the card
- Write data to the card
- Access various specific card functions

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DIMEtalk

DIMEtalk provides a simple yet reliable method for you to communicate with your own designed processes on Nallatech motherboards and modules. A DIMEtalk network is composed of routers helping nodes communicate using packets. Each DIMEtalk connected process is represented by a node which acts as a doorway into the network. The simplest form of node can be thought of as an area of memory accessible by processes on the DIMEtalk network and the associated process behind the node. Figure 2 on page 5 represents an example DIMEtalk network.

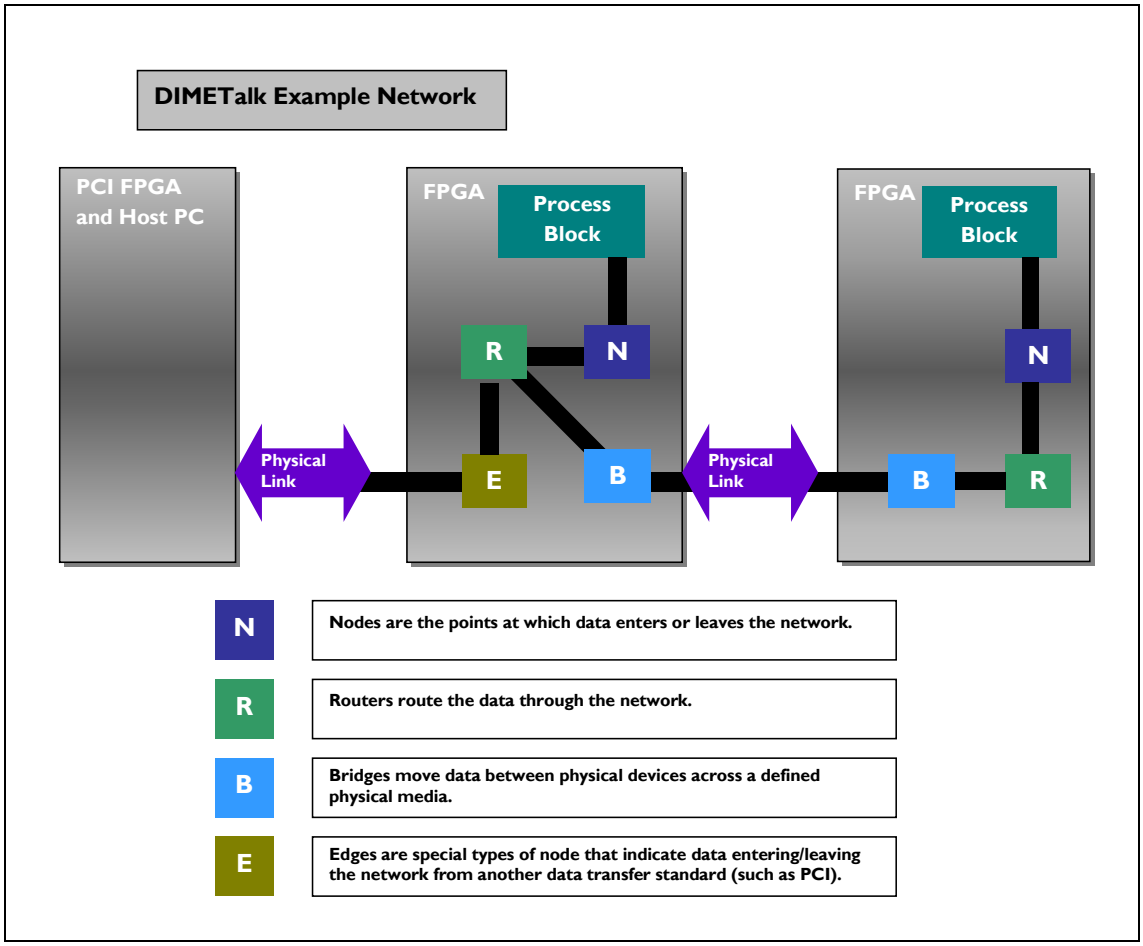


Figure 2: DIMEtalk Example Network

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Installation Roadmap

Before using Nallatech products it is important to understand the process for installing both the product hardware and software. The roadmap in Figure 3 on page 7 provides an overview of the installation process. The roadmap is not intended to be a comprehensive installation guide, rather it should be used as a navigational aid for installation. For more detailed procedures refer to the Software and Hardware Installation Sections which follow the roadmap.

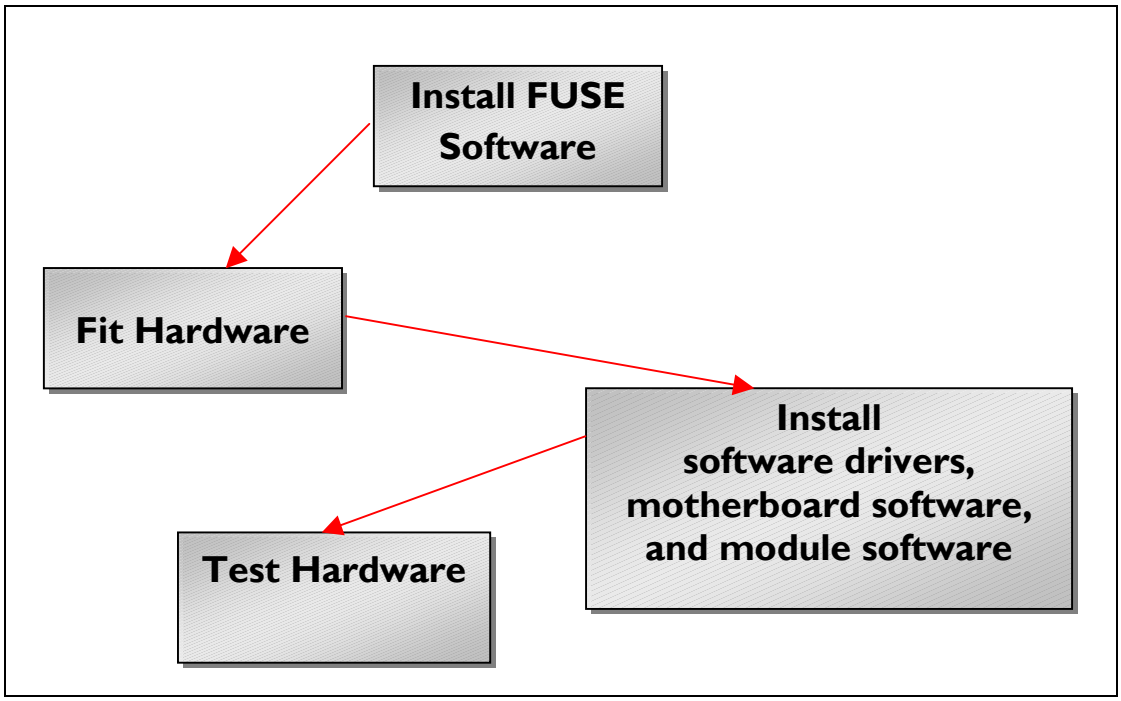


Figure 3: Installation Roadmap

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FUSE Software Installation

FUSE Installation

Windows

▼ **To install FUSE software in Windows NT/2000/XP use the following procedures:**

1. Insert the supplied FUSE System Software CD into your system's CD-ROM drive and wait for the CD to autorun. If autorun does not start click '**Start->Run**' from the taskbar and run the following program: **CD_Drive:\ autorun.exe**.
2. In the FUSE Main Menu click on '**Install FUSE Application Software**'.
3. The installation process begins. Work through the series of dialog boxes until the 'Finish' box is reached.
4. Click '**Finish**' to install the software.
5. Restart the PC to complete the installation.

