



# Ethernet and LocalTalk Products

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## Specifications

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## RJ-11 LocalTalk Connectors

<b>Topology</b>	Bus or star topology Star implemented using central hub (not available from Apple)
<b>Termination</b>	Required at both ends of cable Terminating resistor provided with each connector
<b>Connector Types</b>	Device side: DB-9 for Macintosh 128K, 512K, 512K enhanced, Plus, and LaserWriter/LaserWriter Plus; mini DIN-8 for all other AppleTalk compatible Apple products Network side: RJ-11
<b>Transmission Speed</b>	230.4 Kbps





<b>Cable Type</b>	Unshielded twisted pair (utp) Only outer pair of pins (pins 2 and 5) of the four wires are used; inner pair, pins 3 and 4, are still available.
<b>Maximum Cable Distance</b>	550 m (1800 ft.)
<b>Regulatory Certification</b>	FCC Class A tested No agency approvals required; not defined as a computing device.
<b>Operating Temperature</b>	32–31° F (0–55° C)
<b>Relative Humidity</b>	10–90% noncondensing





## Ethernet NB Twisted Pair

<b>Topology</b>	Star with IEEE 802.3-compatible 10Base-T hub
<b>Connector Type</b>	Ethernet 10Base-T compliant RJ-45 port
<b>Transmission Speed</b>	10 megabits per second (Mbps)
<b>Power Dissipation</b>	3.75 W or less (2 W average)
<b>Cable Type</b>	Unshielded twisted pair (utp)
<b>Operating Temperature</b>	50°–104° F (10°–40° C)





**Relative Humidity**

20-95% noncondensing at a temperature range of 77°-104° F  
(25°-40° C)





## Ethernet 10T/5 Workgroup Hub

### **Topology**

Star topology in minimum configuration; modified star when additional hubs are added

### **Connector Type**

Total of five connectors:

Four RJ-45 connectors for attaching to 10Base-T, Ethernet twisted pair cabling

One Apple Ethernet port (AAUI) connector for attaching to Macintosh host or LaserWriter printer with Apple Ethernet port

### **Transmission Speed**

10 megabits per second (Mbps)





<b>Diagnostic Displays</b>	Four LED indicators display Ethernet status (Link) and data transmission (one per port)
<b>Power Dissipation</b>	Maximum 1.9 W, average 1.5 W
<b>Cable Type</b>	Standard Category 3 or Category 5 twisted-pair cabling
<b>Maximum Cable Distance</b>	Complies with IEEE 802.3 standards
<b>Expansion Capabilities</b>	Expansion adapter allows for connection of up to four additional workgroup hubs
<b>Operating Temperature</b>	50–104° F (10–40° C)







**Relative Humidity**

20–95% noncondensing





## Apple PCI Ethernet Card

<b>Connector Type</b>	Apple AAUI: 14-pin Amp “Champ 0.50” PCB mounted plug Ethernet 10Base2: standard single male BNC Ethernet 10BaseT: female RJ-45 meeting ISO 8877
<b>Transmission Speed</b>	10 megabits per second (Mbps)
<b>Cable Type</b>	RG-58 A/U or C/U coaxial cable
<b>System Requirements</b>	One available PCI slot Unshielded twisted-pair cable or thin coax cable IEEE 802.3-compatible 10Base-T hub AIX operating system





**Operating  
Temperature**

10—40 ° C

**Storage  
Temperature**

-40—47 ° C

**Transit Temperature**

-40—65 ° C

**Relative Humidity**

20–95% noncondensing

**Altitude**

0—2135 Meters





## Apple PCI Ethernet 100BASE-TX Card

<b>Connector Type</b>	Ethernet 100BASE-TX-compliant RJ-45 port
<b>Transmission Speed</b>	100 megabits per second (Mbps)
<b>Cabling</b>	Category 5 unshielded twisted-pair cable Maximum distance between node and hub: 100 m Maximum network distance (with two-hub limit before bridging or routing): 205 m
<b>System Requirements</b>	One available PCI slot Category 5 unshielded twisted-pair cable IEEE 802.3u-compatible 100BASE-TX hub AIX operating system





**Operating  
Temperature**

10—50 ° C

**Storage  
Temperature**

-40—47 ° C

**Transit Temperature**

-40—65 ° C

**Relative Humidity**

20-95% noncondensing

**Altitude**

0—2135 Meters





# Troubleshooting

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## 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

## **EtherTalk Cards**

EtherTalk icon missing from Network extension in Control Panel

- 1 Switch off computer and reseal card.
- 2 EtherTalk software is not installed properly on current startup disk. Reinstall EtherTalk software.
- 3 Replace EtherTalk card.

