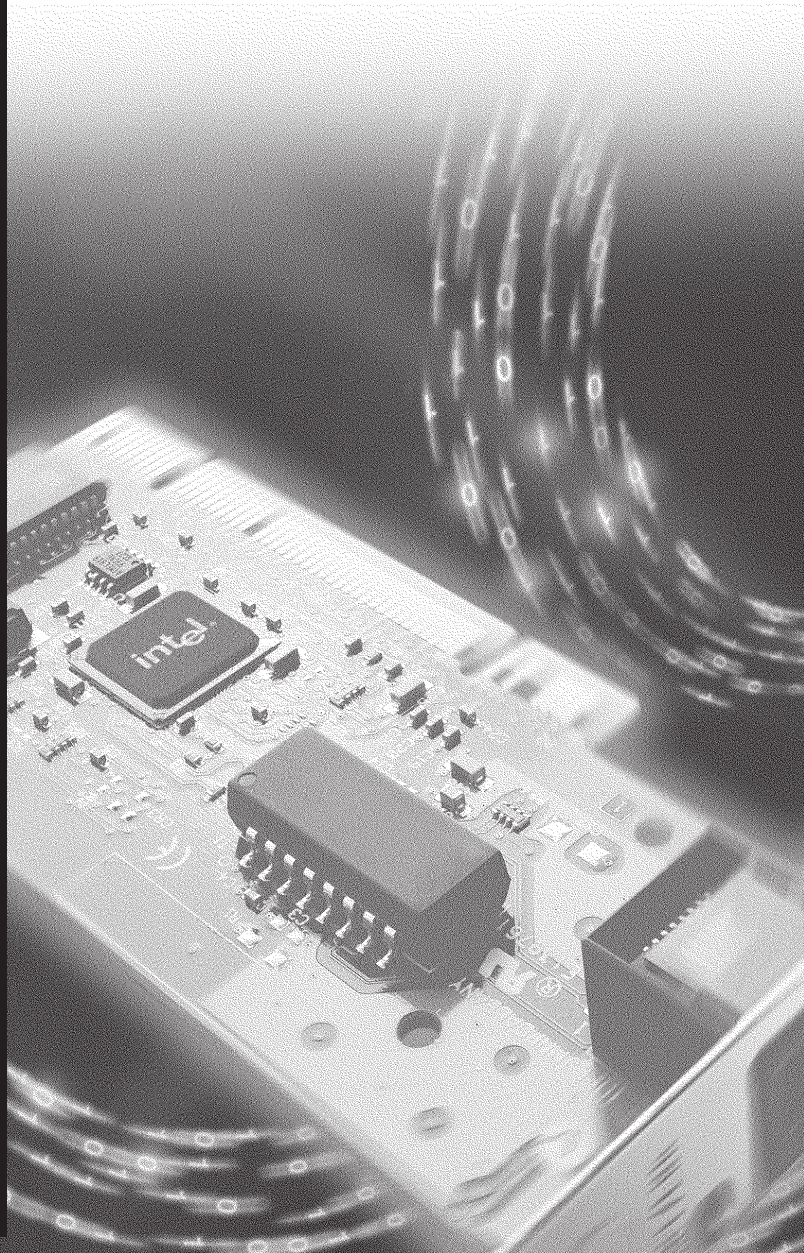




Intel® PRO/100 Intelligent Server Adapter

Fast, Manageable 10/100 Network Connections

Installation Guide



Where to go for more information

Readme Files



For detailed information about the adapter, see the readme files. To view the files, insert the Intel Configuration and Drivers CD into a drive, switch to that drive, and type:

```
SETUP / README 
```

Then select *View Help Files*.

Topics include:

- Release notes*
- PCI adapter installation*
- Installing network drivers*
- Diagnostics*
- VLAN setup*
- Adapter Teaming setup*
- Cabling specifications*

Online Services



You can use the internet to download software updates, troubleshooting tips, installation notes, and more. Online services are on the World Wide Web at:

<http://support.intel.com>

Late Breaking News



This printed document provides useful information about adapter compatibility and gives special installation release notes. Look for the *Late Breaking News* document in your shipping container.

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1 Use the Correct Cabling

2

100 Mbps network

To reliably operate your network at 100 Mbps, you must use Category 5 Twisted Pair Ethernet (TPE) cables, or higher quality-rated cabling. While Category 3 or 4 cables may initially seem to work, data loss is certain. Connect the network cable to the RJ-45 connector port on the adapter.

10 Mbps network

To operate your network at 10 Mbps, you can use Category 3, 4, or 5 TPE cabling. Connect the network cable to the RJ-45 connector port on the adapter.