Linux

▼ **To install FUSE software in Linux RedHat use the following procedures:**

1. Insert the supplied FUSE System Software CD into your system's CD-ROM drive.
2. Mount the installation CD:

   ```
   >mount /dev/cdrom /mnt/cdrom
   ```

3. Change directory as follows:

   ```
   cd/mnt/cdrom
   ```

4. Type 'rpm -ihv' followed by the full name of the rpm (RedHat Package Format) file.

   ```
   >rpm -ihv fuse-1-7.rpm
   ```


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5. This installs FUSE to the following location:

```
>/usr/local/nallatech/FUSE
```


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Hardware Installation Guide



Nallatech motherboards and modules are Electro-Static Discharge (ESD) sensitive device. ESD handling procedures must be observed during the handling and installation of the motherboard.



After installation of a motherboard or module you should carry out a confidence test to ensure the correct operation of the on-board FPGA(s). Details of this confidence test can be found in the module or motherboard **Reference Guide**.

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Pre-assembled Systems Check

If you have purchased a pre-assembled system containing a combination of a Nallatech motherboard and accompanying modules, there are several basic checks to run through in order to ensure your system operates correctly.

On receipt of your Nallatech system please check the following:

1. Ensure that all external packaging (pink foam, wrapping) is removed prior to powering up the system for the first time.
2. Inspect the system for any signs of external damage which may occur in transit.
3. Ensure there no cables loose prior to powering up the system for the first time.
4. Ensure that all modules are secured firmly to the motherboard. Modules which are not properly attached to their motherboard can cause damage to the system.

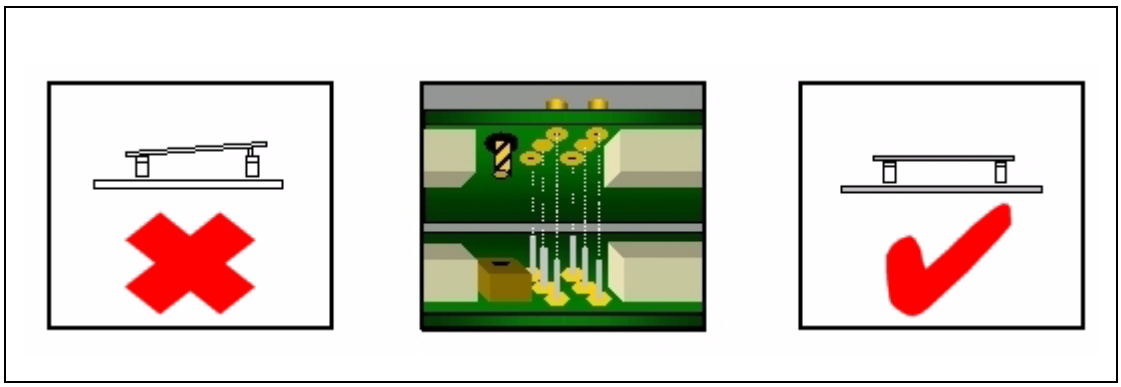


Figure 4: Module Attachment

The first picture in Figure 4 on page 12 shows a module incorrectly attached to the motherboard. The module has two groups of power pins (6 pins in each group) located on the underside of the board, between the DIME-II connectors and the fixing screw mounting blocks. These power pins must be lined up with the motherboard power pin sockets, as shown in the second picture, before any downward pressure is applied to the module. The third picture shows the module now correctly attached to the motherboard.

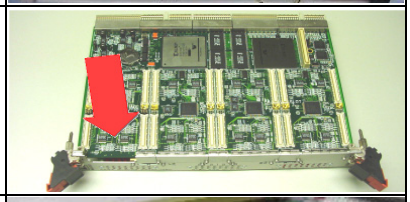
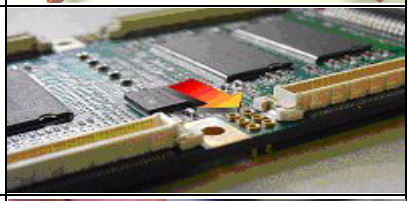
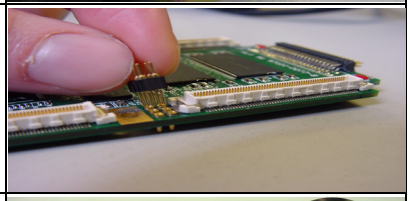
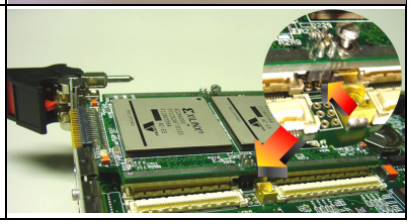
For detailed steps on fitting a module to a motherboard please see “Module Installation” on page 13.

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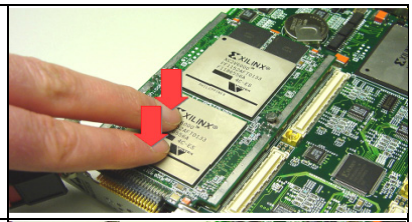
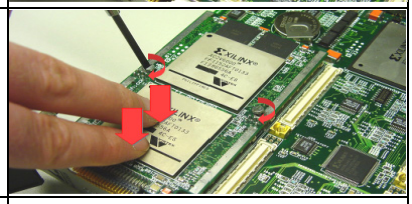
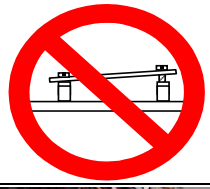
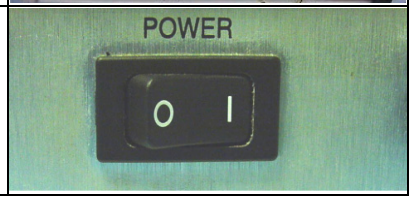
Module Installation

Fitting the Module

▼ **To install a module use the following procedures:**

1.	Ensure ESD handling procedures are observed during installation.	
2.	Ensure the power to the DIME-II host motherboard is switched off.	
3.	Remove the motherboard from the host PC and place on a flat surface, with the module slots facing upwards.	
4.	Locate the empty DIME-II slot on the motherboard, onto which the module is to be installed.	
5.	If the DIME-II power interconnects are not fitted to the module, these should be fitted to the sockets located on the underside of the module.	
6.	Insert the power interconnects as shown here. Power interconnects are now properly fitted. Repeat step 5 again for the power interconnect sockets on the other side of the module.	
7.	Orient the module so that it is facing the correct way on the module slot. Carefully line up the DIME-II connectors and the power interconnects; paying special attention to ensure the power interconnect pins on both sides of the module are all lined up to the sockets on the motherboard.	

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8.	Apply light downward pressure to the module until you feel the motherboard connectors slot into place. While still holding the module in place proceed to step 9. Also please see the note that follows for information on cleaning the DIME-II connectors.	
9.	Using a flat-bladed screwdriver, begin to tighten the DIME-II fixing screws. Tighten the screws alternately, tightening each screw one turn, before swapping and tightening the opposite screw by one turn, until both are fully tightened.	
10.	Avoid tightening either screw more than the other - this could result in the module being fixed to the motherboard at an angle, resulting in connector and module damage.	
11.	The DIME-II motherboard can then be re-fitted to the host PC.	
12.	The PC power can now be switched on.	

If a problem arises following a remove/insert operation of a DIME-II module in a module slot, it is advisable to remove the DIME-II module and clean the connectors using the following procedure:

1. Remove the DIME-II module from the motherboard.
2. Using a cotton bud dipped in isopropyl alcohol (often called ISOCLENE), run the swab along the connector attached to the module.
3. The alcohol leaves no residue and should be dry in around 10 to 20 seconds.
4. Re-mount the DIME-II module in the DIME-II slot and retry.
5. If symptoms persist please contact Nallatech.

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PCI Installation

Host PC requirements

Nallatech motherboards are designed for installation in a standard Personal Computer System, which should support full length PCI cards. The following minimum system requirements are recommended for the host PC with the motherboard and associated software:

- Pentium PII 233
- 64MB RAM
- 1GB free hard disk space
- Windows 98/NT/ME/2000/XP operating system, Red Hat Linux 8.0 and above.

