

# BlueCat Linux Board Support Guide

---

BlueCat Linux Release 5.1

DOC-0619-01

*for x86 Boards*

Product names mentioned in *BlueCat Linux Board Support Guide for x86 Boards* are trademarks of their respective manufacturers and are used here for identification purposes only.

Copyright ©1987 - 2006, LynuxWorks, Inc. All rights reserved.  
U.S. Patents 5,469,571; 5,594,903

Printed in the United States of America.

All rights reserved. No part of *BlueCat Linux Board Support Guide for x86 Boards* may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photographic, magnetic, or otherwise, without the prior written permission of LynuxWorks, Inc.

LynuxWorks, Inc. makes no representations, express or implied, with respect to this documentation or the software it describes, including (with no limitation) any implied warranties of utility or fitness for any particular purpose; all such warranties are expressly disclaimed. Neither LynuxWorks, Inc., nor its distributors, nor its dealers shall be liable for any indirect, incidental, or consequential damages under any circumstances.

(The exclusion of implied warranties may not apply in all cases under some statutes, and thus the above exclusion may not apply. This warranty provides the purchaser with specific legal rights. There may be other purchaser rights which vary from state to state within the United States of America.)

---

# Contents

---

<b>PREFACE</b>	.....	<b>V</b>
	For More Information .....	v
	Typographical Conventions .....	vi
	Special Notes .....	vii
	Technical Support .....	vii
	How to Submit a Support Request .....	vii
	Where to Submit a Support Request .....	viii
<b>CHAPTER 1</b>	<b>OVERVIEW</b> .....	<b>1</b>
	Features Overview .....	1
	Kernel Version .....	1
	BlueCat Linux Cross-Development Tools .....	1
	New mkboot Feature .....	1
	Supported Hardware .....	2
	Available BlueCat Linux Development Tools .....	2
	Supported Cross-Development Hosts .....	3
<b>CHAPTER 2</b>	<b>DOWNLOADING AND BOOTING BLUECAT LINUX ON THE TARGET</b> .....	<b>5</b>
	Prerequisites .....	5
	Downloading and Booting Overview .....	6
	Setting up Hardware .....	6
	Connecting the Video Monitor, Keyboard, and Mouse .....	6
	Connecting the Target Board Serial Port to the Host .....	6
	Booting Scenarios .....	7
	Booting BlueCat Linux on an x86 Target from a Floppy .....	7
	Booting BlueCat Linux on an x86 Target from a Hard Disk or DiskOnChip .....	8

	Booting BlueCat Linux on an x86 Target from a CD-ROM .....	8
	Booting BlueCat Linux on an x86 Target from a Network or a Parallel Port .....	9
	Booting BlueCat Linux on an x86 Target from a Network Using PXE Netboot .....	9
	Booting BlueCat Linux on an x86 Target from Target ROM/Flash Memory .....	12
	Booting BlueCat Linux on an x86 Target from the CompactFlash Card .....	12
<hr/>		
<b>CHAPTER 3</b>	<b>KERNEL CONFIGURATION OPTIONS .....</b>	<b>17</b>
<hr/>		
<b>CHAPTER 4</b>	<b>SUPPORTED DEMO SYSTEMS.....</b>	<b>55</b>
	Demo Systems .....	55
	developer Demo System .....	56
	osloader Demo System .....	56
	showcase Demo System .....	56
<hr/>		
<b>CHAPTER 5</b>	<b>SUPPORTED DEVICE DRIVERS .....</b>	<b>57</b>
<hr/>		
<b>CHAPTER 6</b>	<b>KNOWN PROBLEMS AND LIMITATIONS.....</b>	<b>61</b>
	x86 Target Board Problems and Limitations .....	61
	User Documentation Updates .....	62

---

# — *Preface*

---

## For More Information

For more information on the features of BlueCat Linux, refer to the following printed and online documentation.

- *BlueCat Linux Release Notes*

This printed document contains late-breaking information about the current release of BlueCat Linux.

- *BlueCat Linux User's Guide*

This document contains information about installing, configuring and using BlueCat Linux.

- Online information

The complete BlueCat Linux documentation set is available on the BlueCat Linux Documentation CD-ROM. Books are provided in both HTML and PDF formats.

Updates to these documents are available online at the LynuxWorks Website: <http://www.lynuxworks.com>.

Additional information about commands and utilities is provided online with the `man` command. For example, to find information about the GNU GCC compiler, use the following syntax:

```
man gcc
```

## Typographical Conventions

The typefaces used in this manual, summarized below, emphasize important concepts. All references to filenames and commands are case-sensitive and should be typed accurately.

### Kind of Text

### Examples

Body text; *italicized* for emphasis, new terms, and book titles

Refer to the *BlueCat Linux User's Guide*.

Environment variables, filenames, functions, methods, options, parameter names, path names, commands, and computer data

```
ls
-l
myprog.c
/dev/null
```

Commands that need to be highlighted within body text, or commands that must be typed as is by the user are **bolded**.

```
login: myname
# cd /usr/home
```

Text that represents a variable, such as a filename or a value that must be entered by the user, is *italicized*.

```
cat <filename>
mv <file1> <file2>
```

Blocks of text that appear on the display screen after entering instructions or commands

```
Linux version 2.4.10-1
(bin@build1) (gcc version
2.95.3 20010315 (release)) #5
Tue Dec 18 13:33:08 MSK 2001
Processor: Intel StrongARM-
IXP1200 revision 3
Architecture: Intel IXP1200
On node 0 totalpages: 32768
zone(0): 32768 pages.
zone(1): 0 pages.
zone(2): 0 pages.
```

Keyboard options, button names, and menu sequences

**Enter**, **Ctrl-C**

## Special Notes

The following notations highlight any key points and cautionary notes that may appear in this manual.

---

**NOTE:** These callouts note important or useful points in the text.

---



**CAUTION!** Used for situations that present minor hazards that may interfere with or threaten equipment/performance.

---

## Technical Support

LinuxWorks Support handles support requests from current support subscribers.

For questions regarding LinuxWorks products or evaluation CDs, or to become a support subscriber, our knowledgeable sales staff will be pleased to help you (<http://www.linuxworks.com/corporate/contact/sales.php3>).

### How to Submit a Support Request

When you are ready to submit a support request, please include *all* the following information:

- First name
- Last name
- Your job title
- Phone number
- Fax number
- E-mail address
- Company name
- Address
- City, state, ZIP

- Country
- LynxOS or BlueCat Linux version you are using
- Target platform (for example, PowerPC or x86)
- Board Support Package (BSP)
- Current patch revision level
- Development host OS version
- Description of problem you are experiencing

## Where to Submit a Support Request

### By E-mail:

Support, Europe	tech_europe@lnxw.com
Support, worldwide except Europe	support@lnxw.com
Training and courses	USA: training-usa@lnxw.com Europe: training-europe@lnxw.com

### By Phone:

Training and courses	USA: +1 408-979-4353 Europe: +33 1 30 85 06 00
Support, Europe (from our Paris, France office)	+33 1 30 85 93 96
Support, worldwide except Europe and Japan (from our San José, CA, USA headquarters)	+1 800-327-5969 or +1 408-979-3940
Support, Japan	+81 33 449 3131

**By Fax:**

Support, Europe (from our Paris, France office)	+33 1 30 85 06 06
Support, worldwide except Europe and Japan (from our San José, CA, USA headquarters)	+1 408-979-3945
Support, Japan	+81 22 449 3803



The *BlueCat Linux Board Support Guide for x86 Boards* provides information about the BlueCat Linux Board Support Package (BSP) for the x86 desktop PCs based on Intel 386-compatible processors.

Throughout this Board Support Guide (BSG), the BSP is referred to as the “x86” and the target board is referred to as the “X86” or simply as the “target board.”

---

## Features Overview

This following sections describe the new features of this release.

### Kernel Version

BlueCat Linux release 5.1 is based on the Linux kernel version 2.6.7 available from [www.kernel.org](http://www.kernel.org).

### BlueCat Linux Cross-Development Tools

BlueCat Linux release 5.1 supports the following versions of GNU toolchain:

- `gcc` version 3.2.2
- `binutils` version 2.13.1

### New mkboot Feature

The `mkboot` utility in BlueCat Linux release 5.1 is extended with the ability to create a bootable target image file that can be copied to a bootable device outside of the BlueCat Linux environment.

## Supported Hardware

Table 1-1 describes the hardware supported with this release. For available BlueCat Linux drivers, please see Chapter 5, “Supported Device Drivers.”

**Table 1-1: Hardware Supported**

Model	Description
Intel 386, 486, Pentium, Pentium Pro, Pentium II, Pentium III, and compatible processors	<ul style="list-style-type: none"> <li>• PCI, PCMCIA, ISA, and USB 10/100 Mbit Ethernet adapters</li> <li>• Up to two IDE/EIDE interfaces and up to four hard disks, CD-ROM drivers, or CompactFlash disk</li> <li>• PCI, ISA, and on-board SCSI controllers</li> <li>• DiskOnChip 2000/Millennium</li> <li>• FDD controller</li> <li>• Keyboard</li> <li>• Mouse PS/2</li> <li>• Serial Ports 8250, 16450, 16550, and 16550A UARTs</li> <li>• PCI, AGP, and on-board video controllers</li> <li>• USB</li> <li>• Parallel ports</li> <li>• PCI, Cardbus, and ISA PCMCIA adapters</li> </ul>

## Available BlueCat Linux Development Tools

Table 1-2 indicates the availability of BlueCat Linux development tools on the cross-development platforms listed for use with the x86 BSP.