Fiber optic network

For a fiber optic network, connect a fiber optic MII transceiver to the MII connector on the PRO/100 Intelligent Server adapter. To select cabling, refer to the transceiver documentation for a list of recommended cable types.

See the *Cabling specifications* readme files for more information.

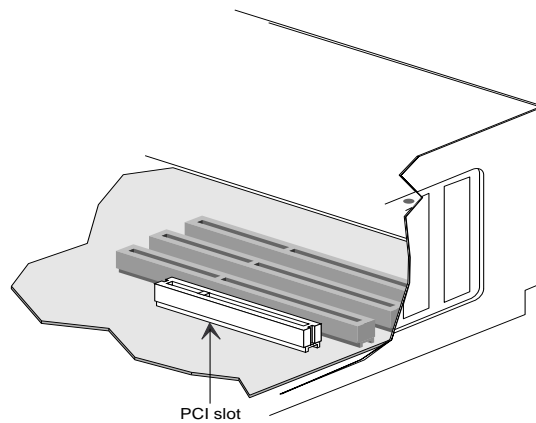
2 Put the Adapter in the Computer

- 1 Turn off and unplug your computer. Then remove its cover.



Turn off and unplug the computer before removing the computer's cover. Failure to do so could endanger you and may damage the adapter or computer.

- 2 Remove the cover bracket from a PCI bus master adapter slot. See your computer's documentation to determine which slots are bus master slots.



- 3 Push the adapter into the slot until the adapter is firmly seated. Then secure the adapter bracket with a screw.
- 4 Repeat steps 2 and 3 for each adapter you want to install.
- 5 Replace the computer cover and plug in the power cord.
- 6 Connect a cable to the adapter(s). Be sure to use the proper cable type, as described on page 2.
- 7 Turn the power on. The computer's PCI BIOS automatically assigns resources to the adapter(s). If you get a PCI configuration error, see page 21.

3 Install the Network Drivers

Driver installation procedures are included for:

- Windows* NT* 4.0 servers/workstations
- Windows NT 3.51 servers/workstations
- Novell NetWare* 3.12, 4.1x and 5.0 servers

Detailed instructions are in the readme files on the Intel Configuration and Drivers CD.

Windows NT 4.0 servers/workstations

The NDIS 4.0 driver, E100SNT4.SYS, is a high-performance driver that supports Windows NT 4.0 servers or workstations. This driver doesn't support Windows 3.51 or earlier versions. To install the driver:

- 1 In Control Panel, click the Network icon.
- 2 Go to the Adapters tab and click Add.
- 3 **Don't select an Intel adapter from the list. Instead, click Have Disk.**
- 4 Insert the Intel Configuration and Drivers CD into your CD-ROM drive.
- 5 Type D:\ (where D is the CD-ROM drive) in the dialog box, and then click OK. Follow the instructions to install the drivers. When the adapter is added, it appears in the Network adapters list.
- 6 Click OK, and then click Close. When prompted, restart Windows NT.

Windows NT 3.51 servers/workstations

The NDIS 3.0 driver, E100SNT3.SYS, is a high-performance driver that supports Windows NT 3.51 servers or workstations. To install the driver:

- 1 In Control Panel, click the Network icon.
- 2 Click the Add Adapter button.
- 3 **Don't select an Intel adapter from the list.** Instead, scroll to the end of the list and select:
<Other> Requires disk from manufacturer.
- 4 Insert the Intel Configuration and Drivers CD into your CD-ROM drive and then click OK.
- 5 The Intel PRO/100 Intelligent Server adapter setup screen appears. Click the Continue button.
- 6 In the Network Settings dialogbox, click OK. When prompted, restart Windows NT.

Novell NetWare* 3.12, 4.1x, and 5.0 servers

The Novell NetWare server driver, CE100SNW.LAN, is a high-performance driver that supports NetWare 3.12 and 4.1x servers.

NetWare 4.1x servers

- 1 Copy the CE100SNW.LAN file from the \NWSERVER directory on the Intel Configuration and Driver CD to the appropriate directory on your server's hard drive.
- 2 Add the following load and bind statements to the server's AUTOEXEC.NCF file so that CE100SNW.LAN loads automatically every time you start the server:

```
load ce100snw slot=n frame=ethernet_802.2 name=ce1e82
bind ipx cd1e82 net=xxxxxxx
```

Where:

slot=n is the PCI device number. If you don't know the number, load the driver without it. NetWare will prompt you with available PCI device numbers.

frame=ethernet_802.2 is the default frame type. To add additional frame types, load the driver again with a different frame setting.

net=xxxxxxx is the unique network address for that LAN segment.

- 3 Restart the computer.