PCI Connection

The PCI specification defines two types of signalling environment, which operate at either 3.3v or 5v for both 32 and 64-bit connectors. The following Nallatech motherboards are universal cards and can therefore be used in either signalling environment:

- BenONE
- BenNUEY*

The type of signalling environment on a PCI interface connector can be easily identified. For a 32-bit connector a 5V signalling PCI environment can be identified when the key is positioned to the right hand side of the connector, as illustrated in Figure 5 on page 15. When the key is located on the left hand side of the connector this signifies a 3.3V PCI signalling environment as shown in Figure 6 on page 16.

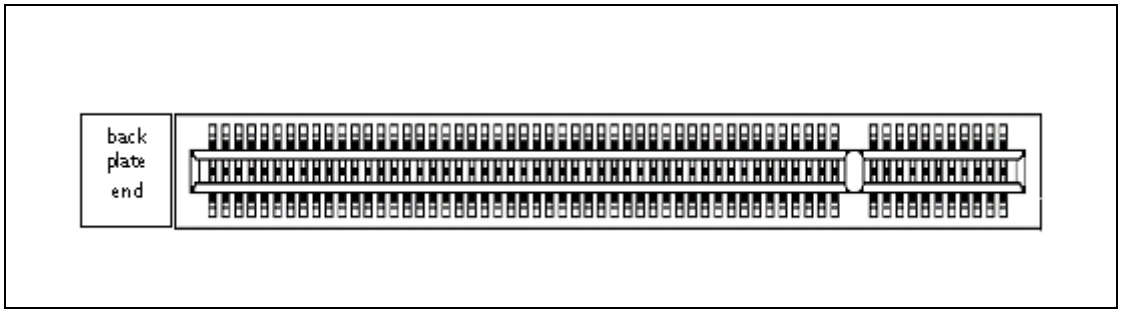


Figure 5: 5V/32-bit Signalling PCI Connector

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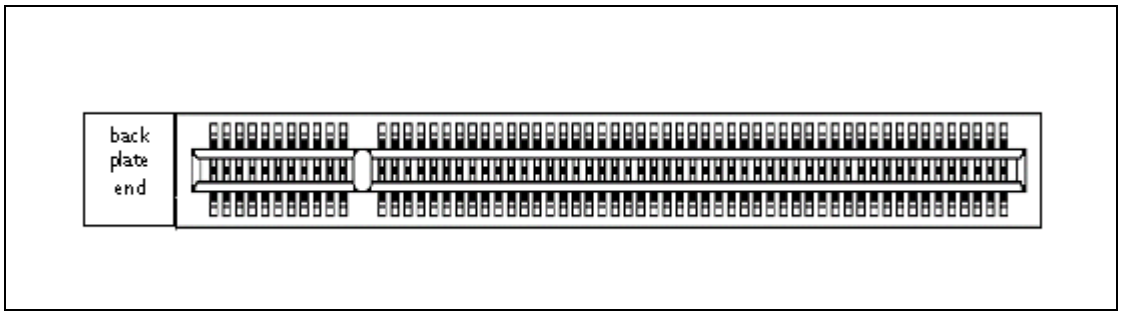


Figure 6: 3.3V/32-bit Signalling PCI Connector

*Note that the BenNUEY takes 3.3V directly from the PCI connector. Therefore, the host PC must be able to supply 3.3V to the dedicated 3.3V power rail on the PCI connector. Also, the BenNUEY has 5V and 3.3V status LEDs to indicate that both 5V and 3.3V power is supplied to the card via the PCI connectors. If these LEDs do not illuminate, the PCI connector is not compatible with the BenNUEY. The part reference numbers D30 and D31 on the back of the card represent 5V and 3.3V status LEDs respectively.

For a 64-bit connector a 5V signalling PCI environment can be identified with two keys positioned in the middle and right hand side of the connector, as illustrated in Figure 7 on page 16. When the second key is located on the left hand side of the connector this signifies a 3.3V PCI signalling environment as shown in Figure 8 on page 16.

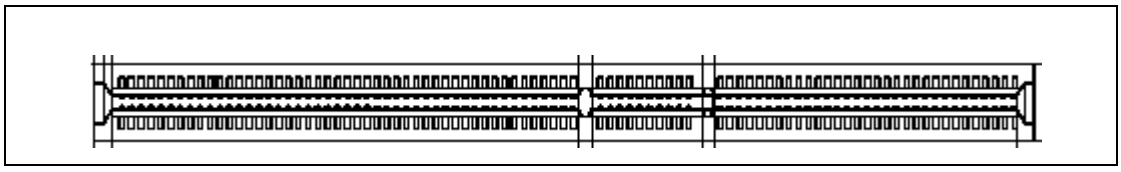


Figure 7: 5V/64-bit Signalling PCI Connector

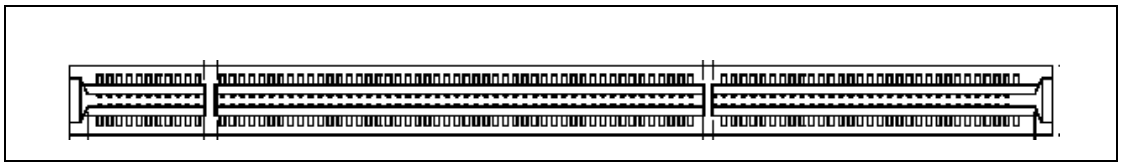
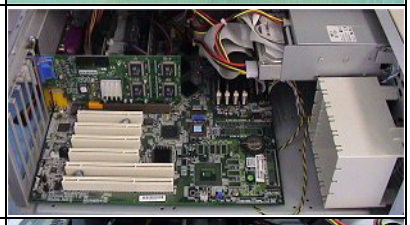
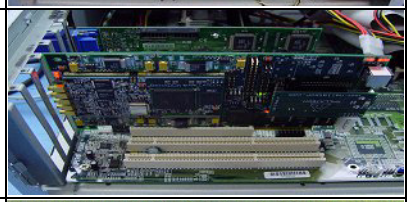


Figure 8: 3.3V/64-bit Signalling PCI Connector

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▼ To install a PCI motherboard use the following procedures:

1.	Ensure ESD handling procedures are observed during installation.	
2.	Ensure power to the PC is switched off prior to installation.	
3.	Remove the PC cover, locate one free PCI slot for BenONE installation or two slots for BenNUEY installation (the Programmable Power Supply (PPS) units populated on the back of the BenNUEY incur a greater card width than the PCI specification allows. Therefore, two free PCI slots must be used).	
4.	Fit the motherboard into the selected PCI slot and push down firmly. Insert the fixing screw to secure the backplate of the motherboard to the chassis of the PC.	
5.	The PC power can now be switched on. Please refer to your motherboard Reference Guide for details of confidence tests which can be used to ensure correct operation of Nallatech motherboards.	

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cPCI Installation

cPCI Connection

The following Nallatech motherboards are available in the cPCI form factor:

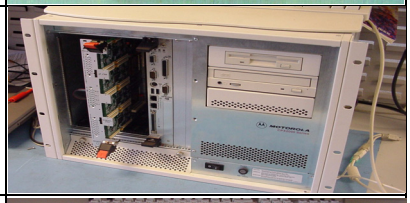
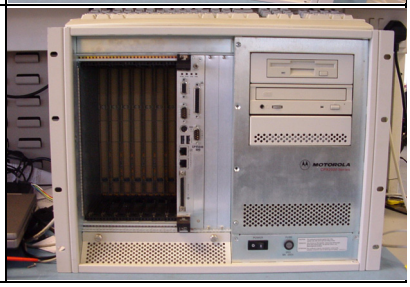
- BenADIC
- BenERA

These motherboards are designed exclusively for installation in a 6U Compact PCI (cPCI) rack. The rack should have a cPCI card host PC running in it for controlling and configuring the motherboards and must have the following power sources from the cPCI Backplane:

- 5V @ 30 Amps
- 3.3V @ 4 Amps
- +12V @ 1 Amp
- -12V @ 1 Amp

The actual power requirements of the motherboards depend on the types of modules plugged into the DIME-II slots and the power consumption of the individual FPGAs within the system.

