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Prepared by OS Integration Engineering

Compaq Computer Corporation

Contents

Compaq Support Software for Novell Products: Historical Driver/Utility Changes

Abstract: This document chronicles updates made to each driver and utility released on the Compaq Support Software for Novell Products (Novell SSD)—formerly NetWare Programs from Compaq (NPFC). These drivers and utilities optimize the performance of Compaq servers and options in an intraNetWare (NetWare 4.11) or NetWare environment.

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Notice

Compaq Support Software for Novell Products: Historical Driver/Utility Changes
Integration Note prepared by OS Integration Engineering

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Overview

This Integration Note describes updates to Compaq drivers and utilities designed to optimize Compaq servers running in a NetWare environment. The drivers and utilities, or NetWare Loadable Modules (NLMs), are currently available from the Compaq Support Software for Novell Products (Novell SSD) CD-ROM. Compaq regularly tests the Novell drivers and utilities in a variety of system configurations and under a variety of network conditions. This allows Compaq to deliver the components necessary to keep your systems performing optimally.

These NLM updates, formerly found in the "Historical Information" section of the Novell SSD, provide two basic types of information: 1) issues resolved with the updated version and 2) features and equipment supported. More specifically,

- Learn what hardware components are supported by the Novell SSD
- Determine what issues are resolved with the latest software release
- Discover enhancements added to each driver/utility
- Learn how to stay abreast of the latest Novell SSD updates
- Find out how to provide feedback on the Novell SSD

This Integration Note is organized by system component and then alphabetically by driver/utility.

Appendix A lists each driver and version associated with every NetWare Programs from Compaq (NPFC) and Novell SSD release.

Installation Drivers

CPQCHW.NLM

CPQCHW.NLM gathers hardware information from a NetWare server and sends it back to the *CPQNSSU.NLM* using the Compaq Communication Module (*CPQCOMM.NLM*).

CPQCMODS.NLM

CPQCMODS.NLM collects data from other modules loaded on a NetWare server and communicates it back to the *CPQNSSU.NLM* using the Compaq Communication Module (*CPQCOMM.NLM*).

CPQCOMM.NLM

CPQCOMM.NLM allows the *CPQNSSU.NLM* to communicate with other NLMs on local or remote servers.

CPQDOSLB.NLM

CPQDOSLB.NLM assists in file manipulation on a DOS partition of a remote NetWare server. The information about remote DOS files is sent and received using *CPQCOMM.NLM*.

CPQLIB.NLM

CPQLIB.NLM exports several functions that assist the *CPQNSSU.NLM.*

CPQNSSC.NLM

CPQNSSC.NLM supplies the installation script for *CPQNSSU.NLM*.

CPQNSSU.NLM

CPQNSSU.NLM updates Novell SSD drivers to a NetWare Server. This driver has the ability to gather a list of Compaq drivers loaded on the server, the built-in intelligence to decide if those drivers are current, and the option to update those drivers either locally or remotely.

Note: *CLIBAUX.NLM* is required for NetWare 3.12 to run with *CPQNSSU.NLM*.

CPQRBOOT.NLM

CPQRBOOT.NLM restarts the target server. When the user selects to restart the server, *CPQNSSU.NLM* communicates with *CPQRBOOT.NLM* using the Compaq Communication Module (*CPQCOMM.NLM*). *CPQRBOOT.NLM* then restarts the server.

CPQSTAT.NLM

CPQSTAT.NLM is the Compaq Remote Status Module.

Client Drivers

The Novell ODI client drivers support DOS and OS/2 workstations. *CPQETHNW.COM*, *CPQNF3.COM*, *CPQTOKNW.COM*, *CPQTRPCI.COM*, *N100ODI.COM*, and *PCNTNW.COM* are the DOS ODI client drivers. The OS/2 ODI client drivers include *CPQETHNW.SYS*, *CPQNF3.SYS*, *CPQTOKNW.SYS*, and *PCNTNW.SYS*.

CPQETHNW.COM

CPQETHNW.COM provides support for the following controllers:

- NetFlex ENET-TR Controller
- NetFlex-2 ENET-TR Controller
- NetFlex-2 DualPort ENET Controller

Table 1 lists *CPQETHNW.COM* resolved issues with the corresponding version release.

Table 1. *CPQETHNW.COM* resolved issues

Version	Resolved Issues
1.36	Avoids a potential client lockup on dirty or noisy networks.
1.35	Uses only Port 1.
1.34	Prevents lockups on DOS workstation with extremely heavy-receive traffic.

1.33	Prevents possible data corruption on PCI machines. Detects the replacement of a NetFlex ENET-TR Controller with a NetFlex-2 ENET-TR Controller and enables the Packet Blaster circuitry.

Table 2 describes features added to *CPQETHNW.COM* with the corresponding version release.

Table 2. *CPQETHNW.COM* features

Version	Features
1.35	Enhances controller-buffer management when using multiple NetFlex Controllers to 1) improve performance in high-traffic environments and 2) prevent the *No ECB available* statistic from increasing as rapidly.

CPQETHNW.SYS

The NetFlex Ethernet Controller uses *CPQETHNW.SYS* as the OS/2 ODI client driver.

Table 3 lists *CPQETHNW.SYS* resolved issues with the corresponding version release.

Table 3. *CPQETHNW.SYS* resolved issues

Version	Resolved Issues
1.28	Prevents a *trap D* that might occur during initialization if using SNAP packets.
1.27	Avoids a potential client lockup on dirty or noisy networks.
1.26	Uses only Port 1.
1.25	Prevents an OS/2 application server with heavy-receive traffic from disappearing from the network (typically seen when running Lotus Notes).
1.24	Prevents possible data corruption on PCI machines. Detects the replacement of a NetFlex ENET-TR Controller with a NetFlex-2 ENET-TR Controller and enables the Packet Blaster circuitry.

Table 4 describes features added to *CPQETHNW.SYS* with the corresponding version release.

Table 4. *CPQETHNW.SYS* features

Version	Features
1.26	Enhances controller-buffer management when using multiple NetFlex Controllers to 1) improve performance in high-traffic environments and 2) prevent the *No ECB available* statistic from increasing as rapidly.
1.21	Improves robustness on high-traffic and/or faulty networks.

CPQNF3.COM

The DOS ODI Client Driver, *CPQNF3.COM*, provides support for the following controllers:

- Integrated 10/100 TX UTP Controller in the Compaq ProLiant 2500 Server
- Netelligent 10 T PCI UTP Controller
- Netelligent 10 T/2 PCI UTP Coax Netelligent 10/100 TX PCI UTP Controller
- NetFlex-3 Controllers

Table 5 lists *CPQNF3.COM* resolved issues with the corresponding version release.

Table 5. *CPQNF3.COM* resolved issues

Version	Resolved Issues
2.27	Corrects potential issues with the Netelligent 10/100 TX PCI UTP Controller and third-party products.
1.10	Improves performance on some systems using the NetFlex-3/E 100VG-AnyLAN Module.

Table 6 describes features added to *CPQNF3.COM* with the corresponding version release.

Table 6. *CPQNF3.COM* features

Version	Features
2.26	Supports the Compaq Netelligent 10 T/2 PCI UTP Coax Controller.
2.21	Supports the NetFlex-3 100Base-FX Module and the Netelligent Dual 10/100 TX PCI UTP Controller.
2.10	Supports the Integrated 10/100 TX UTP Controller in the Compaq ProLiant 2500 Server. Adds AUI keyword for the Attachment Unit Interface Connector.
2.00	Supports the Netelligent 10 T PCI UTP Controller and the Netelligent 10/100 TX PCI UTP Controller.
1.20	Supports Novell certification. Supports VG hubs that use larger training-frame sizes.
1.10	Supports NetFlex-3 Controllers in a DOS ODI client environment. (The base module can be configured with the Compaq 10Base-T UTP/BNC, 100VG-AnyLAN, or 10/100Base-TX UTP Module.) Detects *Transmit Timeouts*, which allows the hardware to be reset and continue when a transmit timeout occurs. Improves performance and minimizes collisions on the NetFlex-3 Controller when using the 10/100Base-TX UTP Module on high-traffic multiple-repeater 100Base-T networks.
1.00	Supports NetFlex-3 Controllers. Supports NetWare LANalyzer Agent version 2.1.

CPQNF3.SYS

CPQNF3.SYS supports the following Compaq controllers:

- Integrated 10/100 TX UTP Controller
- Netelligent 10 T PCI UTP Controller
- Netelligent 10/100 TX PCI UTP Controller
- Netelligent Dual 10/100 TX PCI UTP Controller
- Netelligent Integrated 10/100 TX UTP Controller (Compaq ProLiant 2500 Server)
- NetFlex–3 Controller

Table 7 lists *CPQNF3.SYS* resolved issues with the corresponding version release.

Table 7. *CPQNF3.SYS* resolved issues

Version	Resolved Issues
2.40	Corrects initialization issues with the Netelligent Dual 10/100 TX PCI UTP Controller.

Table 8 describes features added to *CPQNF3.SYS* with the corresponding version release.

Table 8. *CPQNF3.SYS* features

Version	Features
2.50	Supports the Compaq Netelligent Integrated 10/100 TX UTP Controller in the Compaq ProLiant 2500 Server.
2.40	Disables Memory Write Invalidate for the Netelligent Dual 10/100 TX Controller. Supports the Compaq Netelligent 10 T/2 PCI UTP Coax Controller.
2.21	Supports the NetFlex-3 100Base-FX Module and the Netelligent Dual 10/100 TX PCI UTP Controllers.
2.11	Supports the Integrated 10/100 TX UTP Controller in the Compaq ProLiant 2500 Server. Adds AUI keyword for the Attachment Unit Interface Connector.
2.00	Supports the Netelligent 10 T PCI UTP Controller and the Netelligent 10/100 TX PCI UTP Controller.
1.10	Supports VG hubs that use larger training-frame sizes.
1.00	Supports the NetFlex-3 Controllers in an OS/2 environment.

CPQTOKNW.COM

CPQTOKNW.COM, the DOS ODI client driver for NetFlex Token Ring Controllers, provides support for the following Compaq products:

- NetFlex ENET-TR Controller w/Token Ring Module
- NetFlex-2 ENET-TR Controller w/Token Ring Module
- NetFlex-2 TR Controller
- NetFlex-2 DualPort TR Controller

Table 9 lists *CPQTOKNW.COM* resolved issues with the corresponding version release.

Table 9. *CPQTOKNW.COM* resolved issues

Version	Resolved Issues
1.56	Avoids a potential client lockup on dirty or noisy networks.
1.55	Uses only Port 1.
1.54	Prevents lockups on DOS workstations with extremely heavy-receive traffic.
1.53	Prevents possible data corruption on PCI machines. Detects the replacement of a NetFlex ENET-TR Controller with a NetFlex-2 ENET-TR Controller and enables the Packet Blaster circuitry.

Table 10 describes features added to *CPQTOKNW.COM* with the corresponding version release.

Table 10. *CPQTOKNW.COM* features

Version	Features
1.55	Enhances controller-buffer management when using multiple NetFlex Controllers to 1) improve performance in high-traffic environments and 2) prevent the *No ECB available* statistic from increasing as rapidly.
1.51	Supports the Compaq NetFlex-2 TR Controller.

CPQTOKNW.SYS

Table 11 lists *CPQTOKNW.SYS* resolved issues with the corresponding version release.

Table 11. *CPQTOKNW.SYS* resolved issues

Version	Resolved Issues
1.38	Prevents a *trap D* that might occur during initialization if using SNAP packets.
1.37	Avoids a potential client lockup on dirty or noisy networks.
1.36	Uses only Port 1.
1.35	Stops an OS/2 application server with heavy-receive traffic from disappearing from the network (typically seen when running Lotus Notes).
1.34	Prevents possible data corruption on PCI machines. Detects the replacement of a NetFlex ENET-TR Controller with a NetFlex-2 ENET-TR Controller and enables the Packet Blaster circuitry.
1.31	Allows the driver to load with no cable attached to the network card.

Table 12 describes features added to *CPQTOKNW.SYS* with the corresponding version release.

Table 12. *CPQTOKNW.SYS* features

Version	Features
1.36	Enhances controller-buffer management when using multiple NetFlex Controllers to 1) improve performance in high-traffic environments and 2) prevent the *No ECB available* statistic from increasing as rapidly.

CPQTRPCI.COM

The DOS ODI client, *CPQTRPCI.COM*, supports PCI Hot Plug technology.

Table 13 describes features added to *CPQTRPCI.COM* with the corresponding version release.

Table 13. *CPQTRPCI.COM* features

Version	Features
2.8	Supports the Compaq Netelligent 4/6 TR UTP/STP Controllers.

N100ODI.COM

N100ODI.COM supports the following controllers:

- Netelligent 10/100 TX PCI Intel UTP Controller
- Netelligent 10/100 TX PCI Intel WOL UTP Controller
- Netelligent 10 PCI Intel UTP Controller

PCNTNW.COM

PCNTNW.COM provides support for the ProSignia Integrated NetFlex-L ENET Controller and the Deskpro XL Integrated NetFlex ENET/PCI Controller.

Table 14 lists *PCNTNW.COM* resolved issues with the corresponding version release.

Table 14. *PCNTNW.COM* resolved issues

Version	Resolved Issues
2.00	Recognizes the Compaq Integrated NetFlex-L ENET Controller and the Compaq Integrated NetFlex ENET/PCI Controller when loading.