NetWare 3.12 Servers with 3.3 Specification ODI Drivers

- 1 Copy the CE100SNW.LAN file from the \NWSERVER directory on the Intel Configuration and Driver CD to the appropriate directory on your server's hard drive.
- 2 Start the server. At the server console issue the load and bind statements in this order (include a path if files aren't in the \SYSTEM directory):

```
load ce100snw slot=n frame=ethernet_802.2
bind ipx to ce100snw net=xxxxx
```

Where:

slot=n is the PCI device number. If you don't know the number, load the driver without it. NetWare will prompt you with available PCI device numbers.

frame=ethernet_802.2 is the default frame type for NetWare 3.12. To add additional frame types, load the driver again with a different frame setting.

net=xxxxx is the unique network address for that LAN segment.

- 3 Add the above load and bind statements to the server's AUTOEXEC.NCF file so that CE100SNW.LAN loads automatically every time you start the server.

If your NetWare 3.12 server has not been upgraded with the 3.3 specification drivers, contact Novell for upgrade information.

4 Test the Adapter (Optional)

Intel's diagnostic software lets you test the adapter to see if there are any problems with the adapter hardware, the cabling, or the network connection. It's a good idea to run diagnostic tests every time you install an adapter. You can also use diagnostics to isolate problems during troubleshooting.

Windows NT

- 1 Windows NT 4.0: Click the Network icon in Control Panel. Then go to the Adapters tab and click Properties.
Windows NT 3.51: Click the Network icon in Control Panel. Then click Configure.
- 2 In PROSet, click a PRO/100 Intelligent Server adapter to select it. See the *Using PROSet* section in this guide for more information.
- 3 Click Test. The PROSet utility runs diagnostics on the adapter.

NetWare

- 1 If this computer already has PRO/100 Intelligent Server network drivers installed, down the server and boot to DOS.
- 2 Insert the Intel Configuration and Drivers CD into a drive, switch to that drive, and at the DOS prompt, type: `SETUP`
- 3 If you have more than one Intel PRO/100 Intelligent Server adapter in your computer, an Adapter Selection menu appears on the screen. From that menu, select the PRO/100 Intelligent Server adapter you want to test.
- 4 From the Main menu, select *Test adapter* and then select the type of test you want to run.
 - *Test adapter* to test the adapter components and run a quick network test.
 - *Continuous network test* to test the network by sending a continuous stream of packets to a responder out on the network.
To run this test, first set up a responder on the network as described below.
- 5 Repeat steps 3 and 4 for each PRO/100 Intelligent Server adapter installed in the computer.

Responder Testing

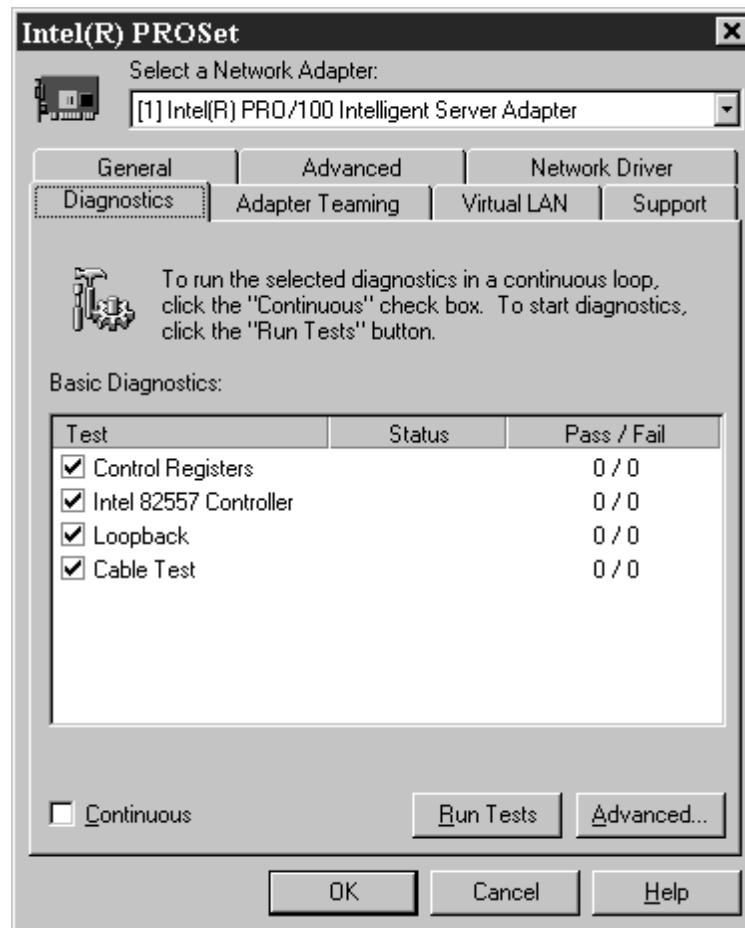
The PRO/100 Intelligent Server adapter can send test messages to another PRO/100 Intelligent Server adapter on the same network. To set up this type of responder test, view the *Diagnostics* readme file for instructions.