To install a cPCI motherboard use the following procedures:

1.	Ensure ESD handling procedures are observed during installation.	
2.	Ensure the cPCI rack has the power switched off prior to installation.	
3.	Locate one free adjacent slot within the cPCI rack for BenADIC installation, or two free slots for BenERA installation.	
4.	Fit the motherboard into the selected PCI slots ensuring that the locking handles are pushed outwards. Push the motherboard in firmly. Pull the locking handles inwards to ensure the motherboard is fully home. Ensure that the red parts of the handles are pushed fully towards the motherboard to lock it in place.	

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5.	The cPCI rack power can now be switched on. Please refer to your Motherboard Reference Guide for details of confidence tests which can be used to ensure correct operation of Nallatech motherboards.	

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PC/104-*Plus* Installation

PC/104-*Plus* Connection

The following Nallatech motherboards are available in the PC/104-*Plus* form factor:

- BenNUEY*
- BenONE

*The installation procedures on page 21 show a BenNUEY-PC/104-*Plus* stack, however the procedures can also be applied for the installation of a BenONE-PC/104-*Plus* stack.

Before installing your PC/104-*Plus* motherboard please note that the PCI is a synchronous bus protocol where timing is crucial to the success of data movement. One of the most important signals is the PCI clock which is tuned on any PCI hosted motherboard so that it presents itself to each PCI slot on the bus within a certain time window. As the PC/104-*Plus* is an extendable PCI bus where the connectors form the physical bus structure, each board in the stack must select the correct clock signal to use depending on its position in the stack. This ensures that each card in the stack receives the clock signal within the required time window. To achieve this the PCI Carrier Card is fitted with a **rotary switch** that must be set **prior to powering the stack for the first time**. Figure 9 on page 20 shows the position of the rotary switch. If the cards in the stack are re-ordered, the rotary switch must also be changed.

- Please see the **PC/104-*Plus* Specification** available on your PC/104-*Plus* installation CD for details of the rotary switch settings.

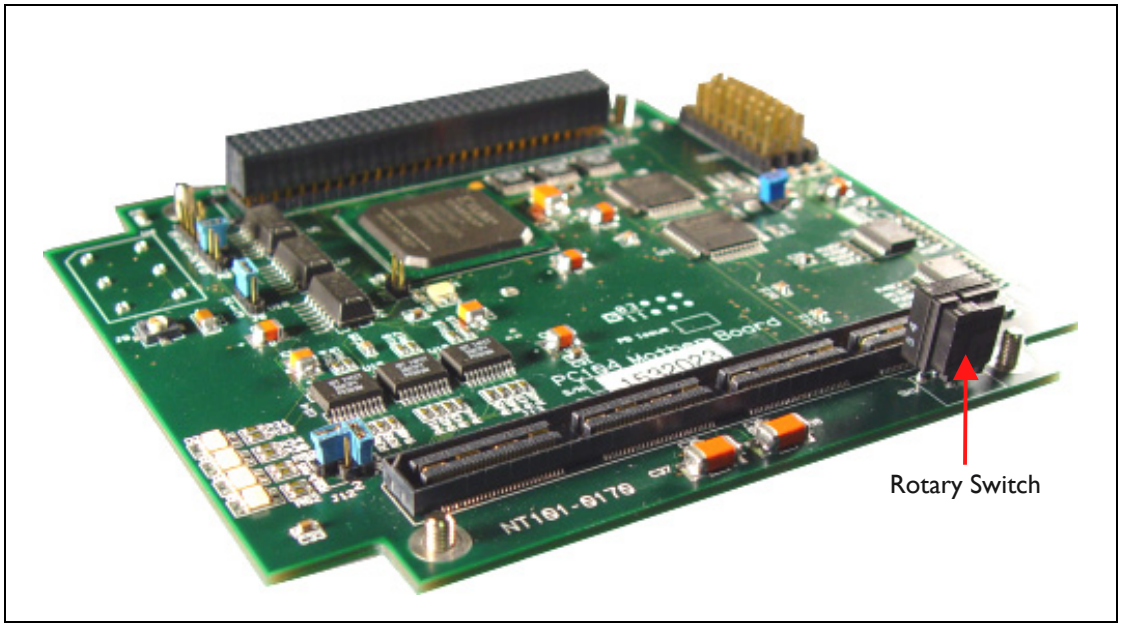
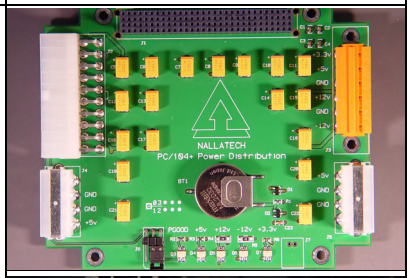
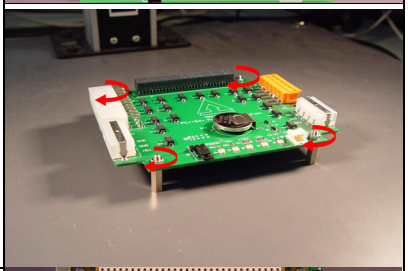
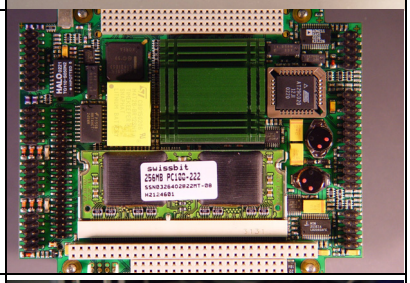
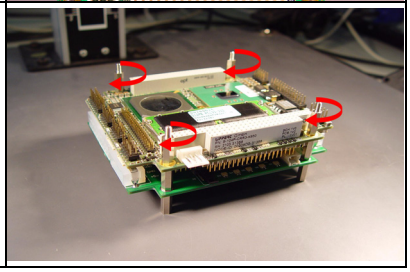


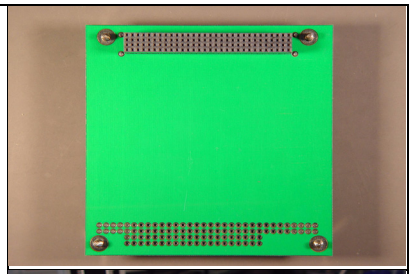
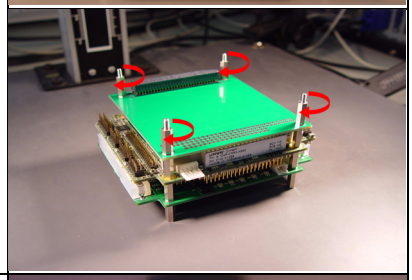
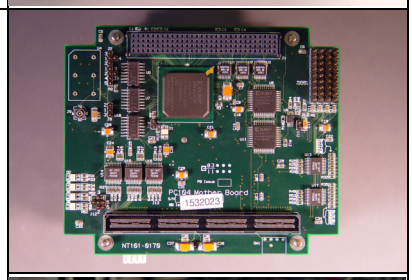
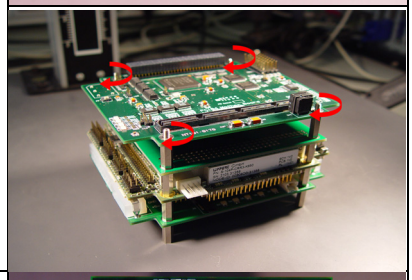
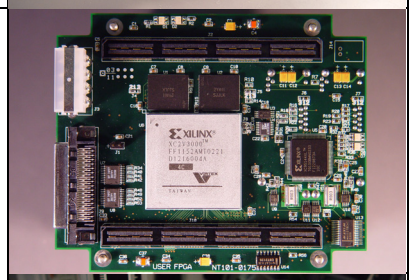
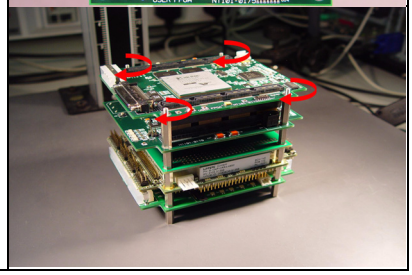
Figure 9: Rotary Switch position on PCI Carrier Card

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▼ To install a PC/104-*Plus* motherboard use the following procedures:

1.	Ensure ESD handling procedures are observed during installation. Check that the power to the DIME-II host motherboard is switched off.	
2.	The first board in the stack is the Power Distribution Card shown in the right hand picture. Add four hexagonal pillars to the underside of the board to begin the stack and then attach four more pillars to the topside of the board as shown bottom right.	 
3.	The next board is the Single Board Computer. Please check your PC/104-*Plus* Reference Guide for details of recommended Single Board Computers.	
4.	Place the SBC on top of the Power Distribution Card and push the connecting holes onto the four pillars of the Power Card. Add four more hexagonal pillars to the SBC board as shown in the right hand picture.	