Table 15 describes features added to *PCNTNW.COM* with the corresponding version release.

Table 15. *PCNTNW.COM* features

Version	Features
2.20	Supports future hardware.
2.00	Supports the ProSignia 500 Family of Servers.
	Shares interrupts with the Deskpro XL Integrated NetFlex ENET/PCI Controller and the ProSignia 500 Integrated NetFlex-L ENET Controller (the ProSignia VS Integrated NetFlex-L ENET Controller cannot share interrupts).

PCNTNW.SYS

Table 16 lists *PCNTNW.SYS* resolved issues with the corresponding version release.

Table 16. *PCNTNW.SYS* resolved issues

Version	Resolved Issues
2.00	Removes an extra space at the end of the embedded driver name. (The space had prevented the driver from binding to TCP/IP protocol when used with the Citrix OS/2 operating system.)
	Recognizes the Compaq Integrated NetFlex-L ENET Controller and the Compaq Integrated NetFlex ENET/PCI Controller when loading.

Table 17 describes features added to *PCNTNW.SYS* with the corresponding version release.

Table 17. *PCNTNW.SYS* features

Version	Features
2.20	Supports future hardware.
2.00	Supports the ProSignia 500 Family of Servers.
	Enhances performance when Packet Burst is enabled.
	Shares interrupts with the Deskpro XL Integrated NetFlex ENET/PCI Controller and the ProSignia 500 Integrated NetFlex-L ENET Controller (the ProSignia VS Integrated NetFlex-L ENET Controller cannot share interrupts).

Network Server LAN Drivers

The Novell LAN drivers provided by Compaq support intraNetWare (NetWare 4.11), intraNetWare SFT-III, NetWare 3.12, and NetWare for SAA, v1.3 or greater. *CPQETHER.LAN* and *CPQTOKEN.LAN* provide support for the NetFlex-2 ENET-TR, NetFlex ENET-TR, and dual-speed Token Ring Controllers. Use *CPQ2ETH.LAN* for DualPort Ethernet Controllers and *CPQ2TOK.LAN* for DualPort Token Ring Controllers.

The Novell LAN drivers provided by Compaq comply with the ODI 3.3 specification for intraNetWare (NetWare 4.11) and NetWare. These drivers support up to 3 GB of memory on Compaq servers. The LAN drivers also support the Novell intraNetWare Client32 software.

CPQ2ETH.LAN

DualPort Ethernet Controllers use *CPQ2ETH.LAN*.

Table 18 lists *CPQ2ETH.LAN* resolved issues with the corresponding version release.

Table 18. *CPQ2ETH.LAN* resolved issues

Version	Resolved Issues
3.12	Performs a reset on a partial shutdown to ensure that the Network Interface Card (NIC) receiver was not active. This allows the driver to continue receiving interrupts on received data. (Previously, this had caused a condition where data might be received, but there was no valid Received Control Block (RCB) to return the data to the operating system.)
3.11	Allows full-duplex enabling on the first port loaded.
3.02	Validates packets before transmission. Invalid packets are not transmitted and the Send Abort Bad TCB from TSM custom counter is incremented. (Possible adapter check errors include *907*, *943*, *2000,* and *4000*.) Prevents hanging of the drivers when unloading the driver or downing the server.
3.01	Addresses a rare circumstance that could cause an ABEND or data corruption when using MultiProtocol stacks that use multicast addresses. (Multicast addresses are used with AppleTalk and NetWare LANalyzer Agent. This circumstance is seen only when using v3.00 of the Compaq NetFlex drivers.) Prevents an *MSL timeout* when loading any NetFlex driver on a NetWare 4.1 SFT III Server.
3.00	Addresses a rare circumstance that causes the controller to hang while in Promiscuous Mode during very heavy traffic. (The NetWare LANalyzer Agent places the network adapter in Promiscuous Mode.) Updates adapter firmware to log adapter checks into the NetWare Console log and continue normal operation. Prevents a circumstance in which the server generates a *Page Fault* ABEND when the driver loads.
2.43	Supports five (5) multicast addresses on the adapter at any one time. Checks for the minimum required version of *MSM.NLM* (v2.32). An error message generates and the driver fails to load if the minimum required version is missing.
2.42	Allows DualPort Controllers to be initialized in any order. Addresses an issue that causes all Ethernet packets to be padded to an even length. Currently only ETHERNET_802.3 and ETHERNET_II packets are padded to an even length. If you were using ETHERNET_802.2 or ETHERNET_SNAP frame types, you might have experienced intermittent client lockups. Avoids an ABEND when loading the LAN drivers on a NetWare 3.11 SFT III system from a NetWare volume (as opposed to loading from a DOS drive).
1.30	Prevents possible data corruption on PCI machines. Releases all resources when unloading Ethernet and Token Ring drivers if the administrator loads 1) an Ethernet driver on a NetFlex Controller configured for Token Ring or 2) a Token Ring driver on a NetFlex Controller configured for Ethernet. Frees resources when the network driver fails to load due to an improperly configured or non-existent network card. Reports consistent version information in NetWare 3.11 *MONITOR.NLM*. Stops NetWare 3.11 SFT III failure when running the SFT III Server with Test Mode enabled. Prevents an adapter from halting if an adapter reset occurs while in Promiscuous Mode. Allows Promiscuous Mode to be enabled even if a Compaq NetFlex-2 DualPort Ethernet Controller, a NetFlex ENET-TR Controller, or a NetFlex-2 ENET-TR Controller is running in Full-Duplex Mode. Updates all generic Ethernet statistics. Returns network resources more efficiently on high-traffic and/or faulty networks.
1.10	Corrects an interrupt timing issue that causes packets not to transmit after *CPQ2ETH.LAN* loads on slower Compaq servers (based on Intel 30836).

Table 19 describes features added to *CPQ2ETH.LAN* with the corresponding version release.

Table 19. *CPQ2ETH.LAN* features

Version	Features
3.10	Complies with the ODI 3.3 specification for intraNetWare (NetWare 4.11).
	Supports Novell Client32 software for DOS, Windows 3.1, and Windows 95.
3.04	Supports Compaq servers with up to 3 GB of memory.
3.03	Supports certification of all drivers using the Novell certification test suite, TESTCON.
3.00	Enhances performance by eliminating NetWare polling.
2.43	Updates adapter-collected statistics more frequently in *MONITOR.NLM*.
2.42	Unifies all version numbers of the LAN drivers to v2.42. (*CPQ2ETH.LAN* was previously v1.30.)
	Enhances controller-buffer management when using multiple NetFlex Controllers to 1) improve performance in high-traffic environments and 2) prevent the *No ECB available* statistic from increasing as rapidly.
	Enhances configurations using multiple NetFlex Controllers for more equitable access to buffer resources.
	Supports Novell certification of driver.
1.30	Supports NLMs, such as *VIDEO.NLM,* that require up to 16 fragments in a transmitted packet.
1.10	Upgrades firmware to improve performance.

CPQ2TOK.LAN

DualPort Token Ring Controllers use *CPQ2TOK.LAN*.

Table 20 lists *CPQ2TOK.LAN* resolved issues with the corresponding version release.

Table 20. *CPQ2TOK.LAN* resolved issues

Version	Resolved Issues
3.12	Performs a reset on a partial shutdown to ensure that the Network Interface Card (NIC) receiver was not active. This allows the driver to continue receiving interrupts on received data. (Previously, this had caused a condition where data might be received, but there was no valid Received Control Block (RCB) to return the data to the operating system.)
3.02	Corrects issues when there are an excessive numbers of soft errors on the Token Ring to prevent 1) adapter hangs or 2) ECB losses.
	Validates packets before transmission. Invalid packets are not transmitted and the Send Abort Bad TCB from TSM custom counter is incremented. (Possible adapter check errors include *907*, *943*, *2000,* and *4000*.)
	Prevents hanging of the drivers when unloading the driver or downing the server.
3.01	Addresses a rare circumstance that could cause an ABEND or data corruption when using MultiProtocol stacks that use multicast addresses. (Multicast addresses are used with AppleTalk and NetWare LANalyzer Agent.) This circumstance is seen only when using v3.00 of the Compaq NetFlex drivers.
	Prevents an *MSL timeout* when loading any NetFlex driver on a NetWare 4.1 SFT III Server.
3.00	Addresses a rare circumstance that causes the controller to hang while in Promiscuous Mode during very heavy traffic. (The NetWare LANalyzer Agent places the network adapter in Promiscuous Mode.)
	Updates adapter firmware to log adapter checks into the NetWare Console log and continue normal operation.
	Prevents a circumstance in which the server generates a *Page Fault* ABEND when the driver loads.

2.43	Reports the presence of a beaconing condition on the NetWare server console.
2.42	Allows DualPort Controllers to be initialized in any order. Permits Token Ring drivers to retry up to four (4) times if they fail to insert into the ring during initialization. Supports Plexcom and Cisco Token Ring bridges more efficiently. Avoids an ABEND when loading the LAN drivers on a NetWare 3.11 SFT III system from a NetWare volume (as opposed to loading from a DOS drive).
1.10	Prevents possible data corruption on PCI machines. Releases all resources when unloading Ethernet and Token Ring drivers if the administrator loads 1) an Ethernet driver on a NetFlex Controller configured for Token Ring or 2) a Token Ring driver on a NetFlex Controller configured for Ethernet. Frees resources when the network driver fails to load due to an improperly configured or non-existent network card. Reports consistent version information in NetWare 3.11 *MONITOR.NLM*. Stops NetWare 3.11 SFT III failure when running the SFT III Server with Test Mode enabled. Prevents an adapter from halting if an adapter reset occurs while in Promiscuous Mode. Returns network resources more efficiently on high-traffic and/or faulty networks. Communicates with servers across routers that use functional addresses for RIP and SAP packets if an adapter reset occurs. Filters out all the appropriate packets when using the Packet Blaster in Promiscuous Mode (MAC only or non-MAC only). Prevents an *Adapter Check* error resulting in an adapter shutdown when using the NetWare LANalyzer Agent to discover your network.

Table 21 describes features added to *CPQ2TOK.LAN* with the corresponding version release.

Table 21. *CPQ2TOK.LAN* features

Version	Features
3.10	Complies with the ODI 3.3 specification for intraNetWare (NetWare 4.11). Supports Novell Client32 software for DOS, Windows 3.1, and Windows 95.
3.04	Supports Compaq servers with up to 3 GB of memory. Previous versions supported up to 1GB.
3.03	Supports certification of all drivers using the Novell certification test suite, TESTCON.
3.02	Enhances error handling for ring beaconing and lobe wire faults on Token Rings.
3.00	Enhances performance by eliminating NetWare polling.
2.43	Checks for the minimum required version of *TOKENTSM.NLM*, which is v2.32. An error message displays and the driver fails to load if the minimum required version is missing. Updates adapter-collected statistics more frequently in *MONITOR.NLM*. Provides the custom statistic, TX Abort Ring Beaconing, in *MONITOR.NLM*. (This statistic reports the transmit resources returned to the OS during a beaconing condition. If this statistic is increasing, your system is experiencing a beaconing condition that should be resolved. To reset this counter to zero, unload and then reload the driver.)

2.42	Unifies all version numbers of the LAN drivers to v2.42. (*CPQ2TOK.LAN* was previously v1.10.) Enhances controller-buffer management when using multiple NetFlex Controllers to 1) improve performance in high-traffic environments and 2) prevent the *No ECB available* statistic from increasing as rapidly. Enhances configurations using multiple NetFlex Controllers for more equitable access to buffer resources. Supports Novell certification of driver. Modifies on-board-buffer allocation to increase the number of available receive buffers.
1.10	Supports NLMs, such as *VIDEO.NLM,* that require up to 16 fragments in a transmitted packet.
1.00	Supports Compaq NetFlex-2 DualPort TR Controller drivers.

CPQETHER.LAN

CPQETHER.LAN provides support for the NetFlex-2 ENET-TR Controller and the NetFlex ENET-TR Controller.

Table 22 lists *CPQETHER.LAN* resolved issues with the corresponding version release.

Table 22. *CPQETHER.LAN* resolved issues

Version	Resolved Issues
3.12	Performs a reset on a partial shutdown to ensure that the Network Interface Card (NIC) receiver was not active. This allows the driver to continue receiving interrupts on received data. (Previously, this had caused a condition where data might be received, but there was no valid Received Control Block (RCB) to return the data to the operating system.)
3.02	Validates packets before transmission. Invalid packets are not transmitted and the Send Abort Bad TCB from TSM custom counter is incremented. (Possible adapter check errors include *907*, *943*, *2000,* and *4000*.) Prevents hanging of the drivers when unloading the driver or downing the server.
3.01	Addresses a rare circumstance that could cause an ABEND or data corruption when using MultiProtocol stacks that use multicast addresses. (Multicast addresses are used with AppleTalk and NetWare LANalyzer Agent.) This circumstance is seen only when using v3.00 of the Compaq NetFlex drivers. Prevents an *MSL timeout* when loading any NetFlex driver on a NetWare 4.1 SFT III Server.
3.00	Addresses a rare circumstance that causes the controller to hang while in Promiscuous Mode during very heavy traffic. (The NetWare LANalyzer Agent places the network adapter in Promiscuous Mode.) Updates adapter firmware to log adapter checks into the NetWare Console log and continue normal operation. Prevents a circumstance in which the server generates a *Page Fault* ABEND when the driver loads.
2.43	Supports five (5) multicast addresses on the adapter at any one time. Checks for the minimum required version of *MSM.NLM* (v2.32). If the minimum required version is missing, an error message generates and the driver fails to load.
2.42	Addresses an issue that causes all Ethernet packets to be padded to an even length. Now only ETHERNET_802.3 and ETHERNET_II packets are padded to an even length. If you were using ETHERNET_802.2 or ETHERNET_SNAP frame types, you might have experienced intermittent client lockups. Avoids an ABEND when loading the LAN drivers on a NetWare 3.11 SFT III system from a NetWare volume (as opposed to loading from a DOS drive).