**Table 1-2: BlueCat Linux Tools Availability**

Tool	Windows	Linux
CodeWarrior	N/A	N/A
SpyKer	N/A	N/A
VisualLynux	✓	N/A

---

## Supported Cross-Development Hosts

The BlueCat Linux development environment requires an installed, functional cross-development host with an Intel 386 or higher CPU. This host needs to be running one of the following development environments:

- Windows 2000/Pro with SP1 or later
- Windows XP
- PC running Red Hat Linux 8.0
- PC running Red Hat Linux 9



# *Downloading and Booting BlueCat Linux on the Target*

This chapter provides instructions for downloading a BlueCat Linux demo system from a cross-development host onto the target and then booting the demo system on the target board.

---

## **Prerequisites**

This document is a guide to downloading and booting BlueCat Linux systems onto the user's target board. Scenarios that use demo systems included in the BlueCat Linux distribution are presented. A basic familiarity with the target board hardware and operation is required. The user must also have an understanding of system administration for the particular cross-development host on which the BlueCat Linux Core and the BSP are installed. It is assumed that the user has the manufacturer's documentation for the target board as well as system administration reference material for the cross-development host.

Before downloading and booting BlueCat Linux on the target board, it is assumed that the default BlueCat Linux x86 configuration and the x86 BSP have been installed on the development host. The user must:

1. Install the BlueCat Linux i386 Core onto the cross-development host as described in the "Installing the Default Configuration" section in Chapter 1, "Introduction and Installation" in the *BlueCat Linux User's Guide*.
2. Install the x86 BSP onto the cross-development host as detailed in the "Installing Target Board Support" section of Chapter 1, "Introduction and Installation" in the *BlueCat Linux User's Guide*.
3. Activate support for the x86 BSP as detailed in the "Activating Support for a Target Board" section of Chapter 1, "Introduction and Installation" in the *BlueCat Linux User's Guide*.

---

## Downloading and Booting Overview

The procedure for downloading and booting BlueCat Linux onto an x86 target consists of the following main steps:

- Setting up hardware
  - Booting the BlueCat Linux OS loader on the target board from floppy, hard disk, DiskOnChip, or CD-ROM, over a network, or from the CompactFlash card
- or:
- Installing a BlueCat Linux embedded system onto a target floppy, hard disk, CD-ROM, Flash, or the CompactFlash card
  - Booting a BlueCat Linux embedded system

Please refer to Chapter 3, “Downloading and Booting BlueCat Linux” in the *BlueCat Linux User’s Guide* for a discussion of the BlueCat Linux OS loader.

---

## Setting up Hardware

### Connecting the Video Monitor, Keyboard, and Mouse

For the typical desktop PC (for example, x86 target), BlueCat Linux configures the default Linux console to the video monitor and keyboard. A video monitor and keyboard must be connected in the default BlueCat Linux configuration on x86 targets.

Similarly, if mouse support is required, a standard mouse device must be connected to the PC.

### Connecting the Target Board Serial Port to the Host

BlueCat Linux supports a configuration in which the Linux console is redirected to a serial terminal. Additionally, BlueCat Linux supports debugging of the kernel via a serial port.

The typical desktop PC (for example, x86 target) has two serial ports. The first serial port (COM1) is usually used to connect a serial mouse. LynuxWorks recommends using the second port (COM2) as a BlueCat Linux serial console. If

kernel debugging is required, the mouse should be disconnected from the first serial port and the kernel debugger console should be configured to use the first serial port. Of course, this configuration can be swapped to one in which the BlueCat Linux serial console goes to the first serial port and the kernel debugger console goes to the second port.

In either case, target serial ports are to be connected to the development host. A standard serial cable is suitable for this purpose. The serial port connected to the target has a baud rate of 9600.

---

## Booting Scenarios

The following sections list and describe the various booting options for x86 boards.

### Booting BlueCat Linux on an x86 Target from a Floppy

To boot BlueCat Linux on an x86 target from a floppy, perform the following steps:

---

**NOTE:** For a BlueCat Linux embedded system to boot successfully from a floppy disk, the floppy device driver must be configured in the kernel.

---

1. Install a BlueCat Linux embedded system to a floppy. For a detailed description of the procedure, refer to “Booting BlueCat Linux from a Floppy Disk” in the *BlueCat Linux User’s Guide*.
2. Insert the floppy disk into the floppy drive of the target.
3. Make sure that the floppy is specified as the first boot device in the BIOS.

The next reset will boot BlueCat Linux onto the target from the floppy.

## Booting BlueCat Linux on an x86 Target from a Hard Disk or DiskOnChip

To boot BlueCat Linux on an x86 target from a hard disk or DiskOnChip, perform the following steps:

---

**NOTE:** For a BlueCat Linux embedded system to boot successfully from a hard disk or DiskOnChip, a hardware device driver for the disk must be configured in the kernel. Refer to *BlueCat Linux User's Guide* for more information.

---

**NOTE:** When installing the BlueCat Linux 5.0 target system onto a hard disk (using the OS loader), configure the hard disk in BIOS as NORMAL if its size is less than 13 GB; otherwise, configure it as LBA.

---

1. Install a BlueCat Linux embedded system to a hard disk or DiskOnChip. For a detailed description of the procedure, refer to “Booting BlueCat Linux from a Hard Disk or DiskOnChip” in Chapter 3, “Downloading and Booting BlueCat Linux” in the *BlueCat Linux User's Guide*.
2. In the BIOS, make sure that the hard disk is specified as the first boot device.

The next reset will boot BlueCat Linux on the target from the hard disk.

## Booting BlueCat Linux on an x86 Target from a CD-ROM

To boot BlueCat Linux on an x86 target from a CD-ROM, perform the following steps:

---

**NOTE:** For a BlueCat Linux embedded system to boot successfully from a CD-ROM, a hardware device driver for the CD-ROM must be configured in the kernel. Refer to *BlueCat Linux User's Guide* for more information.

---

1. Create a bootable CD-ROM image with a BlueCat Linux embedded system. For a detailed description of the procedure, refer to “Booting BlueCat Linux from a CD-ROM” in Chapter 3, “Downloading and Booting BlueCat Linux” in the *BlueCat Linux User's Guide*.
2. Burn the BlueCat Linux image to a CD-R(W) disk using special software.
3. Insert the CD-ROM into the CD drive of the target.

4. In the BIOS, make sure that the CD-ROM disk is specified as the first boot device.

The next reset will boot BlueCat Linux on the target from the CD-ROM.

## Booting BlueCat Linux on an x86 Target from a Network or a Parallel Port

To boot BlueCat Linux on an x86 target from a network or a parallel port, perform the following steps:

1. Install the OS loader to either a floppy, a hard disk device, or a CD-ROM. The OS loader is itself a BlueCat Linux embedded system, so all the installation instructions in the previous sections apply.
2. Boot the OS loader on the target board.
3. Boot a BlueCat Linux embedded system on an x86 target from a network or a parallel port using the OS loader. For a detailed description of the procedure, refer to “Booting over a Network or Parallel Port using OS Loader” in Chapter 3, “Downloading and Booting BlueCat Linux” in the *BlueCat Linux User’s Guide*.

## Booting BlueCat Linux on an x86 Target from a Network Using PXE Netboot

To boot BlueCat Linux on an x86 board from a network using PXE Netboot, perform the following steps:

1. Set up and start the DHCP and TFTP servers.
2. Install and configure the PXELINUX server.
3. Configure PXE Netboot on the target.
4. Boot a BlueCat Linux demo system on the x86 board from a network using PXE Netboot.

## Setting Up and Starting the DHCP Server

To install, configure, and start the DHCP server on a Red Hat Linux 8.0 or Red Hat Linux 9 machine, perform the following steps:

1. Set up the DHCP server as described in the *BlueCat Linux User’s Guide*.

2. Add the following lines to the `/etc/dhcpd.conf` file:

```
allow booting;
allow bootp;
filename "pxelinux.0";
option dhcp-client-identifier "PXEClient";
always-reply-rfc1048 on;
```

where `pxelinux.0` is the boot loader for Linux used by the PXE network booting protocol, and `PXEClient` is the DHCP server client identifier. The `pxelinux.0` will be taken from the `syslinux` package and located in the `/tftpbboot` directory. Refer to “Installing and Configuring the PXELINUX Server” on page 10 for more information.

What follows in the example of the `/etc/dhcpd.conf` file:

```
allow booting;
allow bootp;
filename "pxelinux.0";

subnet 172.17.0.0 netmask 255.255.0.0
{
option routers 172.17.0.1;
range 172.17.1.20 172.17.1.30;
option dhcp-client-identifier "PXEClient";
always-reply-rfc1048 on;
}
```

3. Start the DHCP server as described in the *BlueCat Linux User's Guide*.

## Setting Up and Starting the TFTP Server

For the instructions how to install, configure, and start the TFTP server, refer to the *BlueCat Linux User's Guide*.

## Installing and Configuring the PXELINUX Server

To install and configure the PXELINUX server on a Red Hat Linux 9.0 machine, perform the following steps:

1. Download the `syslinux-2.00-4.i386.rpm` package from the `ftp://ftp.redhat.com/pub/redhat/linux/9/en/os/i386/RedHat/RPMS/` address and extract the `pxelinux.0` file from the downloaded RPM package.

```
rpm -i syslinux-2.00-4.i386.rpm
```

2. Copy the `/usr/lib/syslinux/pxelinux.0` file to the `/tftpbboot` directory:

```
cp /usr/lib/syslinux/pxelinux.0 /tftpbboot
```

3. Create the `pxelinux.cfg` subdirectory in `/tftpboot`:

```
mkdir /tftpboot/pxelinux.cfg
```

4. In the `/tftpboot/pxelinux.cfg` directory, create a file named `default` with the following contents:

```
default linux
prompt 0

label linux
kernel <demo>.disk
append initrd=<demo>.rfs root=/dev/ram0 ramdisk_size=30000
```

where `<demo>` is the name of a BlueCat Linux demo system to boot and the following parameters are important:

<code>default</code>	Sets the default command line.
<code>prompt &lt;flag_val&gt;</code>	<ul style="list-style-type: none"> <li>• If <code>&lt;flag_val&gt;</code> is 1, the boot prompt is always displayed.</li> <li>• If <code>&lt;flag_val&gt;</code> is 0, the boot prompt is displayed only if <b>Shift</b> or <b>Alt</b> is pressed, or <b>Caps Lock</b> or <b>Scroll Lock</b> is set (this is the default).</li> </ul>
<code>label &lt;label&gt;</code> <code>kernel &lt;kernel&gt;</code> <code>append &lt;append_options&gt;</code>	<p>If <code>&lt;label&gt;</code> is entered, PXELINUX uses a <code>&lt;kernel&gt;</code> to boot with the specified <code>&lt;append_options&gt;</code>.</p> <p>The append option <code>initrd=&lt;filename&gt;</code> specifies the BlueCat Linux RFS image.</p>

## Configuring PXE Netboot on the Target Board

To enable PXE Netboot on the target board, perform the following steps:

1. When the BIOS starts, enter the BIOS setup utility.
2. In BIOS setup, set the first boot device to LAN.
3. Enable the LAN boot ROM option.
4. Save setting and exit the BIOS setup utility.