Using PROSet

When you install the PRO/100 Intelligent Server adapter Windows drivers, an advanced configuration utility called PROSet is also installed. Users running Windows NT can easily test hardware and set standard and advanced adapter features with PROSet.

PROSet runs when you highlight an adapter and click the Properties button in the Network control panel. The PROSet window is shown below.





Change Adapter Speed or Duplex Mode (Optional)

The PRO/100 Intelligent Server adapter driver auto-negotiates the adapter speed and duplex mode (which the network hub or switch determines). To manually change the speed and/or duplex follow these steps:

- 1 At the hub or switch, set the desired speed and duplex according to the hub or switch manufacturer's documentation, or move the cable to a port supporting that speed.



Use only Category 5 cable for 100 Mbps twisted pair wiring. For a fiber optic MII transceiver, use the cable type recommended in the transceiver documentation.

- 2 Unload the driver and then reload it. The adapter automatically negotiates the new speed and displays the detected network speed.
- 3 Check the LEDs on the adapter for correct speed indication.

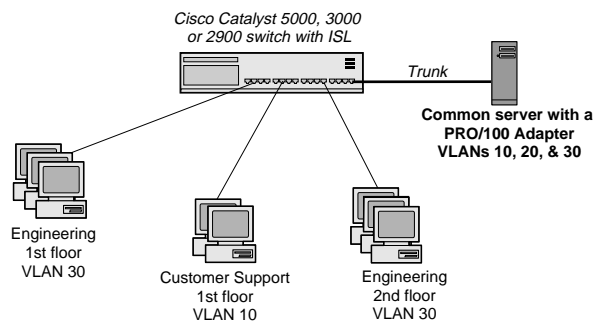
For more information, see the *Duplex* readme file. If attached to a fiber optic network, adapter speed and duplex must be manually set (auto-negotiation does not function on fiber optic cabling).



Join a Virtual LAN

A Virtual LAN (VLAN) is a logical grouping of network devices put together as a LAN regardless of their physical grouping or collision domains. VLANs let a user see and access only specified network segments. This increases network performance and improves network security.

VLANs offer the ability to group users and stations together into logical workgroups. This can simplify network administration when connecting clients to servers that are geographically dispersed across the building, campus, or enterprise network.



Typically, VLANs consist of co-workers within the same department but in different locations, groups of users running the same network protocol, or a cross-functional team working on a joint project. Joining workers with VLANs forms logical working groups.

Normally, VLANs are configured at the switch and any computer can be a member of one VLAN per installed network adapter. The PRO/100 Intelligent Server adapter supercedes this by communicating directly with a Cisco switch in ISL mode, allowing multiple VLANs on a single adapter (up to 64 VLANs).

To set up VLAN membership, your adapter must be attached to a Cisco switch with ISL capability. You also need to be using Windows NT 4.0 or later, or Novell NetWare 4.1x or later.

For more information on VLANs, see the Cisco switch documentation or the *VLAN* readme files on the Intel Configuration and Drivers CD.

General Configuration Notes

- Windows NT versions prior to 4.0 don't support VLANs.
- VLANs require NT 4.0 with Service Pack 3.0 and the NDIS driver hotfix from Microsoft. See the *Late Breaking News* for details.

- In Windows NT, VLANs cannot be implemented on adapters that have been configured for Teaming options. NetWare can support teaming options and VLANs on the same adapters.
- ISL VLAN capability is available only if you have a Cisco Catalyst* 2900, 3000, or 5000 switch with ISL (inter-switch link) capabilities.
- To join a VLAN, first make sure your server is connected to an ISL trunk port on the switch. This enables the server to be a member of any VLAN on the switch, up to 64 VLANs total. To configure a port to trunk mode, see the Cisco switch documentation.

To join a VLAN from Windows NT 4.0:

- 1 Create a VLAN on the switch. Use the parameters you assign there to join the VLAN from the server. See your Cisco documentation for more information. This documentation is available from Cisco's Web site:
<http://www.cisco.com>
- 2 Double-click the Network icon in Control Panel.
- 3 On the Adapters tab, select the adapter you want to be on a VLAN and click Properties.
- 4 Click Join VLAN in PROSet. Note that VLANs cannot be assigned to adapters that are already in an Adapter Teaming option.
- 5 Enter the VLAN ID and VLAN Name. The VLAN ID must match the VLAN ID on the switch. Valid ID range is from 1-1000. The VLAN Name is for informational purposes only and doesn't have to match the name on the switch.
- 6 Click Join VLAN. Follow steps 3-5 for each VLAN you want the server to join. The VLANs you add are listed on the Adapters tab.
- 7 Click Close and restart the computer.

