



NC900 Network Computer

System and Flash Memory Installation Guide

Version 1.0

Copyright

Copyright © 1999, 2000 by Network Computing Devices, Inc. (NCD). The information contained in this document is subject to change without notice. Network Computing Devices, Inc. shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material. This document contains information which is protected by copyright. All rights are reserved. No part of this document may be photocopied, reproduced, or translated to another language without the prior written consent of Network Computing Devices, Inc.

Copyright © 1990, 1992, 1993, 1994, 1995, 1996 Tektronix, Inc. Wilsonville, Oregon.

Printed in the United States of America or the United Kingdom. All rights reserved. This document may not be copied in whole or in part, or otherwise reproduced except as specifically permitted under U.S. copyright law, without the prior written consent of Network Computing Devices, Inc., 350 North Bernardo Avenue, Mountain View, CA 94043 USA.

Portions of the network computer source code are copyrighted © 1989 by Sun Microsystems, Inc. Sun design patents pending in the U.S. and foreign countries. OPEN LOOK is a trademark of AT&T. Used by written permission of the owners.

Portions of this NCBridge software copyright © 1984-95 Adobe Systems Incorporated. All rights reserved.

Some fonts are copyrighted © 1986, 1985 by Bigelow & Holmes. Lucida is a registered trademark of Bigelow & Holmes.

Trademarks

Network Computing Devices is a registered trademark of Network Computing Devices, Inc. WinDD and NCBridge are trademarks of Network Computing Devices, Inc.

Ethernet is a trademark of Xerox Corporation; UNIX is a registered trademark of AT&T; DEC, DECnet, DECwindows, ULTRIX, SCAMP, VMS, and VT are trademarks of Digital Equipment Corporation; SPARCstation is a registered trademark of SPARC International, licensed exclusively to Sun Microsystems, Inc.; Sun Microsystems, SunOS, NFS, Sun, Sun-3, Sun-4, and OpenWindows are trademarks of Sun Microsystems, Inc.; OSF, OSF/Motif, and Motif are trademarks of Open Software Foundation, Inc.; X and X Window System are trademarks of the Massachusetts Institute of Technology. Hewlett-Packard, HP, and vue are trademarks of the Hewlett-Packard company. IBM and SMIT are trademarks of International Business Machines. Silicon Graphics and IRIS are registered trademarks and IRIX is a trademark of Silicon Graphics, Inc. OpenConnect is a registered trademark of OpenConnect Systems, Inc. Other trade names used in this document are trademarks or registered trademarks of the manufacturers or vendors of the associated products.

Microsoft, Windows NT and Windows95 are registered trademarks of Microsoft Corporation.

Adobe, Acrobat, Display PostScript, and ShowPS are trademarks of Adobe Systems Incorporated which may be registered in certain jurisdictions.

Use of a term in this book should not be regarded as affecting the validity of any trademark or service mark.

Certifications

UL 1950, CAN/CSA C22.2 No. 950, IEC 950, FCC Class A, EN55022 (class A), EN50082-1, EN60950, C-Tick, VCCI, MPR II (monitors only), CE, Energy Star Compliant (both monitor and logic unit).

Disclaimers

THE SOFTWARE PRODUCTS ARE PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, NCD FURTHER DISCLAIMS ALL WARRANTIES, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. THE ENTIRE RISK ARISING OUT OF THE USE OR PERFORMANCE OF THE SOFTWARE PRODUCTS AND DOCUMENTATION REMAINS WITH THE END USER.

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL NCD OR ITS SUPPLIERS BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, DIRECT, INDIRECT, SPECIAL, PUNITIVE, OR OTHER DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF OR INABILITY TO USE THE SOFTWARE PRODUCTS OR DOCUMENTATION, EVEN IF NCD HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. BECAUSE SOME STATES/JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

Revisions

Revision history of this document:

Part Number	Revision Date	Description
9300944	May, 2000	NC900 Network Computer System and Flash Memory Installation Guide, Rev. A.

Contact Information

Network Computing Devices, Inc.
350 North Bernardo Avenue
Mountain View, CA 94043 USA

1-800-800-9599 (USA and Canada)
1-503-641-2200
<http://www.ncd.com>

General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it.

