Token Ring Products

Specifications

Token Ring Products

Token Ring 4/16 NB Card

Interface   NuBus (bus master)

Processor   Motorola 68000 microprocessor operating at 10 MHz

Memory   512K of RAM, expandable to 2.5 MB

Data Transfer Speed   4 or 16 Mbps

Power Requirements   1.5 A at 5 V

External Connector   DE-9 (IBM Type 1 cable)
                           External adapters for Type 3 cable from third party

Chip Set   IBM Token Ring

**Application
Programming
Interface**   AppleTalk, Apple 3270 API, APPC verb interface

LLC   Type 1 and Type 2

Routing   Supports IBM source routing

Token Ring Address   Burned-in or locally administered

Timers   Response (T1), Acknowledge (T2), and Inactivity (Ti)

Other   Card settings can be password-protected

Cable

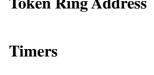| **Shielded twisted-pair:** | Maximum distance from MAU to device (lobe length) = 300 meters |
| | Maximum distance between two MAUs (trunk length) = 200 meters |
| | Maximum devices per ring = 260 |

Unshielded twisted-pair:	Maximum distance from MAU to device (lobe length) = 100 meters
	Maximum distance between two MAUs (trunk length) = 120 meters
	Maximum devices per ring = 72

Approvals   FCC class A; VDE

TokenTalk NB Card

Interface   NuBus (bus master)

Processor   Motorola 68000 microprocessor operating at 10 MHz

Memory   512K of RAM

Data Transfer Speed   4 Mbps

Application Programming Interface   AppleTalk, Apple 3270 API, APPC verb interface

Power Dissipation   15 W

External Connector   DE-9 (IBM Type 1 cable)
                          External adapters for Type 3 cable from third party

Token Ring NB/c Card

Interface   NuBus

Memory   64K SRAM, nonexpandable

ROM   32K ROM

Data Transfer Speed 4 or 16 Mbps, jumper selectable

Power Requirements   1.5 A at 5 V

External Connector   DE-9 (IBM Type 1 cable); 4 or 16 MB
                          External adapters for Type 3 cable from third party (4 MB
                              operation only)

Chip Set   IBM Token Ring

LLC   Type 1 and Type 2

Routing   Supports IBM source routing

Token Ring Address   Burned-in

Type 1 Cable

Shielded twisted-pair:	Maximum distance from MAU to device (lobe length) = 300 meters
	Maximum distance between two MAUs (trunk length) = 200 meters
	Maximum devices per ring = 260

Type 3 Cable (4 MB only)

Unshielded twisted-pair:	Maximum distance from MAU to device (lobe length) = 100 meters
	Maximum distance between two MAUs (trunk length) = 120 meters
	Maximum devices per ring = 72

Approvals   FCC class A
              VDE

Apple Token Ring PCI Card

Networking Protocols
Supports a variety of popular networking protocols, including AppleTalk, TCP/IP, IPX, SNA, and OSI

System Requirements
One available PCI slot
IBM Type 3 cabling (unshielded twisted pair) or IBM Type 1 cabling (shielded twisted pair) with use of an external adapter
Industry-standard Token Ring Multistation Access Unit (MAU)

Connector Type
RJ-45 connector for attaching to Type 3 cabling

Data Transfer Speed
4 or 16 Mbps

Compatibility   PCI 2.1 compatible, IEEE 802.5 and 802.2
Compatible with most systems that feature a PCI expansion slot,
    including Power Macintosh 8500 and 9500 Series computers,
    and Intel and DEC Alpha systems. Note: Currently, this card is
    not compatible with the Power Macintosh 7200 model.

**Token Ring
Controller**   IBM Token Ring chip set

**Operating
Temperature**   50—104° F (10—40° C)

Humidity   20—95% noncondensing

Power Dissipation   Maximum 5 W; Average 3.5 W

Troubleshooting

Token Ring Products

General

The Symptom Charts included in this chapter will help you diagnose specific symptoms related to your product. Because cures are listed on the charts in the order of most likely solution, try the first cure first. Verify whether or not the product continues to exhibit the symptom. If the symptom persists, try the next cure. (Note: If you have replaced a module, reinstall the original module before you proceed to the next cure.)

For additional assistance, contact Apple Technical Support.

Symptom Charts

Token Ring 4/16 NB Card

Token Ring 4/16 icon missing from Network extension in Control Panel

1 Switch off computer and reseat card.
2 If Token Ring 4/16 icon not in System folder, drag icon into System folder and restart computer.
3 Reinstall TokenTalk software using TokenTalk Installer disk.
4 Reinstall system software.
5 Verify that only green diagnostic LED is on. If other condition exists, replace card.

Can't select TokenTalk icon

1 Reinstall TokenTalk software using TokenTalk Installer disk.
2 Restart with another startup disk that contains TokenTalk software.

Token Ring 4/16 NB Card **(Continued)**

Computer hangs when
you select TokenTalk
in Chooser

1 Wait 30–40 seconds. A delay may be normal; it can take up
   to 30 seconds for network to respond.
2 Switch off computer and reseat card.
3 Verify that only green diagnostic LED is on. If other condition
   exists, replace card.

