

NEXTSTEP for Intel Processors

Title: Canon object.station 41

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NEXTSTEP Release Certified: 3.2

Product Vendor:

Canon

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Keywords: ISA, VL-BUS, 486, Canon, Desktop

Explanation of Certification

To ensure a high level of compatibility and support for PC-compatible system configurations, NeXT has developed a process for comprehensively testing specific configurations for compatibility with NEXTSTEP for Intel Processors.

In this process, the NeXT Quality Assurance group subjects each specific system configuration to a suite of compatibility tests. If a system configuration passes the test suite, it is considered *certified*. Only the manufacturing revisions of a system unit and its add-on cards listed in the NeXTAnswer are considered certified. Once a configuration is certified, NeXT creates a detailed NeXTAnswers document (like this one) that lists the specific configuration tested, plus any setup information required to configure the system for NEXTSTEP.

Because of the detailed information that's available on certified configurations, NeXT delivers the best technical support on them. Keep in mind that a system platform might be loosely referred to as "certified" if it has one or more certified configurations, but all the benefits of certification are available only to users of the specific certified configurations.

Note: NeXT certification does not necessarily mean a configuration is error-free. Certified systems may contain detected or undetected compatibility problems.

Overview

The Canon object.station 41 is an Intel 80486DX4 based desktop PC with ISA and VL-BUS expansion slots, and built-in sound, graphics, and Ethernet.

Certified Components:

NeXT has certified a configuration consisting of the following components(*):

System CPU Board(s)

Canon object.station 41

BIOS Version: CHIPS ISA486 1.2.2

CPU Type(s) & Speed(s)

100 MHz Intel 80486DX4

System RAM

64MB maximum tested

IDE Controller(s)

NONE

SCSI Controller(s)

BusLogic BT445C

Interface: VL-BUS

BIOS Revision Number: 4.83

Firmware Revision Number(s): 4.22G

SCSI CD-ROM Drive(s)

Sony Internal SCSI

Model Number: CDU561-01

Hard Drive(s)

Quantum Empire 540S

Interface: SCSI

Size: ~500MB

Quantum Empire 1080S

Interface: SCSI

Size: ~1000MB

Floppy Drive(s)

Integrated 1.44MB 3.5"

Graphics Adaptor(s)

Canon Wingine

Interface: built-in local bus

BIOS Revision Number: 1.2.3

Chipset: Wingine

RAMDAC: Brooktree Bt485KPJ110

VRAM: 2MB

Serial Port(s)

Integrated, COM1, COM2

Parallel Port(s)

Integrated, LPT1

Keyboard(s)

Canon, PS/2 interface

Model: KB-6323

Mice and Other Pointing Devices

Canon, PS/2 interface

Part number: PS/2 Compatible mouse

LAN Adapter

Canon, AMD PC-Net 32 chipset
Interface: built-in
Connectors: Twisted pair

Sound Card(s)

Canon Object Station
Interface: built-in

Monitor(s)

Canon 17" color monitor
Model Number: CM1797MCA
Canon 21" color monitor
Model Number: CM2198MCA

*Note that only the firmware and hardware revision numbers specified are certified. Occasionally vendors may modify firmware or hardware characteristics without changing model numbers. Only systems with firmware and hardware revisions actually tested by NeXT have been certified.

Setup and Installation

Hardware Setup:

BusLogic SCSI adapter:

Set the switches on the BusLogic card like this:

- 1 OFF I/O address 334h
- 2 ON " "
- 3 ON " "
- 4 ON Local Bus clock >33MHz
- 5 ON BIOS Address = DC000
- 6 ON " "
- 7 ON " "
- 8 OFF Floppy controller disabled

Use the Auto-SCSI program to set the following settings

BIOS Address: DC000h
I/O Address: 330h
IRQ: 11

DMA Emulation: None
DMA Xfer Rate: N/A
Adapter ID: 7
SCSI Parity ON: Yes
Adapter Termination On: Yes (NO if external SCSI devices attached)
DOS Space >1GB: NO
Firmware Revision: 4.22G
BIOS Revision: 4.83

Configure Devices

Enable Fast Transfer: (yes for all devices)
Enable Sync Negotiation: (yes for all devices)
Enable Disconnection: (yes for all devices)
BIOS Send Start Unit Cmd: NO
Ignore in BIOS Scan: NO

Advanced Options

Host Adapter BIOS enabled: YES
Host Adapter BIOS using INT19h for system boot: YES

Host Adapter BIOS supports DOS space >1GB: NO
Host Adapter BIOS supports removable disks as fixed disks: NO
Host Adapter BIOS support for >2 drives (DOS 5.0): YES
Enable BIOS interrupt mode: NO
BIOS supports floptical drives: NO
Enable SCSI bus reset: YES
Reserved RAM for BIOS access 0:200
Set Host Adapter IO port address as default: YES
VESA bus speed >33MHz: YES
Enable VESA burst write: NO
Enable VESA burst read: NO

System Board Jumper Settings:

JP1:	2-3	Enable on-board video
JP15:	2-3	" "
JP15:	1-2	" "
JP4:	2-3	Enable on-board parallel port

JP5:	1-2	Enable on-board hard drive controller
JP6:	2-3	" "
JP7:	2-3	Enable on-board floppy controller
JP10:	2-3	Enable COM1
JP11:	2-3	" "
JP12:	2-3	Enable COM2
JP13:	2-3	" "
JP2:	1-2	On-board video in color
JP19:	1-2	Secondary Cache: 256Kbytes
JP20:	1-2	" "
JP32:	1-2	" "
JP33:	1-2	CPU Clock 1x
JP26:	1-2	1 wait state for VL-BUS
JP24:	1-2	486-style VL-BUS
JP25:	NC	" "
JP27:	NC	" "
JP34:	2-3	CPU Type: 80486DX4