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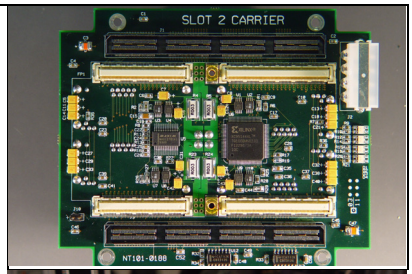
5.	The Spacer Board is next in the stack. Gently push the connecting holes onto the four pillars of the SBC. If third party PC/104-Plus cards are to be used they should be added to the stack at this stage before proceeding with the remainder of the installation. Add four hexagonal pillars to the topside of the board as shown bottom right.	 
6.	The PCI Carrier Card is next in the stack. Attach the connecting holes onto the four pillars of the Spacer Board. Add four hexagonal pillars to the topside of the board as shown bottom right. Also note that **the PCI Carrier Card must be the last PCI board in the stack**. No other PCI cards should be stacked above this card.	 
7.	The next board in the stack is the User FPGA Carrier Card. Attach the connecting holes onto the four pillars of the PCI Carrier Card. Add four hexagonal pillars to the topside of the board as shown in the right-hand picture.	 

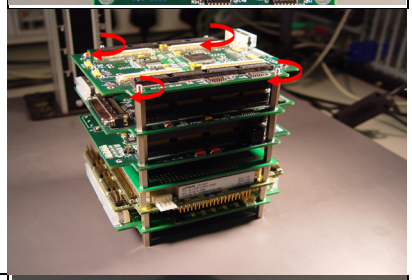
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8. The next board in the stack is the Module Slot 2 Carrier Card. Gently push the connecting holes onto the four pillars of the User FPGA Carrier Card.

Add four hexagonal pillars to the topside of the board as shown bottom right.

At this stage, if a module is to fitted please see "Fitting the Module" on page 13 to install your module prior to adding the next card in the stack.

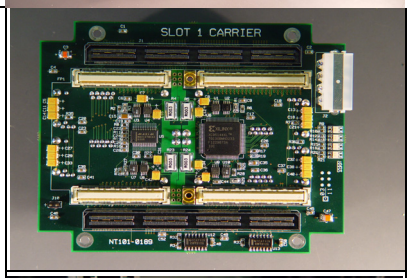


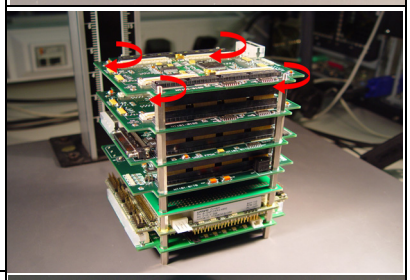


9. The next board in the stack is the Module Slot 1 Carrier Card. Gently push the connecting holes onto the four pillars of the Module Slot 2 Carrier Card.

Add four hexagonal pillars to the topside of the board as shown bottom right.

At this stage, if a module is to fitted please see "Fitting the Module" on page 13 to install your module prior to adding the next card in the stack.

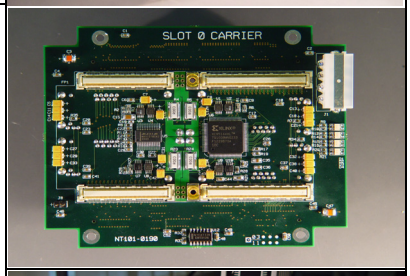


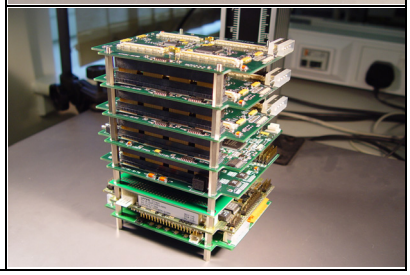


10. The final board in the stack is the Module Slot 0 Carrier Card. Gently push the connecting holes onto the four pillars of the Module Slot 1 Carrier Card. Secure the stack by using the supplied M3 nuts and washers to firmly secure Module Slot 0 Carrier Card in position.

If a module is to be fitted please see "Fitting the Module" on page 13 to install your module.

The PC/104-*Plus* stack is now complete and should look similar to the stack shown in the right hand picture. Before switching on the power please consult your PC/104-*Plus* Reference Guide for power information.





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USB Installation

USB Connection

The following Nallatech motherboard features optional USB connectivity:

- BenONE

If you are connecting your motherboard to a host PC via USB, in addition to the host PC requirements described on page 11, you will require:

- USB v1.1 or compatible port



Windows NT or earlier versions of Win95 do not support USB.



Although Linux supports USB, at present Nallatech do not support this option.

To install a motherboard with a USB connection use the following procedures:

1. Connect the supplied power supply to a suitable mains supply. The power supply accepts mains input from 100 - 240v ac.
2. Apply power to the motherboard.
3. As a confidence test to ensure the motherboard is correctly installed, the power Status LED and PCI/ Control FPGA configuration LEDs illuminate to indicate the motherboard has configured correctly.
4. Connect the motherboard to your host PC with the supplied USB cable.

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Ethernet Installation

Ethernet Connection

The following Nallatech motherboards feature optional Ethernet connectivity via Nallatech's Ethernet I/O module:

- BenNUEY
- BenONE



10/100 base T Ethernet connection is supported under Windows 98/ME/2000/XP/NT. It is also supported under Linux - RedHat Linux.

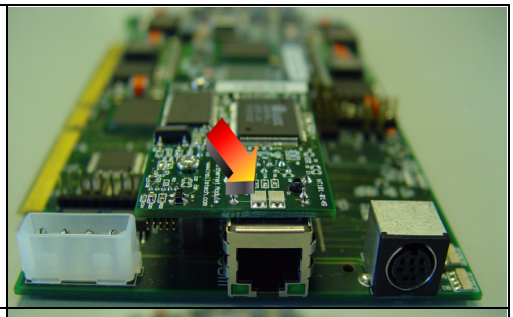
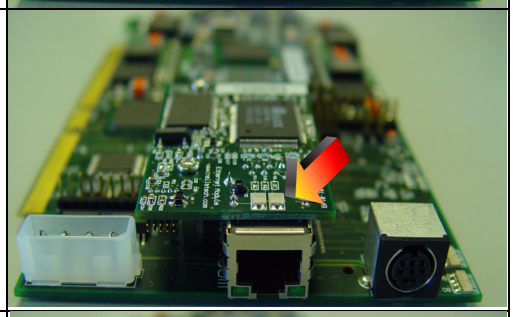
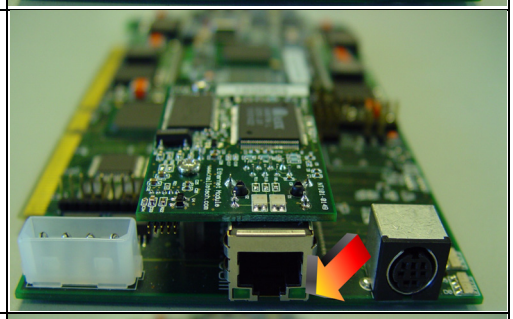
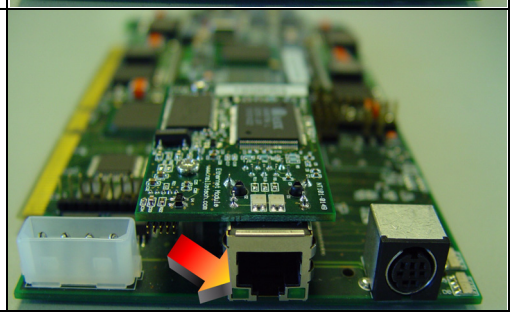
To install a motherboard with an Ethernet port use the following procedures:

1. Connect the supplied power supply to a suitable mains supply. The power supply accepts mains input from 100 - 240v ac.
2. Apply power to the motherboard.
3. As a confidence test to ensure the motherboard is correctly installed, the power Status LED and PCI/Control FPGA configuration LEDs illuminate to indicate the motherboard has configured correctly.
4. To connect the motherboard to your host PC attach the supplied connector to convert the patch cable to a crossover cable.
5. To connect the motherboard to a network use the supplied patch cable.
6. Once the motherboard is connected to a network you should proceed to "Ethernet Software Support" on page 31 for information on network settings and how to use the network configuration tool. For information on the LEDs on the Ethernet module see the following section "Ethernet module LEDs" on page 26.