Network icon missing
from Chooser

1 Switch off computer and reseat card.
2 Reinstall TokenTalk software using TokenTalk Installer disk.
3 Startup disk has wrong version of Control Panel. Use Control
   Panel version 3.1 or later.

Network service
(file servers, print
servers, printers,
etc.) missing

1 Verify correct TokenTalk zone is selected.
2 Check cables and connections.

Token Ring 4/16 NB Card **(Continued)**

Can't change network
connection

1   Currently selected network is providing a service that
    computer is using.

2   Computer is providing a service that the network is using.

TokenTalk NB Card

TokenTalk icon missing from Chooser	1	Switch off computer and reseat card.
	2	Run ConnectTest to verify proper operation of card.
TokenTalk icon missing on startup	1	Switch off computer and reseat card.
	2	Run ConnectTest to verify proper operation of card.
Network service (file servers, print servers, printers, etc.) missing	1	Verify correct TokenTalk zone is selected.
	2	Check cables and connections.

TokenTalk NB Card (Continued)

Computer hangs when
you select TokenTalk
in chooser

1   Wait 30–40 seconds. A delay may be normal; it can take up
    to 30 seconds for network to respond.

2   Switch off computer and reseat card.

3   Verify that only green diagnostic LED is on. If other condition
    exists, replace card.

4   Run ConnectTest to verify proper operation of card.

Token Ring NB/c Card

Token Ring NB/c icon
missing from
Network Control
Panel

1 Switch off computer and reseat card.
2 If Token Ring NB/c icon is not in System folder, reinstall
   Token Ring NB/c software from Network Software Installer
   disk and restart computer.
3 Verify that diagnostic LED on card is on. If not, replace card.
4 Verify that speed selected on card matches speed of ring to
   which computer is attached. If computer is attached to 4 MB
   ring, LED should be yellow. If computer is attached to 16 MB
   ring, LED should be green.

Can't select TokenTalk
icon in Network
Control Panel

1 Reinstall Token Ring NB/c software from Network Software
   Installer disk and restart computer.
2 Restart computer with another startup disk that contains
   Token Ring NB/c software.

Token Ring NB/c Card **(Continued)**

Computer hangs when you select TokenTalk in Network Control Panel

1 Wait 30–40 seconds. Delay may be normal; it can take up to 30 seconds for network to respond.
2 Switch off computer and reseat card.
3 Verify that diagnostic LED on card is on. If not, replace card.
4 Verify that speed selected on card matches speed of ring to which computer is attached. If computer is attached to 4 MB ring, LED should be yellow. If computer is attached to 16 MB ring, LED should be green.

Network icon missing from Network Control Panel

1 Switch off computer and reseat card.
2 Startup disk has wrong version of software. Install Token Ring NB/c software from Network Software Installer disk that shipped with card (or later version) and restart computer.

Token Ring NB/c Card (Continued)

Network service
(file servers, print
servers, printers,
etc.) missing

1 Verify correct AppleTalk zone is selected.
2 Check cables and connections.
3 Verify that speed selected on card matches speed of ring to
   which computer is attached. If computer is attached to 4 MB
   ring, LED should be yellow. If computer is attached to 16 MB
   ring, LED should be green.

Can't change network
connection

1 Currently selected network is providing service that
   computer is using. Quit any network applications or
   extensions that are providing network services.
2 Computer is providing service that network is using. Quit
   any network applications or extensions that are providing
   network services.

Apple PCI Token Ring Card

AppleTalk or TCP/IP control panel icon missing

1   Verify that the AppleTalk or TCP/IP control panel is in the Control Panels folder. If it is not there:
   • Locate the control panel, drag it into the Control Panels folder and restart the computer.
   • If you can't locate the control panel, reinstall the network software.

Can't select TokenRing in AppleTalk or TCP/IP Control Panel

1   Verify network cable is properly attached.
2   Reinstall driver software.

System can't load the Token Ring driver at startup and reverts to LocalTalk

The system file may be damaged or the Token Ring driver installation was unsuccessful. Reinstall the driver software.

Apple PCI Token Ring Card (Continued)

Network services
don't appear in the
Chooser

1 Check the network connection.
2 Open the AppleTalk control panel and choose Token Ring from
   the popup menu. Restart the computer and then open the
   Chooser to check the available services.
3 If you can access some services but can't access a particular
   service, the device providing that service might be located in
   a different AppleTalk zone, or it might be malfunctioning,
   switched off, or disconnected from the network. There may
   also be a break somewhere in the network cables between
   your Macintosh and the missing service.

Two or more Token
Ring items appear in
the AppleTalk control
panel's popup menu

1 There may be more than one Token Ring card installed. Select
   the slot number of the card you want to use.
2 There may be earlier versions of the TokenTalk software on
   the system. Open the Extensions folder and drag older
   versions of the TokenTalk file to the Trash.

Apple PCI Token Ring Card **(Continued)**

System won't let you change the network connection

1 Essential services (such as file sharing) or programs may be in use that prohibit the change. Quit the service named in the system's alert message and try switching the network connection again.
2 Try quitting all application programs.
3 If it's OK to disrupt current services, shut down the Macintosh, using the Shut Down command. Restart the computer, change the network connection, and start the service or program again.

Token Ring item doesn't appear in the AppleTalk or TCP/IP control panel popup menu

Reinstall the driver software.