## Booting a BlueCat Linux Demo System onto the Target Board Using PXE Netboot

To boot a BlueCat Linux demo system onto the target board using PXE Netboot, perform the following steps:

1. Create `<demo>.disk` and `<demo>.rfs` images as described in the *BlueCat Linux User's Guide*, where `<demo>` is the name of a BlueCat Linux demo system to boot.
2. Copy `<demo>.disk` and `<demo>.rfs` to the `/tftpboot` directory.
3. Reboot the target board.

The BlueCat Linux demo system boots on the target.

## Booting BlueCat Linux on an x86 Target from Target ROM/Flash Memory

To boot BlueCat Linux on an x86 target from the target ROM/Flash memory, perform the following steps:

1. Create an image suitable for booting from target ROM/Flash memory using firmware.
2. Download BlueCat Linux onto ROM/Flash memory. For a detailed description of the procedure, refer to “Booting from Extension BIOS on x86” in Chapter 3, “Downloading and Booting BlueCat Linux” in the *BlueCat Linux User's Guide*.

## Booting BlueCat Linux on an x86 Target from the CompactFlash Card

A primary purpose of this section is to demonstrate how to create a BlueCat Linux bootable image that can be copied to a bootable device later, even outside of the BlueCat Linux environment. The bootable device with the BlueCat Linux image can be used to boot a target board.

In the scenario described in this section, the CompactFlash card is used as a bootable device and the BlueCat Linux `developer` demo system as an example.

To boot BlueCat Linux on an x86 target from the CompactFlash card, perform the following steps:

1. Create a bootable BlueCat Linux image and then install it onto the CompactFlash from the Linux development host.

A created bootable BlueCat Linux image can be copied to the CompactFlash card from both inside and outside of the BlueCat Linux environment.

2. Boot the BlueCat Linux system from the CompactFlash card.

## Installing a BlueCat Linux Demo System onto the CompactFlash Card

To install a BlueCat Linux demo system onto the CompactFlash card, perform the following steps.

1. Activate the BlueCat Linux installation:

```
bash$ . SETUP.sh x86
```

2. Go to the `demo/developer` directory and make sure that the root file system image has been built:

```
BlueCat:$ cd demo/developer
BlueCat:$ make rootfs
```

3. Enable IDE disk support in the kernel configuration file for the `developer` demo system. Use either the `make menuconfig` or `make xconfig` command and set the following kernel configuration options to **YES**:

- **Device Drivers** -> **ATA/ATAPI/MFM/RLL support** -> **ATA/ATAPI/MFM/RLL support**
- **Device Drivers** -> **ATA/ATAPI/MFM/RLL support** -> **Enhanced IDE/MFM/RLL disk/cdrom/tape/floppy support**
- **Device Drivers** -> **ATA/ATAPI/MFM/RLL support** -> **Include IDE/ATA-2 DISK support**
- **Device Drivers** -> **ATA/ATAPI/MFM/RLL support** -> **PCI IDE chipset support**
- **Device Drivers** -> **ATA/ATAPI/MFM/RLL support** -> **Generic PCI IDE Chipset Support**
- **Device Drivers** -> **ATA/ATAPI/MFM/RLL support** -> **Generic PCI bus-master DMA support**

4. Build the kernel:

```
BlueCat:$ make kernel
```

5. Prepare a text file containing a command line to be passed to the kernel. It must include the `rw ramdisk_size=20000` argument. For example:

```
BlueCat:$ echo "rw ramdisk_size=20000" > cl.txt
```

6. Invoke the `mkboot` command to create a bootable `developer` image that can be copied onto the CompactFlash card later. Choose either of the following values for the `-d` option:
  - 128—if the CompactFlash card is the first disk on the target board
  - 129—if the CompactFlash card is the second disk on the target board

In this example, it is assumed that the CompactFlash card will be attached as the first disk on the target board and configured with 4 heads and 32 sectors.

```
BlueCat:~$ mkboot -b -h 4 -s 32 -d 128 -k \  
developer.disk -f developer.rfs -c cl.txt -r \  
/dev/hda developer.img
```

---

**NOTE:** It is important to specify the boot device and the device geometry in the `mkboot` command correctly.

The device geometry, as detected by the target board BIOS, must be set for the `mkboot` command using the `-h` and `-s` options. (Refer to the `mkboot` man page for the description of the `mkboot` command options).

---

7. Plug the CompactFlash card into the USB CF reader/writer and connect the device to a USB port on the Linux host. The USB storage device should become visible on the host system as a SCSI disk. In other words, it should become accessible through one of the SCSI disk device nodes, such as `/dev/sda`, `/dev/sdb`, and so on.

---

**NOTE:** Which particular device node is used depends on the host operating system, the particular model of the USB CF adapter, and whether any other SCSI devices are attached to the system.

Usually, it is possible to determine which SCSI device node has been assigned to a USB storage device (the CompactFlash adapter) by examining the `/proc/scsi/scsi` file.

---

8. To copy the BlueCat Linux image onto the CompactFlash card, issue the commands below. In this example, it is assumed that the CF adapter is accessible as `/dev/sdb`.

```
bash# dd if=developer.img of=/dev/sdb  
bash# sync
```

9. Disconnect the USB CF reader and unplug the CompactFlash card.

## Booting a BlueCat Linux System from the CompactFlash Card

To boot the `developer` demo installed onto the CompactFlash card, perform the following steps:

1. Power down the target and install the CompactFlash card into the CF-IDE adapter on the target.
2. Power up the target.

The BlueCat Linux demo system boots on the target.



---

# Kernel Configuration Options

The x86 BSP comes with a default BlueCat Linux kernel. This kernel has a number of configuration options. This chapter details these options in the tables listed in Table 3-1: “BlueCat Linux Default Configuration for the x86 BSP Distribution” below. Boldfaced entries in the tables represent subordinate menus. Italicized entries represent comments.

**Table 3-1: BlueCat Linux Default Configuration for the x86 BSP Distribution**

<b>Table Number and Configuration Parameter</b>
Table 3-2: “Code Maturity Level Options”
Table 3-3: “General Setup”
Table 3-4: “Loadable Module Support”
Table 3-5: “Processor Type and Features”
Table 3-7: “Bus Options (PCI, PCMCIA, EISA, MCA, ISA)”
Table 3-8: “Executable File Formats”
Table 3-9: “Device Drivers”
Table 3-10: “File Systems”
Table 3-11: “Profiling Support”
Table 3-12: “Kernel Hacking”
Table 3-13: “Security Options”
Table 3-14: “Cryptographic Options”
Table 3-15: “Library Routines”
Table 3-16: “Messenger Support”
Table 3-17: “Modular Advanced Power Management”

**Table 3-2: Code Maturity Level Options**

Description	Setting
Prompt for development and/or incomplete code/drivers	Y
Select only drivers expected to compile cleanly	Y
Select only drivers that don't need compile-time external firmware	Y

**Table 3-3: General Setup**

Description	Setting
Support for paging of anonymous memory	Y
System V IPC	Y
POSIX Message Queues	is not set
BlueCat Linux OS loader support	is not set
BlueCat Linux ignore printk	is not set
Memory sizing benchmarks	is not set
BSD Process Accounting	Y
Sysctl support	Y
Auditing support	is not set
Support for hot-pluggable devices	is not set
Kernel <code>.config</code> support	Y
Enable access to <code>.config</code> through <code>/proc/ikconfig</code>	is not set
<b>Configure standard kernel features (for small systems)</b>	Y
<i>--- Configure standard kernel features (for small systems).</i>	
Load all symbols for debugging/ <code>kksymoops</code>	Y
Enable futex support	is not set
Enable eventpoll support	Y
No-op I/O scheduler	Y

**Table 3-3: General Setup (Continued)**

<b>Description</b>	<b>Setting</b>
Anticipatory I/O scheduler	is not set
Deadline I/O scheduler	Y
CFQ I/O scheduler	Y
CODETEST device driver configuration	is not set
Optimize for size	is not set

**Table 3-4: Loadable Module Support**

<b>Description</b>	<b>Setting</b>
Enable loadable module support	Y
Module unloading	Y
Forced module unloading	is not set
Module versioning support (Experimental)	Y
Kernel module loader	Y

**Table 3-5: Processor Type and Features**

<b>Description</b>	<b>Setting</b>
<b>Subarchitecture Type</b>	
PC-compatible	Y
Voyager (NCR)	is not set
NUMAQ (IBM/Sequent)	is not set
SGI 320/540 (Visual Workstation)	is not set
<b>Processor Family</b>	
386	Y
486	is not set
586/K5/5x86/6x86/6x86MX	is not set