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Ethernet module LEDs

There are several LEDs on the Ethernet module which serve different purposes. The following table shows the front view of the Ethernet module and explains the function of each LED.

1.	The LED on the top left is initially red. This changes from red to green once an IP address is obtained and the product and vendor ID of the motherboard is read.	
2.	The LED on the top right displays the link speed. If the LED is green, the network speed is 100 base T. If the LED is off then the network speed is 10 base T.	
3.	The LED on the bottom left is green when a network connection is found.	
4.	The LED on the bottom right of the connector is also green and goes on and off with network activity.	

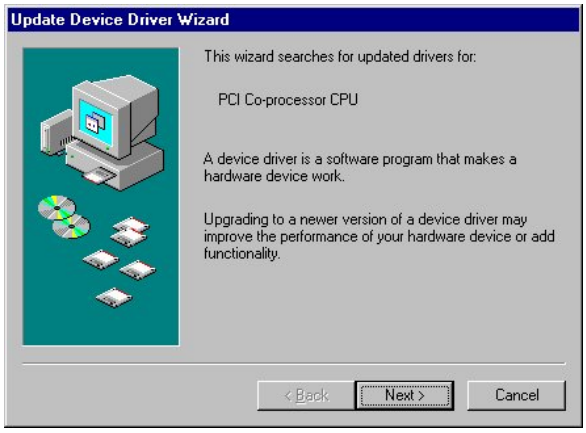
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Operating System Driver Installation

▼ **To install software drivers in Windows NT/2000/ME/XP use the following procedures:**

Stage 1

1. Power up the PC with the hardware installed as described in the previous section.
2. Insert the motherboard installation CD into your system's CD-ROM drive.
3. During boot-up the PC should report that a new device has been found (top right screen). Click '**Next**'.
4. Choose the top option (bottom right screen). Click '**Next**'.





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Stage 2

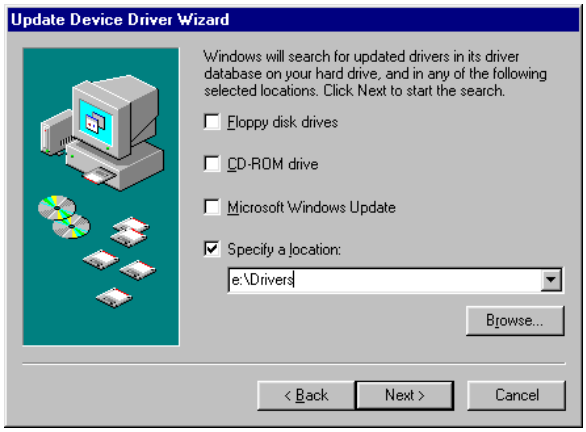
5. Select the bottom option (top right screen). Browse and locate the **CD_Drive:\Drivers** folder on the installation CD, then select the relevant folder* as appropriate for your installation. Windows now loads in the new drivers and acknowledge the installation.

   *For PCI connection running Windows 2000 select the **win2k** folder.

   *For PCI connection running Windows NT select the **winNT** folder.

   *For PCI connection running Windows XP select the **winXP** folder.

   *For USB connection running Windows 9x\XP\2000 select the **USB** folder.





Stage 3

6. In the last screen click '**Finish**'. Then click '**Yes**' to restart the PC and complete installation of the software drivers.



Under Windows XP Pro, the following warning may appear, "Windows cannot initialize the device driver for this hardware". This warning is addressed after installation of the motherboard software. See "Motherboard Software Installation" on page 29. Note also, that administrative privileges are required for Windows NT installation. The Windows NT drivers are installed by running the Nallatech software from Windows. These drivers are installed automatically during the installation of the card software.

The software drivers in **Linux RedHat** are installed automatically after FUSE installation.

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Motherboard Software Installation

▼ **To install the motherboard software in Windows NT/2000/XP use the following procedures:**

1. Insert the supplied motherboard installation CD into your system's CD-ROM drive and wait for the CD to autorun. If autorun does not start click '**Start->Run**' from the taskbar and run the following program: **CD_Drive:\ autorun.exe**.
2. Click on '**Install Product FUSE software**'.
3. The installation process begins. Work through the series of dialog boxes until the 'Finish' box is reached.
4. Click '**Finish**' to install the software.

▼ **To install the motherboard software in Linux RedHat use the following procedures:**

1. Mount the installation CD:

   ```
   >mount /dev/cdrom /mnt/cdrom
   ```

2. Change directory as follows:

   ```
   cd/mnt/cdrom/Linux
   ```

3. Type 'rpm -ihv' followed by the full name of the rpm (RedHat Package Format) file.

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Module Software Installation

To install the module software in Windows NT/2000/ME/XP use the following procedures:

1. Insert the supplied module CD into your system's CD-ROM drive and wait for the CD to autorun. If autorun does not start click '**Start->Run**' from the taskbar and run the following program: **CD_Drive:\ autorun.exe**.
2. In the Main Menu click on the option '**Install Module Definition Files (MDFs)**'. These files are required by the FUSE software to allow integration with FUSE.
3. Click '**OK**' in the MDF Files window and then restart the PC to complete installation.



Under Windows NT and Windows 2000, please make sure that you have permission to copy files to the MDF directory or you will have problems installing the MDFs. If in doubt contact your network administrator.

To install the module software in Linux RedHat use the following procedures:

1. Insert the supplied module CD into your system's CD-ROM drive.
2. Mount the installation CD:

```
>mount /dev/cdrom /mnt/cdrom
```

3. Install the mdf files

```
>cp /mnt/cdrom/mdf/* /usr/local/Nallatech/FUSE/mdf/
```

Note that some default mdf files may already be installed - these can be overwritten.

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Ethernet Software Support

This section provides details on how to configure network settings and use the network configuration tool when using Nallatech hardware via the Ethernet I/O module.

To start the network configuration tool use the following procedures:

1. Enter the Configure Network Device settings. For details on each of these settings please refer to "Network Settings" on page 32.