Only qualified personnel should perform service procedures.

Injury Precautions

- | | |
|--|---|
| Use Proper Power Cord | To avoid fire hazard, use only the power cord specified for this product. |
| Ground the Product | This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. |
| Do Not operate in Wet/Damp Conditions | To avoid electric shock, do not operate this product in wet or damp conditions. |
| Do Not Operate in an Explosive Atmosphere | To avoid injury or fire hazard, do not operate this product in an explosive atmosphere. |
| Avoid Exposed Circuitry | To avoid injury, remove jewelry such as rings, watches, and other metallic objects. Do not touch exposed connections and components when power is present. |

Product Damage Precautions

- | | |
|---|---|
| Use Proper Power Source | Do not operate this product from a power source that applies more than the voltage specified. |
| Provide Proper Ventilation | To prevent product overheating, provide proper ventilation. |
| Do Not Operate With Suspected Failures | If you suspect there is damage to this product, have it inspected by qualified service personnel. |

Safety Terms and Symbols

Terms in This Manual

These terms may appear in this manual:



WARNING: Warning statements identify conditions or practices that can result in personal injury or loss of life.



CAUTION: Caution statements identify conditions or practices that can result in damage to the equipment or other property.

Terms on the Product

These terms may appear on the product:

DANGER indicates a personal injury hazard immediately accessible as one reads the marking.

WARNING indicates a personal injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

Symbols on the Product

The following symbols may appear on the product:



DANGER high voltage.



Protective ground (earth) terminal.



ATTENTION – refer to manual.

System and Flash Memory Installation

Introduction

Use these instructions to install either a System or Flash Memory Card in your NC900 Business Network Computer. Where a procedure differs for the type of memory card, the difference is clearly pointed out.

After you check the contents of your kit, read the Electrostatic Precautions below.

Kit Contents

This field installation kit includes this manual and one of the following:

- One System Memory board (16, 32, 64 or 128 MB)
- One Flash Memory board (8 or 16 MB)

Tools Required

Installation of a Memory kit in the NC900 requires no tools; other than electrostatic protection, such as an anti-static wrist strap.

Electrostatic Precautions

This product contains components that are highly sensitive to electrostatic discharge. To protect these components from damage and to maintain product reliability, take the following precautions when handling the circuit boards:

- Leave the board in its static-shielded bag until you are ready to install the board.
- Handle all circuit boards in a static-protected area capable of controlling static charge on conductive materials, people, and non-conductive materials. Static-protected areas include non-static table tops and non-static floor mats.
- Use an anti-static wrist strap and conductive pad when working with any circuit board.
- Handle the circuit boards only by the edges. Avoid touching the printed wires on the back of the circuit board as much as possible.

Installing the Memory Card

1. Set the Standby/On switch to Standby.
2. Remove the cable cover from the rear of the base as shown in Figure 1.

⚠ CAUTION: *The Standby/On switch on the NC900, when set to Standby, does not turn off the power to the circuitry inside. To avoid the possibility of damage to the circuitry, disconnect the ac line cord to the power supply before doing any work inside the logic module.*

3. Disconnect the ac power. Unplug the power supply from the ac power outlet, then disconnect the power supply connector from the rear panel.
4. Disconnect as many other cables as necessary to easily reach the rear of the logic module.