2.41	Prevents possible data corruption on PCI machines. Releases all resources when unloading Ethernet and Token Ring drivers if the administrator loads 1) an Ethernet driver on a NetFlex Controller configured for Token Ring or 2) a Token Ring driver on a NetFlex Controller configured for Ethernet. Frees resources when the network driver fails to load due to an improperly configured or non-existent network card. Reports consistent version information in NetWare 3.11 *MONITOR.NLM*. Stops NetWare 3.11 SFT III failure when running the SFT III Server with Test Mode enabled. Prevents an adapter from halting if an adapter reset occurs while in Promiscuous Mode. Updates all generic Ethernet statistics. Returns network resources more efficiently on high-traffic and/or faulty networks. Allows Promiscuous Mode to be enabled even if a Compaq NetFlex-2 DualPort Ethernet Controller, a NetFlex ENET-TR Controller, or a NetFlex-2 ENET-TR Controller runs in Full-Duplex Mode. Drivers now detect the replacement of a NetFlex ENET-TR Controller with a NetFlex-2 ENET-TR Controller and enable the Packet Blaster circuitry. Returns the error message *Incorrect Ethernet/Token-Ring Jumper Block Setting* if the jumper block on the NetFlex ENET-TR Controller or the NetFlex-2 ENET-TR Controller is not SET correctly.
2.30	Corrects an interrupt timing issue which causes packets not to transmit after *CPQETHER.LAN* loads on slower Compaq servers (based on Intel 30836).
2.20	Prevents a receive-channel lockup on very noisy networks. Prevents an ABEND that occurs when running in SFT III Test Mode.
2.10	Prevents a NetWare 4.x ABEND when a client running the VLM DOS Requester shell attempts to login to the NetWare 4.x server. Supports shared interrupts between controllers.

Table 23 describes features added to *CPQETHER.LAN* with the corresponding version release.

Table 23. *CPQETHER.LAN* features

Version	Features
3.10	Complies with the ODI 3.3 specification for intraNetWare (NetWare 4.11). Allows its use with Novell Client32 software for DOS, Windows 3.1, and Windows 95.
3.04	Supports Compaq servers with up to 3 GB of memory. Previous versions supported up to 1 GB.
3.03	Supports certification of all drivers using the Novell certification test suite, TESTCON.
3.00	Enhances performance by eliminating NetWare polling.
2.43	Updates adapter-collected statistics more frequently in *MONITOR.NLM*.
2.42	Unifies all version numbers of the LAN drivers to v2.42. Enhances configurations using multiple NetFlex Controllers for more equitable access to buffer resources. Improves performance in routing configurations and multiple-controller configurations. Supports Novell certification of all drivers.
2.41	Supports NLMs, such as *VIDEO.NLM*, that require up to 16 fragments in a transmitted packet.
2.30	Improves firmware performance.
2.20	Supports Promiscuous Mode for the NetWare LANalyzer Agent. Supports Raw Send Mode for Novell certification. Supports full-duplex switching hubs to improve performance.
2.10	Supports the Compaq NetFlex-2 Controller Packet Blaster performance enhancements.

CPQNF3.LAN

The LAN Support for NetFlex-3 Controllers driver, *CPQNF3.LAN*, provides support for the following hardware products:

- Integrated 10/100 TX UTP Controller
- Netelligent 10 T PCI UTP Controller
- Netelligent 10 T/2 PCI UTP Coax Controller
- Netelligent 10/100 TX PCI Dual UTP Controller
- Netelligent 10/100 TX Embedded UTP Controller
- Netelligent 10/100 TX PCI UTP Controller
- NetFlex-3 Controllers

The Netelligent 10/100 TX PCI Dual UTP Controller requires additional configuration. The SLOT number used to load *CPQNF3.LAN* should be (physical SLOT * 100) + PORT number (1 or 2). For instance, with the Dual 10/100 Controller installed in SLOT 6, you can load the driver for SLOTS 601 and 602. When using the Dual 10/100 Controller in a ProLiant 5000 Server, the server MAXIMUM PHYSICAL RECEIVE PACKET SIZE parameter must be SET to at least 1545. If not SET properly, you see the following message when loading the driver:

***NOTE**: For better performance, set maximum physical receive packet size = 1545*

CPQNF3.LAN enables the Dual 10/100 Adapter PCI-bridge, bus-mastering capability. This allows the adapter to work on systems with old PCI BIOS chips that do not enable bus mastering by default.

CPQNF3.LAN complies with the ODI 3.3 specification for intraNetWare (NetWare 4.11). This specification does not permit the SLOT=0 parameter to be used for the Integrated 10/100 TX UTP Controller in the Compaq ProLiant 2500 Server. Instead, intraNetWare/NetWare creates a virtual slot number that does not conflict with other adapters. This virtual slot numbering scheme begins at SLOT 10001.

The Advanced Network Fault Detection and Correction Feature of *CPQNF3.LAN* allows a secondary controller to take over network responsibilities should the primary controller fail. This secondary controller does not handle any network activity unless a failure occurs with the primary controller. The Advanced Network Fault Detection and Correction Feature is controllable using the Advanced Network Control Utility option of the Online Configuration Utility (*CPQONLIN.NLM*).

Table 24 lists *CPQNF3.LAN* resolved issues with the corresponding version release.

Table 24. *CPQNF3.LAN* resolved issues

Version	Resolved Issues
2.35	Disables the auto-negotiation process when the Speed and Duplex Mode is forced by using the 10HD, 10FD, 100FD, or 100HD keywords. (This now makes it mandatory to have both sides of the network link (NIC and switch) specifically configured for the operating mode you choose. Some network switches are not interoperable with the auto-negotiation standard and would sometimes have difficulty establishing links when using previous versions of this driver.)

2.23	Prevents the *Fatal 424: Slot 1: Error 260: Cannot Read EEPROM* error message during initialization.
2.21	Minimizes the number of transmit underruns (*Send packet miscellaneous errors*) and receive overruns (*Receive packet overflow coun*t) that could occur on heavily loaded ProLiant 5000 servers.
1.22	Eliminates a possible lockup condition that could occur when using a NetFlex-3/E Controller in a NetWare server with the AppleTalk protocol. Prints the error message properly on the console if the driver aborts during the load process. Sets the Line Speed field correctly in the MLID configuration table during the initialization process.
1.21	Corrects issues seen if a NetFlex-3 Controller receives a packet larger than allowed by Ethernet (1514 bytes is the maximum allowed). If your network experiences illegally sized packets, you see the *Received Packet Too Big Count*, *Checksum Errors,* and *Oversized Receive Errors* statistics incrementing over time.
1.20	Loads without a burned-in address if you specify a node address override using the NODE = keyword. (If the burned-in address cannot be read and a node address override is not specified on the command line, the following message displays *FATAL 414: Unable to read Burned In Address*.) Prevents an ABEND when loading the driver with multiple NetFlex-3/E Adapters installed.
1.10	Includes a workaround for a Master Abort Adapter Check that might occur on a NetFlex-3/E Adapter if the driver is reset.

Table 25 describes features added to *CPQNF3.LAN* with the corresponding version release.

Table 25. *CPQNF3.LAN* features

Version	Features
2.35	Adds a keyword for forcing the adapter to operate at 100 Mb/s in Half-Duplex Mode. (To enable this mode, include the keyword 100HD on the LOAD command line.)
2.24	Supports auto-negotiation of Link Speed and Duplex Mode when used with networking hardware that supports auto-negotiation. Modifies the Advanced Network Fault Detection and Correction feature to switch back to the primary controller once a valid link is detected and the controller has not experienced any hardware-suspected failures like adapter checks or transmit timeouts. Supports the Netelligent 10/100 TX Embedded UTP Controller.
2.23	Supports the Compaq Netelligent 10 T/2 PCI UTP Coax Controller. Enables the Dual 10/100 Adapter PCI-bridge bus-mastering capability to work on systems with old PCI BIOS chips that do not enable bus mastering by default. Does not automatically enable PCI Memory Write & Invalidate cycles on the Netelligent Dual 10/100 TX PCI UTP Adapter. (To enable PCI Memory Write & Invalidate cycles on the Netelligent Dual 10/100 TX PCI UTP Adapter installed in a ProLiant 5000, you must use the ENABLEMWI keyword when loading *CPQNF3.LAN*. You could see improved performance on the Compaq ProLiant 5000 by using this keyword with a Netelligent Dual 10/100 TX PCI UTP Adapter.)
2.21	Supports the Netelligent Dual 10/100 TX PCI UTP Controller. Adds a custom statistic, TLAN Device Revision (X.X), that is 10, 23, or 30 to indicate the version of TLAN (1.0, 2.3, or 3.0) installed on your adapter. Supports the NetFlex-3 100Base-FX Module to allow operation over fiber at 100 Mb/s in Half- or Full-Duplex Modes. (When used in Full-Duplex Mode, up to 2 kilometers of fiber can be used to connect two nodes.) Supports the Advanced Network Fault Detection and Correction feature in Full-Duplex Mode. (Link failures are detected using a receiver-integrity check algorithm.) Complies with the ODI 3.3 specification for intraNetWare (NetWare 4.11). (Because of this specification, SLOT=0 can no longer be used for the Integrated 10/100 TX UTP Controller in the Compaq ProLiant. The virtual slot numbering scheme begins at SLOT 10001.) Supports the 10HD keyword to force a 10/100 Adapter to operate in 10-Mb mode only, which might be useful on dual-speed repeaters, such as the Compaq Netelligent 1224 10/100 Dual-Speed Repeater. Allow its use with Novell Client32 software for DOS, Windows 3.1, and Windows 95.

2.11	Supports the Integrated 10/100 TX UTP Controller in the Compaq ProLiant 2500 Server. Adds the AUI keyword for the Attachment Unit Interface Connector.
2.10	Includes the Advanced Network Fault Detection and Correction Feature. (Two identical supported NICs are required to make use of this feature.)
2.00	Supports the Netelligent 10 T PCI UTP Controller and the Netelligent 10/100 TX PCI UTP Controller.
1.23	Works properly with Novell *MSM.NLM,* versions 2.73 and higher, which include symmetric multiprocessing (SMP) support. (If you are using *MSM.NLM,* version 2.73 or greater, you must use *CPQNF3.LAN,* v1.23 or greater. *CPQNF3.LAN* still works properly with *MSM.NLM,* versions 2.32 to 2.72.)
1.22	Improves performance of the NetFlex-3 Controller when using the 10/100Base-TX UTP Module. Improves performance and minimizes collisions on high-traffic, multiple-repeater 100Base-T networks.
1.20	Provides complete support for adapters using Compaq 10/100Base-TX UTP Modules. Improves performance when using Compaq 10/100Base-TX UTP or Compaq 100VG-AnyLAN UTP Modules. Constructs PCI slot numbers for third-party servers not using PCI BIOS, version 2.1 or greater. (PCI BIOS versions earlier than 2.1 do not identify the slots in which PCI Adapters are installed. On these machines, the driver uses the following formula to create a virtual slot number to use when loading *CPQNF3.LAN*: SLOT_NUM = 17 + (PCI_BUS_NUM * 16) + PCI_DEVICE_NUM.)
1.10	Complies with certification restrictions.
1.00	Supports the NetFlex-3 Controllers.

CPQTOKEN.LAN

CPQTOKEN.LAN supports the NetFlex-2 ENET-TR, NetFlex ENET-TR, and dual-speed Token Ring Controllers.

Table 26 lists *CPQTOKEN.LAN* resolved issues with the corresponding version release.

Table 26. *CPQTOKEN.LAN* resolved issues

Version	Resolved Issues
3.12	Performs a reset on a partial shutdown to ensure that the Network Interface Card (NIC) receiver was not active. This allows the driver to continue receiving interrupts on received data. (Previously, this had caused a condition where data might be received, but there was no valid Received Control Block (RCB) to return the data to the operating system.)
3.02	Validates packets before transmission. Invalid packets are not transmitted and the Send Abort Bad TCB from TSM custom counter is incremented. (Possible adapter check errors include *907*, *943*, *2000,* and *4000*.) Prevents hanging of the drivers when unloading the driver or downing the server. Corrects issues when there are an excessive numbers of soft errors on the Token Ring to prevent 1) adapter hangs or 2) ECB losses.
3.01	Addresses a rare circumstance that could cause an ABEND or data corruption when using MultiProtocol stacks that use multicast addresses. (Multicast addresses are used with AppleTalk and NetWare LANalyzer Agent. This circumstance is seen only when using v3.00 of the Compaq NetFlex drivers.) Prevents an *MSL timeout* when loading any NetFlex driver on a NetWare 4.1 SFT III Server.
3.00	Addresses a rare circumstance that causes the controller to hang while in Promiscuous Mode during very heavy traffic. (The NetWare LANalyzer Agent places the network adapter in Promiscuous Mode. Updates adapter firmware to log adapter checks into the NetWare console and continue normal operation. Prevents a circumstance in which the server generates a *Page Fault* ABEND when the driver loads.
2.43	Reports the presence of a beaconing condition on the NetWare server console.

