



N440BX Purpose-Built Server

Network Operating System Self Certification Guidelines



*Revision 3.5
May, 1998*



Revision History

Revision	Revision History	Date
3.0	Initial release	4/98
3.5	Added Novell link to Intel Corporation systems and clarification of Novell testing	5/1/98

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1. Introduction

The information provided in this document is intended as a quick reference guide to the certification processes pertinent to Intel's Server product line and is provided as a convenience to our customers only. ***The information is provided as a guide only and is subject to change as safety, EMC, or OS vendor requirements and policies change. Approximate fees are shown only to give the reader an idea of the approximate cost of some of the certifications, however each system is unique, and the reader needs to get an accurate quote from each vendor for their particular system. This information is provided as is and Intel assumes no responsibility for the accuracy of the data in this paper and does not commit to update this information. Users of this information should satisfy themselves as to the applicability and accuracy of the information provided herein prior to acting upon such information. Intel assumes no responsibility for the accuracy of the data in this paper.*** Further information can be found by accessing the Internet web sites listed in Appendix A of this guide.

2. Network Operating System Certification

Certification is a process to validate a baseboard or system is able to effectively perform when configured under specific operating system environments and using a series of special test suites designed by OS vendors. Testing of products for operating system certification is performed both in-house through the Intel Server Compatibility Lab (SCL) and externally at the OS vendor, depending on the testing policy of the OS vendor. This document outlines the policies, including hardware requirements and logistics, necessary for certifying an operating system with a test platform.

2.1. Certification Testing Overview

The table below summarizes the procedure for obtaining operating system certifications. SunSoft is the only vendor that allows a board level certification. All other vendors require certification at a system level. Details of the certification process for each operating system are documented in the following pages.

OPERATING SYSTEM	IN-HOUSE CERTIFICATIONS	VENDOR CERTIFICATIONS
Banyan VINES* V6.0	N/A	Performed at Banyan facility
Microsoft* Windows NT* v3.51 & v4.0	N/A	Performed at Microsoft facility
Microsoft Windows* 95	N/A	Performed at Microsoft facility
Novell* NetWare* v3.12 & v4.11	N/A	Performed at Novell facility
SCO OpenServer* v5.0 & v5.0MPX	N/A	Performed at SCO facility
SCO UnixWare* v2.1	N/A	Performed at SCO facility
Solaris* v2.5	N/A	Performed at SunSoft facility.

2.2. Novell NetWare 3.12 and 4.11 Certifications

Contacts

Novell Inc.
1555 North Technology Way
Orem, UT 84097

Web Address: <http://developer.novell.com/cgi-bin/devnet>

Testing Policy:

Two systems are used in certification testing. Novell has a Certification Bulletin on every Novell Yes Tested and Approved product. The Bulletin details what products were used in testing, such as versions of Novell products, network adapters, controller devices, and supported drivers. It also indicates specific product configuration, date of the certification, special network configuration information, or other related information important to the products interoperability in the network environment. This information may be in the form of a configuration note or a line item indicating whether or not certain functionality is supported. The "Novell Yes Tested and Approved" mark is the 3rd party identifier for products that have gone through testing and have received a certification bulletin. The new "Novell Yes Tested and Approved" mark or any of its predecessors is allowed only for products that have undergone rigorous product-compatibility testing by Novell, or one of our development and testing partners. This mark is valuable and displays the extra effort that companies and organizations have implemented in order to certify their products for use in networks worldwide.

Web Address: http://developer.novell.com/infosys/mastr_01.htm

Turnaround Time:

Certification will be granted approximately eight weeks after the certification testing has completed. At that time, Novell will list the system as certified on their web page and send an official bulletin to the originator.

Fee:

Contact Novell or one of their authorized test houses for an exact quote. Basic NetWare certification (3.x, 4.x, SFT) for file servers will vary between \$7,000 - \$10,000 US dollars. Novell Super Stress Lab testing is additional. Two authorized outside test houses are:

<http://www.keylabs.com>

<http://www.xxc.com>

Requirements:

The following lists the hardware to comply with Novell's requirements. Additional hardware may be added to the configuration provided it fits into one system and is functional.

Item	Requirement	Note
Systems	Two Systems	System box with power supply, 3.5" floppy disk drive, SCU or ICU, power cord, manual, and any other system requirements to make it functional.
BIOS	Released BIOS required	N/A
Memory	16MB of memory minimum per system	N/A
Processor	Determined by the submitter	System should hold the maximum number of processors.
Hard Drives	Total of two SCSI or two IDE Hard Drives (all drives must be at least 500MB in size, i.e. one per system)	Must be Novell Certified
CD-ROM	One preferred per system	Must be Novell Certified
Video	Either onboard or add-in PCI video in each system	Must support VGA*

Additional Testing Criteria:

If the system to be certified utilizes onboard LAN, an onboard SCSI controller, multiple processor speeds, or two or more processors, there are additional requirements. They are as follows:

Onboard LAN	The onboard LAN must be Novell certified before proceeding with the system certification. Onboard LAN certification can be conducted at Intel's NIO (Network Infrastructure Operation) Compatibility Lab. The onboard LAN bulletin is not issued as a stand-alone bulletin, but only in conjunction with a system certification. The process takes one week per network condition. Network condition options currently are: half duplex or full duplex, and 10 MB/s or 100 MB/s. A new network chipset solution requires a full 4-week onboard LAN certification, encompassing all the network conditions. The LAN drivers must be release level.
Onboard SCSI	The onboard SCSI controller must be Novell certified. This work can be done at Intel. The process takes one week and precedes the system certification. The SCSI drivers must be release-level.
Multiple Processor Speeds	Multiple processor speeds may be certified on a platform as required. Work can be done at Intel and requires two additional days of test time for each processor speed tested. If the baseboard cannot be jumpered to a slower speed, then each processor speed requires a 4-week certification.
Custom Peripherals	Custom peripherals may be included into the test configuration provided that the peripherals and drivers are already Novell certified. One test configuration may represent a superset of configuration requests from more than one customer.

Novell Super Lab Stress Testing

Additionally, a system can be shipped to Novell for Super Lab stress testing. This special testing involves shipping one fully configured system to Novell for up to two weeks. Novell runs this system as a server for 24 hours, connected to multiple clients (from 64 to 200+). The details and results of this testing are documented by Novell, posted on their website, and the system is returned.

The benefit of the stress test is an assurance that the product functions properly as a server in a multiple client Novell environment. This also provides documented evidence from a qualified source that the Intel product is Novell ready. This may be done concurrently to certification and may be scheduled to complete testing in a shorter time frame. The Super Lab stress testing need only be done once during a product's life cycle.

Requirements for Novell Super Lab Stress Testing:

Item	Requirement	Note
Systems	One System	System box with power supply, 3.5" floppy disk drive, power cord, manual, and any other system requirements to make the system functional.
BIOS	Released BIOS required	N/A
Memory	32 MB for Workstation 96 MB for Servers	N/A
Processor	As requested by the submitter	Single or Dual Stress testing is available.
Hard Drives	Quantity: at least one, Size: at least 1GB	Can be SCSI, IDE or a mixture
CD-ROM	Not Required	N/A
Video	Any onboard or add-in	Must support VGA
Cache	Enough cache for the system to function	N/A
SCSI Controller	Required	Any onboard or add-in

2.3. Microsoft Windows NT Certification Testing

Contacts

Microsoft Corporation
Building 26 South, Room 3515
One Microsoft Way
Redmond, WA 98052

Web Address: <http://www.microsoft.com/hwtest/>

Testing Policy:

It is the policy of Microsoft Corporation that official system certification with Microsoft products must be obtained through Microsoft directly. The service is restricted to products that are commonly available to the marketplace and must be certified in an "as shipped" configuration by the company that sells the product. Microsoft will not certify baseboard products or unbranded products.

Eligible systems must be submitted to Microsoft directly by the company selling the system to the public. Intel is not permitted to act as an agent for a company in obtaining certification per Microsoft's request. Microsoft will provide technical support for Windows NT on all products certified. Three systems are required by Microsoft for certification testing, one of which is retained for customer support.

Turnaround Time:

This will be negotiated through interface with Microsoft.

Fee:

Contact Microsoft for this information. Certification can cost over \$10,000 US dollars.

Requirements:

Intel dealers can contact Microsoft directly to obtain a test package enabling the certification testing at their site. They may then send in the results to Microsoft. Once the results are reviewed, Microsoft will send a letter to the company, informing them of the certification, as well as adding their product name to Microsoft's "Hardware Compatibility List" (HCL). Alternately, dealers may elect to send the system to Microsoft testing labs to have the certification testing performed there.

2.4. SCO OpenServer v5.0, v5.0MPX, UnixWare v2.1 Certifications

Contacts

Santa Cruz Operations, Inc.
400 Encinal Av., PO Box 1900
Santa Cruz, CA 95061-1900

Web Address: <http://www.sco.com>

Testing Policy:

Two systems are required for testing. Both systems are retained by SCO for customer support.

Turnaround Time:

Certification will be granted approximately three weeks after testing is complete (in-house testing takes seven days). At that time SCO will list the system as certified on their web page and send an official bulletin to the originator.

Fee:

Contact SCO for this information.

Requirements:

The following lists the hardware to comply with SCO's requirements. Additional hardware may be added to the configuration provided it fits into one system and is functional.