**Table 3-5: Processor Type and Features (Continued)**

<b>Description</b>	<b>Setting</b>
Pentium-Classic	is not set
Pentium-MMX	is not set
Pentium-Pro	is not set
Pentium-II/Celeron (pre-Coppermine)	is not set
Pentium-III/Celeron (Coppermine)/Pentium-III Xeon	is not set
Pentium M	is not set
Pentium-4/Celeron (P4-based)/Pentium-4 M/Xeon	is not set
K6/K6-II/K6-III	is not set
Athlon/Duron/K7	is not set
Crusoe	is not set
Winchip-C6	is not set
Winchip-2	is not set
Winchip-2A/Winchip-3	is not set
CyrixIII/VIA-C3	is not set
VIA C3-2 (Nehemiah)	is not set
Generic x86 support	Y
XADD, CMPXCHG, BSWAP, CMOV instruction emulation	Y
HPET Timer support	is not set
Symmetric multiprocessing support	is not set
Preemptible Kernel	Y
Local APIC support on uniprocessors	is not set
Machine Check Exception	is not set
Toshiba Laptop support	is not set
Force CPCI-735/736 support	is not set
Dell laptop support	is not set
/dev/cpu/microcode—Intel® IA32 CPU microcode support	is not set
/dev/cpu/*/msr—Model-specific register support	is not set

**Table 3-5: Processor Type and Features (Continued)**

Description	Setting
/dev/cpu/*/cpuid—CPU information support	is not set
<b>Firmware Drivers</b>	
BIOS Enhanced Disk Drive calls determine boot disk (Experimental)	is not set
<b>High Memory Support (off)</b>	
off	Y
4GB	is not set
64GB	is not set
Math emulation	Y
MTRR (Memory Type Range Register) support	Y
Boot from EFI support (Experimental)	is not set
Use register arguments (Experimental)	is not set

**Table 3-6: Power Management Options (ACPI, APM)**

Description	Setting
Power Management support	is not set
<b>ACPI (Advanced Configuration and Power Interface) Support</b>	
ACPI support	Y
AC adapter	M
Battery	M
Button	M
Fan	M
Processor	M
Thermal Zone	M
ASUS/Medion laptop extras	M

**Table 3-6: Power Management Options (ACPI, APM) (Continued)**

<b>Description</b>	<b>Setting</b>
Toshiba laptop extras	M
Debug statements	is not set
Power Management Timer support	is not set
<b>CPU Frequency scaling</b>	
CPU frequency scaling	is not set

**Table 3-7: Bus Options (PCI, PCMCIA, EISA, MCA, ISA)**

<b>Description</b>	<b>Setting</b>
PCI support	Y
<b>PCI Access Mode</b>	
BIOS	is not set
MMConfig	is not set
Direct	is not set
PCI access mode	Any
Legacy /proc/pci interface	is not set
PCI device name database	Y
ISA support	Y
EISA support	Y
Vesa Local Bus priming	is not set
Generic PCI/EISA bridge	Y
EISA virtual root device	Y
EISA device name database	Y
MCA support	is not set
NatSemi SCx200 support	is not set

**Table 3-8: Executable File Formats**

<b>Description</b>	<b>Setting</b>
Kernel support for ELF binaries	Y
Kernel support for a.out and ECOFF binaries	M
Kernel support for MISC binaries	M

**Table 3-9: Device Drivers**

<b>Description</b>	<b>Settings</b>
<b>Generic Driver Options</b>	is not set
<b>Memory Technology Devices (MTD)</b>	
MTD support	is not set
<b>Parallel Port Support</b>	
Parallel port support	Y
PC-style hardware	Y
Multi-IO cards (parallel and serial)	is not set
Use FIFO/DMA if available (Experimental)	is not set
SuperIO chipset support (Experimental)	is not set
Support foreign hardware	is not set
IEEE 1284 transfer modes	Y
BlueCat Linux bidirectional parallel port transfer driver	is not set
<b>Plug And Play Support</b>	
Plug and Play support	Y
PnP Debug Messages	is not set
<i>---Protocols</i>	
ISA Plug and Play support (Experimental)	is not set
Plug and Play BIOS support (Experimental)	is not set

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
<b>Block Devices</b>	
Normal floppy disk support	Y
XT hard disk support	M
Parallel port IDE device support	M
<i>---Parallel IDE high-level drivers</i>	
Parallel port IDE disks	M
Parallel port ATAPI CD-ROMs	M
Parallel port ATAPI disks	M
Parallel port ATAPI tapes	M
Parallel port generic ATAPI devices	M
<i>---Parallel IDE protocol modules</i>	
ATEN EH-100 protocol	M
MicroSolutions backpack (Series 5) protocol	M
MicroSolutions backpack (Series 6) protocol	is not set
DataStor Commuter protocol	M
DataStor EP-2000 protocol	M
FIT TD-2000 protocol	M
FIT TD-3000 protocol	M
Shuttle EPAT/EPEZ protocol	M
Support c7/c8 chips (Experimental)	is not set
Shuttle EPIA protocol	M
Freecom IQ ASIC-2 protocol	M
FreeCom power protocol	M
KingByte KBIC-951A/971A protocols	M
KT PHd protocol	M
OnSpec 90c20 protocol	M
OnSpec 90c26 protocol	M

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
Compaq SMART-2 support	M
Compaq Smart Array 5xxx support	is not set
Mylex DAC960/DAC1100 PCI RAID Controller support	M
Micro Memory MM5415 Battery Backed RAM support (Experimental)	is not set
Loopback device support	Y
Cryptoloop support	is not set
Network block device support	M
Promise SATA SX8 (carmel) support	is not set
RAM disk support	Y
Default RAM disk size	4096
Initial RAM disk ( <code>initrd</code> ) support	is not set
BlueCat Linux RFS support	Y
Support for Large Block Devices	is not set
<b>ATA/ATAPI/MFM/RLL Support</b>	
ATA/ATAPI/MFM/RLL support	Y
Enhanced IDE/MFM/RLL disk/CD-ROM/tape/floppy support	Y
<i>---Please see Documentation/ide.txt for help/info on IDE drives.</i>	
Use old disk-only driver on primary interface	is not set
Include IDE/ATA-2 DISK support	Y
Use multimode by default	is not set
Include IDE/ATAPI CD-ROM support	Y
Include IDE/ATAPI tape support (Experimental)	M
Include IDE/ATAPI floppy support	M
SCSI emulation support	M
IDE taskfile access	is not set
IDE taskfile I/O (Experimental)	is not set

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
<i>---IDE chipset support/bugfixes</i>	
Generic/default IDE chipset support	Y
CMD640 chipset bugfix/support	is not set
PNP EIDE support	is not set
PCI IDE chipset support	Y
Sharing PCI IDE interrupts support	is not set
Boot off-board chipsets first support	is not set
Generic PCI IDE chipset support	is not set
OPTi 82C621 chipset enhanced support (Experimental)	is not set
RZ1000 chipset bugfix/support	is not set
Generic PCI bus-master DMA support	Y
Force enable legacy 2.0.X HOSTS to use DMA	is not set
Use PCI DMA by default when available	is not set
AEC62XX chipset support	is not set
ALI M15x3 chipset support	is not set
AMD and nVidia IDE support	is not set
ATI IXP chipset IDE support	is not set
CMD64{3 6 8 9} chipset support	is not set
Compaq Triflex IDE support	is not set
CY82C693 chipset support	is not set
Cyrix CS5510/20 MediaGX chipset support (Very Experimental)	is not set
Cyrix/National Semiconductor CS5530 MediaGX chipset support	is not set
HPT34X chipset support	is not set
HPT36X/37X chipset support	is not set
National SCx200 chipset support	is not set
Intel PIIXn chipsets support	is not set
NS87415 chipset support	is not set

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
PROMISE PDC202{46 62 65 67} support	is not set
PROMISE PDC202{68 69 70 71 75 76 77} support	is not set
ServerWorks OSB4/CSB5/CSB6 chipsets support	is not set
Silicon Image chipset support	is not set
SiS5513 chipset support	is not set
SLC90E66 chipset support	is not set
Tekram TRM290 chipset support	is not set
VIA82CXXX chipset support	is not set
Other IDE chipset support	is not set
IGNORE word93 Validation BITS	is not set
<b>SCSI Device Support</b>	
SCSI device support	Y
legacy /proc/scsi/ support	Y
<i>---SCSI support type (disk, tape, CD-ROM)</i>	
SCSI disk support	Y
SCSI tape support	Y
SCSI OnStream SC-x0 tape support	is not set
SCSI CD-ROM support	Y
Enable vendor-specific extensions (for SCSI CD-ROM)	Y
SCSI generic support	Y
<i>---Some SCSI devices (for example, CD jukebox) support multiple LUNs.</i>	
Probe all LUNs on each SCSI device	Y
Verbose SCSI error reporting (kernel size +=12K)	is not set
SCSI logging facility	is not set
<b>SCSI Transport Attributes</b>	
Parallel SCSI (SPI) Transport Attributes	is not set
FiberChannel Transport Attributes	is not set

**Table 3-9: Device Drivers (Continued)**

Description	Settings
<b>SCSI Low-level Drivers</b>	
3ware Hardware ATA-RAID support	is not set
7000FASST SCSI support	M
ACARD SCSI support	M
Adaptec AHA152X/2825 support	Y
Adaptec AHA1542 support	Y
Adaptec AHA1740 support	Y
Adaptec AACRAID support (Experimental)	is not set
Adaptec AIC7xxx Fast -> U160 support (New Driver)	Y
Maximum number of TCQ commands per device	8
Initial bus reset delay in milliseconds	15000
Probe for EISA and VL AIC7XXX Adapters	is not set
Build Adapter Firmware with Kernel Build	is not set
Compile in Debugging Code	Y
Debug code enable mask (2047 for all debugging)	0
Decode registers during diagnostics	Y
Adaptec AIC7xxx support (old driver)	is not set
Adaptec AIC79xx U320 support	is not set
Adaptec I2O RAID support	is not set
AdvanSys SCSI support	M
Always IN2000 SCSI support	M
AMI MegaRAID support	M
Serial ATA (SATA) support	is not set
BusLogic SCSI support	M
Omit FlashPoint support	is not set
DMX3191D SCSI support	is not set
DTC3180/3280 SCSI support	M