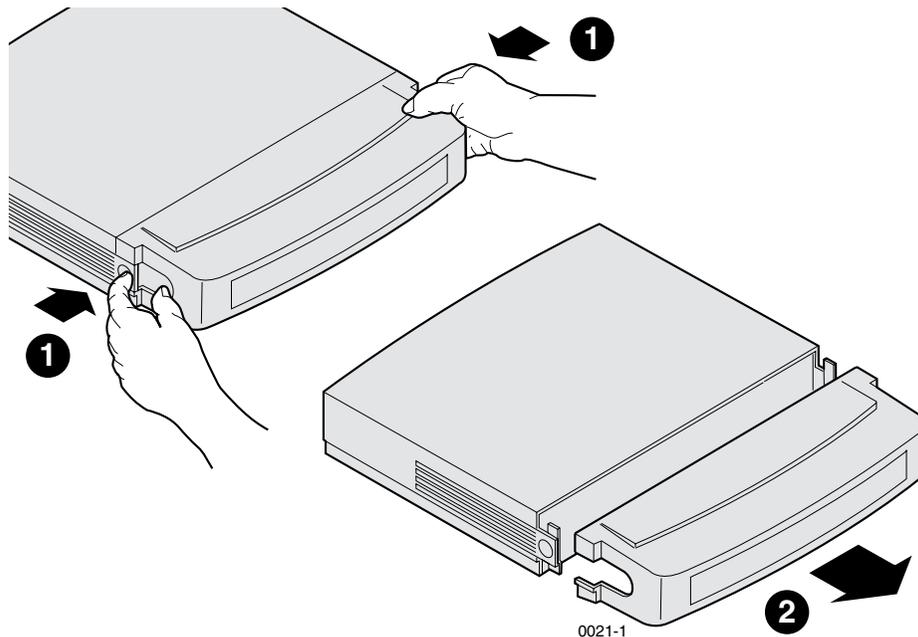


Figure 1. Removing the NC900 Cable Cover

Installing the Memory Card

5. Remove the NC900 base cover. As shown in Figure 2.

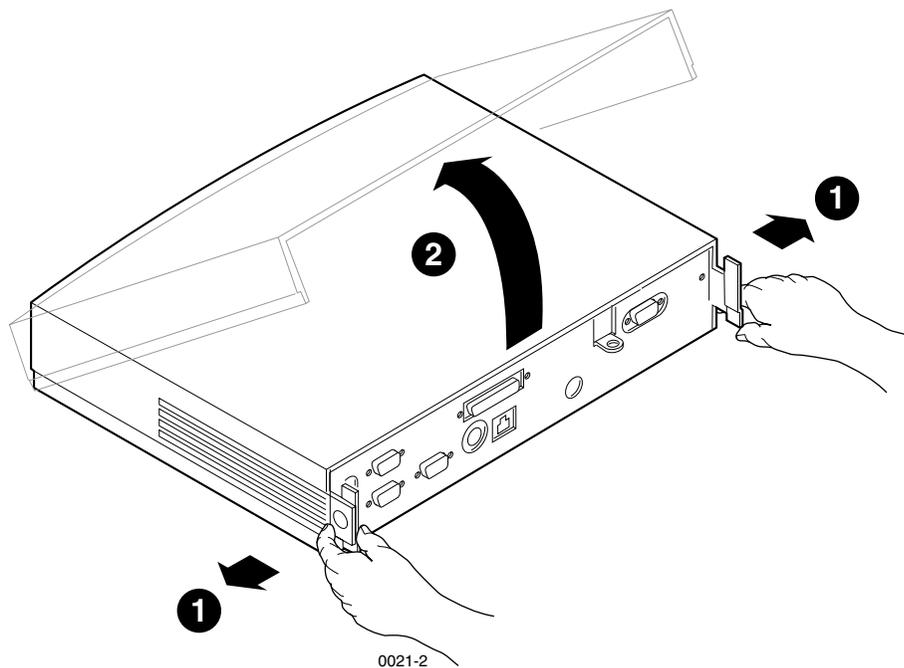


Figure 2. Removing the NC900 Logic Module Cover

6. Put on an anti-static wrist strap.
7. Remove the circuit board from the protective package.
8. Install the memory card into the appropriate size memory socket as shown in Figure 3. When the board is pressed into the socket, the latches will automatically close.

NOTE: *The Flash Memory card fits in the small memory socket and the System Memory card fits in the larger memory socket (see Figure 3).*

