

# BlueCat Linux Board Support Guide

---

BlueCat Linux Release 5.0

DOC-0592-00

*for the Apple Power Mac G5 Platform*

Product names mentioned in the *BlueCat Linux Board Support Guide for Apple Power Mac G5 Platform* are trademarks of their respective manufacturers and are used here only for identification purposes.

Copyright ©1987 - 2004, 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 the *BlueCat Linux Board Support Guide for Apple Power Mac G5 Platform* 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>
<b>CHAPTER 2</b>	<b>DOWNLOADING AND BOOTING BLUECAT LINUX ON THE TARGET</b>	<b>3</b>
	Prerequisites	3
	Downloading and Booting Overview	4
	Setting up Hardware	5
	Connecting the Target Platform Ethernet Card to the Host	5
	Setting Up Networking on the Host System	5
	Connecting the Display to the Target Platform	6
	Connecting the Keyboard to the Target Platform	6
	Starting up the Open Firmware	7
	Booting a BlueCat Linux System from a Network	7
	Booting a BlueCat Linux System from a Network using	
	Open Firmware	7
	Booting a BlueCat Linux System from a Network using the	
	OS Loader	8
	Booting BlueCat Linux from a Hard Disk	9
	Booting BlueCat Linux from a CD-ROM	12
	Booting from a CD-ROM Overview	12

	Booting a BlueCat Linux Embedded System from a CD-ROM .....	13
<b>CHAPTER 3</b>	<b>KERNEL CONFIGURATION OPTIONS .....</b>	<b>15</b>
<b>CHAPTER 4</b>	<b>SUPPORTED DEMO SYSTEMS.....</b>	<b>43</b>
	Demo Systems .....	43
	developer Demo System .....	43
	osloader Demo System .....	44
	showcase Demo System .....	44
<b>CHAPTER 5</b>	<b>SUPPORTED DEVICE DRIVERS .....</b>	<b>45</b>
<b>CHAPTER 6</b>	<b>NEW FEATURES .....</b>	<b>47</b>
	Kernel Version .....	47
	BlueCat Linux Cross-Development Tools .....	47
	Supported Cross-Development Hosts .....	47
<b>CHAPTER 7</b>	<b>KNOWN PROBLEMS AND LIMITATIONS.....</b>	<b>49</b>
	Apple Power Mac G5 Target Platform Problems and Limitations .....	49
	User Documentation Updates .....	50
<b>APPENDIX A</b>	<b>CONFIGURATION FILES EXAMPLES .....</b>	<b>51</b>
	cdrom.config File Example .....	51
	cdrom.spec File Example .....	66
	.bashrc File Example .....	67
	fstab File Example .....	67
	hfs.map File Example .....	67
	ofboot.b File Example .....	67