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
EATA ISA/EISA/PCI (DPT and generic EATA/DMA-compliant boards) support	M
enable tagged command queuing	Y
enable elevator sorting	is not set
maximum number of queued commands	16
EATA-PIO (old DPT PM2001, PM2012A) support	M
Future Domain 16xx SCSI/AHA-2920A support	Y
Intel/ICP (former GDT SCSI Disk Array) RAID Controller support	M
Generic NCR5380/53c400 SCSI PIO support	Y
Generic NCR5380/53c400 SCSI MMIO support	is not set
Enable NCR53c400 extensions	is not set
IBM ServeRAID support	M
Initio INI-A100U2W support	is not set
IOMEGA parallel port (ppa—older drives)	M
IOMEGA parallel port (imm—newer drives)	M
ppa/imm option—Use slow (but safe) EPP-16	is not set
ppa/imm option—Assume slow parport control register	is not set
NCR53c406a SCSI support	Y
SYM53C8XX Version 2 SCSI support	is not set
IBM Power Linux RAID adapter support	is not set
PAS16 SCSI support	M
PSI240i support	M
Qlogic FAS SCSI support	M
Qlogic ISP SCSI support	M
Qlogic ISP FC SCSI support	M
Include loadable firmware in driver	is not set
Qlogic QLA 1280 SCSI support	is not set

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
QLogic ISP2100 host adapter family support	is not set
QLogic ISP2200 host adapter family support	is not set
QLogic ISP2300 host adapter family support	is not set
QLogic ISP2322 host adapter family support	is not set
QLogic ISP6312 host adapter family support	is not set
QLogic ISP6322 host adapter family support	is not set
Simple 53c710 SCSI support (Compaq, NCR machines)	is not set
Symbios 53c416 SCSI support	Y
Tekram DC395(U/UW/F) and DC315(U) SCSI support (Experimental)	is not set
Tekram DC390(T) and Am53/79C974 SCSI support	is not set
Trantor T128/T128F/T228 SCSI support	M
UltraStor 14F/34F support	M
enable tagged command queuing	is not set
enable elevator sorting	is not set
maximum number of queued commands	8
UltraStor SCSI support	M
Workbit NinjaSCSI-32Bi/UDE support	is not set
SCSI debugging host simulator	M
<b>Old CD-ROM Drivers (not SCSI, not IDE)</b>	
Support for non-SCSI/IDE/ATAPI CD-ROM drives	Y
Aztech/Orchid/Okano/Wearnes/TXC/CyDROM CD-ROM support	M
Goldstar R420 CD-ROM support	M
Matsushita/Panasonic/Creative, Longshine, TEAC CD-ROM support	M
Mitsumi (standard) [no XA/Multisession] CD-ROM support	M
MCD IRQ	11
MCD I/O base	0x300

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
Mitsumi [XA/MultiSession] CD-ROM support	M
Optics Storage DOLPHIN 8000AT CD-ROM support	M
Philips/LMS CM206 CD-ROM support	M
Sanyo CDR-H94A CD-ROM support	M
ISP16/MAD16/Mozart soft configurable CD-ROM interface support	M
Sony CDU31A/CDU33A CD-ROM support	M
Sony CDU535 CD-ROM support	M
<b>Multidevice support (RAID and LVM)</b>	
Multiple devices driver support (RAID and LVM)	is not set
<b>Fusion MPT Device Support</b>	
Fusion MPT (base + ScsiHost) drivers	is not set
<b>IEEE 1394 (FireWire) support (Experimental)</b>	
IEEE 1394 (FireWire) support (Experimental)	is not set
<b>I<sup>2</sup>O device support</b>	
I <sup>2</sup> O support	is not set
<b>Networking support</b>	
Networking support	Y
<b>Networking Options</b>	
Packet socket	Y
Packet socket: mmaped IO	is not set
Netlink device emulation	Y
UNIX domain sockets	Y
PF_KEY sockets	is not set
TCP/IP networking	Y
IP: multicasting	Y
IP: advanced router	is not set

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
IP: kernel level autoconfiguration	is not set
IP: tunneling	M
IP: GRE tunnels over IP	M
IP: broadcast GRE over IP	is not set
IP: multicast routing	is not set
IP: ARP daemon support (Experimental)	is not set
IP: TCP syncookie support (disabled per default)	is not set
IP: AH transformation	is not set
IP: ESP transformation	is not set
IP: IPComp transformation	is not set
The IPv6 protocol (Experimental)	is not set
Network packet filtering (replaces ipchains)	is not set
IPsec user configuration interface	is not set
<b>SCTP Configuration (Experimental)</b>	
SCTP Configuration (Experimental)	is not set
Asynchronous Transfer Mode (ATM) (Experimental)	is not set
802.1d Ethernet Bridging	is not set
802.1Q VLAN support	is not set
DECnet Support	is not set
ANSI/IEEE 802.2 LLC type 2 support	is not set
The IPX protocol	is not set
AppleTalk protocol support	is not set
CCITT X.25 Packet Layer (Experimental)	is not set
LAPB Data Link Driver (Experimental)	is not set
Frame Diverter (Experimental)	is not set
Acorn Econet/AUN protocols (Experimental)	is not set
WAN router	M

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
Fast switching (read help!)	is not set
Forwarding between high speed interfaces	is not set
<b>QoS and/or fair queueing</b>	
QoS and/or fair queueing	is not set
<b>Network testing</b>	
Packet Generator (Use with Caution)	is not set
<b>Amateur Radio support</b>	is not set
<b>IrDA (infrared) subsystem support</b>	is not set
<b>Bluetooth subsystem support</b>	is not set
Network device support	Y
Dummy net driver support	M
Bonding driver support	is not set
EQL (serial line load balancing) support	M
Universal TUN/TAP device driver support	is not set
Ethertap network tap	M
General Instruments Surfboard 1000	is not set
<b>ARCnet Devices</b>	
ARCnet support	is not set
<b>IBM On-chip net device</b>	is not set
<b>Ethernet (10 or 100Mbit)</b>	
Ethernet (10 or 100 Mbit)	Y
<i>---Generic Media Independent Interface device support</i>	
Sun Happy Meal 10/100baseT support	is not set
Sun GEM support	is not set
3Com cards	Y

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
3c501 EtherLink support	M
3c503 EtherLink II support	M
3c505 EtherLink Plus support	M
3c507 EtherLink 16 support (Experimental)	M
3c509/3c529 (MCA)/3c569B (98)/3c579 EtherLink III support	Y
3c515 ISA Fast EtherLink	M
3c590/3c900 series (592/595/597) Vortex/Boomerang support	Y
3cr990 series Typhoon support	is not set
AMD LANCE and PCnet (AT1500 and NE2100) support	M
Western Digital/SMC cards	Y
WD80*3 support	M
SMC Ultra support	M
SMC Ultra32 EISA support	M
SMC 9194 support	M
Racal-Interlan (Micom) NI cards	Y
NI5010 support (Experimental)	M
NI5210 support	M
NI6510 support	M
<b>Tulip family network device support</b>	
Tulip family network device support	is not set
AT1700/1720/RE1000Plus (C-Bus) support (Experimental)	M
DEPCA, DE10x, DE200, DE201, DE202, DE422 support	M
HP 10/100VG PCLAN (ISA, EISA, PCI) support	M
Other ISA cards	Y
Cabletron E21xx support	M
EtherWORKS 3 (DE203, DE204, DE205) support	is not set
EtherExpress 16 support	M

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
EtherExpressPro support/EtherExpress 10 (i82595) support	Y
HP PCLAN+ (27247B and 27252A) support	M
HP PCLAN (27245 and other 27xxx series) support	M
LP486E on-board Ethernet	is not set
ICL EtherTeam 16i/32 support	M
NE2000/NE1000 support	Y
Zenith Z-Note support (Experimental)	is not set
SEEQ8005 support (Experimental)	is not set
EISA, VLB, PCI, and on-board controllers	Y
AMD PCnet32 PCI support	M
AMD 8111 (new PCI lance) support	is not set
Adaptec Starfire/DuraLAN support	is not set
Ansel Communications EISA 3200 support (Experimental)	M
Apricot Xen-II on-board Ethernet	M
Broadcom 4400 Ethernet support (Experimental)	is not set
Reverse Engineered nForce Ethernet support (Experimental)	is not set
CS89x0 support	is not set
Digi International RightSwitch SE-X support	M
EtherExpressPro/100 support (eepro100, original Becker driver)	Y
Use PIO instead of MMIO	is not set
Intel PRO/100+ support	is not set
Mylex EISA LNE390A/B support (Experimental)	M
Myson MTD-8xx PCI Ethernet support	is not set
National Semiconductor DP8381x series PCI Ethernet support	is not set
PCI NE2000 and clones support (see help)	M
Novell/Eagle/Microdyne NE3210 EISA support (Experimental)	M
Racal-Interlan EISA ES3210 support (Experimental)	M