Item	Requirement	Note
Systems	Two systems	System box with power supply, 3.5" floppy disk drive, power cord, manual, and any other system requirements to make it functional.
BIOS	Beta BIOS required.	Released BIOS strongly advised
Memory	24 MB in each system	Memory should be the fastest architecture the design supports (example EDO or SDRAM).
Processor	Fastest processor available at the time	If a MP system, it should be fully populated.
Hard Drives	Two identical 1GB IDE or SCSI hard disk drives in each system	One for each OS
CD-ROM	IDE or SCSI CD-ROM drive in each system	For IDE, the CD-ROM must be configured as slave device on primary channel.
Video	Either onboard or add-in PCI video in each system	Maximum amount of video memory is desired
Cache	Secondary "L2" cache, if applicable, of the largest and fastest type supported is preferred	N/A
NIC	Intel Ethernet card	Onboard, or PCI add-in in each system
Keyboard	PS/2 keyboard & 3-button mouse for each system	N/A
Mouse	3-button mouse for each system	N/A

2.5. Solaris v 2.5 Certifications

Contacts

SunSoft, Inc.
6601 Center Drive West, Suite 700
Los Angeles, CA 90045
1-415-786-4743
solaris-cert@sun.COM

Web Address: <http://www.sun.com/developers/solbrand/cert-pro-data-sheet.html>

Testing Policy:

Solaris certification can be obtained at either the baseboard level or the system level. The baseboard or system is returned at the completion of certification testing.

Turnaround Time:

Certification will be awarded four weeks after the certification testing is complete. At that time, SunSoft will list the system as certified on their web page and send an official bulletin to the originator. The Solaris Certification Bulletin can be referenced online at <http://access1.sun.com/certify/reports/reports.html>

Fee:

Contact SunSoft for this information.

Requirements:

Item	Requirement	Note
All items	Same requirements as Intel compatibility run.	Testing done at either board or system level.
BIOS	Beta BIOS acceptable	Released BIOS is recommended.

2.6. Banyan VINES V6.0 Certification

Contacts

Banyan Systems Incorporated
120 Flanders Road
Westboro, MA 98052
1-800-222-6926
(1-800-2-BANYAN)

Web Address: <http://www.banyan.com/thirdpty/programs.html>

Testing Policy:

Banyan retains the tested system for customer support.

Turnaround Time:

Certification will be granted approximately three weeks after pre-certification testing is complete. At that time Banyan will list the system as certified on their web page and send an official bulletin to the originator. The in-house pre-certification test suite takes seven days to complete. The average total turnaround time is four weeks.

Fee:

A purchase order for \$500.00 must be sent to Banyan upon scheduling certification testing.

Requirements:

The following table lists the hardware to comply with Banyan's requirements. Additional hardware may be added to the configuration provided that it fits into one system and is functional.

Item	Requirement	Note
Systems	One System	System box with power supply, 3.5" floppy disk drive, power cord, manual, and any other items to make the system functional.
BIOS	Released BIOS required	Production Released as recorded on Intel database system.
Memory	32MB minimum	Validated/Qualified SIMMs or DIMMs only.
Processor	Fastest processor supported by the system	Banyan does not support multiple-processor configurations.
Hard Drives	At least one SCSI hard drive	At least 1GB each.
Video	Required	Any onboard or add-in video card.
Cache	No requirements	There must be at least enough cache for the system to function.
SCSI Controller	Required	Any onboard or add-in SCSI controller.
Keyboard	Required	Any keyboard.
Mouse	Required	Any mouse.
Monitor	Required	Any monitor.

2.7. IBM OS/2 WARP Certifications

Contacts

IBM Corporation
Bldg 906/2C014
11400 Burnett Road
Austin, TX 78758

Web Address: <http://www.Austin.IBM.com/pspinfo/os2hw.html>

Testing Policy:

There are two methods of certification available from IBM.

1. Customers can arrange to submit systems to IBM for testing in the ITL Compatibility Lab. These systems are tested for compatibility and then may be made available for OS/2 developers and Service organizations depending upon contract terms.
2. Customers can perform compatibility testing using a test kit supplied by IBM, and submit results to the program office. The suite of tests that are in the test kit are the same as those used by the ITL Lab.

Turnaround Time:

Running the compatibility tests supplied in the test kit takes about two (2) days.

Certification will be awarded approximately three weeks after certification testing is completed. At that time, IBM will list the board or system as certified on their web page and send an official bulletin to the originator.

Fee:

None

Requirements:

The following table lists the required hardware for IBM OS/2 v3.0 WARP certification testing.

Item	Requirement	Note
All items	Contact IBM for this information.	
BIOS	Beta BIOS acceptable.	Release BIOS is recommended.

Appendix A Reference Information

For more information, please check the following internet addresses:

NOS	URL
Novell NetWare	http://developer.novell.com/cgi-bin/devnet
Microsoft Windows NT	http://www.microsoft.com/hwtest/
SCO OpenServer	http://www.sco.com
Solaris	http://www.sun.com/developers/solbrand/cert-pro-data-sheet.html
Banyan VINES	http://www.banyan.com/thirdpty/programs.html
IBM OS/2	http://www.software.ibm.com/os/warp/hw-cert/