To join a VLAN from NetWare 4.1x or 5.0:

- 1 Create a VLAN on the switch. See your Cisco documentation for more information. This documentation is available from Cisco's Web site:
<http://www.cisco.com>.
- 2 Add a load statement to your AUTOEXEC.NCF file. You can copy and customize sample load statements from the EXAMPLES.TXT file on the Intel Configuration and Drivers CD. When you've finished, restart your server.

For example:

```
;- Load LAN driver on the adapter
load cel100snw vlanmode=1 slot=a frame=ethernet_802.2
;- Create virtual adapters, assign VLAN IDs to each
load vlan vlanid=10 bindtoslot=a name=eng
frame=ethernet_802.2
```

```
;- Bind ipx to virtual adapters. Note: Do not bind
;- protocols to the CE100SNW driver.
bind ipx to eng net=2
```

Where:

vlanmode= 1 to turn the VLAN mode ON; 0 (default) to turn it OFF.

slot= the PCI slot your adapter is installed in, such as a. If you don't know the number, load the driver without it. NetWare will prompt you with available PCI device numbers.

frame= the frame type of the network segment the computer is on.

vlanid= a unique numeric identifier that matches the VLAN ID for the VLAN created on the switch. Valid ID range is from 1-1000.

name= name for the VLAN. This is for informational purposes only, and doesn't have to match the VLAN name on the switch.



Choose Adapter Teaming Options

The PRO/100 Intelligent Server adapter provides several options for increasing throughput and fault tolerance when running Windows NT 4.0 or NetWare 4.1x or newer:

Adapter Fault Tolerance (AFT) - provides automatic redundancy for your adapter. If the primary adapter fails, the secondary takes over. Adapter Fault Tolerance supports two to four adapters per team.

Adaptive Load Balancing (ALB) - allows balancing the transmission data flow among two to four adapters. Also includes the AFT option. Works with any 100BASE-TX switch.

Fast EtherChannel* (FEC) - creates a team of two or four adapters to increase transmission and reception throughput. Also includes AFT option. Requires a switch with FEC capability.

To set up an option, go to the appropriate section in the pages that follow.

General Configuration Notes

- Windows NT versions prior to 4.0 don't support Adapter Teaming options.
- Adapter Teaming options require NT 4.0 with Service Pack 3.0 and the NDIS driver hotfix from Microsoft. See the *Late Breaking News* for details.
- In Windows NT, teaming options cannot be implemented on adapters that have been configured for VLANs. NetWare can support teaming options and VLANs on the same adapters.

Set up Adapter Fault Tolerance Only

Note: Use this procedure for setting up AFT only. If setting up ALB or FEC, use the procedures in the next sections. The AFT feature runs automatically when you enable ALB or FEC.

Adapter Fault Tolerance (AFT) provides the safety of an additional backup link between the server and buffered repeater or switch. In the case of buffered repeater or switch port, cable, or adapter failure, you can maintain uninterrupted network performance through an adapter team.

AFT is implemented with a primary adapter and one or more backups, or secondary adapters. During normal operation, the backup adapters will have transmit disabled. If the link to the primary adapter fails, the link to the secondary adapter automatically takes over.

To use AFT, you must have at least two PRO/100 Intelligent Server adapters or one PRO/100 Intelligent Server adapter and one PRO/100+ Server or PRO/1000 adapter installed in your server or workstation and linked to the same network.

Setting up Adapter Fault Tolerance in Windows NT 4.0:

- 1 See software requirements for AFT in the previous section, *General Configuration Notes*.
- 2 Double-click the Network icon in Control Panel.
- 3 On the Adapters tab, select a PRO/100 Intelligent Server adapter that will be in the team and click Properties.
- 4 In the PROSet window, click the Adapter Teaming tab.
- 5 Click the Add Adapter to a Team button.
- 6 The Teaming Wizard starts. Follow the wizard steps for assigning adapters to a team. AFT supports up to four PRO/100 Intelligent Server, PRO/1000, or PRO/100+ Server adapters per team, in any mix. Note that you can specify a Preferred Primary adapter, which in most cases will be your highest bandwidth adapter. See the PROSet help for more information.
- 7 Click OK, and then click Close to finish. When prompted, restart your computer.

Configuring Properties

The default AFT properties are suitable for most applications. To adjust them, follow this procedure.