2.42	Permits Token Ring drivers to retry up to four (4) times if they fail to insert into the ring during initialization. Supports Plexcom and Cisco Token Ring bridges more efficiently. Avoids an ABEND when loading the LAN drivers on a NetWare 3.11 SFT III system from a NetWare volume (as opposed to loading from a DOS drive).
2.41	Prevents possible data corruption on PCI machines. Releases all resources when unloading Ethernet and Token Ring drivers if the administrator loads 1) an Ethernet driver on a NetFlex Controller configured for Token Ring or 2) a Token Ring driver on a NetFlex Controller configured for Ethernet. Frees resources when the network driver fails to load due to an improperly configured or non-existent network card. Reports consistent version information in NetWare 3.11 *MONITOR.NLM*. Stops NetWare 3.11 SFT III failure when running the SFT III Server with Test Mode enabled. Prevents an adapter from halting if an adapter reset occurs while in Promiscuous Mode. Returns network resources more efficiently on high-traffic and/or faulty networks. Detects the replacement of a NetFlex ENET-TR Controller with a NetFlex-2 ENET-TR Controller and enables the Packet Blaster circuitry. Returns the error message *Incorrect Ethernet/Token-Ring Jumper Block Setting* if the jumper block on the NetFlex ENET-TR Controller or the NetFlex-2 ENET-TR Controller is not SET correctly. Communicates with servers across routers that use functional addresses for RIP and SAP packets if an adapter reset occurs. Filters out all the appropriate packets when using the Packet Blaster in Promiscuous Mode (MAC only or non-MAC only). Prevents an *Adapter Check* error resulting in an adapter shutdown when using the NetWare LANalyzer Agent to discover your network.
2.30	Corrects an interrupt timing issue which causes packets not to transmit after *CPQTOKEN.LAN* loads on slower Compaq servers (based on Intel 30836). Supports WellFleet external routers.
2.20	Prevents a receive-channel lockup on very noisy networks. Prevents an ABEND that occurs when running in SFT III Test Mode.
2.10	Prevents a NetWare 4.x ABEND when a client running the VLM DOS Requester shell attempts to login to the NetWare 4.x server. Prevents errors when the driver loads and the cable is not connected to the NIC (older versions of the driver might cause a NetWare server ABEND reporting the error messages: *MLID0300: Error inserting onto the ring: Lobe media test failure, check cable connection,* ABEND*: General Protection Processor Exception*, *Running Process: Console Command Process*). Corrects an error that might prevent clients from logging back into the NetWare server if they lose their connection.

Table 27 describes features added to *CPQTOKEN.LAN* with the corresponding version release.

Table 27. *CPQTOKEN.LAN* features

Version	Features
3.10	Complies with the ODI 3.3 specification for intraNetWare (Novell 4.11). Allows use with Novell Client32 software for DOS, Windows 3.1, and Windows 95.
3.04	Supports Compaq servers with up to 3 GB of memory. Previous versions supported up to 1GB.
3.03	Supports certification of all drivers using the Novell certification test suite, TESTCON.
3.02	Enhances error handling for ring beaconing and lobe wire faults on Token Rings.
3.00	Enhances performance by eliminating NetWare polling.

2.43	Updates adapter-collected statistics more frequently in *MONITOR.NLM*. Provides the custom statistic, TX Abort Ring Beaconing, in *MONITOR.NLM*. (This statistic reports the transmit resources returned to the OS during a beaconing condition. If this statistic is increasing, your system is experiencing a beaconing condition that should be resolved. To reset this counter to zero, unload and then reload the driver.) Checks for the minimum required version of *TOKENTSM.NLM* (v2.32). An error message generates and the driver fails to load if the minimum required version is missing.
2.42	Enhances controller-buffer management when using multiple NetFlex Controllers to 1) improve performance in high-traffic environments and 2) prevent the *No ECB available* statistic from increasing as rapidly. Enhances configurations using multiple NetFlex Controllers for more equitable access to buffer resources. Improves performance in routing configurations and multiple-controller configurations. Supports Novell certification of driver. Modifies on-board-buffer allocation to increase the number of available receive buffers.
2.41	Supports NLMs, such as *VIDEO.NLM,* that require up to 16 fragments in a transmitted packet.
2.40	Supports both canonical and non-canonical Address Modes. Supports NetWare MultiProtocol Router (MPR) Source-Route Bridging feature using the Promiscuous Mode feature. Customers need to obtain NetWare MPR, v2.11 or later, to use this feature. Supports Up Stream Node Address, Last Ring ID, and Last Beacon Type statistics.
2.30	Upgrades firmware to improve performance.
2.20	Supports Promiscuous Mode for the NetWare LANalyzer Agent. Supports RAW SEND Mode for Novell certification.
2.10	Supports the Compaq NetFlex-2 Controller Packet Blaster performance enhancements. Supports shared interrupts between controllers.

CPQTRPCI.LAN

CPQTRPCI.LAN provides LAN support for the PCI Hot Plug Token Ring Driver.

Table 28 describes features added to *CPQTRPCI.LAN* with the corresponding version release.

Table 28. *CPQTRPCI.LAN* features

Version	Features
2.8	Supports the Compaq Netelligent 4/6 TR UTP/STP Controller.

N100.LAN

N100.LAN supports the 10/100 controllers.

Table 29 describes features added to *N100.LAN* with the corresponding version release.

Table 29. *N100.LAN* features

Version	Features
3.27	Supports the Compaq Netelligent 10/100 TX PCI Intel UTP Controller. Supports the Compaq Netelligent 10 PCI Intel UTP Controller. Supports the Compaq Netelligent 10/100 TX PCI Intel WOL UTP Controller.

NFT.NLM

NFT.NLM is the network fault tolerance driver.

Table 30 describes features added to *NFT.NLM* with the corresponding version release.

Table 30. *NFT.NLM* features

Version	Features
1.1	Provides controller redundancy for two Compaq 10/100 PCI Controllers or two NC3121 Fast Ethernet network interface cards (NICs) or one of each.

PCNTNW.LAN

The LAN Support for Integrated NetFlex Controllers driver, *PCNTNW.LAN*, includes updates for each issue described below.

Table 31 lists *PCNTNW.LAN* resolved issues with the corresponding version release.

Table 31. *PCNTNW.LAN* resolved issues

Version	Resolved Issues
2.10	Corrects unnecessary controller resets.
1.10	Prevents the error handler from reading from an invalid memory location. (This had caused NetWare 4.x to report the following message: *Read from non-present page.)*

Table 32 describes features added to *PCNTNW.LAN* with the corresponding version release.

Table 32. *PCNTNW.LAN* features

Version	Features
3.20	Complies with the ODI 3.3 specification for intraNetWare (Novell 4.11). Allows use with Novell Client32 software for DOS, Windows 3.1, and Windows 95.
2.20	Supports future hardware.
2.10	Supports the ProSignia 500 Family of Servers. Removes the 16-MB RAM memory limitation for EISA and PCI machines. (Formerly, the use of memory above 16-MB RAM was not allowed. Now, any available memory can be used.) Uses the BOARD keyword instead of supporting the IOP keyword. (An example of loading the driver to support multiple-frame types follows: LOAD PCNTNW BOARD=1 FRAME=ETHERNET_802.2 //first frame; LOAD PCNTNW BOARD=1 FRAME=ETHERNET_SNAP //second frame.) Requires *ETHERTSM.NLM,* v2.20, and *MSM.NLM,* v2.20, or *MSM31X.NLM* 2500.
1.10	Supports the Compaq Deskpro XL.

Storage Products

The Compaq storage drivers for Novell support include updates to the legacy Device Driver Functional Specification drivers (*DDFS.DSK)* and the Compaq NetWare Peripheral Architecture drivers (*NWPA.NLM*).

Drive Array Utilities

CPQARRAY.HAM

The Host Adapter Module, *CPQARRAY.HAM*, supports Compaq array controllers for intraNetWare (NetWare 4.11), intraNetWare SFT III, and NetWare 5. It supports the devices listed below.

- SMART SCSI Array Controller
- SMART-2 Array Controller
- SMART-2SL Array Controller
- SMART-2DH Array Controller

Table 33 describes features added to *CPQARRAY.HAM* with the corresponding version release.

Table 33. *CPQARRAY.HAM* features

Version	Features
1.21	Supports NetWare 5.

CPQDA386.DSK

The Compaq Array Controller Driver supports the following equipment.

- SMART SCSI Array Controller
- SMART-2 Array Controller
- SMART-2SL Array Controller
- 32-Bit Intelligent Drive Array (IDA) Controller
- 32-Bit IDA-2 Controller
- 32-Bit IDA Expansion Controller

Up to eight (8) logical drives per controller are supported for all array controllers above except the Compaq 32-Bit IDA-2 Controller, which supports three (3) logical drives.

Table 34 lists resolved issues with the corresponding version release for *CPQDA386.DSK.*

Table 34. *CPQDA386.DSK* resolved issues

Version	Resolved Issues
3.06	Corrects a timing issue when the SYS: volume spans across multiple-logical drives on a single Compaq SMART Array Controller installed in a server with at least a 200MHz processor.
3.05	Avoids an ABEND that reports *Kernel detected a process switch during interrupt time* when performing a core dump from the NetWare Internal Debugger.
3.03	Avoids a *Page Fault* ABEND which occurs when loading this driver after a new SMART-2/P Controller. This issue arises if there are multiple-memory-mapped PCI Adapters already in the server when a new controller is installed.
3.02	Suppresses the NetWare alert *Lost Interrupts on Primary Interrupt Controller* that occurs with some SMART-2/P configurations. (These lost interrupts do not affect the performance of the controller.) Solves NetWare SFT III installation issues encountered when a SMART-2/P is the primary disk controller.
3.01	Prevents an ABEND if the driver unloads and any mounted NetWare volumes exist on devices managed by the driver.
2.41	Fixes a condition that might generate the message *Lost Interrupt on Secondary Interrupt Controller w*hen multiple-array controllers are configured with different IRQ levels and the array controller driver on IRQ fifteen is not the first controller loaded.
2.40	Corrects stack overflow in the NetWare 3.12 Interrupt Service Procedure by preventing nesting too many times.
2.10	Reports when a physical drive fails to prevent NetWare from exhausting the Hot Fix Redirection Area.

Table 35 describes features added to *CPQDA386.DSK* with the corresponding version release.

Table 35. *CPQDA386.DSK* features

Version	Features
3.10	Supports the SMART-2SL Array Controller.
3.04	Supports Novell certification.
3.00	Supports the SMART-2 Array Controller.
2.41	Flushes the posted write-cache on every logical drive supported by IDA-2 and SMART Controllers after the EXIT CONSOLE command occurs.
2.40	Allows more simultaneous commands per logical drive.
2.30	Enhances device names to reflect the location of the device and the current Fault Tolerance Mode. Supports NetWare 4.x. Supports NetWare SFT III Test Modes. Supports the SMART (SCSI Managed Array Technology) Array Controller. Supports up to eight (8) logical drives per controller. Supports hot-plug drive replacement of failed hard drives configured in a NetWare mirrored volume.
2.20	Supports three (3) logical drives on the Compaq IDA-2 Controller. Supports the Compaq 4-MB Array Accelerator Write Cache. The driver flushes any data in the Array Accelerator to the drive media if the driver unloads or the NetWare server is brought down. Improves performance when running in a system with multiple processors running NetWare SFT III.
2.10	Adds architectural changes to improve driver performance. Supports the Compaq 32-Bit IDA Expansion Controller. Includes a more efficient memory management scheme.

CPQDAOPT.NLM

CPQDAOPT.NLM optimizes the performance of a NetWare volume. This NLM helps you select the appropriate Hot Fix Redirection Area size when using *INSTALL.NLM* (or using *NWCONFIG.NLM* in NetWare 5) to create a NetWare partition on a Compaq Drive Array Controller to create the partition. If you used Compaq SmartStart to install your NetWare operating system, you do not need to run *CPQDAOPT.NLM*. The optimization is performed for you.

Table 36 lists resolved issues with the corresponding version release for *CPQDAOPT.NLM*.

Table 36. *CPQDAOPT.NLM* resolved issues

Version	Resolved Issues
1.10	Prevents *Memory Allocation Errors* when *CPQDAOPT.NLM* loads on a system where none of the NetWare devices contain partitions of any type.
1.01	Corrects an error that reports that a NetWare partition could not be optimally created without first creating a small DOS partition. This message was erroneously reported even if the drive on the IDA or IDA-2 already contained a DOS partition.

CPQONLIN.NLM

The Online Configuration Utility, *CPQONLIN.NLM*, can be used to configure the following devices without downing the intraNetWare (NetWare 4.11)/NetWare server.

- Fibre Channel Array Controllers
- NWPA Compaq Array Driver
- SMART Array Controllers
- SMART Array 3100ES Controllers
- SMART-2 Array Controllers
- SMART-2SL Array Controllers

Expanding, deleting, and creating arrays can be done online with this utility. *CPQONLIN.NLM* also supports the Advanced Network Fault Detection and Correction Feature of the *CPQNF3.LAN* driver.

CPQONLIN.NLM also monitors some redundant NIC (*CPQNF3*) pairs.