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
RealTek RTL-8139 C+ PCI Fast Ethernet Adapter support (Experimental)	is not set
RealTek RTL-8139 PCI Fast Ethernet Adapter support	M
Use PIO instead of MMIO	is not set
Support for uncommon RTL-8139 rev. K (automatic channel equalization)	is not set
Support for older RTL-8129/8130 boards	is not set
Use older RX-reset method	is not set
SiS 900/7016 PCI Fast Ethernet Adapter support	M
SMC EtherPower II	Y
Sundance Alta support	is not set
TI ThunderLAN support	M
VIA Rhine support	M
Use MMIO instead of PIO (Experimental)	is not set
Pocket and portable adapters	is not set
<b>Ethernet (1000 Mbit)</b>	
Alteon AceNIC/3Com 3C985/NetGear GA620 Gigabit support	M
Omit support for old Tigon I-based AceNICs	is not set
D-Link DL2000-based Gigabit Ethernet support	is not set
Intel PRO/1000 Gigabit Ethernet support	is not set
National Semiconductor DP83820 support	is not set
Packet Engines Hamachi GNIC-II support	is not set
Packet Engines Yellowfin Gigabit-NIC support (Experimental)	M
Realtek 8169 Gigabit Ethernet support	is not set
Marvell Yukon Chipset/SysKonnect SK-98xx support	is not set
Broadcom Tigon3 support	is not set
<b>Ethernet (10000 Mbit)</b>	

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
Intel PRO/10GbE support	Y
Use Rx Polling (NAPI) (Experimental)	is not set
S2IO 10Gbe XFrame NIC	is not set
<b>Token Ring devices</b>	
Token Ring devices	is not set
<b>Wireless LAN (non-hamradio)</b>	
Wireless LAN drivers (non-ham radio) and Wireless Extensions	is not set
<b>Wan interfaces</b>	
WAN interfaces support	is not set
Fiber Distributed Data Interface (FDDI) driver support	is not set
High Performance Parallel Interface (HIPPI) driver support (Experimental)	is not set
PLIP (parallel port) support	M
Point-to-Point Protocol (PPP) support	M
PPP multilink support (Experimental)	is not set
PPP filtering	is not set
PPP support for async serial ports	is not set
PPP support for sync tty ports	is not set
PPP Deflate compression	is not set
PPP BSD-Compress compression	is not set
PPP over Ethernet (Experimental)	is not set
Serial Line Internet Protocol (SLIP) support	M
CSLIP compressed headers	Y
Keepalive and linefill	Y
Six bit SLIP encapsulation	Y
Fibre Channel driver support	is not set
Traffic Shaper (Experimental)	is not set

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
Network console logging support (Experimental)	is not set
<b>ISDN Subsystem</b>	
ISDN support	is not set
<b>Telephony Support</b>	
Linux telephony support	is not set
<b>Input Device Support</b>	
<i>---Input devices (needed for keyboard, mouse, ...)</i>	
<i>---Userland interfaces</i>	
Mouse interface	Y
Provide legacy /dev/psaux device	Y
Horizontal screen resolution	1024
Vertical screen resolution	768
Joystick interface	is not set
Touchscreen interface	is not set
Event interface	is not set
Event debugging	is not set
<i>---Input I/O drivers</i>	
Gameport support	Y
Classic ISA and PnP gameport support	is not set
PDPI Lightning 4 gamecard support	is not set
SB Live and Audigy gameport support	is not set
Aureal Vortex, Vortex 2 gameport support	is not set
ForteMedia FM801 gameport support	is not set
Crystal SoundFusion gameport support	is not set
<i>---Serial I/O support</i>	
i8042 PC keyboard controller	Y
Serial port line discipline	Y

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
ct82c710 Aux port controller	is not set
Parallel port keyboard adapter	is not set
PCI PS/2 keyboard and PS/2 mouse controller	M
<i>---Input Device Drivers</i>	
Keyboards	Y
AT keyboard support	Y
Sun Type 4 and Type 5 keyboard support	is not set
DECstation/VAXstation LK201/LK401 keyboard support	is not set
XT keyboard support	Y
Newton keyboard	M
Mice	Y
PS/2 mouse	Y
Serial mouse	Y
InPort/MS/ATIXL bus mouse	M
ATI XL variant	is not set
Logitech bus mouse	Y
IBM PC110 touchpad	M
DEC VSXXX-AA/GA mouse and VSXXX-AB tablet	is not set
Joysticks	is not set
Touchscreens	Y
Gunze AHL-51S touchscreen	M
Misc	is not set
<b>Character Devices</b>	
Virtual terminal	Y
Support for console on virtual terminal	Y
Nonstandard serial port support	Y
Computone IntelliPort Plus serial support	M

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
Control RocketPort support	M
Cyclades async mux support	M
Cyclades-Z interrupt mode operation (Experimental)	is not set
Digiboard Intelligent Async support	M
Hayes ESP serial port support	M
Moxa Intellio support	is not set
Moxa SmartIO support	is not set
Multi-Tech multiport card support (Experimental)	M
Microgate SyncLink card support	M
SyncLink Multiport support	is not set
HDLC line discipline support	M
SDL RISCom/8 card support	M
Specialix IO8+ card support	M
Specialix DTR/RTS pin is RTS	Y
Specialix SX (and SI) card support	M
Specialix RIO system support	is not set
Stallion multiport serial support	Y
Stallion EasyIO or EC8/32 support	M
Stallion EC8/64, ONboard, Brumby support	M
<b>Serial drivers</b>	
8250/16550 and compatible serial support	Y
Console on 8250/16550 and compatible serial port	Y
8250/16550 device discovery via ACPI namespace	is not set
Maximum number of nonlegacy 8250/16550 serial ports	4
Extended 8250/16550 serial driver options	is not set
Unix98 PTY support	Y
Legacy (BSD) PTY support	Y

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
Maximum number of Unix98 PTYs in use (0 to 2048)	256
Parallel printer support	M
Support for console on line printer	is not set
Support for user-space parallel port device drivers	is not set
Texas Instruments parallel link cable support	is not set
QIC-02 tape support	is not set
<b>IPMI</b>	
IPMI top-level message handler	is not set
<b>Watchdog Cards</b>	
Watchdog Timer support	is not set
Intel/AMD/VIA HW Random Number Generator support	is not set
/dev/nvram support	M
Enhanced Real Time Clock support	Y
Double Talk PC internal speech card support	M
Siemens R3964 line discipline	is not set
Applicom intelligent fieldbus card support	is not set
Sony Vaio Programmable I/O Control Device support (Experimental)	is not set
<b>Ftape, the floppy tape device driver</b>	
Ftape (QIC-80/Travan) support	M
Zftape, the VFS interface	M
Default block size	10240
<i>--- The compressor will be built as a module only!</i>	
Number of ftape buffers (Experimental)	3
Enable procfs status report (+2 KB)	is not set
<b>Debugging output</b>	
Normal	Y

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
Excessive	is not set
Reduced	is not set
None	is not set
<i>---Hardware configuration</i>	
<b>Floppy tape controllers</b>	Standard
Standard	is not set
MACH-2	is not set
FC-10/FC-20	is not set
Alt/82078	is not set
Default FIFO threshold (Experimental)	8
Maximal data rate to use (Experimental)	2000
/dev/agpgart (AGP support)	is not set
Direct Rendering Manager (XFree86 4.1.0 and higher DRI support)	is not set
ACP Modem (Mwave) support	is not set
RAW driver (/dev/raw/rawN)	is not set
Hangcheck timer	is not set
<b>I<sup>2</sup>C support</b>	
I <sup>2</sup> C support	is not set
<b>Misc devices</b>	
Device driver for IBM RSA service processor	is not set
<b>Multimedia Devices</b>	
Video for Linux	is not set
<b>Digital Video Broadcasting Device</b>	
DVB for Linux	is not set
<b>Graphics Support</b>	
Support for frame buffer devices	Y

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
NEC neon 250 support	is not set
Permedia2 support	is not set
CyberPro 2000/2010/5000 support	is not set
Chips 69000 display support	is not set
IMS Twin Turbo display support	is not set
VGA 16-color graphics support	is not set
VESA VGA graphics support	Y
Hercules mono graphics support	is not set
nVidia Riva support	is not set
Matrox acceleration	M
Millennium I/II support	Y
Mystique support	Y
G100/G200/G400/G450/G550 support	is not set
G100/G200/G400 support	is not set
Multihead support	Y
ATI Radeon display support	is not set
ATI Radeon display support	is not set
ATI Rage128 display support	is not set
ATI Mach64 display support	is not set
SIS acceleration	is not set
NeoMagic display support	is not set
IMG Kyro support	is not set
3Dfx Banshee/Voodoo3 display support	is not set
3Dfx Voodoo Graphics (sst1) support	is not set
Trident support	is not set
Virtual Frame Buffer support (Only for Testing!)	is not set
<b>Console Display Driver Support</b>	

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
VGA text console	Y
Video mode selection support	is not set
MDA text console (dual-headed) (Experimental)	M
Frame Buffer Console support	is not set
<b>Logo Configuration</b>	
Bootup logo	is not set
<b>Sound</b>	
Sound card support	M
<b>Advanced Linux Sound Architecture</b>	
Advanced Linux Sound Architecture	is not set
<b>Open Sound System</b>	
Open Sound System (Deprecated)	is not set
<b>USB support</b>	
Support for host-side USB	Y
USB verbose debug messages	is not set
<i>---Miscellaneous USB options</i>	
USB device file system	Y
Enforce USB bandwidth allocation (Experimental)	is not set
Dynamic USB minor allocation (Experimental)	is not set
<i>---USB Host Controller Drivers</i>	
EHCI HCD (USB 2.0) support	is not set
OHCI HCD support	is not set
UHCI HCD (most Intel and VIA) support	is not set
<i>---USB Device Class drivers</i>	
USB Audio support	M
USB Bluetooth TTY support	is not set