- 1 Run PROSet.
- 2 On the adapter list, select the desired AFT team.
- 3 Click the Advanced Settings tab.
- 4 Adjust parameters as required. Click Help for more information.

Deleting a team



The frame type for each adapter in the team reverts to **Auto** when a team is deleted.

- 1 Double-click the Network icon in Control Panel.
- 2 On the Adapters tab, select the AFT team to delete.
- 3 Click Remove. A confirmation dialog box appears. Click Yes.
- 4 Click Close. Restart Windows NT when prompted.

Setting up Adapter Fault Tolerance in NetWare:

- 1 Copy the following lines from the EXAMPLES.TXT file (on the Intel Configuration and Drivers CD) and paste them into the appropriate files.



Adapter Fault Tolerance must be loaded before the PRO/100 Intelligent Server adapter driver, CE100SNW.LAN, or any other LAN driver.

Copy this line into the STARTUP.NCF file

```
;- Load Adapter Fault Tolerance  
load aft
```

Copy these lines into the AUTOEXEC.NCF file

```
;- Load LAN Driver on 1st Adapter  
load ce100snw slot=a frame=ethernet_802.2  
name=pri_802.2  
  
;- Load LAN Driver on 2nd Adapter  
load ce100snw slot=b frame=ethernet_802.2  
name=sec_802.2  
  
;- Bind ipx to 1st adapter. Note: do not bind protocols to 2nd  
;- adapter  
bind ipx pri_802.2 net=2  
  
;- Set the 2nd Adapter to be a Fault Tolerance Partner to  
;- the 1st adapter  
aft bind a b
```

Where:

slot= the slot your PRO/100 Intelligent Server adapter is installed in, such as a. If you don't know the number, load the driver without it. NetWare will prompt you with available PCI device numbers.

a is the primary adapter's slot number.

b is the secondary adapter's slot number.

`frame=` the frame type of the network segment the computer is on. Frame type must be the same for the primary and all secondary adapters.

Note that you can specify a Preferred Primary adapter, which in most cases will be your highest bandwidth adapter. See the NW411.TXT file on the CD for more information.

- 2 Modify the lines to match your server's requirements.
- 3 Save the AUTOEXEC.NCF file and restart your server.

Deleting a team

To remove a team in AFT or ALB mode, comment out the lines above and restart the server.

Set up Adaptive Load Balancing

Adaptive Load Balancing (ALB) is a simple and efficient way to balance the transmission load of your server among two to four PRO/100 Intelligent Server adapters. With ALB you group PRO/100 Intelligent Server adapters in teams. The ALB software continuously analyzes transmit loading on each adapter and balances the rate across the adapters as needed. Adapter teams configured for ALB also provide the benefits of AFT. Received data is not load-balanced.



For maximum benefit, ALB should not be used under NetBEUI and some IPX* environments. For a list of specific IPX environments supported, see the *Teaming Options Supported by OS and Protocol* section.

To use ALB, your adapters must be configured as a team in your server and be linked to the same network.

Setting up ALB in Windows NT 4.0:

- 1 Double-click the Network icon in Control Panel.
- 2 On the Adapters tab, select an adapter that will be in the team, and then click Properties.
- 3 In the PROSet window, click Adapter Teaming.
- 4 Click OK when prompted. You'll see the Adapter Teaming Configuration window.
- 5 Follow the instructions to assign adapters to a team.
- 6 Select Load Balancing in the Team Function area. ALB supports up to four PRO/100 Intelligent Server adapters per team.
- 7 Click OK, and then click Close to finish. When prompted, restart your server.

Deleting a team



The frame type for each adapter in the team reverts to **Auto** when a team is deleted.

- 1 Double-click the Network icon in Control Panel.
- 2 On the Adapters tab, select the ALB team to delete.
- 3 Click Remove. You'll see a confirmation dialog box. Click Yes.
- 4 Click Close. Restart when prompted.

Setting up ALB in NetWare:

- 1 Copy the following lines from the EXAMPLES.TXT file (on the PRO/100 Intelligent Server adapter CD) and paste them into the appropriate file. These commands assume the AFT.NLM and CE100SNW.LAN files are in the system directory (SYS:SYSTEM) of your server. (Files must be copied from the PRO/100 Intelligent Server adapter CD to your server's hard drive).



The Adaptive Load Balancing driver (AFT.NLM) must be loaded before the PRO/100 Intelligent Server adapter driver, CE100SNW.LAN, or any other LAN driver.