Table 37 lists resolved issues with the corresponding version release for *CPQONLIN.NLM*.

Table 37. *CPQONLIN.NLM* resolved issues

Version	Resolved Issues
2.30	Requires two support modules to be loaded on NetWare 5 in order to warn the user that a logical drive contains a volume before allowing the user to delete it. *CPQONLIN.NLM* gives the user the option of loading *NSS.NLM* when the Array Configuration Utility is selected. If the user chooses not to load *NSS.NLM,* the driver cannot warn the user if there is an NSS volume on a logical drive before allowing the user to delete it.

2.20	Displays the following error message when a DDFS (Device Driver Functional Specification) does not support the controller: *The currently loaded array driver does not support this controller. This controller requires CPQARRAY.HAM, version 1.20 or later. Please make sure you have the latest driver loaded on the system*. Upgrade to the latest version of *CPQARRAY.HAM* In the Novell SSD. Displays the following message when attempting to run the array configuration utility on NetWare 5.0: *This version of the array configuration utility does not support NetWare 5.0. Please obtain a newer version of CPQONLIN.* Upgrade to the latest version of *CPQONLIN.NLM* located in the Novell SSD.
2.12	Corrects display of the logical drive rebuild/expand status when the chassis name on a Fibre Channel Controller is more than 18 characters long.
1.13	Displays the correct Cache Enabled Status Field when all logical drive cache accelerators are disabled.
1.12	Corrects viewing information on subsequent pairs in the Advanced Statistics screen.
1.04	Displays the spare of an array that consists of a first logical drive that is non-fault tolerant (RAID 0). Permits the driver to be unloaded from the console when the SMART-2 Controller is busy. Allows the loading of *CPQONLIN.NLM,* v1.03, without a configured SMART-2 Controller.
1.03	Displays the second rebuild request on an array as QUEUED when another array is rebuilding and a rebuild of another array is required. Displays available disk space correctly when two or more logical drives are expanded before the existing logical drives are re-spanned across the old and new disk space. Ensures all processes are completed before the application is removed from memory when UNLOAD is issued. Displays the correct error panel if the removal of a spare drive associated with an array that includes a failed drive is attempted. Ensures compatibility between the Compaq Array Configuration Utility and the Compaq Array Configuration for NetWare. Allows the cache to be disabled on the last logical cache-enabled drive. Displays the physical configuration of an array when an assigned spare drive fails.
1.02	Prevents a possible ABEND when Compaq Insight Agents are installed and an earlier version of this driver is used to view the expand or rebuild completion status. Corrects the error panel when Compaq Insight Agents are loaded.

Table 38 describes features added to *CPQONLIN.NLM* with the corresponding version release.

Table 38. *CPQONLIN.NLM* features

Version	Features
2.20	Supports Compaq SMART Array 3100ES Controller features. Supports 64-MB cache on the Compaq SMART Array 3100ES Controller. Supports the 64-bit cache on the Compaq Fibre Channel Controller. Adds support for up to four (4) system buses and up to fifteen (15) drives per system bus. Adds support to distinguish between a SMART-2/P and a SMART-2DH Controller.
2.10	Supports configuration of devices attached to Compaq Fibre Channel Array Controllers.
2.00	Supports configuring devices managed by the NWPA Compaq Array Driver.
1.13	Supports SMART-2SL Array Controller.
1.11	Provides a Detailed Statistics screen for examining the operation of NetFlex-3 Controller pairs through the Advanced Network Control Utility. Provides more descriptive feedback during hot-plug operations through the Array Configuration Utility.
1.10	Supports the Advanced Network Fault Detection and Correction Feature of the *CPQNF3.LAN* driver.

1.04	Renames the Enable Cache and Disable Cache settings as Enable Accelerator and Disable Accelerator in the Logical Drive menu. Includes an Accelerator Ratio setting in the Controller Settings Menu. (This ratio controls the amount of memory allocated to the read and write caches on the SMART-2 Controller.)
1.01	Supports configuration of the Compaq SMART-2 Controller without downing the server.

Fibre Channel Utilities

CPQFC.HAM

The Host Adapter Module, *CPQFC.HAM*, supports the Compaq Fibre Channel Controller.

Table 39 lists resolved issues with the corresponding version release for *CPQFC.HAM*.

Table 39. *CPQFC.HAM* resolved issues

Version	Resolved Issues
1.02	Prevents an ABEND during initialization when memory allocation problems occur under NetWare 3.2.
1.01	Disallows sharing interrupts between the Fibre Channel Host Adapter and the SMART-2 Controller, or other, primary controller(s).

Table 40 describes features added to *CPQFC.HAM* with the corresponding version release.

Table 40. *CPQFC.HAM* features

Version	Features
1.01	Supports NetWare 5.
0.66	Supports the Compaq Fibre Channel Controller. Supports intraNetWare (NetWare 4.11) SFT III.

SCSI Utilities

CPQIDECD.SYS

The IDE/ATAPI CD-ROM driver for DOS, *CPQIDECD.SYS*, enables DOS to view up to eight (8) IDE CD-ROM drives as a read-only fixed disk.

Table 41 describes features added to *CPIDECD.SYS* with the corresponding version release.

Table 41. *CPQIDECD.SYS* features

Version	Features
2.00B	Removes support for Power Drives.
1.21E	Supports IDE/ATAPI CD-ROM Drives.

CPQS710.DSK

The Fast-SCSI-2 Controller Driver, *CPQS710.DSK*, supports Compaq servers with one of the following SCSI controllers:

- 32-Bit Fast-SCSI-2 Controller
- 32-Bit Fast-Wide SCSI-2/E Controller
- 32-Bit Fast-Wide SCSI-2/P Controller
- Dual Channel Wide-Ultra SCSI-3 Controller
- Integrated 32-Bit Fast-Wide SCSI-2 Controller
- Integrated Fast-SCSI-2/P Controller
- Integrated 32-Bit Fast-SCSI-2 Controller
- Integrated Wide-Ultra SCSI Controller
- ProLiant Storage System /U

Table 42 lists resolved issues with the corresponding version release for *CPQS710.DSK.*

Table 42. *CPQS710.DSK* resolved issues

Version	Resolved Issues
2.14	Corrects a speed negotiation issue for the *CPQSCD.DSK* or *CPQSTAPE.DSK* drivers.
2.11	Prevents a server ABEND when the SCAN for NEW DEVICES or LIST DEVICES command takes place at the NetWare console prompt while I/O occurs to a device managed by this driver.
2.10	Stops partitions from getting out of sync during remirroring.
2.03	Averts a *CPQS710: Fatal Condition detected* error displayed. ABEND might occur when the EXIT TO DOS command executes and a controller using *CPQS710.DSK* shares an interrupt with a dissimilar controller (one that is not managed by *CPQS710.DSK*).
2.02	Prevents a series of time-outs, an error message, or system hang during the loading of *CPQSDISK.DSK* or mounting of SYS volume that could occur when *CPQS710.DSK* and *CPQSDISK.DSK* execute from a DOS partition on a third-party (not manufactured by Compaq) drive. Avoids bus resets and failure to restore from a tape backup for some 32-Bit Fast SCSI-2 Controllers.
2.01	Prevents deactivation of a SCSI drive when *CPQSDISK.DSK* sends an alert to the console with an error message of *CPQSDISK: The Compaq 53c710 SCSI Interface Module returned a CAM status 16h which is not supported by this driver.*
1.23	Avoids server ABEND when multiple, different SIM Modules (*CPQS94.DSK* and *CPQS710.DSK*) are loaded on the same NetWare file server and I/O occurs to the DOS partition.
1.22	Loads even if white spaces are added to the command line.
1.20	Maintains communication when devices supporting multiple Logical Unit Numbers (LUNs) disconnect from the SCSI bus.

Table 43 describes features added to *CPQS710.DSK* with the corresponding version release.

Table 43. *CPQS710.DSK* features

Version	Features
2.13	Supports the Compaq Dual Channel Wide-Ultra SCSI-3 Controller. Supports the Compaq ProLiant Storage System /U.
2.12	Supports the Dual Channel Wide-Ultra SCSI-3 Controller in the ProLiant 3000 Server.

2.11	Adds the optional PORT parameter as a command line option. (The SLOT or HOST Adapter number is 0 for both SCSI controllers in systems that have two embedded controllers. Using the PORT parameter, PORT=1 identifies the SCSI controller routed to the first drive cage while PORT=2 specifies the controller routed to optional SCSI upgrade kits.)
2.04	Loads in intraNetWare (NetWare 4.11) automatically. Supports the Compaq Integrated Wide-Ultra SCSI Controller.
2.00	Supports the Compaq 32-Bit Fast-Wide SCSI-2/P Controller, Compaq 32-Bit Fast-Wide SCSI-2/E Controller, and Integrated 32-Bit Fast-Wide SCSI-2/P Controller. Accesses through the System BIOS for greater portability of the driver.
1.30	Provides more dynamic memory allocations reducing the size of the driver executable. Provides additional SCSI controller information for the Compaq Insight Manager. Supports the ProSignia 500 Integrated Fast-SCSI-2/P Controller.
1.21	Changes the Host Adapter Identifier string to better support Cheyenne ARCserve when running on a NetWare server with more than 16-MB RAM.
1.10	Improves error handling to support transitions from Protected Mode to Real Mode. Uses NetWare 4.x compatible memory management.

CPQS94.DSK

The *CPQS94.DSK* driver supports the Compaq Deskpro XL Integrated PCI SCSI-2 Controller and the Systempro/XL Integrated SCSI-2 Options Port.

Table 44 lists resolved issues with the corresponding version release for *CPQS94.DSK*.

Table 44. *CPQS94.DSK* resolved issues

Version	Resolved Issues
1.13	Allows loading *CPQSTAPE.DSK* after *CPQS94.DSK* for a NetWare 4.x SBackup session.
1.12	Eliminates the message *Lost Interrupt on the Primary Interrupt Controller* when a Compaq Deskpro XL runs NetWare 3.11 (this message causes no known problems).
1.11	Prevents issues that could arise when multiple SCSI Interface Modules (*CPQS94.DSK* and *CPQS710.DSK*) are loaded on the same NetWare file server and I/O occurs to the DOS partition.

Table 45 describes features added to *CPQS94.DSK* with the corresponding version release.

Table 45. *CPQS94.DSK* features

Version	Features
1.14	Supports disk drives available on the Compaq Deskpro XL.
1.12	Shares interrupts when supporting the Deskpro XL Integrated PCI Fast SCSI-2 Controller. Provides additional SCSI controller information for the Compaq Insight Manager.
1.11	Supports the Deskpro XL Integrated PCI SCSI-2 Controller.
1.10	Supports devices with multiple Logical Unit Numbers (LUNs).

CPQSASPI.NLM

The Advanced SCSI Programming Interface (ASPI) support is only required if you are using a software package that accesses SCSI-based devices through ASPI. For example, Cheyenne ARCserve uses the ASPI programming interface to access a tape drive. Other software packages might also use ASPI to access tape, CD-ROM, or other SCSI devices.

The Compaq Interface for ASPI Module, *CPQSASPI.NLM*, includes ASPI extensions that allow coexistence with other ASPI managers.

Table 46 lists resolved issues with the corresponding version release for *CPQSASPI.NLM*.

Table 46. *CPQSASPI.NLM* resolved issues

Version	Resolved Issues
1.13	Allows driver to be loaded before the SCSI Interface Modules (*CPQS710.DSK* or *CPQS94.DSK*) in NetWare 4.x.
1.11	Stops the following error from appearing in the error log: *ASPI Status Error 80* when an ARCserve v5.0 backup initiates.
1.10	Prevents the NetWare server from resetting when an application changes its stack area.

Table 47 describes features added to *CPQSASPI.NLM* with the corresponding version release.

Table 47. *CPQSASPI.NLM* features

Version	Features
1.14	Supports ASPI extensions to allow coexistence with other ASPI managers.
1.12	Supports the Micro Design SCSI Express product for NetWare.

CPQSCD.DSK

The Compaq SCSI CD-ROM driver, *CPQSCD.DSK*, provides driver support for CD-ROM devices.

Table 48 lists resolved issues with the corresponding version release for *CPQSCD.DSK*.

Table 48. *CPQSCD.DSK* resolved issues

Version	Resolved Issues
1.12	Prevents the system from hanging when using the NetWare *INSTALL.NLM* utility to create a NetWare partition for a CD-ROM device. (*INSTALL.NLM* continues operation and sends a warning message to the console that NetWare is unable to write out partition information to a CD-ROM.*)*

Table 49 describes features added to *CPQSCD.DSK* with the corresponding version release.

Table 49. *CPQSCD.DSK* features

Version	Features
1.11	Provides additional SCSI controller information for Compaq Insight Manager.
1.10	Supports Novell certification standards.

CPQSCSI.HAM

The Host Adapter Module, *CPQSCSI.HAM*, is the low-level SCSI-bus device driver for the following Compaq 32-Bit SCSI Controllers:

- 32-Bit Fast-SCSI-2 Controller
- 32-Bit Fast-Wide SCSI-2/E Controller
- 32-Bit Fast-Wide SCSI-2/P Controller
- Dual Channel Wide-Ultra SCSI-3 Controller
- Integrated 32-Bit Fast-Wide SCSI-2 Controller in the Compaq ProLiant family
- Integrated 32-Bit Fast-SCSI-2 Controller the Compaq ProLiant, ProSignia VS, and the ProSignia Server families
- Integrated Fast-SCSI-2/P Controller in the Compaq ProSignia
- ProLiant Storage System /U

Table 50 describes features added to *CPQSCSI.HAM* with the corresponding version release.