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
USB MIDI support	is not set
USB Modem (CDC ACM) support	M
USB Printer support	M
USB Mass Storage support	M
USB Mass Storage verbose debug	is not set
Datafab Compact Flash Reader support (Experimental)	is not set
Freecom USB/ATAPI Bridge support	is not set
ISD-200 USB/ATA Bridge support	is not set
Microtech CompactFlash/SmartMedia support	is not set
HP CD-Writer 82xx support (Experimental)	is not set
SanDisk SDDR-09 (and other SmartMedia) support (Experimental)	is not set
SanDisk SDDR-55 SmartMedia support (Experimental)	is not set
Lexar Jumpshot Compact Flash Reader (Experimental)	is not set
<i>---USB Human Interface Devices (HID)</i>	
USB Human Interface Device (full HID) support	Y
HID input layer support	is not set
/dev/hiddev raw HID device support	is not set
Aiptek 6000U/8000U tablet support	is not set
Wacom Intuos/Graphire tablet support	is not set
KB Gear JamStudio tablet support	is not set
Griffin PowerMate and Contour Jog support	is not set
MicroTouch USB Touchscreen Driver	is not set
eGalax TouchKit USB Touchscreen Driver	is not set
X-Box gamepad support	is not set
ATI USB RF remote control	is not set
<i>---USB Imaging devices</i>	
USB Mustek MDC800 Digital Camera support (Experimental)	is not set

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
Microtek X6USB scanner support	is not set
HP53xx USB scanner support (Experimental)	is not set
<i>---USB Multimedia devices</i>	
DABUSB driver	is not set
<i>---Video4Linux support is needed for USB Multimedia device support.</i>	
<i>---USB Network adaptors</i>	
USB CATC NetMate-based Ethernet device support (Experimental)	is not set
USB KLSI KL5USB101-based Ethernet device support	is not set
USB Pegasus/Pegasus-II-based Ethernet device support	is not set
USB RTL8150-based Ethernet device support (Experimental)	is not set
Multipurpose USB Networking Framework	is not set
<i>---USB port drivers</i>	
USS720 parport driver	M
<b>USB Serial Converter support</b>	
USB Serial Converter support	M
USB Generic Serial Driver	Y
USB Belkin and Peracom Single Port Serial Driver	M
USB ConnectTech WhiteHEAT Serial Driver	M
USB Digi International AccelePort USB Serial Driver	M
USB Empeg empeg-car Mark I/II Driver	M
USB FTDI Single Port Serial Driver (Experimental)	M
USB Handspring Visor/Palm m50x/Sony Clie Driver	M
USB PocketPC PDA Driver	is not set
USB IR Dongle Serial Driver (Experimental)	M
USB Inside Out Edgeport Serial Driver	M
USB Inside Out Edgeport Serial Driver (TI devices)	is not set

**Table 3-9: Device Drivers (Continued)**

<b>Description</b>	<b>Settings</b>
USB Keyspan PDA Single Port Serial Driver	M
USB Keyspan USA-xxx Serial Driver	is not set
USB KL5KUSB105 (Palmconnect) Driver (Experimental)	is not set
USB KOBIL chipcard reader (Experimental)	is not set
USB MCT Single Port Serial Driver	M
USB Prolific 2303 Single Port Serial Driver	M
USB Safe Serial (Encapsulated) Driver (Experimental)	is not set
USB REINER SCT cyberJack pinpad/e-com chipcard reader (Experimental)	M
USB Xircom/Entrega Single Port Serial Driver	M
USB ZyXEL omni.net LCD Plus Driver (Experimental)	M
<i>---USB Miscellaneous drivers</i>	
EMI 6 2m USB Audio interface support	is not set
EMI 2 6 USB Audio interface support	is not set
Texas Instruments Graph Link USB (aka SilverLink) cable support	is not set
USB Auerswald ISDN support (Experimental)	is not set
USB Diamond Rio500 support (Experimental)	is not set
USB Lego Infrared Tower support (Experimental)	is not set
USB LCD driver support	is not set
USB LED driver support	is not set
Cypress USB thermometer driver support	is not set
USB PhidgetServo support	is not set
USB testing driver (Development)	is not set
<b>USB Gadget Support</b>	
Support for USB Gadgets	is not set

**Table 3-10: File Systems**

<b>Description</b>	<b>Setting</b>
Second extended file system support	Y
Ext2 extended attributes	is not set
Ext3 journalling file system support	M
Ext3 extended attributes	Y
Ext3 POSIX Access Control Lists	is not set
Ext3 Security Labels	is not set
JBD (ext3) debugging support	is not set
Reiserfs support	M
Enable reiserfs debug mode	is not set
Stats in <code>/proc/fs/reiserfs</code>	is not set
ReiserFS extended attributes	is not set
JFS file system support	is not set
XFS file system support	is not set
Minix file system support	is not set
ROM file system support	M
Quota support	is not set
Kernel automounter support	M
Kernel automounter version 4 support (also supports v3)	is not set
<b>CD-ROM/DVD File Systems</b>	
ISO 9660 CD-ROM file system support	M
Microsoft Joliet CD-ROM extensions	Y
Transparent decompression extension	is not set
UDF file system support	is not set
<b>DOS/FAT/NT File Systems</b>	
DOS FAT file system support	M

**Table 3-10: File Systems (Continued)**

<b>Description</b>	<b>Setting</b>
MS-DOS file system support	M
VFAT (Windows 95) file system support	M
NTFS file system support	is not set
<b>Pseudo File Systems</b>	
/proc file system support	Y
sysfs file system support	Y
/dev file system support (Obsolete)	Y
Automatically mount at boot	is not set
Debug devfs	is not set
/dev/pts Extended Attributes	is not set
Virtual memory file system support (former shm file system)	is not set
HugeTLB file system support	is not set
<b>Miscellaneous File Systems</b>	
ADFS file system support (Experimental)	is not set
Amiga FFS file system support (Experimental)	is not set
Apple Macintosh file system support (Experimental)	is not set
Apple Extended HFS file system support	is not set
BeOS file system (BeFS) support (read-only) (Experimental)	is not set
BFS file system support (Experimental)	is not set
EFS file system support (read-only) (Experimental)	is not set
Compressed ROM file system support	is not set
FreeVxFS file system support (VERITAS VxFS™-compatible)	is not set
OS/2 HPFS file system support	is not set
QNX4 file system support (read-only)	is not set
System V/Xenix/V7/Coherent file system support	is not set
UFS file system support (read-only)	is not set

**Table 3-10: File Systems (Continued)**

<b>Description</b>	<b>Setting</b>
<b>Network File Systems</b>	
NFS file system support	Y
Provide NFSv3 client support	Y
Provide NFSv4 client support (Experimental)	is not set
Allow direct I/O on NFS files (Experimental)	is not set
NFS server support	Y
Provide NFSv3 server support	Y
Provide NFSv4 server support (Experimental)	is not set
Provide NFS server over TCP support (Experimental)	is not set
Secure RPC: Kerberos V mechanism (Experimental)	is not set
SMB file system support (to mount Windows shares, etc.)	is not set
CIFS support (advanced network file system for Samba, Windows, and other CIFS-compliant servers)	is not set
NCP file system support (to mount NetWare volumes)	M
Packet signatures	Y
Proprietary file locking	Y
Clear remove/delete inhibit when needed	Y
Use NFS namespace if available	Y
Use LONG (OS/2) namespace if available	Y
Lowercase DOS filenames	Y
Use Native Language support	Y
Enable symbolic links and execute flags	Y
Coda file system support (advanced network file system)	is not set
Andrew File System (AFS) support (Experimental)	is not set
<b>Partition Types</b>	
Advanced partition selection	is not set

**Table 3-10: File Systems (Continued)**

<b>Description</b>	<b>Setting</b>
<b>Native Language Support</b>	
Base native language support	is not set
Default NLS Option	iso8859-1
Codepage 437 (United States, Canada)	M
Codepage 737 (Greek)	M
Codepage 775 (Baltic Rim)	M
Codepage 850 (Europe)	M
Codepage 852 (Central/Eastern Europe)	M
Codepage 855 (Cyrillic)	M
Codepage 857 (Turkish)	M
Codepage 860 (Portuguese)	M
Codepage 861 (Icelandic)	M
Codepage 862 (Hebrew)	M
Codepage 863 (Canadian French)	M
Codepage 864 (Arabic)	M
Codepage 865 (Norwegian, Danish)	M
Codepage 866 (Cyrillic/Russian)	M
Codepage 869 (Greek)	M
Simplified Chinese character set (CP936, GB2312)	is not set
Traditional Chinese character set (Big5)	is not set
Japanese character sets (Shift-JIS, EUC-JP)	is not set
Korean character set (CP949, EUC-KR)	is not set
Thai character set (CP874, TIS-620)	M
Hebrew character sets (ISO-8859-8, CP1255)	M
Windows CP1250 (Slavic/Central European Languages)	is not set
Windows CP1251 (Bulgarian, Belarusian)	is not set
NLS ISO 8859-1 (Latin 1; Western European Languages)	M

**Table 3-10: File Systems (Continued)**

Description	Setting
NLS ISO 8859-2 (Latin 2; Slavic/Central European Languages)	M
NLS ISO 8859-3 (Latin 3; Esperanto, Galician, Maltese, Turkish)	M
NLS ISO 8859-4 (Latin 4; old Baltic character set)	M
NLS ISO 8859-5 (Cyrillic)	M
NLS ISO 8859-6 (Arabic)	M
NLS ISO 8859-7 (Modern Greek)	M
NLS ISO 8859-9 (Latin 5; Turkish)	M
NLS ISO 8859-13 (Latin 7; Baltic)	is not set
NLS ISO 8859-14 (Latin 8; Celtic)	M
NLS ISO 8859-15 (Latin 9; Western European Languages with Euro)	M
NLS KOI8-R (Russian)	M
NLS KOI8-U/RU (Ukrainian, Belarusian)	is not set
NLS UTF8	is not set

**Table 3-11: Profiling Support**

Description	Setting
Profiling support (Experimental)	is not set

**Table 3-12: Kernel Hacking**

Description	Setting
Kernel debugging	is not set
Early printk	is not set
BlueCat Linux kernel debugger	is not set
Sleep-inside-spinlock checking	is not set

---

**Table 3-12: Kernel Hacking (Continued)**

Description	Setting
Compile the kernel with frame pointers	is not set
Use 4 KB for kernel stacks instead of 8 KB	is not set

**Table 3-13: Security Options**

Description	Setting
Enable different security models	is not set

**Table 3-14: Cryptographic Options**

Description	Setting
Cryptographic API	is not set

**Table 3-15: Library Routines**

Description	Setting
CRC32c (Castagnoli et al) Cyclic Redundancy-Check	is not set

**Table 3-16: Messenger Support**

Description	Setting
Enable Messenger support	is not set

**Table 3-17: Modular Advanced Power Management**

<b>Description</b>	<b>Setting</b>
Modular Advanced Power Management (MAPM) support	is not set
MAPM user-space interface	is not set
MAPM test driver	is not set
MAPM CPU PMD	is not set

---

## CHAPTER 4 *Supported Demo Systems*

This chapter provides information about BlueCat Linux demo systems supported by the x86 BSP.