Copy this line into the STARTUP.NCF file

```
;- Load Adaptive Load Balancing  
load aft
```

Copy these lines into the AUTOEXEC.NCF file

```
;- Load LAN Driver on 1st Adapter  
load ce100snw slot=a frame=ethernet_802.2  
name=pri_802.2  
  
;- Load LAN Driver on 2nd Adapter  
load ce100snw slot=b frame=ethernet_802.2  
name=sec_802.2  
  
;- Bind ipx to 1st adapter  
bind ipx pri_802.2 net=2  
  
;- Set the 2nd Adapter to be a Load Balancing Partner to  
;- the first adapter  
aft balance a b
```

Where:

slot= the slot your PRO/100 Intelligent Server adapter is installed in, such as
a. If you don't know the number, load the driver without it. NetWare will
prompt you with available PCI device numbers.

a is the primary adapter's slot number.

b is the secondary adapter's slot number.

frame= the frame type of the network segment the computer is on.

- 2 Modify the lines to match your server's requirements.
- 3 Save the AUTOEXEC.NCF and STARTUP.NCF files, and restart your server.

Deleting a team

To remove a team in AFT or ALB mode, comment out the lines above and restart the server.

Set up Intel Fast EtherChannel

Fast EtherChannel (FEC) is a performance technology developed by Cisco to increase throughput between switches. Intel has implemented FEC on server adapters to increase your server's throughput. Unlike ALB, FEC can be configured to increase both transmission **and** reception channels between your server and switch. FEC works only with FEC-enabled Cisco switches, such as the Catalyst 5000 series. With FEC, as you add adapters to your server, you can group them in teams to provide up to 800 Mbps at full duplex, with a maximum of four PRO/100 Intelligent Server adapters. The FEC software continuously analyzes loading on each adapter and balances network traffic across the adapters as needed. Adapter teams configured for FEC also provide the benefits of AFT (see page 11).

To use FEC, you must have two or four PRO/100 Intelligent Server adapters configured as an FEC Team in your server or workstation and linked to the same FEC-enabled Cisco switch.

Setting up FEC in Windows NT 4.0:

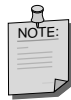
- 1 Double-click the Network icon in Control Panel.
- 2 On the Adapters tab, select a PRO/100 Intelligent Server adapter that will be in the team and click Properties. (Don't use an adapter that is on a VLAN.)
- 3 Click Adapter Teaming in the PROSet window.
- 4 Click OK when prompted. The Adapter Teaming Configuration window appears. Choose if you want to set up an adapter team.
- 5 Follow the instructions for assigning adapters to a team. FEC supports up to two adapter teams, two or four adapters per team.
- 6 In the Team Function area, select Fast EtherChannel.
- 7 Click OK, and then click Close to finish. When prompted, restart your computer.

Deleting a team

- 1 Double-click the Network icon in Control Panel.
- 2 On the Adapters tab, select the FEC team to delete.
- 3 Click Remove. A confirmation dialog box appears. Click Yes.
- 4 Click Close. Restart when prompted.

Setting up FEC in NetWare:

- 1 Copy the following lines from the EXAMPLES.TXT file (on the Intel Configuration and Drivers CD) and paste them into the appropriate files.



Fast EtherChannel must be loaded before the PRO/100 Intelligent Server adapter driver, CE100SNW.LAN, or any other LAN driver.

Copy this line into the STARTUP.NCF file

```
;- Load Fast EtherChannel  
load aft
```

Copy these lines into the AUTOEXEC.NCF file

```
;- Load LAN Driver on 1st Adapter  
load ce100snw slot=a frame=ethernet_802.2  
name=pri_802.2  
  
;- Load LAN Driver on 2nd Adapter  
load ce100snw slot=b frame=ethernet_802.2  
name=sec_802.2  
  
;- Bind ipx to 1st adapter  
bind ipx pri_802.2 net=2  
  
;- Set the 2nd Adapter to be a Fast EtherChannel Partner to  
;- the first adapter  
aft fec a b
```

Where:

slot= the slot your PRO/100 Intelligent Server adapter is installed in, such as a. If you don't know the number, load the driver without it. NetWare will prompt you with available PCI device numbers.

frame= the frame type of the network segment the computer is on.

a is the primary adapter's slot number.

b is the secondary adapter's slot number.

- 2 Modify the lines to match your server's requirements.
- 3 Save the AUTOEXEC.NCF and STARTUP.NCF files, and then restart your server.

Deleting a team

To remove a team, comment out the lines above and restart the server.

Teaming Options Supported by OS and Protocol

	Windows NT 4.0	NetWare 4.11
AFT	IP, NetBEUI, IPX (NCP), IPX (NetBIOS)	IP, IPX (NCP)
ALB	IP, IPX (NCP)	IP, IPX (NCP)
FEC	IP, NetBEUI, IPX (NCP), IPX (NetBIOS)	IP, IPX (NCP)

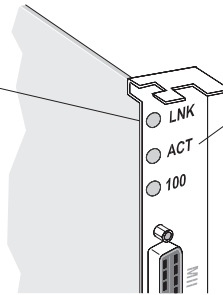
Note that only IPX packets type NCP (Netware Core Protocol) are load balanced.