Table 50. *CPQSCSI.HAM* features

Version	Features
1.20	Supports faulting CD-ROM devices.
1.10	Supports the Compaq ProLiant 3000 and the Compaq Dual Channel Wide-Ultra SCSI-3 Controller.
1.01	Supports the Compaq ProLiant 3000, Compaq ProLiant Storage System /U, and Dual Channel Wide-UltraSCSI-3 Controller.

CPQSDIBI.NLM

NetWare SBackup 3.1x DIBI Support, *CPQSDIBI.NLM*, provides support for NetWare SBackup 3.1x.

Table 51 lists resolved issues with the corresponding version release for *CPQSDIBI.NLM*.

Table 51. *CPQSDIBI.NLM* resolved issues

Version	Resolved Issues
1.03	Supports a Backup With Append on NetWare 3.12.
1.02	Locates a Compaq SCSI tape drive.

Table 52 describes features added to *CPQSDIBI.NLM* with the corresponding version release.

Table 52. *CPQSDIBI.NLM* features

Version	Features
1.01	Prevents a list of tape devices from appearing if only one tape device is present.

CPQSDISK.DSK

The SCSI Disk Driver, *CPQSDISK.DSK*, supports all SCSI-2 disks (internal and external) connected to the SCSI controllers supported by *CPQS710.DSK*. *CPQSDISK.DSK* also supports temperature and fan status in Compaq ProLiant Servers and Compaq ProLiant Storage Systems. If critical error conditions are detected, *CPQSDISK.DSK* deactivates and spins down all of the devices to protect the drives and data.

Table 53 lists resolved issues with the corresponding version release for *CPQSDISK.DSK*.

Table 53. *CPQSDISK.DSK* resolved issues

Version	Resolved Issues
2.02	Prevents driver from inadvertently taking action on false notices of fan failures from some Fast-Wide SCSI-2 ProLiant Storage Systems.
2.01	Initializes correctly when a Fast-Wide SCSI-2 drive is replaced with a Fast-SCSI-2 drive.
1.21	Turns write-cache to OFF to avoid data loss and incompatibility with NetWare when SCSI drives default to write-cache.
1.20	Maintains accessibility to DOS partition after a NetWare SFT III Server is brought down.

Table 54 describes features added to *CPQSDISK.DSK* with the corresponding version release.

Table 54. *CPQSDISK.DSK* features

Version	Features
2.12	Supports the Compaq ProLiant Storage System /U.
2.11	Supports Self-Monitoring, Analysis, and Reporting Technology (SMART) SCSI drives.
2.10	Supports the Compaq ProLiant Storage System Model F1 (simplex boxes) and Compaq ProLiant Storage System Model F2 (duplex boxes). Supports the Compaq Wide-Ultra SCSI Controller and the Integrated Wide-Ultra SCSI Controller.
2.03	Loads in intraNetWare (NetWare 4.11) and NetWare automatically.
2.00	Supports Compaq 32-Bit Fast-Wide SCSI-2/P Controller, Compaq 32-Bit Fast-Wide SCSI-2/E Controller, and Integrated 32-Bit Fast-Wide SCSI-2/P Controller.
1.22	Provides additional SCSI controller information for the Compaq Insight Manager.
1.20	Supports temperature and fan status in Compaq ProLiant Servers and Compaq ProLiant Storage Systems. Defaults to prioritizing read requests over write requests. (This typically helps I/O performance of applications using NetWare' s File System. It might, however, adversely affect performance of applications that bypass the NetWare File System and NetWare cache, such as Oracle or Sybase database servers. Use the -DPR command line parameter to disable the read request priority.)
1.10	Supports Compaq ProLiant Storage System and hot-plug capability. Improves reporting information about Compaq SCSI-2 drives and controllers to the Compaq Insight Manager and the Compaq Server Manager/R. Improves handling and notification of drive errors.

CPQSHD.CDM

The Custom Device Module, *CPQSHD.CDM*, supports both SCSI and Fibre Channel disk storage devices.

Table 55 lists resolved issues with the corresponding version release for *CPQSHD.CDM*.

Table 55. *CPQSHD.CDM* resolved issues

Version	Resolved Issues
1.11	Corrects an event that occurs when trying to unload a driver that has active devices.

Table 56 describes features added to *CPQSHD.CDM* with the corresponding version release.

Table 56. *CPQSHD.CDM* features

Version	Features
1.21	Supports NetWare 5.

1.10	Supports the Compaq Fibre Channel Array Controller devices.
1.01	Supports the ProLiant 3000 and the Dual Channel Wide-Ultra SCSI-3 Controller.

CPQSTAPE.DSK

The SCSI Tape Driver, *CPQSTAPE.DSK*, supports the following Compaq ACA and DAT tape drives for Novell SBackup:

- 320-/525-MB Tape Drive
- 1.3-/2.0-GB DAT Tape Drive
- 2/4-GB DAT Drive
- 525-MB ACA Tape Drive
- 5.0-GB DAT Drive
- 4/16-GB TurboDAT Drive
- 1.2-GB ACA Tape Drive

Table 57 lists resolved issues with the corresponding version release for *CPQSTAPE.DSK.*

Table 57. *CPQSTAPE.DSK* resolved issues

Version	Resolved Issues
1.19	Restores multiple sessions on a single tape properly with Novell patch SBACK6. Completes the erase of the media header during the retensioning process on larger capacity tapes after the ERASE command executes.
1.18	Mounts a tape properly using the NetWare 3.12 *SBACKUP.NLM* Module.
1.17	Avoids a hang condition in SBackup while mounting the media on Compaq DAT drives after running multiple backup sessions. Enables SBackup to recognize the tape drive if a tape is not present when *CPQSTAPE.DSK* loads on a NetWare 4.1 server.
1.15	Senses an invalid medium used in the tape drive (for example, wrong tape size) and returns the error message *CPQSTAPE: Error-incompatible medium is installed*.
1.14	Prevents data corruption on backups spanning more than one tape with the Compaq 320-/525-MB Tape Drive, the 525-MB ACA Tape Drive, and the 1.2-GB ACA Tape Drive.
1.11	Avoids memory corruption and possible ABEND when *CPQDSKSA.NLM* asks for information on SCSI devices outside the range of 0 through 7.

Table 58 describes features added to *CPQSTAPE.DSK* with the corresponding version release.

Table 58. *CPQSTAPE.DSK* features

Version	Features
1.15	Provides additional SCSI controller information for Compaq Insight Manager.
1.13	Supports future hardware products.
1.12	Supports the Compaq 4/16-GB TurboDAT drive and SBackup under NetWare 3.11, NetWare 3.12, and NetWare 4.x.

CPQSXPT.DSK

CPQSXPT.DSK provides the transport of commands from the Compaq device drivers (such as *CPQSASPI.NLM, CPQSCD.DSK*, *CPQSDISK.DSK*, and *CPQSTAPE.DSK*) to the low-level SCSI-bus interface modules, such as *CPQS710.DSK* and *CPQS94.DSK*.

Table 59 describes features added to *CPQSXPT.DSK* with the corresponding version release.

Table 59. *CPQSXPT.DSK* features

Version	Features
2.00	Supports the Compaq 32-Bit Fast-Wide SCSI-2/P Controller, Compaq 32-Bit Fast-Wide SCSI-2/E Controller, and Compaq Integrated 32-Bit Fast-Wide SCSI-2/P Controller.
1.01	Provides additional SCSI controller information for the Compaq Insight Manager.

FWS2ASPI.SYS

The DOS ASPI Driver, *FWS2ASPI.SYS*, enables DOS to view up to eight (8) CD-ROM drives as a read-only fixed disk.

Table 60 lists resolved issues with the corresponding version release for *FWS2ASPI.SYS.*

Table 60. *FWS2ASPI.SYS* resolved issues

Version	Resolved Issues
2.13	Corrects an issue with the Compaq C825–Fast-Wide SCSI-2/E Controller.
1.05	Prevents the server from hanging during an intraNetWare (NetWare 4.11)/NetWare installation.
1.03	Prevents the server from hanging when *FWS2ASPI.SYS,* v1.02, loads with *CPQS710.DSK,* v2.04.

Table 61 describes features added to *FWS2ASPI.SYS* with the corresponding version release.

Table 61. *FWS2ASPI.SYS* features

Version	Features
2.00	Supports the Compaq ProLiant 5000 Servers.
1.02	Replaces the *CDC710.SYS*, *WS2ASPI.SYS*, and *WS2CD.SYS* drivers in conjunction with *FWS2CD.SYS*. Supports up to eight (8) CD-ROM controllers in a DOS environment.

FWS2CD.SYS

The DOS CD-ROM Driver, *FWS2CD.SYS*, in conjunction with *FWS2ASPI.SYS*, enables DOS to view up to eight (8) CD-ROM drives as a read-only fixed disk.

Table 62 describes features added to *FWS2CD.SYS* with the corresponding version release.

Table 62. *FWS2CD.SYS* features

Version	Features
1.01	Supports the Compaq ProLiant 5000 Servers.
1.00	Replaces the *CDC710.SYS*, *WS2ASPI.SYS*, and *WS2CD.SYS* drivers in conjunction with *FWS2ASPI.SYS*. Supports up to eight (8) CD-ROM controllers in a DOS environment.

IDEATA.HAM

IDEATA.HAM provides support for IDE controllers in Compaq servers.

Table 63 lists resolved issues with the corresponding version release for *IDEATA.HAM*.

Table 63. *IDEATA.HAM* resolved issues

Version	Resolved Issues
1.30	Prevents issues with accessing devices through the server console.

Table 64 describes features added to *IDEATA.HAM* with the corresponding version release.

Table 64. *IDEATA.HAM* features

Version	Features
1.30C	Supports the Compaq Slim Line 8x CD-ROM drive.
1.30	Supports the Compaq ProSignia 200 and IDE disk drives.
1.21	Supports IDE controllers.

IDECD.CDM

IDECD.CDM supports any NetWare application using the NetWare Peripheral Architecture (NWPA) Media Manager Interface to communicate with other devices.

It supports the following IDE CD-ROM drives:

- Compaq Slim Line 8x CD-ROM drive
- GoldStar 16X Slot Load CD-ROM drive
- GoldStar 16X Tray Load CD-ROM drive
- Hitachi 16X Tray Load CD-ROM drive
- Panasonic 24X Slot Load CD-ROM drive
- Sony 8x IDE CD-ROM drive
- Sony 16X Slot Load CD-ROM drive

Table 65 describes features added to *IDECD.CDM* with the corresponding version release.

Table 65. *IDECD.CDM* features

Version	Features
1.30B	Supports the Compaq Slim Line 8x CD-ROM drive. Supports the Sony 16X Slot Load, GoldStar 16X Slot Load, GoldStar 16X Tray Load, Hitachi 16X Tray Load, and the Panasonic 24X Slot Load.
1.30	Supports the Sony 8x IDE CD-ROM drives.
1.00	Supports IDE CD-ROM devices.

IDEHD.CDM

The IDE Disk Driver, *IDEHD.CDM*, supports all IDE disks connected to the IDE controllers supported by *IDEATA.HAM*.

Table 66 describes features added to *IDEHD.CDM* with the corresponding version release.

Table 66. *IDEHD.CDM* features

Version	Features
1.30	Supports IDE disk drive devices.

Server Management Modules

This section describes the NetWare Loadable Modules (NLM) that support the Compaq Server Management features.

CPQHLTH.NLM

The health driver, *CPQHLTH.NLM*, provides early warning and logging of impending component or subsystem failures. The health driver monitors the server environment for hazardous conditions. It also acts as a hub for hardware platform events and as an access point to the Integrated Management Log (IML). In addition, it provides management information to SNMP agents.

Some of the features, such as Automatic Server Recovery (ASR) after a critical event and graceful server shutdown, require configuration using the Compaq System Configuration Utility.

Table 67 lists resolved issues with the corresponding version release for *CPQHLTH.NLM*.

Table 67. *CPQHLTH.NLM* resolved issues

Version	Resolved Issues
3.14	Detects and prevents false redundant failure messages on Compaq ProLiant 1500 Servers equipped with redundant power supplies. Prevents PCI Hot Plug driver errors.
3.13	Corrects incompatibility with *NSRLIB.NLM* v4.12, a required driver for Legato backup software.
3.12	Prevents a false *Overload* condition reported by the power supply unit in the Compaq ProLiant 6000 Server. Prevents a page fault that might occur when the health driver loads on a system that does not have a redundant power supply. Prevents an ABEND caused by multiple-event messages from the network interface controller(s) and/or storage adapter(s).
3.00	Corrects an issue that might cause a server ABEND if the Health driver reloads from the console prompt after being unloaded on servers running NetWare 4.10.
2.35	Prevents variable configurations of the Compaq ProLiant 5000 and Compaq ProLiant 1500 6/200-based models from locking up during driver initialization. Removes erroneous messages that appear on Pentium-Pro based Compaq servers.
2.33	Identifies the correct physical location (slot and socket numbers) of the failed processor when NetWare/intraNetWare (NetWare 4.11) SMP loads on a multiprocessor system if a secondary processor enters a pre-failure warranty condition.
2.32	Prevents a page fault ABEND when the Health Driver loads on a server with more than 2 GB of RAM.
2.12	Corrects a conflict with the Lotus Notes NLM.