System and Flash Memory Installation

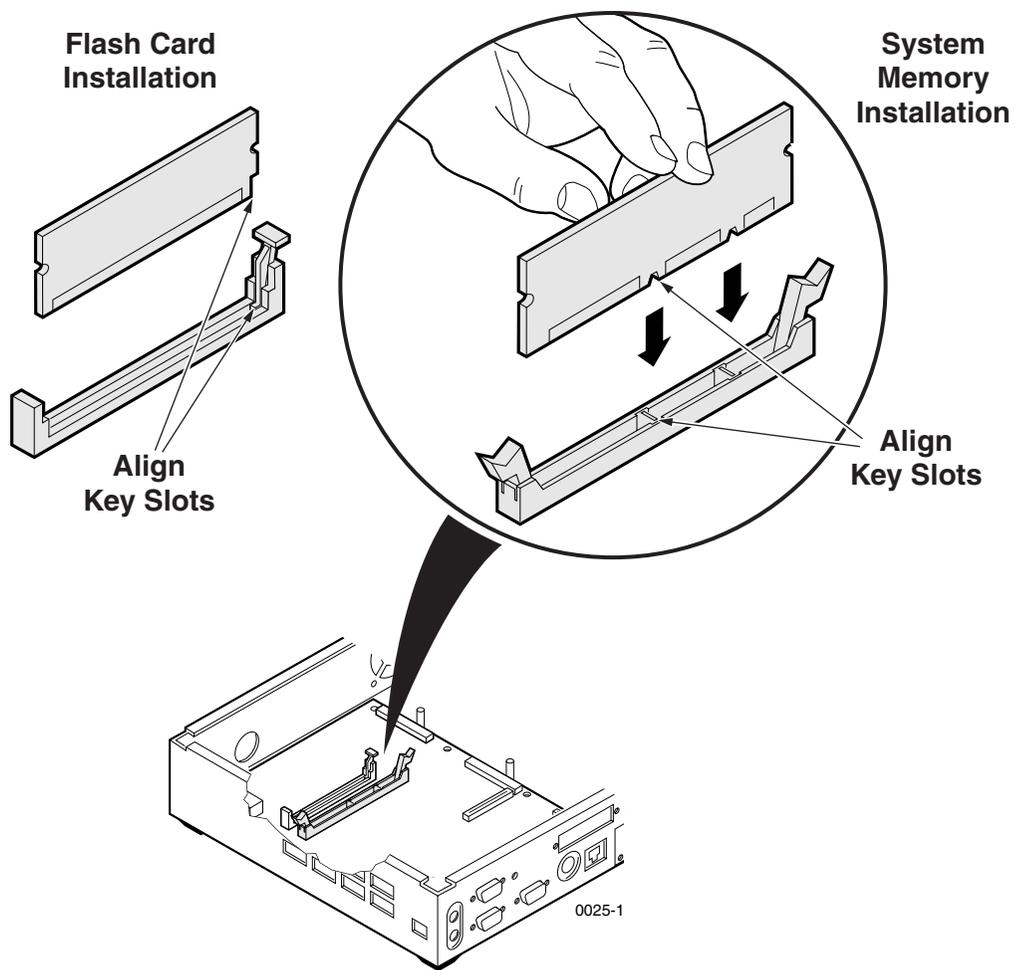


Figure 3. Expansion Memory Sockets

NOTE: *The flash card may be removed from the socket by pressing STRAIGHT DOWN on the ejector switch.*

Installing the Memory Card

9. Replace the logic module cover on the chassis.
10. Reconnect all cables removed earlier. Connect the power supply to the network computer before plugging it into the AC power outlet.
11. Replace the cable cover, routing the cables out the slots in the cover sides as shown in Figure 4.
12. Verify the installation using the procedure that follows.

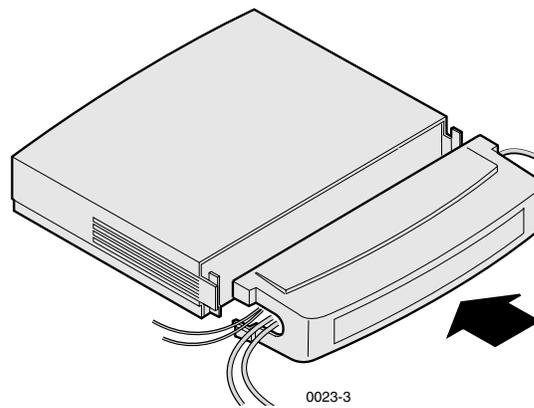


Figure 4. Installing the NC900 Cable Cover

Verification of System Memory Card

To verify that your network computer is operating correctly after installing the System Memory:

1. Set the Standby/On or On/Off switch to on (1) and watch for the Boot Monitor screen to appear.
2. Press any keyboard key before the boot process is complete.