JP35:	1-2	"	"
JP36:	1-2	"	"
JP38:	1-2	CPU Speed: 100/33MHz	
JP39:	NC	"	"
JP42:	NC	"	"
JP51:	3-5, 4-6	CPU Voltage: 3.3V	
JP37:	2-3	CMOS battery: normal	
JP43:	1-2	NMI control: system board	

JP53:	NC	Reserved (leave at factory settings)	
JP3:	NC	"	"
JP28:	1-2	"	"
JP29:	NC	"	"
JP30:	1-2	"	"
JP31:	2-3	"	"
JP41:	NC	"	"
JP52:	NC	"	"

CMOS settings:

Access the CMOS setup program by pressing F1 during boot-up. Set the following settings:

Time: (as appropriate)
Date: (as appropriate)
Diskette A: 3.5 Inch, 1.44MB
Diskette B: Not Installed
Fixed Disk C: Not Installed
Fixed Disk D: Not Installed
Base Memory: 640KB
Extended Memory: 31744KB
Display: EGA or VGA
Advanced Feature Control
 NumLock: ON
 Cache Initialization: Enabled
 486 Cache: Enabled

DRAM Timing: 5-3-3-3
Shadow system BIOS: Enabled
Shadow video BIOS: Enabled
Boot device order: A:, C:
Password: Disabled

Technical Options Control

Dynamic memory sizing: Enabled
Block 0 DRAM type: 1MBit
Block 0 bank count: 1
Block 0 start address: 0 MB
Block 1 DRAM type: Disabled
Block 1 bank count: 1
Block 1 start address: 0 MB
Block 2 DRAM type: Disabled
Block 2 bank count: 1
Block 2 start address: 0 MB
Block 3 DRAM type: Disabled

Block 3 bank count: 1
Block 3 start address: 0 MB
DRAM decode mode: 8-RAS mode
Block 0 interleave: Disabled
Block 1 interleave: Disabled
Block 2 interleave: Disabled
Block 3 interleave: Disabled
AT bus clock select: CLKIN/4
AT bus 16-bit cmd delays: 0
AT bus 8-bit cmd delays: 1
AT bus I/O cmd delays: 1
AT bus 16-bit wait states: 1
AT bus 8-bit wait states: 4
AT bus address hold time: 0
VRAM type: Split transfer
Register control
(don't change any of these from the default)

Driver settings:

Use Configure.app to load and configure the following drivers:

Display: Canon Object.station 41 Display Adapter*

Port Address: 0x2c6-0x2c9, 0x3b0-0x3e0, 0x82c6-0x82c9, 0x83c6-0x83c9

Mapped memory: 2048K at 0x7600000
192K at 0x90000

Pointing Device: PS/2-style mouse

IRQ level: 12

resolution: 150 dots per inch

Network: AMD PCnet-32 Ethernet Adapter*

DMA channel: none

Port Address: 32 bytes at 0x300

Mapped memory: none

IRQ level: 15

SCSI: BusLogic VL/EISA Bus SCSI Adapter*

DMA channel: none

Port Address: 4 bytes at 0x334

Mapped memory: none

IRQ level: 11

Audio: Canon Object.station 41 Sound System*

DMA Channel: 3

Port Address: 8 bytes at 0x530

IRQ level: 9

Other:

PS/2-style keyboard

Floppy Disk Drive

On-board Serial Ports

On-board Parallel Port

***Note:** These drivers are not included on the NEXTSTEP 3.2 CD-ROM. They are available from Canon, NeXT Technical Support, or through NeXTanswers.

Known Problems

Release 3.2:

- SoftPC is not supported in full-screen mode on this system in some video modes. Choosing a different video mode for NEXTSTEP may allow you to run SoftPC in full-screen mode.
- The 1024x768x72Hz 16bit color video mode of the Canon object.station 41 display driver does not work properly on some systems. Please select a different video mode if you encounter problems.
- The following drivers (listed as NeXTanswer references) are needed to make the Canon object.station 41 work under 3.2:

1632_CanonObjectstation41DisplayDriver.pkg.compressed
1685_BusLogicSCSIDriver.pkg.compressed
1687_AMDPCnet32NetworkDriver.pkg.compressed
1689_CanonObjectstation41SoundDriver.pkg.compressed

The object.station may hang while initializing the LAN drivers (either at "Starting Naming Services" during a graphical boot or after "Starting RPC and network services: portmap netinfo lookupd" during a verbose boot). This happens because the device drivers are being loaded in the wrong order. To correct this problem, edit the file **/NextLibrary/Devices/System.config/Instance0.table** by changing the line that reads:

```
"Active Drivers"      = "SerialPorts ParallelPort CanonObjectstation41DisplayDriver  
CanonObjectstation41SoundSystem AMDPCnet32NetworkDriver";
```

to read:

```
"Active Drivers"      = "SerialPorts AMDPCnet32NetworkDriver
```

```
CanonObjectstation41DisplayDriver CanonObjectstation41SoundSystem ParallelPort";
```

Then reboot the system.

See Also:

1674_CanonObjectstation41DisplayDriver.ReadMe.rtf

1686_BusLogicSCSIDriver.ReadMe.rtf

1688_AMDPCnet32NetworkDriver.ReadMe.rtf

1690_CanonObjectstation41SoundDriver.ReadMe.rtf