

NET100

Network Interface Card



Features

- Provision for network access to 10 or 100 Megabit networks.
- Several hundred kilobytes of Flash erasable memory used to hold the network driver modules for the card.
- Provision to allow users to change the flash contents as desired.
- Usable in either the RISC PC or A7000 NIC slot.
- Up to three megabytes per second data transfer.
- Lower latency than with conventional 10megabit ethernet cards.

Pricing, Availability and Support

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Introduction

The NET100 is an IEEE 802.3 Ethernet Network Interface Card (NIC). It is capable of full or half duplex operation at 10 and 100 Megabit speeds with a single twisted pair media (10/100Base-T) port.

Further information on Ethernet can be found in various online and book sources. A suggested book is "Ethernet: The definitive guide" published by O'Reilly and associates ISBN:1-56592-660-9. A suggested on-line resource is Charles Spurgeons's web page at <http://www.ethermanage.com/ethernet/ethernet.html>

Hardware Installation



This device is static sensitive. Incorrect handling may result in damage which will invalidate the manufacturers warranty.



- If you are unsure about performing this upgrade yourself, refer to a qualified engineer. Your card supplier should be able to advise you on this.
- The NET100 card is supplied in electrostatic conductive packaging conforming to EN 100015/1. It should not be removed from this packaging until the card is ready to be fitted. The card should be handled as little as possible and touched only at the edges. This helps to reduce the risk of damage due to static discharge.
- All upgrades should be performed on a hard flat surface clear from any contaminants.
- All power leads must be disconnected from the machine before commencing work inside the computer.
- The card should be fitted following the instructions outlined in the section "Adding a network card" on page 102 of the Welcome guide originally supplied with the computer.
- An appropriate RJ45 network cable should be connected to the card and a hub or switch.
- After the card is installed the computer should be reconnected to power and turned on. It should beep and perform its usual start up operations. If it does not, turn the machine off immediately and seek advice.

Software Installation

- Driver software will automatically be loaded from the card's internal flash ROM when the machine is turned on or reset. The loading of modules from the flash ROM can be disabled by removal of a link cap (LK2) on the board. A second link cap (LK1) completely disables the card. This is equivalent to removing the card from the machine and can be used for diagnostic purposes.
- The card is supplied with a NET100 directory in ResourceFS. This directory contains:
 - A !Boot directory.
 - Simtecs Nonspecific Advanced Flash Utility (!Snafu) used to change the flash ROM contents.
- The !Boot should be merged with the system !boot. The following assumes you are using a modern RISC OS boot sequence.
 - Double click on !Boot to run the configure application.
 - Select the "Boot" option.
 - Select the "Install" option.
 - Drag the !Boot directory from the net100 directory to the "boot merge" dialog.
 - click the "merge" button.
 - The "boot merge" dialog should close
 - Click "Set" to complete the merge.
- The computer should now be configured from the configuration section dialog. The card will appear in the internet configuration dialog as an EtherX card.

- Changing the ROM Contents.

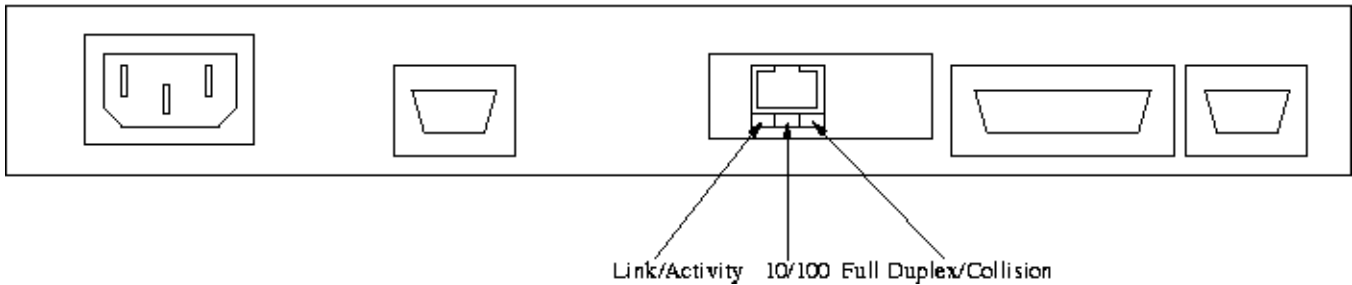
If you do change the contents of the ROM !Snafu must be copied somewhere safe before you start or the application will be lost. If you do overwrite the application please refer to your vendor for support.

!Snafu has a simple interface with two selection lists the top one enables the user to select the card to be changed and the lower to select the modules to be written to the ROM. A "load default modules" button loads the list with the minimal default modules to be used, Usually at a minimum the drivers for the card should be in the list.

Notes

- The 3 LED's in the RJ45 connector show the status of the connected link.

External view of fitted card



Link/Activity is on when a hub is attached and blinks when there is activity between hub and card.

10/100 is on when there is a 100Mbit link.

Full Duplex/Collision is on when there is a full duplex connection and blinks to indicate a collision.

- The NET100 provides for network access to 100 Megabit networks. This is roughly equivalent to 10Megabytes of data transferred per second. This speeds represent the maximum capacity of the ethernet media in use. In practice due to protocol overheads it is unlikely that any single computer will achieve this transfer speed.
- At the time of writing the overall system design of the RISC PC and A7000 architecture is over ten years old. Unfortunately this imposes some bottlenecks which reduce throughput. These start with the maximum theoretical throughput of the NIC slot where this 16bit interface limits the maximum available bandwidth to around three megabytes per second. Further to this the internet stack has to process the information it is reading or writing which imposes additional overhead. Tests indicate users with VRAM should typically expect one to two megabytes of data transferred per second. This test was performed with Lanman98, older protocols may give lower transfer rates. However, it is observed that generally all applications see an improvement in speed.
- Throughput appears to be directly scalable with CPU availability, this means faster CPUs will give better performance.