Pressing any key before the boot process is complete stops the process and transfers control to the boot monitor. The following message appears on the display:

```
Type HELP for a list of commands
```

```
BOOT> _
```

3. At the BOOT> prompt type **report** and verify that the value for “opt mem:” is correct.

The value for “opt mem” should reflect the new optional system card that was added.

Example:

```
Boot > Report
Model:      N916
Std Mem:    16,384K
Opt Mem:    16,384K
Flash Mem  0K.
```

If the value does not include the newly added memory, check the DIMM to be sure it is properly seated in the socket, then repeat the verification procedure. If the memory value is still incorrect, contact your NCD representative.

Verification of System Memory Card

4. Type **selftest** at the **BOOT>** prompt. The Self Test Menu, shown in Figure 5, will appear.

```
Self Test Menu

NVRAM Tests
System Memory Tests
LAN Interface Tests
Flash Option Tests

Press the "SPACE" bar to step through the selections.
Press the "↵" to make a selection.
Press "ESC" to exit?
```

Figure 5. Self Test Menu

Following the instructions below the menu, select the System Memory Test and start the test by pressing “↵” (Enter or Return). When the test successfully completes, the messages on the screen appear as shown in Figure 6. If the test does not complete successfully, contact your NCD representative.

```
System Memory Tests Complete. Press any key to continue.

Data Walk                Passed
Byte Steering            Passed
Address Walk             Passed
RAM Bank Address         Passed
Mod255                   Passed
March16                  Passed
March32                  Passed
```

Figure 6. Display Messages After Successful System Memory Verification Test

5. Turn the NC off then on again to resume normal operation.

Verification of Flash Memory Card

To verify that your network computer is operating correctly after installing the Flash Memory:

1. Set the Standby/On or On/Off switch to on (1) and watch for the Boot Monitor screen to appear.
2. Press any keyboard key before the boot process is complete.

Pressing any key before the boot process is complete stops the process and transfers control to the boot monitor. The following message appears on the display:

```
Type HELP for a list of commands
BOOT> _
```

3. Type **report** at the BOOT> prompt and verify that the amount of Flash Memory reported is the amount you installed. The **report** command does not require that the Flash Memory be programmed to determine the amount of Flash Memory installed.

If the amount of Flash Memory reported is zero, check your installation to be sure the board is properly seated in the socket. If the problem remains, contact you NCD representative.

You may use the **ve** command to determine the version of NCBridge Software that is loaded on the Flash Memory Card. The output from the **ve** command should look like the following example:

```
OS, 4.0.1, XXXX
```

Where XXXX is a checksum value. You may also use the **ls** command to view the files loaded on the Flash Memory Card.

If the version number is missing, the flash memory is not programmed for booting.

4. Have your system administrator program the Flash Memory if it is not yet programmed, or needs to be programmed differently.

NOTE: *To reflash the Flash Memory Card with new files, see the NCBridge Reference Manual located on the documentation CD ROM.*

Verification of Flash Memory Card

⚠ CAUTION: *When flashing the local Netscape Navigator browser into the 16MB Flash Memory Card, the boot method must be set to NFS as opposed to TFTP. TFTP is not capable of downloading a file as large as the Netscape Navigator browser.*

5. Type **selftest** at the **BOOT>** prompt. The Self Test Menu, shown in Figure 7, will appear.

```
Self Test Menu

NVRAM Tests
System Memory Tests
LAN Interface Tests
Flash Option Tests

Press the "SPACE" bar to step through the selections.
Press the "←" to make a selection.
Press "ESC" to exit?
```

Figure 7. Self Test Menu

Following the instructions below the menu, select the Flash Option Test and start the test by pressing "←" (Enter or Return). When the test successfully completes, the messages on the screen appear as shown in Figure 8. If the test does not complete successfully, contact your NCD representative.

```
Flash Option Tests Complete. Press any key to continue.

Flash Option Checksum      Passed
```

Figure 8. Display Messages After Successful Flash Option Verification Test

System and Flash Memory Installation

Network Computing Devices, Inc.
350 North Bernardo Avenue
Mountain View, CA 94043-5207

9300944 Rev. A