Table 68 describes features added to *CPQHLTH.NLM* with the corresponding version release.

Table 68. *CPQHLTH.NLM* features

Version	Features
4.01	Supports Compaq ProLiant 1850R Servers. Supports the Compaq Pentium II Xeon ProLiant 6000.
4.00	Supports the Compaq ProLiant 800 6/350-1, Compaq ProLiant 1600 6/350-1, Compaq ProLiant 1600 6/400-1, and Compaq ProLiant 1600R 6/400-1.
3.14	Includes an Intelligent Power Down Manager feature that enables the server to gracefully down when the power switch is pressed before power is shut off from the system. (Graceful server shutdown allows NetWare to close all open files to protect the data on your server.)
3.13	Supports ProLiant Redundant Power Supply. Allows event logging of PCI Hot Plug events.
3.12	Supports Compaq ProLiant 3000 Servers.
3.11	Supports event logging and the LCD on the Compaq ProLiant 2500 Server.
3.10	Supports Compaq ProLiant 6500 hot-pluggable redundant fans.
3.00	Supports Integrated Management Display. Includes a Power Supply Status feature, which reports power supply failures, insertions, and removals as well as redundancy status. Provides temperature, fan (hot pluggable and/or redundant), and power supply monitoring (hot pluggable and/or redundant). Adds the Soft Power Shutdown function that gracefully downs NetWare and shuts off the server power when the power switch is turned off.
2.33	Supports Compaq ProSignia 200 and the Compaq ProLiant 800 servers.
2.32	Supports future Compaq products.
2.31	Supports Compaq Insight Management agents to communicate with the Integrated Remote Console (IRC).
2.30	Supports Remote Insight Board. Supports Power System Monitoring, in which the health driver monitors the Redundant Power Supply and Processor Power Module when either is present. If failures are detected, *CPQHLTH.NLM* records the events in the Critical Error Log. Supports Compaq ProLiant 5000 Servers. Covers the Pentium Pro processor board under the Compaq Pre-Failure Warranty if critical hardware errors recorded by the health driver are excessive.
2.22	Increases the number of Correctable Memory (ECC) errors that can be reported so that a more accurate picture of ECC health can be seen. However, ECC error reporting is disabled when a large number of correctable memory errors occur in order to minimize the impact on system performance. All errors continue to be corrected even after reporting has been disabled.
2.21	Supports Compaq Recovery Server Option (RSO). Adds a command line parameter, "-Q" to *CPQHLTH* to enable Quick ASR, a feature that allows the server to reset immediately after a NetWare ABEND, thereby reducing downtime. Enhances the ability of *CPQHLTH* to diagnose ABEND messages by recording the name of the executing NLM when a processor exception, such as a Page Fault, occurs. Detects NLMs entering the NetWare debugger due to a debug interrupt (INT3).
2.20	Monitors the Real Time Clock (RTC) Battery. Issues an alert to the system console when a Correctable Memory Error occurs. To prevent excessive alerting, *CPQHLTH.NLM* only issues this message once. Reports the specific fan number when a system fan fails.
2.12	Supports planned future hardware.

2.11	Supports future hardware.
2.10	Supports graceful server shutdown of the Compaq ProLiant Family of Servers if a ProLiant processor fan fails.
2.00	Supports the Compaq ProLiant Family of Servers. These updates require that you configure your Compaq server with the Compaq System Configuration Utility, version 2.20 or greater. Adds Compaq Server Management detection for fan and caution temperature monitoring. Records the time that the server has been operating as a NetWare server. Adds UPS message logging to the critical error log. Supports Automatic Server Recovery (ASR) Software Fault Isolation. Adds an expanded critical error log.

CPQIML.NLM

CPQIML.NLM supports the Compaq Integrated Management Log (IML).

CPQPOWER.NLM

CPQPOWER.NLM is the Compaq Power Subsystem utility.

CPQRI.NLM

The Remote Insight device driver, *CPQRI.NLM*, allows system software and SNMP Insight Agents to communicate with the Remote Insight Board.

Table 69 lists resolved issues with the corresponding version release for *CPQRI.NLM*.

Table 69. *CPQRI.NLM* resolved issues

Version	Resolved Issues
1.02	Prevents a server ABEND if the Health driver, *CPQHLTH*.HLM, auto-load fails.
1.01	Corrects an issue that arises when the Insight Agent (*CPQRISA.NLM*) automatically loads the driver and no Remote Insight Board is installed.

Table 70 describes features added to *CPQRI.NLM* with the corresponding version release.

Table 70. *CPQRI.NLM* features

Version	Features
2.00	Provides support for the PCI version of the Remote Insight Board. (This support requires the use of *CPQHLTH.NLM,* v4.00 or later.)
1.10	Supports the Integrated Management Log (IML) available on the ProLiant 2500 Server and ProLiant 6000. This support requires a Remote Insight board with ROM, version 1.10 or higher.
1.01	Supports alternate video drivers that control the Remote Insight Board remote console features.
1.00	Provides support for the Remote Insight Board in conjunction with SNMP Insight Agents.

CPQRSO.NLM

CPQRSO.NLM, the device driver for the Compaq Recovery Server Option, increases the fault tolerance of a mission critical server. Two servers are connected to the same disk storage and, if the first server fails for any reason, the standby server automatically restarts NetWare and continues operation using the original disk storage information.

Table 71 lists resolved issues with the corresponding version release for *CPQRSO.NLM*.

Table 71. *CPQRSO.NLM* resolved issues

Version	Resolved Issues
1.01	Corrects a potential ABEND that could occur if the driver was unloaded while communicating with the secondary server.
	Prevents a broken connection between servers during initialization when using NetWare 3.12.

Table 72 describes features added to *CPQRSO.NLM* with the corresponding version release.

Table 72. *CPQRSO.NLM* features

Version	Features
1.02	Insures the primary server has exited to DOS after a graceful shutdown when a cable fault is detected at the primary connector.
	Supports a one-minute Recovery Server Option time-out value. The previous version allowed a minimum of a five-minute timeout.
1.00	Supports the Compaq Recovery Server Option. *CPQHLTH.NLM* and *AIOCOMX.NLM* must be loaded and Automatic Server Recovery (ASR) must be enabled on the system.

CPQSBD.NLM

CPQSBD.NLM supports PCI Hot Plug capability for both Compaq and third-party adapter cards.

Table 73 lists resolved issues with the corresponding version release for *CPQSBD.NLM*.

Table 73. *CPQSBD.NLM* resolved issues

Version	Resolved Issues
2.11	Displays the message *Power Fault* correctly in the Event Log if there is a power fault in the first hot-plug slot of a system bus. (Previously, the message *Unexpected Slot Power Loss* would display when this power fault occurred.)
2.01	Corrects the *Module did not release X resources* message after adding some PCI Adapters.
1.01	Displays events in the Integrated Management Log (IML) correctly.

Table 74 describes features added to *CPQSBD.NLM* with the corresponding version release.

Table 74. *CPQSBD.NLM* features

Version	Features
2.12	Supports NetWare 5.
	Supports the PCI Hot Plug Button feature on the ProLiant 7000 Pentium II Xeon models.
2.11	Displays a message when it locates a hot-plug controller.
	Displays a message when it does not locate a hot-plug controller, indicating the system does not support PCI Hot Plug.
	Supports revisions of the hot-plug controller for future hardware.
2.00	Supports PCI Hot Plug capability for Compaq and third-party adapter cards.

CPQUPS.NLM

CPQUPS.NLM is a device driver for the Compaq Uninterruptible Power Supply (UPS.) This driver lets the NetWare administrator decide how to handle detected power failure events on the server.

The driver can be configured to gracefully shutdown the operating system after loss of commercial power. Graceful server shutdown allows NetWare to close all open files to protect the data resident on your file server.

Table 75 lists resolved issues with the corresponding version release for *CPQUPS.NLM*.

Table 75. *CPQUPS.NLM* resolved issues

Version	Resolved Issues
2.02	Corrects a rare occurrence when the system is powered on from the UPS.
	Corrects an initialization issue in which the wrong serial port was queried for the UPS.
2.01	Allows the *CPQUPSSA.NLM* to unload first if there is no UPS attached to the server.

Table 76 describes features added to *CPQUPS.NLM* with the corresponding version release.

Table 76. *CPQUPS.NLM* features

Version	Features
2.03	Supports future products.
2.02	Handles UPS overload condition. (When the UPS is overloaded an alert is sent to the system console and an audible beep occurs. The server is downed. The system is powered *off.* When an overload occurs, you may need to unplug some of the equipment from the UPS in order to relieve the overload condition. The messages are *CPQUPS: OS and UPS shutdown*. *CPQUPS: UPS has detected an overload. Shutdown will occur.)*
	Sends a message to the system console when the UPS cable is reattached after the cable was unplugged.

This driver is no longer supported.

Miscellaneous Utilities

CPQMP.NLM

CPQMP.NLM supports NetWare 4.x SFT III multiprocessing on Compaq servers.

Table 77 describes features added to *CPQMP.NLM* with the corresponding version release.

Table 77. *CPQMP.NLM* features

Version	Features
2.00	Supports NetWare 4.x SFT III multiprocessing. (*CPQMP.NLM* no longer supports NetWare 3.11 SFT III multiprocessing.)
1.11	Re-enables non-masking interrupts (NMIs) after the second processor is enabled.
1.10	Supports the ProLiant 2000 and ProLiant 4000.

CPQMPK.PSM

CPQMPK.PSM provides platform support for NetWare 5 and enables symmetric multiprocessing (SMP) on supported systems.

CPQSMP.PSM

CPQSMP.PSM provides symmetric multiprocessing (SMP) for NetWare 4.11 SMP on supported systems.

Table 78 lists resolved issues with the corresponding version release for *CPQSMP.PSM*.

Table 78. *CPQSMP.PSM* resolved issues

Version	Resolved Issues
2.22	Prevents lost and spurious hardware interrupts when PCI Adapters are hot-plug added to SMP ProLiant Pentium II Xeon systems like the ProLiant 7000.
2.21	Prevents lost hardware interrupts on systems with Intel Pentium-II processors.
2.18	Corrects compatibility issues with intraNetWare (NetWare 4.11) Support Pack 4.0 when checking for failed processors on the ProLiant 2000, 4000, and 4500 to prevent the server from having a *Page Fault*.
2.16	Corrects a spurious interrupt that causes system lock-ups and generates multiple SMP Spurious Interrupt Alerts.
1.22	Detects if another Platform Support Module (PSM) is loaded and, if so, does not load. (Attempting to load more than one PSM causes the server to ABEND.)

Table 79 describes features added to *CPQSMP.PSM* with the corresponding version release.

Table 79. *CPQSMP.PSM* features

Version	Features
2.14	Supports Compaq ProLiant 6000 and Compaq ProLiant 6500 servers.
2.12	Replaces all driver references of NetWare 4.11 with intraNetWare.
2.10	Replaces *CPQPSM.NLM* for this version of NetWare.
1.32	Supports the Compaq ProLiant 2500 Server.
1.22	Supports the Compaq ProLiant 5000 Servers.

Discontinued Support

The following drivers/utilities are no longer supported.

- CPQSCSIT.NLM
- CPQUPS.NLM
- SYNCPTCH.DSK

How to Contact Compaq

Compaq supports a CompuServe forum called The Compaq Connection. You can access the CompuServe forum by typing the following at the CompuServe prompt:

GO COMPAQ

or you may use the following to get directly to the support forum:

GO CPQFORUM

For Prodigy, the commands are:

JUMP (from the tool bar)

COMPAQ BB

For America Online the commands are:

GO TO (from the tool bar)

COMPAQ

Compaq also supports an Internet address. Send your questions and issues to the following Internet address.

support@compaq.com

In addition, feedback on the Novell Support Software Diskettes may be directed to:

NSSD.Feedback@Compaq.com

You may obtain updates and patches in Compaq SoftPaq files from:

Ftp.compaq.com

The Compaq World Wide Web server can be accessed through the Uniform Resource Locator (URL):

http://www.compaq.com

Glossary

ABEND (Abnormal end)

When the operating system detects a serious problem, such as a hardware or software failure, the system issues an ABEND (abnormal end) message. The ABEND stops the file server.

Bus mastering

The capability of a peripheral device, such as a disk driver adapter, to read and write from and to system memory without the intervention of the CPU.

Compaq System Configuration Utility (Configuration utility)

Formerly called EISA Configuration Utility. Utility used to configure the server and PCI, EISA, and ISA boards plugged into expansion slots.

Hot Fix

NetWare feature that protects data from failures in the network hardware. When this feature is activated, a small portion of hard disk storage space is set aside as a Hot Fix Redirection Area. When read-after-write verification determines that there is a bad data block on the disk, Hot Fix redirects data that was to be stored in the bad block to the Hot Fix Redirection Area. Hot Fix marks the defective block as bad and the server does not attempt to store data there again.

Mirrored Partition

The duplication of data from one NetWare partition on a hard drive to another NetWare partition on another hard drive. When you mirror partitions, two or more hard drives are paired.

NWPA (NetWare Peripheral Architecture)

A layered storage driver architecture that is an extension of the NetWare Media Manager. The NWPA modular design separates NetWare driver support into two components: a Host Adapter Module (HAM) and a Custom Device Module (CDM).