---

### Demo Systems

Table 4-1 lists the demo systems supported in the x86 BSP distribution, the boot devices supported by each demo system, and their respective RAM and ROM requirements.

**Table 4-1: Demo Systems Supported by the x86 BSP**

Demo	Boot Devices Supported by Default	ROM Requirements	RAM Requirements
developer	Network (using BlueCat Linux OS loader) Hard disk CD-ROM ROM/Flash	4362 KB	22676 KB
osloader	Network (using BlueCat Linux OS loader) Floppy disk Hard disk CD-ROM Parallel port ROM/Flash	1082 KB	6911 KB
showcase	Network (using BlueCat Linux OS loader) Hard disk CD-ROM ROM/Flash	3316 KB	15099 KB

## **developer Demo System**

The `developer` demo system is a package consisting of the functionalities of the `shell`, `ftp`, `ping`, and `gdb` systems. For descriptions of `developer` and its components, refer to Chapter 4, “BlueCat Linux Demo Systems” in the *BlueCat Linux User’s Guide*.

## **osloader Demo System**

`osloader` is the BlueCat Linux OS loader used to boot a BlueCat Linux system on the target board. Refer to Chapter 4, “BlueCat Linux Demo Systems” in the *BlueCat Linux User’s Guide* for details.

## **showcase Demo System**

The `showcase` demo system starts and configures the Apache HTTP daemon, turning the target board into a web server. Refer to Chapter 4, “BlueCat Linux Demo Systems” in the *BlueCat Linux User’s Guide* for details.

Table 5-1 lists the device drivers supported by the x86 BSP and provides important information about them.

**Table 5-1: Device Drivers Supported by the x86 BSP**

Hardware Device	Device Drivers	Location in Source Tree	Kernel Configuration Options	Notes
Ethernet Controller  PCI, PCMCIA, ISA, and USB 10/100 Mbit Ethernet adapters	*.c  (Depends on the card installed.)	drivers/net/ drivers/usb/net	Depends on the card installed.	Tested adapters: • ISA NE2000 compatible • 3Com 3C509
IDE/EIDE Controllers  Up to two IDE/EIDE interfaces and up to four hard disks, CD- ROM drives, or CompactFlash disks	*.c	drivers/ide/	CONFIG_IDE* CONFIG_BLK_DEV_IDE CONFIG_BLK_DEV*	

**Table 5-1: Device Drivers Supported by the x86 BSP (Continued)**

Hardware Device	Device Drivers	Location in Source Tree	Kernel Configuration Options	Notes
SCSI Controllers PCI, ISA, and on-board SCSI controllers	*.c	drivers/scsi/	CONFIG_SCSI CONFIG_BLK_DEV_SD CONFIG_BLK_DEV_SR CONFIG_SCSI_*	Tested adapters: AHA2940
DiskOnChip 2000/ Millennium	*.c	drivers/mtd drivers/mtd/devices	CONFIG_MTD CONFIG_MTD_PARTITIONS CONFIG_NFTL CONFIG_NFTL_RW CONFIG_MTD_DOC2000	Tested devices: DOC2000
FDD Controller	floppy.c	drivers/block/	CONFIG_BLK_DEV_FD	
Keyboard	atkbd.c	drivers/input/ keyboard/	CONFIG_INPUT_KEYBOARD CONFIG_KEYBOARD_ATKBD	
Mouse PS/2	psmouse-base.c synaptics.o logips2pp.o	drivers/input/mouse/	CONFIG_INPUT_MOUSE CONFIG_MOUSE_PS2 CONFIG_INPUT_MOUSEDEV CONFIG_INPUT_MOUSEDEV_PSAUX	
Serial Ports 8250, 16450, 16550, and 16550A UARTs	*.c	drivers/serial/	CONFIG_SERIAL_8250 CONFIG_SERIAL_8250_CONSOLE	
Video PCI, AGP, and on-board video controllers	vgacon.c	drivers/video/ console/	CONFIG_VGA_CONSOLE	

**Table 5-1: Device Drivers Supported by the x86 BSP (Continued)**

Hardware Device	Device Drivers	Location in Source Tree	Kernel Configuration Options	Notes
USB	*.c	drivers/usb/	CONFIG_USB CONFIG_INPUT CONFIG_USB_HID CONFIG_USB_HIDINPUT CONFIG_USB_PRINTER	Tested devices: keyboard, mouse
			CONFIG_USB_OHCI_HCD CONFIG_USB_EHCI_HCD CONFIG_USB_UHCI_HCD	Select one of these options, depending on the Host Controller.  Tested adapters: UHCI Host Controller
Parallel Ports	*.c	drivers/parport/	CONFIG_PARPORT CONFIG_PARPORT_PC	
PCMCIA Controllers	*.c	drivers/pcmcia/	CONFIG_HOTPLUG CONFIG_PCPCIA	Not tested.
PCI, Cardbus, and ISA PCMCIA adapters			CONFIG_YENTA CONFIG_I82092 CONFIG_I82365 CONFIG_TCIC	Select one of these options depending on the HBA device.
Parallel Port Printers	parport_pc.c	drivers/parport/	CONFIG_PARPORT CONFIG_PARPORT_PC	



This chapter describes known problems and limitations of this release.

---

## x86 Target Board Problems and Limitations

The following are known problems and limitations of this release:

- Modification of the file system stored in a RAM disk does not persist across unmounting/mounting in BlueCat Linux 5.1. This limitation is due to a defect in the Linux kernel 2.6, described by official kernel maintainer Andrew Morton ([www.lkml.org](http://www.lkml.org)):

*“Because the kernel considers the ramdisk as being ‘memory backed’ it doesn't do writeback into the blockdev pagecache. If you remove the memory-backed flag, ramdisk contributes to dirty memory in undesirable ways. That memory-backed flag is too overloaded and needs to be split up. It's something I need to fix, but nobody seemed to be hurting from it up to now so I figured it could wait until after 2.6.0.”*

- For all demo systems, the VGA console is configured as the default Linux console. To redirect output to either of the serial ports, add the following to the kernel command line:
  - To COM1:  

```
console=ttyS0
```
  - To COM2:  

```
console=ttyS1
```
- On Windows hosts, some file permissions (including `r` and `s`) always have default values. To set permissions different from the default values, the `chmod` command should be used in the `.spec` file.

## User Documentation Updates

- The “Booting from RAM using an NFS Server” section in Chapter 3, “Downloading and Booting BlueCat Linux” in the *BlueCat Linux User's Guide* contains incorrect commands. Please use the following commands to boot a BlueCat Linux system on the target board from an NFS server.

```
> set IP <target_IP_address>
> set HOST <host_IP_address>
> set IF <ethernet_interface>
> set KERNEL nfs /nfsboot <name>.kernel
> set RFS nfs /nfsboot <name>.rfs
> boot
```

- The “Mounting a Root File System from NFS” section in Chapter 3, “Downloading and Booting BlueCat Linux” in the *BlueCat Linux User's Guide* contains incorrect commands. Please use the following commands to boot a BlueCat Linux kernel that mounts an NFS-based file system as the root file system.

```
> set IP <target_IP_address>
> set HOST <host_IP_address>
> set IF <ethernet_interface>
> set KERNEL tftp /tftpboot/<name>.kernel
> set CMD console=ttyS1 root=/dev/nfs rw \
nfsroot=<host_IP_address>:/nfsboot \
ip=<target_IP_address>:<host_IP_address>:::::off \
panic=1
> boot
```

- The information in the *BlueCat Linux User's Guide* that states that `make xconfig` is supported on Linux hosts only is out of date.

`make xconfig` is now also supported on Windows hosts.

Ensure that Microsoft Visual Studio 6.0 or higher is installed on the cross-development host and that the Visual Studio environment tools have been set up to allow invocation of the Microsoft Visual Studio tools in command line mode.

Then, to install the Qt library on the Windows host, go to [www.trolltech.com](http://www.trolltech.com) and download the Qt software for Microsoft Visual Studio C++ Windows users. To install the Qt library, follow the instructions provided with the Qt software.

`$BLUECAT_PREFIX/usr/src/linux/scripts/kconfig/Makefile` (the `Makefile` for the Windows host) uses the `QTLIBS` environment variable to list the Qt libraries that are needed to link with the `qconf` executable used to implement `make xconfig` on the Windows host. The following default definition is used:

```
QTLIBS = qt-mteval323.lib qtmain.lib
```

This definition specifies that libraries from the Qt 3.2.3 evaluation version for Windows are needed to link with the `qconf` executable.

If the Qt version installed on the host differs from the Qt 3.2.3 evaluation version, the `QTLIBS` definition must be changed to specify the correct list of libraries. This can be done either by manually editing `$BLUECAT_PREFIX/usr/src/linux/scripts/kconfig/Makefile` to modify the `QTLIBS` definition or by defining the `QTLIBS` environment variable using the **Properties->Advanced->Environment Variables** wizard in the context menu of the **My Computer** icon on the Windows desktop. The second approach allows the user to avoid changing the `Makefile` every time BlueCat Linux is reinstalled.