Two or more EtherTalk icons appear in Network extension in Control Panel

Earlier versions of EtherTalk are on your startup disk. Remove earlier versions.







EtherTalk icon missing  
on startup

- 1 Switch off computer and reseal card.
- 2 EtherTalk software is not installed properly on current startup disk. Reinstall EtherTalk software.
- 3 System software is damaged. Reinstall system software.
- 4 Replace EtherTalk card.

Network service  
(servers, printers, etc.)  
missing from Chooser

- 1 Check service zones.
- 2 Versions of EtherTalk software on system and on network don't match. Network and system must both be using EtherTalk Phase II to work properly.
- 3 Check cables and connections.

Can't change network  
connection

- 1 Currently selected network is providing service that computer is using.
- 2 Computer is providing service that network is using.





Macintosh LC II hangs during startup with Ethernet LC Card installed

- 1 Verify Ethernet LC Card has updated ROM (part number 341-0470).





## **Ethernet NB Twisted Pair**

Green LED does not  
illuminate

Replace Ethernet NB Twisted Pair Card.





## Apple PCI Ethernet 100BASE-TX Card

Can't access network from host machine or data is not being transmitted

- 1 Check to be sure the network cable is attached securely to the Ethernet port on the card.
- 2 Check the LEDs on the card, which are visible from the server's rear panel. The green LED should be lit, indicating you are connected to a 100BASE-TX network and a valid MLT-3 signal is being received from the network. The yellow LED should blink when data is being transmitted or received.
- 3 If the green LED is not lit, verify you are connected to a valid (IEEE 802.3u-compatible) 100BASE-TX network.
- 4 Verify the driver setup. Refer to the Network Server installation manual for instructions.
- 5 Verify the PCI Ethernet card is installed properly. Reseat the card if necessary.
- 6 Replace the PCI Ethernet card with a known-good card.





## Apple PCI Ethernet Card

Can't access network from host machine or data is not being transmitted

- 1 Check to be sure the network cable is attached securely to the Ethernet port on the card.
- 2 Remove the top housing from the server and check the LEDs on the PCI Ethernet card.
  - The green LED should be lit if you are connected to a network via the 10Base-T connector.
  - The amber LED should be lit if you are connected to a network via the AAUI connector.
  - The first yellow LED should be lit if you are connected to a network via the BNC connector.
  - The second yellow LED should blink when data is being transmitted or received.
- 3 If the LED that is lit does not correspond to the cable attached to the PCI Ethernet card, verify the driver setup. Refer to the Network Server installation manual for instructions.





- 4 Verify the PCI Ethernet card is installed properly. Reseat the card if necessary.
- 5 Replace the PCI Ethernet card with a known-good card.

Clicking sounds or long pauses during system booting

If you installed a PCI Ethernet card in a Network Server and configured it by assigning it an IP address or enabling the AppleTalk stack on it, the card attempts to determine which of three possible media types is connected to it. The clicking will continue until you attach network media (that is, until a cable is attached to the card). Although this should cause no serious problems, the lack of media may cause long pauses during system booting, as the system attempts to contact other servers on the network. For more information on installing cards and AIX drivers, see Chapter 4 of the Setting Up the Network Server manual.





## Upgrades

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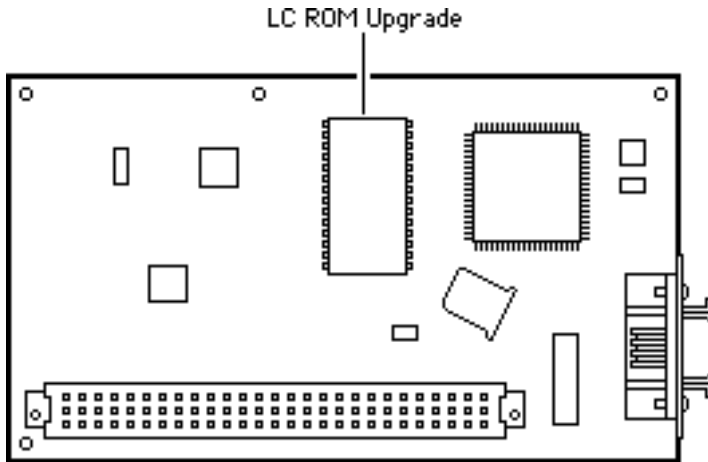


## Ethernet LC Upgrade

No preliminary steps are required before you begin this procedure.

The Ethernet LC Upgrade allows the original Ethernet LC card to be used in the Macintosh LC II.

The upgrade is required on Ethernet LC cards (part number 661-0621) used in the Macintosh LC II.







- 1 Carefully remove the ROM from location U1.
- 2 Install the new ROM. Pin 1 should be in the upper-left corner.

