NEXTSTEP for Intel Processors

Title: IBM Token Ring Adapters
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Usage Commentary:

The IBM Token-Ring 16/4 Adapter, 16/4 ISA-16 Adapter, and Token-Ring Network PC Adapter II provide an ISA interface to Token Ring networks. The PC Adapter II offers 8-bit I/O, a 4 Mbps data rate, a 16K buffer, and one Shielded Twisted Pair (STP) connector. The 16/4 Adapter uses a 64K buffer and adds 16 Mbps data rate capability, with support for the Early Token Release protocol. The 16/4 ISA-16 Adapter includes all these features and also adds16-bit I/O and an unshielded twisted pair (UTP) connector.

Setup and Installation:

* NeXT has tested the IBM Token-Ring adapters using the switch block settings listed below (in addition to settings specifying different data rates and media types). You should verify these settings before installing your adapter. The settings which you may modify are marked with an

asterisk. If you change any of these settings, be sure to make the corresponding changes in Configure.app.

For more information on the settings listed below, click the Info button for the IBM Token Ring driver in Configure.app's Network view, or consult the documentation supplied with your IBM Token-Ring Adapter.

IBM Token-Ring 16/4 Adapter
Switch Block
Switch Setting Function
1 OFF * 1-6: ROM Address: D4000
2 ON *
3 OFF *
4 ON *
5 OFF *
6 ON *
7 OFF * 7-8: Interrupt (IRQ) Level 7
8 OFF *
9 OFF * 9: Primary LAN Adapter

10 OFF 10-11: Shared RAM: 16 KB address space
11 ON
12 OFF * 12: Data Rate: 16 Mbps (ON = 4 Mbps)

IBM Token-Ring Network PC Adapter II
Switch Block 1
Switch Setting Function
1 OFF * 1-6: ROM Address: D4000
2 ON *
3 OFF *
4 ON *
5 OFF *
6 ON *
7 OFF * 7-8: Interrupt (IRQ) Level 7
8 OFF *
Switch Block 2
Switch Setting Function
2 OFF * 2: Primary LAN Adapter
(The other switches on Switch Block 2 are reserved and permanently set at the time of

manufacture.)

IBM Token-Ring 16/4 ISA-16 Adapter
Switch Block 1
Switch Setting Function
1 ON * 1: Media Type: STP (OFF = UTP)
2 OFF 2: Remote Program Load Disabled
Switch Block 2
Switch Setting Function
1 OFF * 1-6: ROM Address: D4000
2 ON *
3 OFF *
4 ON *
5 OFF *
6 ON *
7 OFF * 7-8: Interrupt (IRQ) Level 7
8 OFF *
9 OFF * 9: Primary LAN Adapter
10 OFF 10-11: Shared RAM: 16 KB address space

11 ON
12 OFF * 12: Data Rate: 16 Mbps (ON = 4 Mbps)

* By default, the IBM Token Ring driver uses the following settings. These may be changed using Configure.app. Be sure that the settings in Configure.app match those on the adapter's switch block(s).
Port Address: 0xA20
Mapped RAM: 0xD0000
Mapped ROM: 0xD4000
IRQ Level: 7
Ring Speed: 16 Mb/s
Early Token Release (ETR): ON
Connector: STP

* If the Configure.app and switch settings for Port Address, Mapped ROM, or IRQ Level do not match, the driver will abort at startup.

* The IBM Token-Ring Adapters support four interrupt (IRQ) levels: 2, 3, 6, and 7. IRQ 2 is not supported by NEXTSTEP. If configured, IRQ 6 will always be used by the floppy driver, IRQ 7

will always be used by the on-board parallel port driver, and IRQ 3 will always be used by the on-board serial port driver for the second serial port. By default, the IBM Token Ring driver uses IRQ 7, and you will need to remove the parallel port driver. If you require the parallel port for printing, you may select IRQ 3 or 6 and remove the serial or floppy driver instead.

* To avoid possible hardware conflicts with video and other adapters, NeXT recommends using a Mapped ROM address of 0xD4000. By default, the IBM Token Ring driver uses this setting. The IBM documentation shipped with the adapter does not list the switch settings corresponding to this address; however, they are listed above.

* If you wish to use SimpleNetworkStarter.app to configure a machine to run standalone or as a NetInfo server on a Token Ring network, you must do so before booting with the Token Ring driver and card installed. NeXT recommends the following sequence of steps:

1) Install the Token Ring card and driver as described in steps 1--14 of the ReadMe file supplied with the driver. Do not restart your machine at this time!

2) Use SimpleNetworkStarter.app to set up your network. You will need to ignore several warnings at this point; see "Known Problems" below.

3) Restart your system as described in step 15 of the ReadMe file.

For NEXTSTEP Release 3.3, please refer to NeXTanswers document _
1788_IBM_Token_Ring_Driver_Overview.rtf

Known Problems:

* **Problem**: SimpleNetworkStarter.app displays warnings when configuring Token Ring

Reference: 35219

Description: Since SimpleNetworkStarter.app was designed to set up networks which can be attached "on the fly" (like Ethernet but unlike Token Ring), you will need to ignore several warnings during the setup process.

Workaround: While building the network, you will see the following alert: "Please attach the network to the system at this time. Press OK when you have completed attaching the network." You should ignore this message and click OK immediately. This will bring up another alert: "An

error occurred while starting the network up. Check the Workspace console for a more detailed error. You should abort the build at this point. Continue at your own risk." Click Continue, and ignore any other warnings that may appear. Eventually you should see the following alert: "Configuration completed. You may wish to reboot the system at this time." After rebooting, your machine should work correctly with the new network.