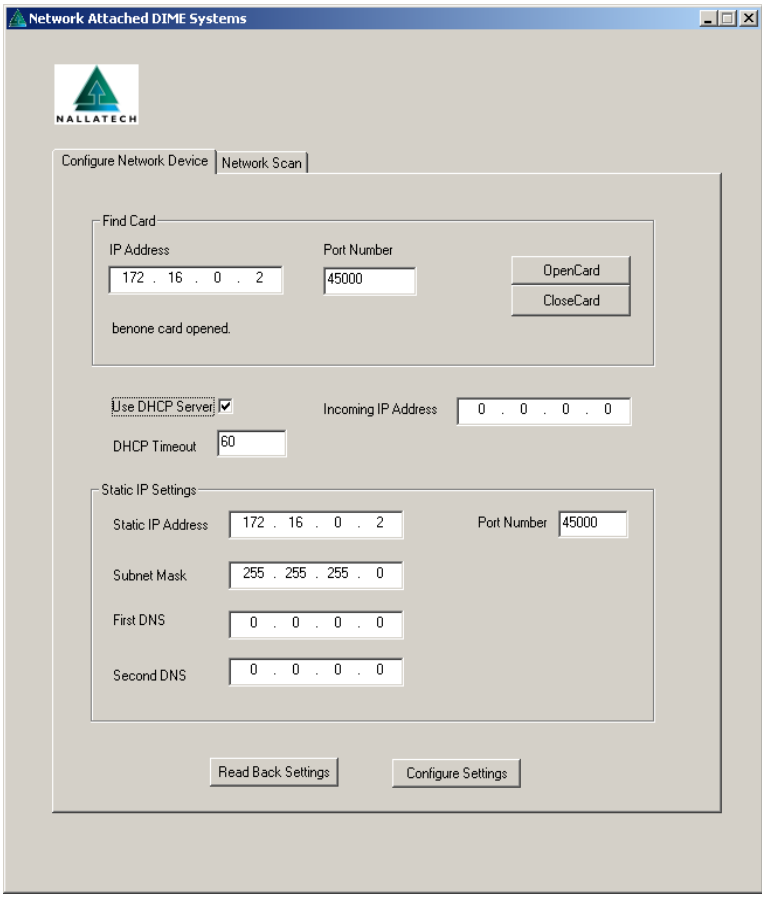


Figure 10: Network configuration tool

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2. In the Network Scan tab shown in Figure 11 on page 32 click on **Scan Network** to begin a search of the network.

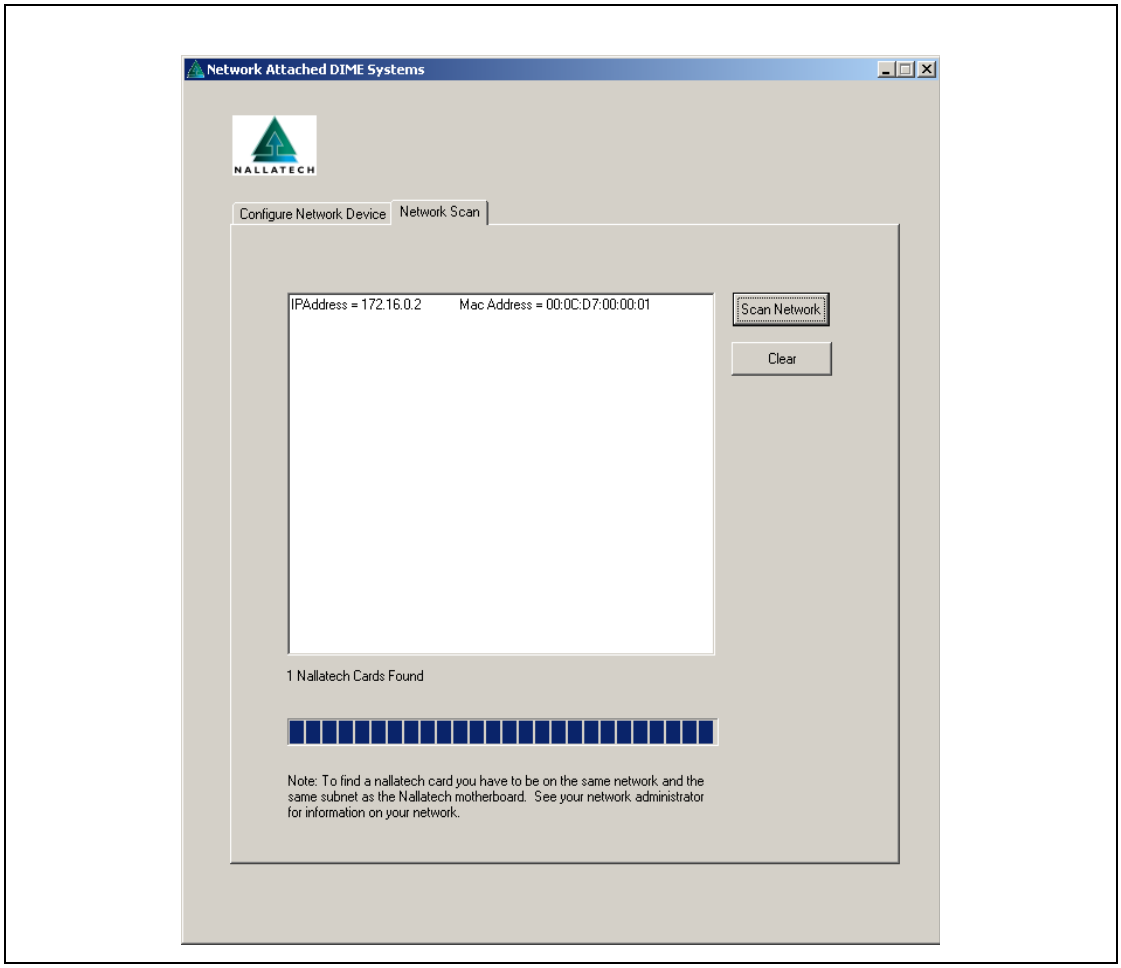


Figure 11: Network scan

3. The blue scroll bar indicates that network scanning has begun. When this reaches the end, any Nallatech cards found on the network are displayed with their IP address and Mac address.

Network Settings

If you choose a DHCP server to assign an IP address to your Nallatech motherboard you can also use the configuration tool to find out the allocated IP address. On the Network Scan tab, the **Scan Network** button automatically finds all of the IP addresses of your PC and scans the network for a Nallatech card.

To find Nallatech motherboards using this network scanning utility, the PC from which you are executing the scan must be on the same network and subnet as your Nallatech motherboard. To find out if they are on the same subnet, see your network administrator.

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The following are standard default settings for all Nallatech motherboards:

DHCP - 1 This means that the motherboard will try and obtain an IP Address from a DHCP server. If this is set to 0 then the motherboard is automatically configured with the static ip address.

DHCP_TimeOut - 60

If no DHCP server is found after 60 seconds the DHCP will time out. This causes the motherboard to be configured with the static IP address settings.

Static IP Address - 172.16.0.2

By default the static IP Address setting is 172.16.0.2

Port Number - 45000

By default this is 45000. This is the port number that the Nallatech motherboard is listening on.

Subnet Mask - 255.255.255.0

By default the subnet mask is 255.255.255.0

First DNS - 0.0.0.0

By default the first DNS is set to 0.0.0.0

Second DNS - 0.0.0.0

By default the second DNS is set to 0.0.0.0

Incoming IPAddress - 0.0.0.0

By default this is set to 0.0.0.0 which allows any IP address to open the motherboard. If set to anything other than 0.0.0.0, only this IP address will be able to open the motherboard.



If any of these settings are altered keep a note of the changes. Before you can change the settings you need to know some of the settings to connect to the device.

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Standard Terms and Conditions

GENERAL

These Terms and Conditions shall apply to all contracts for goods sold or work done by Nallatech Limited. (hereinafter referred to as the "company" or Nallatech) and purchased by any customer (hereinafter referred to as the customer).

Nallatech Limited trading in the style Nallatech (the company), submits all quotations and price lists and accepts all orders subject to the following conditions of contract which apply to all contracts for goods supplied or work done by them or their employees to the exclusion of all other representations, conditions or warranties, express or implied.

The buyer agrees to execute and return any license agreements as may be required by the company in order to authorize the use of those licensable items. If the licensable item is to be resold this condition shall be enforced by the re-seller on the end customer.

Each order received by the company will be deemed to form a separate contract to which these conditions apply and any waiver or any act of non-enforcement or variation of these terms or part thereof shall not bind or prejudice the company in relation to any other contract.

The company reserves the right to re-issue its price list at any time and to refuse to accept orders at a price other than at the price stated on the price list in force at the time of order.

The company reserves the right to vary the specification or withdraw from the offer any of its products without prior warning.

The company reserves the right to refuse to accept any contract that is deemed to be contrary to the companies policies in force at the time.

PRICING

All prices shown on the company's price list, or on quotations offered by them, are based upon the acceptance of these conditions. Any variation of these conditions requested by the buyer could result in changes in the offered pricing or refusal to supply.