Open Data-Link Interface (ODI)

An architecture that allows multiple LAN drivers and protocols to coexist on a network system. ODI supports media- and protocol-independent communications by providing a standard interface that allows transport protocols to share a single network without conflict.

S.M.A.R.T. Hard Disk Drives, S.M.A.R.T. Drives

Self-Monitoring, Analysis, and Reporting Technology incorporated into hard disk drives that monitors drive parameters and notifies user of potential HDD issues.

Appendix

Driver Charts

Table A1. Novell SSD driver releases

	Novell SSD Version								
Driver	**5.00**	**3.22**	**3.21**	**3.20**	**3.13**	**3.12**	**3.11**	**3.10**	**3.09**
CPQ2ETH.LAN		3.12						3.11 5/1/97	
CPQ2TOK.LAN		3.12							
CPQARRAY.HAM	1.21								
CPQCHW.NLM	1.10								
CPQCMODS.NLM	1.20B								
CPQCOMM.NLM	4.10								
CPQDA386.DSK									3.10 3/17/97
CPQDOSLB.NLM	1.00A								
CPQETHER.LAN		3.12							
CPQFC.HAM		1.02	1.01	0.66 1/5/98					
CPQHLTH.NLM		4.01	4.00	3.14 1/5/98	3.13 9/1/97	3.12 8/1/97	3.11 7/7/97	3.10 5/1/97	3.00 3/17/97
CPQIDECD.SYS									2.00B 2/26/97
CPQLIB.NLM	1.51A								
CPQMPK.PSM	3.12								
CPQNF3.COM									2.27 2/21/97
CPQNF3.LAN			2.35					2.24 5/2/97	
CPQNF3.SYS								2.50 4/16/97	2.40 2/20/97
CPQNSSU.NLM	1.10								
CPQONLIN.NLM	2.30	2.20	2.12	2.10 1/5/98				2.00 5/1/97	1.13 3/17/97
CPQRBOOT.NLM	1.00								
CPQRI.NLM		2.00						1.10 5/1/97	
CPQS710.DSK			2.14		2.13 9/1/97	2.12 8/4/97			2.11

Table A1-1. Novell SSD Releases (cont.)

	Novell SSD Version								
Driver	**5.00**	**3.22**	**3.21**	**3.20**	**3.13**	**3.12**	**3.11**	**3.10**	**3.09**
CPQSBD.NLM	2.12	2.11	2.01	2.00 1/5/98					
CPQSCSI.HAM	1.20			1.10 1/5/98					
CPQSDISK.DSK					2.12 9/1/97				2.11 3/17/97
CPQSHD.CDM	1.21	1.11		1.10 1/5/98					
CPQSMP.PSM/ *CPQPSM.NLM*		2.22	2.21		2.18 9/1/97		2.16 7/4/97	2.14 5/1/97	2.12 3/17/97
CPQSTAPE.DSK								1.19 5/1/97	
CPQTOKEN.LAN		3.12							
CPQTRPCI.COM		2.8							
CPQTRPCI.LAN		2.8							
FWS2ASPI.SYS ***When the driver name changed, the version numbers also changed. These numbers match the Novell SSD at the time of release.***					1.05				2.13 3/11/97
IDEATA.HAM							1.30C 7/7/97		
IDECD.CDM							1.30B 7/7/97	1.30B 5/8/97	
N100.LAN		3.27							
NBI.NLM								1.62 4/1/97	
NBI31X.NLM								1.62 4/1/97	
NFT.NLM		1.1							
NWPA.NLM								2.32D 5/9/97	
NWPAIO.NLM								2.32D 5/9/97	
NWPAMS.NLM								2.32D 5/9/97	

Table A2. NPFC driver releases 3.06B – 3.01

	NPFC Version						
Driver	**3.06B**	**3.06A**	**3.05**	**3.04**	**3.03**	**3.02**	**3.01**
CPQ2ETH.LAN				3.10 7/15/96		3.04 4/23/96	
CPQ2TOK.LAN				3.10 7/15/96		3.04 4/23/96	
CPQDA386.DSK		3.06 1/6/97	3.05 10/10/96		3.04 6/26/96	3.03	
CPQETHER.LAN				3.10 7/15/96		3.04 4/23/96	
CPQETHNW.SYS		1.28 1/6/97					
CPQHLTH.NLM	2.35 1/27/97		2.33 10/31/96	2.32 10/1/96	2.31 8/19/96	2.30 4/23/96	
CPQIDE.SYS					1.21E		
CPQNF3.COM	2.26 2/13/97			2.21 8/28/96	2.10 8/7/96		2.00 3/11/96
CPQNF3.LAN	2.23 2/6/97			2.21 10/1/96	2.11 8/7/96	2.10 4/23/96	2.00 3/11/96
CPQNF3.SYS	2.40 2/5/97			2.21 8/28/96	2.11 8/7/96		2.00 3/11/96
CPQONLIN.NLM				1.12 10/1/96	1.11 8/19/96	1.10 4/23/96	1.04
CPQRI.NLM			1.02 10/31/96		1.01 8/7/96	1.00 4/23/96	
CPQS710.DSK	2.11 1/27/97	2.10 1/6/97			2.04 5/31/96		
CPQSASPI.NLM			1.14 10/31/96				
CPQSDISK.DSK		2.10 1/6/97			2.03 8/19/96		
CPQSMP.PSM/ *CPQPSM.NLM*				2.10 10/1/96	1.32	1.22 4/23/96	
CPQSTAPE.DSK					1.18 8/19/96		
CPQTOKEN.LAN				3.10 7/15/96		3.04 4/23/96	
CPQTOKNW.SYS		1.38 1/6/97					

Table A2-1. NPFC driver releases 3.06B – 3.01 (cont.)

	NPFC Version						
Driver	**3.06B**	**3.06A**	**3.05**	**3.04**	**3.03**	**3.02**	**3.01**
CPQUPS.NLM					2.03 8/19/96		
ETHERTSM.NLM				3.11 7/3/96			
FWS2ASPI.SYS ***When the driver name changed, the version numbers changed. This appendix reflects the version numbers shown in the appropriate NPFC.***					1.03 6/24/96	2.00 4/22/96	
FWS2CD.SYS						1.01 4/1/96	
IDEATA.HAM			1.30 10/31/96		1.21 6/18/96		
IDECD.CDM			1.30 10/31/96		1.00 6/18/96		
IDEHD.CDM			1.30 10/31/96				
MSM.NLM/ *MSM31X.NLM*				3.17 7/1/96			
NWPA.NLM			2.32 10/23/96				
NWPAIO.NLM			2.32 10/23/96				
NWPAMS.NLM			2.32 10/23/96				
NWPATCH.NLM			1.05 8/22/95				
PCNTNW.LAN				3.20 6/27/96			
TOKENTSM.NLM				3.11 7/3/96			

Table A3. NPFC driver releases 3.00D – 2.56A (cont.)

	NPFC Version						
Driver	**3.00D**	**3.00C**	**3.00B**	**3.00A**	**2.57**	**2.56B**	**2.56A**
CPQ2ETH.LAN					3.03 9/8/95		3.02 6/2/95
CPQ2TOK.LAN					3.03 9/8/95		3.02 6/2/95
CPQDA386.DSK	3.02 2/1/96	3.01 1/5/96		3.00 11/21/95			
CPQETHER.LAN					3.03 9/8/95		3.02 6/2/95
CPQETHNW.COM			1.36 12/6/95				
CPQETHNW.SYS			1.27 12/6/95				
CPQHLTH.NLM				2.22 11/21/95			2.21 6/2/95
CPQNF3.COM				1.20 11/21/95	1.10 9/28/95		1.00 6/2/95
CPQNF3.LAN				1.23 11/21/95	1.22 9/8/95	1.21 6/30/95	1.20 6/2/95
CPQNF3.SYS				1.10 11/21/95	1.00 9/28/95		
CPQONLIN.NLM	1.03 2/9/96	1.02 1/16/96		1.01 12/6/95			
CPQRSO.NLM	1.02				1.01 9/28/95		1.00 6/2/95
CPQS710.DSK				2.03			2.02 6/2/95
CPQS94.DSK							1.14 6/2/95
CPQSCD.DSK							1.12 6/2/95
CPQSDISK.DSK		2.02					
CPQSTAPE.DSK	1.17 2/9/96						
CPQTOKEN.LAN					3.03 9/8/95		3.02 6/2/95
CPQTOKNW.COM			1.56 12/6/95				

Table A3-1. NPFC driver releases 3.00D – 2.56A (cont.)

	NPFC Version						
Driver	**3.00D**	**3.00C**	**3.00B**	**3.00A**	**2.57**	**2.56B**	**2.56A**
CPQTOKNW.SYS			1.37 12/6/95				
CPQUPS.NLM							2.02 6/2/95
ETHERTSM.NLM							2.33 10/17/94
FWS2ASPI.SYS					1.02 7/27/95		
FWS2CD.SYS					1.00 4/7/95		
TOKENTSM.NLM					2.50 11/23/94		2.33 10/17/94

Table A4. NPFC driver releases 2.55D – 2.52A

	NPFC Version							
Driver	**2.55D**	**2.55C**	**2.55B**	**2.55A**	**2.54**	**2.53**	**2.52B**	**2.52A**
CPQ2ETH.LAN	3.01 5/10/95	3.00 5/3/95		2.43 2/17/95		2.42 9/23/94		1.30 5/16/94
CPQ2TOK.LAN	3.01 5/10/95	3.00 5/3/95		2.43 2/17/95		2.42 9/23/94		1.10 5/16/94
CPQDA386.DSK						2.41 9.23/94		
CPQDAOPT.NLM					1.10 12/22/94			
CPQETHER.LAN	3.01 5/10/95	3.00 5/3/95		2.43 2/17/95		2.42 9/23/94		2.41 5/16/94
CPQETHNW.COM						1.35 9/23/94	1.34 6/2/94	1.33
CPQETHNW.SYS						1.26 9/23/94	1.25 6/2/94	1.24
CPQHLTH.NLM						2.20 9/23/94		2.12 5/16/94
CPQMP.NLM					2.00 12/22/94			
CPQNF3.LAN			1.10 3/14.95	1.00				

Table A4-1. NPFC driver releases 2.55D – 2.52A (cont.)

	NPFC Version							
Driver	**2.55D**	**2.55C**	**2.55B**	**2.55A**	**2.54**	**2.53**	**2.52B**	**2.52A**
CPQS710.DSK				2.01 2/10/95	2.00 12/22/94	1.30 9/23/94		1.23 5/16/94
CPQS94.DSK					1.13 12/22/94	1.12 9/28/94		1.11 5/16/94
CPQSASPI.NLM				1.13 2/10/95				
CPQSCD.DSK				1.11 2/10/95	1.10 12/22/94			
CPQSDIBI.NLM							1.03 6/2/94	
CPQSDISK.DSK				2.01 2/10/95	2.00 12/22/94	1.22 9/23/94		
CPQSTAPE.DSK				1.15 2/10/95			1.14 6/2/94	1.13
CPQSXPT.DSK					2.00 12/22/94	1.01 9/23/94		
CPQTOKEN.LAN	3.01 5/10/95	3.00 5/3/95		2.43 2/17/95		2.42 9/23/94		2.41 5/16/94
CPQTOKNW.COM						1.55 9/23/94	1.54 6/2/94	1.53
CPQTOKNW.SYS						1.36 9/23/94	1.35 6/2/94	1.34
ETHERTSM.NLM					2.32 12/22/94			
MSM.NLM/ *MSM31X.NLM*					2.32 12/22/94			
PCNTNW.COM				2.20 11/16/94		2.00 9/13/94		
PCNTNW.LAN				2.20 11/16/94		2.10 9/13/94		1.10 2.22.94
PCNTNW.SYS				2.20 11/16/94		2.00 9/13/94		
TOKENTSM.NLM					2.32 12/22/94			

Table A5. NPFC driver releases 2.51 – 2.20 (cont.)

	NPFC Version				
Driver	**2.51**	**2.50**	**2.40**	**2.30**	**2.20**
CPQ2ETH.LAN		1.10 12/17/93			
CPQDA386.DSK			2.40 11/5/93	2.30	2.20
CPQDAOPT.NLM				1.01 8/3/93	
CPQETHER.LAN		2.30 12/17/93	2.20		2.10 4/6/93
CPQETHNW.SYS		1.23 12/17/93			
CPQHLTH.NLM		2.11 12/17/93			
CPQMP.NLM			1.11 11/5/93		
CPQS710.DSK	1.22		1.21 10/22/93		
CPQS94.DSK		1.10			
CPQSASPI.NLM		1.12 12/17/93	1.11	1.10	
CPQSDIBI.NLM			1.02 11/5/93		
CPQSDISK.DSK			1.21 11/5/93	1.20	1.10
CPQSTAPE.DSK		1.12 12/17/93			
CPQTOKEN.LAN	2.40	2.30 1/17/94	2.20	2.10	
CPQTOKNW.COM		1.52 12/17/93			
CPQTOKNW.SYS		1.33 12/17/93			
CPQUPS.NLM				2.01 8/3/93	

Table A5-1. . NPFC driver releases 2.51 – 2.20

	NPFC Version				
Driver	**2.51**	**2.50**	**2.40**	**2.30**	**2.20**
ETHERTSM.NLM		2.20			
		9/28/93			
MSM.NLM/		2.20			
MSM31X.NLM		10/4/93			
TOKENTSM.NLM		2.20			
		9/30/93			