Can't Connect to the Network

1. Check the LED lights on the adapter

If the LNK light isn't on, check all connections at the adapter and the hub or switch. Make sure the hub or switch is transmitting at the correct speed and the drivers are loaded.



If the ACT light isn't on, the network probably isn't transmitting or receiving data. Make sure the hub or switch and network are operating and the drivers are loaded.

LNK Indicates the adapter is connected to a hub or switch and is receiving link pulses.

ACT Indicates read/write activity on the network. It doesn't always mean there is activity on the adapter.

100 On indicates 100 Mbps. Off indicates 10 Mbps.

If you're using a crossover cable, load the drivers on both servers before trying to read the LEDs.

2. Make sure the cable is installed properly

The network cable must be securely attached at all connections. If the cable is attached but the problem persists, try a different cable.

3. Test the adapter

Run the adapter and network tests described on page 6.

4. Look in the *Common Problems and Solutions* table on page 20 and try the recommended solutions

This table lists common problems and their solutions. If none of these work, check the *Late-breaking News* that came with the adapter or get document 6328, *Troubleshooting Notes from Tech Support* from one of Intel's online services. This is a generic adapter troubleshooting document. See the inside back cover for information on connecting to Intel's online services.



Common Problems and Solutions

Problem	Solutions
Your computer can't find the PRO/100 Intelligent Server adapter.	<ul style="list-style-type: none">• Make sure the adapter is seated firmly in the slot.• Try a different PCI busmaster slot. See your server's documentation to identify busmaster slots.• Try a different PRO/100 Intelligent Server adapter.
Diagnostics pass, but the connection fails.	<ul style="list-style-type: none">• Try running the <i>Continuous Network Test</i>.• Make sure the network cable is securely attached.• Make sure that you're using Category 5 TPE cabling for 100 Mbps.
Data is corrupted or sporadic at 100 Mbps.	<ul style="list-style-type: none">• Make sure you are using TPE Category 5 cabling.
Another adapter stopped working after you installed the PRO/100 Intelligent Server adapter.	<ul style="list-style-type: none">• Make sure the cable is connected to the PRO/100 Intelligent Server adapter and not to another adapter.• Check for a resource conflict.• Make sure both adapters are seated firmly in the slot.
The adapter stopped working without apparent	<ul style="list-style-type: none">• Try reseating the adapter.• The network driver files may be corrupt or cause. deleted. Reinstall the drivers.• Try a different PRO/100 Intelligent Server adapter.
LNK LED does not light.	<ul style="list-style-type: none">• Make sure you've loaded the drivers.• Check all connections at the adapter and the hub or switch.• Try another port on the hub or switch.• Make sure that the hub or switch port is configured for the correct speed and duplex mode.• If you're using a crossover cable, make sure the drivers are loaded on both servers.
ACT LED does not light.	<ul style="list-style-type: none">• Make sure you've loaded the network drivers.• Network may be idle; try logging in from a workstation.• The adapter isn't transmitting or receiving data; try another adapter.



PCI Configuration Troubleshooting

Some PCI computers require additional steps to configure a PCI adapter. Try the following if you are having problems configuring the adapter:

- **Enable the PCI slot.** In some PCI computers, you may need to use the PCI BIOS Setup program to enable the PCI slot. This is especially common in PCI computers with the PhoenixBIOS*.
- **Enable the slot for busmaster.** You must install the PRO/100 Intelligent Server adapter in a busmaster slot. Some PCI BIOS Setup programs require you to enable the slot for busmaster/master. Check your PCI BIOS Setup program and the computer's documentation to make sure the slot is set for busmaster/master.
- **Configure the slot for level-triggered interrupts.** The PCI slot the adapter is using must be configured for level-triggered interrupts instead of edge-triggered interrupts. Check your PCI BIOS Setup program to make sure triggering is set up.
- **Reserve interrupts and/or memory addresses for ISA adapters.** This prevents PCI cards from trying to use the same settings as ISA cards. Check your PCI BIOS Setup program; there may be IRQ options such as "Enable for ISA" or "Disable for PCI."

Here are some example PCI BIOS Setup program parameters:

PCI slot #:	<i>Slot where the adapter is installed (1-3)</i>
Master:	ENABLED
Slave:	ENABLED
Latency timer:	40
Interrupt:	<i>Choose any one of several that the BIOS Setup provides.</i>
Edge-level:	Level

The exact wording of the parameters varies with different computers.

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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