All quoted pricing is in Pounds Sterling and is exclusive of Value Added Tax (VAT) and delivery. In addition to the invoiced value the buyer is liable for all import duty as may be applicable in the buyer's location. If there is any documentation required for import formalities, whether or not for the purposes of duty assessment, the buyer shall make this clear at the time of order.

Quotations are made by Nallatech upon the customer's request but there is no obligation for either party until Nallatech accepts the customer's order.

Nallatech reserves the right to increase the price of goods agreed to be sold in proportion to any increase of costs to Nallatech between the date of acceptance of the order and the date of delivery or where the increase is due to any act or default of the customer, including the cancellation or rescheduling by the customer of part of any order.

Nallatech reserves the right (without prejudice to any other remedy) to cancel any uncompleted order or to suspend delivery in the event of any of the customer's commitment with Nallatech not being met.

DELIVERY

All delivery times offered by the company are to be treated as best estimates and no penalty can be accepted for non compliance with them.

Delivery shall be made by the company using a courier service of its choice. The cost of the delivery plus a nominal fee for administration will be added to the invoice issued. Payment of all inward customs duties and fees are the sole responsibility of the buyer. If multiple shipments are requested by the buyer, multiple delivery charges will be made. In the case of multiple deliveries separate invoices will be raised.

If requested at the time of ordering an alternative delivery service can be used, but only if account details are supplied to the company so that the delivery can be invoiced directly to the buyer by the delivery service.

The buyer accepts that any 'to be advised' scheduled orders not completed within twelve months from the date of acceptance of the original order, or orders held up by the buyers lack of action regarding delivery, can be shipped and invoiced by the company and paid in full by the buyer, immediately after completion of that twelve month period.

INSURANCE

All shipments from the company are insured by them. If any goods received by the buyer are in an unsatisfactory condition, the following courses of action shall be taken.

If the outer packaging is visibly damaged, then the goods should not be accepted from the courier, or they should be signed for only after noting that the packaging has sustained damage.

If the goods are found to be damaged after unpacking, the company must be informed immediately.

Under no circumstances should the damaged goods be returned, unless expressly authorized by the company.

If the damage is not reported within 48 hours of receipt, the insurers of the company shall bear no liability.

Any returns made to the company for any reason, at any time shall be packaged in the original packaging, or its direct equivalent and must be adequately insured by the buyer.

Any equipment sent to the company for any purpose, including but not limited to equipment originally supplied by the company must be adequately insured by the buyer while on the premises of the company.

PAYMENT

Nallatech Ltd. terms of payment are 30 days net.

Any charges incurred in making the payment, either

currency conversion or otherwise shall be paid by the buyer.

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The company reserves the right to charge interest at a rate of 2% above the base rate of the Bank of Scotland PLC on any overdue accounts. The interest will be charged on any outstanding amount from said due date of payment, until payment is made in full, such interest will accrue on a daily basis.

TECHNICAL SUPPORT

The company offers a dedicated technical support via telephone and an email address. It will also accept faxed support queries.

Technical support will be given free of charge for 90 days from the date of invoice, for queries regarding the use of the products in the system configuration for which they were sold. Features not documented in the user manual or a written offer of the company will not be supported. Interfacing with other products other than those that are pre-approved by the company as compatible will not be supported. If the development tools and system hardware is demonstrably working, no support can be given with application level problems.

WARRANTY

The company offers as part of a purchase contract 12 months warranty against parts and defective workmanship of hardware elements of a system. The basis of this warranty is that the fault be discussed with the companies technical support staff before any return is made. If it is agreed that a return for repair is necessary then the faulty item and any other component of the system as requested by those staff shall be returned carriage paid to the company. Insurance terms as discussed in the INSURANCE Section will apply.

Returned goods will not be accepted by the company unless this has been expressly authorized.

After warranty repair, goods will be returned to the buyer carriage paid by the company using their preferred method.

Faults incurred by abuse of the product (as defined by the company) are not covered by the warranty.

Attempted repair or alteration of the goods as supplied by the company, by another party immediately invalidates the warranty offered.

The said warranty is contingent upon the proper use of the goods by the customer and does not cover any part of the goods which has been modified without Nallatech's prior written consent or which has been subjected to unusual physical or electrical stress or on which the original identification marks have been removed or altered. Nor will such warranty apply if repair or parts required as a result of causes other than ordinary authorized use including without limitation accident, air conditioning, humidity control or other environmental conditions.

Under no circumstances will the company be liable for any incidental or consequential damage or expense of any kind, including, but not limited to, personal injuries and loss of profits arising in connection with any contract or with the use, abuse, unsafe use or inability to use the companies goods. The company's maximum liability shall not exceed and the customers remedy is limited to, either:

i. repair or replacement of the defective part or product or at the companies option.
ii. return of the product and refund of the purchase price and such remedy shall be the customer's entire and exclusive remedy.

Warranty of the software written by the company shall be limited to 90 days warranty that the media is free from defects and no warranty express or implied is given that the computer software will be free from error or will meet the specification requirements of the buyer.

The terms of any warranty offered by a third party whose software is supplied by the company will be honoured by the company exactly. No other warranty is offered by the company on these products.

Return of faulty equipment after the warranty period has expired, the company may at its discretion make a quotation for repair of the equipment or declare that the equipment is beyond repair.

PASSING OF RISK AND TITLE

The passing of risk for any supply made by the company shall occur at the time of delivery. The title however shall not pass to the buyer until payment has been received in full by the company. And no other sums whatever shall be due from the customer to Nallatech.

If the customer (who shall in such case act on his own account and not as agent for Nallatech) shall sell the goods prior to making payment in full for them, the beneficial entitlement of Nallatech therein shall attach to the proceeds of such sale or to the claim for such proceeds.

The customer shall store any goods owned by Nallatech in such a way that they are clearly identifiable as Nallatech's property and shall maintain records of them identifying them as Nallatech's property. The customer will allow Nallatech to inspect these records and the goods themselves upon request.

In the event of failure by the customer to pay any part of the price of the goods, in addition to any other remedies available to Nallatech under these terms and conditions or otherwise, Nallatech shall be entitled to repossess the goods. The customer will assist and allow Nallatech to repossess the goods as aforesaid and for this purpose admit or procure the admission of Nallatech or its employees and agents to the premises in which the goods are situated.

INTELLECTUAL PROPERTY

The buyer agrees to preserve the Intellectual Property Rights (IPR) of the company at all times and that no contract for supply of goods involves loss of IPR by the company unless expressly offered as part of the contract by the company.

GOVERNING LAW

This agreement and performance of both parties shall be governed by Scottish law.

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Any disputes under any contract entered into by the company shall be settled in a court if the company's choice operating under Scottish law and the buyer agrees to attend any such proceedings. No action can be brought arising out of any contract more than 12 months after the completion of the contract.

INDEMNITY

The buyer shall indemnify the company against all claims made against the company by a third party in respect of the goods supplied by the company.

SEVERABILITY

If any part of these terms and conditions is found to be illegal, void or unenforceable for any reason, then such clause or Section shall be severable from the remaining clauses and Sections of these terms and conditions which shall remain in force.

NOTICES

Any notice to be given hereunder shall be in writing and shall be deemed to have been duly given if sent or delivered to the party concerned at its address specified on the invoice or such other addresses as that party may from time to time notify in writing and shall be deemed to have been served, if sent by post, 48 hours after posting.

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Information in this Installation Guide is subject to change without notice. Any changes will be included in future versions of this document. Information within this manual may include technical, typing or printing inaccuracies or errors and no liability will arise therefrom.

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Remarks Form

We welcome any comments you may have on our product and its documentation. Your remarks will be examined thoroughly and taken into account for future versions of this product.

DIME-II Installation Guide NT118-0198 Issue 2	22/10/03

Errors Detected

Suggested Improvement

Please send this completed form to:

Nallatech
Boolean House
One Napier Park
Cumbernauld
Glasgow G68 0BH
United Kingdom

If you prefer you may send your remarks via E-mail to support@nallatech.com or by fax to +44 (0) 1236 789599.

If you want Nallatech to reply to your comments, please include your name, address and telephone number.

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