---

# Preface

---

## For More Information

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

- *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 file names 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, file names, 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 file name or a value that must be entered by the user

```
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

### Web-based Support:

Log in at <http://www.linuxworks.com/support/custhelp.php3> for all support subscribers, including Europe.

### 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 the Apple Power Mac G5 Platform* provides information about the BlueCat Linux Board Support Package (BSP) for the Apple Power Mac G5 platform.

Throughout this Board Support Guide (BSG), the BSP is referred to as the “pmac\_g5.”

The chapters of this BSG provide the information listed below:

- *Chapter 1* is an overview of this BSG’s individual chapters.
- *Chapter 2* describes BlueCat Linux downloading and booting procedures for the Apple Power Mac G5 platform using Open Firmware.
- *Chapter 3* provides configuration information about the pmac\_g5 BSP’s default BlueCat Linux kernel.
- *Chapter 4* summarizes BlueCat Linux demo systems supported by the pmac\_g5 BSP.
- *Chapter 5* provides a list of pmac\_g5 BSP-supported device drivers, with important information about each of them.
- *Chapter 6* describes the new features of this release.
- *Chapter 7* describes known problems and limitations for this release.
- *Appendix A* contains configuration file examples.



# *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 platform.

---

## **Prerequisites**

This document is a guide for downloading and booting BlueCat Linux systems onto the user's target platform. Scenarios that use demo systems included in the BlueCat Linux distribution are presented. A basic familiarity with the target platform 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 platform as well as system administration reference material for the cross-development host.

Before downloading and booting BlueCat Linux on the target platform, it is assumed that the default BlueCat Linux PowerPC configuration and the pmac\_g5 BSP have been installed on the cross-development host. This means that the user must:

1. Install the BlueCat Linux PowerPC 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 pmac\_g5 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 `pmac_g5` 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 a BlueCat Linux system on the Apple Power Mac G5 target consists of the following main steps:

- Setting up hardware
  - Downloading and booting a BlueCat Linux system from a network
- or:
- Installing a BlueCat Linux embedded system onto a target hard disk or CD-ROM
  - Booting a BlueCat Linux embedded system

Downloading and booting a BlueCat Linux system from a network can be performed using either of the two OS boot loaders:

- Open Firmware
- BlueCat Linux OS loader

The BlueCat Linux OS loader demo system currently includes the `osloader` Kernel Downloadable Image (KDI). `osloader` is the image with the base functionality of the BlueCat Linux OS loader configured in. This includes the ability to download BlueCat Linux images from a TFTP host, execute them in RAM, and other important features.

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

---

## Setting up Hardware

### Connecting the Target Platform Ethernet Card to the Host

The Ethernet port on the target platform is used to provide a standard network connection for the platform and, in particular, to load BlueCat Linux embedded systems onto the platform over a network.

The Apple Power Mac G5 platform provides 10Base-T/UTP, 100Base-TX, or 1000Base-TX Gigabit Ethernet connections via either CAT 5 Unshielded Twisted Pair (UTP) or Shielded Twisted Pair (STP) cables using a dedicated Ethernet port. Refer to the manufacture's documentation for details on selecting a cable for network connection.

The user must use the Ethernet port to connect the Apple Power Mac G5 to the LAN.

### Setting Up Networking on the Host System

It is required that the user set up networking on the host system. In particular, the user must choose a unique IP address for the development host and for the target platform, and set up the DHCP and TFTP servers on the host.

### Setting Up a DHCP Server

The following steps are necessary to set up the DHCP daemon on a Linux host:

Information about the IP and hardware addresses of the servers to be autoconfigured using the DHCPD protocol must be added to the `/etc/dhcpd.conf` file. Each server is described in the following format:

```
option routers                172.21.0.1
allow bootp;
subnet 172.21.0.0 netmask     255.255.0.0 {
    option subnet-mask        255.255.0.0;
    option domain-name-servers 207.21.185.10
}

host apple {
    hardware ethernet        00:0a:95:96:0e:8c;
    fixed-address            171.21.0.35;
    option host-name         "apple";
}
}
```

For more detailed information on the `dhcpd.conf` file format, refer to the `dhcpd.conf(5)` man page.

If the `dhcpd` daemon is not already enabled, do the following:

1. Install the `dhcp-3.0p11-23.rpm` package on the Linux host.
2. Use the following commands to enable `dhcpd` on startup:

```
chkconfig --add dhcpd
chkconfig dhcpd on
```

Or:

Start it manually.

## Setting Up a TFTP Server

TFTP must be enabled on the development host. For more information, refer “Setting Up a TFTP Server” in Chapter 3, “Downloading and Booting BlueCat Linux” in the *BlueCat Linux User's Guide*.

## Connecting the Display to the Target Platform

The video card in the Apple Power Mac G5 platform has two ports:

- An Apple Display Connector (ADC) port to connect Apple flat-panel displays
- A Digital Visual Interface (DVI) port to connect digital displays that have DVI connectors

To connect a VGA display, use a DVI-to-VGA adapter to connect the monitor to the DVI port.

## Connecting the Keyboard to the Target Platform

Connect the keyboard cable to one of the USB ports on the Apple Power Mac G5 platform.

## Starting up the Open Firmware

By default, the Apple Power Mac G5 target starts up in Mac OS X operating system. To start up the interactive Open Firmware monitor, the user must restart the target while holding down the **O, F, Option (Alt), and Command (Apple)** keys (**O, F** stands for Open Firmware). The following response indicates that Open Firmware is started and can be used for booting BlueCat Linux on the Apple Power Mac G5 target:

```
Apple PowerMac7,2 5.0.1f1 BootROM built on 08/12/03 at 12:44:17
Copyright 1994-2003 Apple Computer, Inc.
All Rights Reserved.

Welcome to Open Firmware, the system time and date is: 13:08:10 01/27/2004

To continue booting, type "mac-boot" and press return.
To shut down, type "shut-down" and press return.

ok
0 >
```

---

## Booting a BlueCat Linux System from a Network

A BlueCat Linux demo system can be booted from a network using either Open Firmware or BlueCat Linux OS loader.

### Booting a BlueCat Linux System from a Network using Open Firmware

To boot the `osloader` demo system over a network using Open Firmware, perform the following steps:

1. Copy the `osloader.kdi` file from the `$BLUECAT_PREFIX/demo/osloader` directory to the `/tftpboot` directory on the development host.
2. Reset the target platform and start Open Firmware.
3. At the Open Firmware prompt, enter the following command:

```
0 > boot enet:,osloader.kdi
CLIENT: 000a95960e8c 172.21.0.35
SERVER: 00e02906a11c 172.21.0.1 172.21.0.1
Transfer FILE: osloader.kdi \
```

```
TFTP-actual=24e400 TFTP-adler32=35ec28f6 load-size=14ccce  
adler32=35ec28f6
```

```
Loading ELF  
...
```

The OS loader demo system is loaded from a network onto the target platform and then automatically started.

## Booting a BlueCat Linux System from a Network using the OS Loader

To boot the `showcase` demo system over a network using the BlueCat Linux OS loader, perform the following steps:

1. Copy the `osloader.kdi` file from the `$(BLUECAT_PREFIX)/demo/osloader` directory to the `/tftpboot` directory on the development host.
2. Copy the `showcase.kernel` and `showcase.rfs` files from the `$(BLUECAT_PREFIX)/demo/showcase` directory to the `/tftpboot` directory on the cross-development host.
3. Reset the target platform and start Open Firmware.
4. At the Open Firmware prompt, enter the following command:

```
0 > boot enet:,osloader.kdi
```

This command loads the `osloader` demo system from a network and boots it. As a result, the BlueCat Linux OS loader prompt will appear on the console.

5. At the BlueCat Linux OS loader prompt, enter the following commands:

```
> set IF eth0  
> set IP <target_board_IP>  
> set HOST <development_host_IP>  
> set KERNEL tftp showcase.kernel  
> set RFS tftp showcase.rfs  
> set CMD ramdisk_size=16384  
> boot
```

where `<target_board_IP>` is the IP address of the target and `<development_host_IP>` is the IP address of the development host.

The `showcase` demo system is loaded from a network onto the target platform and then automatically started.

## Booting BlueCat Linux from a Hard Disk

To boot BlueCat Linux on an Apple Power Mac G5 target from a hard disk, perform the following steps:

---

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

---

1. On the development host, use the `mkboot` tool to prepare a BlueCat Linux KDI that includes the kernel image to be installed onto the hard disk and does not include an RFS image. Specify the `root=/dev/sda3` kernel command line parameter when creating the image. The following example demonstrates how to prepare a KDI with the `developer demo` system kernel image that will be installed on the hard disk.

- a. Make sure that the following configuration options are enabled in the kernel. As a reference, the `i_osloader demo` system has these options enabled.

- `CONFIG_IDE`
- `CONFIG_BLK_DEV_IDE`
- `CONFIG_BLK_DEV_IDEDISK`
- `CONFIG_BLK_DEV_IDEPCI`
- `CONFIG_BLK_DEV_IDEDMA_PCI`
- `CONFIG_IDEDMA_PCI_AUTO`
- `CONFIG_BLK_DEV_ADMA`
- `CONFIG_BLK_DEV_IDE_PMAC`
- `CONFIG_BLK_DEV_IDE_PMAC_ATA100FIRST`
- `CONFIG_BLK_DEV_IDEDMA_PMAC`
- `CONFIG_BLK_DEV_IDEDMA_PMAC_AUTO`
- `CONFIG_BLK_DEV_IDEDMA`
- `CONFIG_IDEDMA_AUTO`
- `CONFIG_SCSI`
- `CONFIG_BLK_DEV_SD`
- `CONFIG_BLK_DEV_SR`

- CONFIG SCSI\_MULTI\_LUN
- CONFIG SCSI\_SATA
- CONFIG SCSI\_SATA\_SVW
- CONFIG\_PARTITION\_ADVANCED
- CONFIG\_MAC\_PARTITION

b. Rebuild the kernel image.

c. Create the BlueCat Linux KDI:

```
BlueCat:~$ echo "root=/dev/sda3 rw" > cmd.txt
BlueCat:~$ mkboot -m -k developer.disk -c \
cmd.txt diskboot.kdi
output: diskboot.kdi: regular file
Boot device      : 0
Geometry        : n/a
Kernel          : 2280 sectors (1140K)
Root filesystem  : none
RFS             : none
Command line    : root=/dev/sda3 rw hda=bswap hdb=bswap hdc=bswap
hdd=bswap
BlueCat:~$
```

d. Put the created image (diskboot.kdi) onto a TFTP server accessible from the target.

2. Boot the `i_osloader` demo system on the target from a network. Refer to “Booting a BlueCat Linux System from a Network” on page 7 for detailed instructions on how to do this.
3. Once `i_osloader` is booted, the BLOSH prompt appears on the system console. To partition the hard disk using the `mac-fdisk(8)` tool available in the `i_osloader` system, perform the following steps:
  - a. Invoke the utility as follows:

```
> exec mac-fdisk /dev/sda
/dev/sda
Command (? for help):
```

Use the `p` command to display the current state of the partition table. The `i` command can be used to remove completely all the existing partitions and reinitialize the partition table from scratch. The example that follows demonstrates how the partitions required to install and boot a BlueCat Linux system are created from scratch.

---

**NOTE:** All the data on the hard disk will be erased. Make sure to back up any valuable data from the hard disk before executing the steps below.

---

- b. Enter `i mac-fdisk` (command to initialize partition map) and follow the on-screen instructions.
  - c. Create a bootable partition in which the BlueCat Linux kernel will reside. To do this, enter `c`. When prompted for the first block of the partition, enter the number of the first available disk block not used by the partition map. Usually, this is 64. When prompted for partition length, enter a value in MB sufficient to hold the BlueCat Linux kernel image to be installed. A reasonable value here is 5MB. When prompted for the partition name, enter `kernel`. When prompted for the type of the partition, enter `Apple_HFS`.
  - d. Create a partition in which the root file system will reside. To do this, enter `c` and follow the on-screen instructions.
  - e. Write the updated partition table to disk using the `w` command
  - f. Quit the `mac-fdisk` utility by entering `q`.
4. Use the BLOSH `read` command to download the KDI created in Step 1 above onto the target:

```
> set FILE tftp diskboot.kdi
> set IF eth0
> set IP <target_board_IP>
> set HOST <development_host_IP>
> read /diskboot.kdi
```

5. Format the bootable partition created in Step 2c, mount it, copy the KDI onto it, and unmount the partition:

```
> exec hformat /dev/sda2
> exec hmount /dev/sda2
> exec hcopy /diskboot.kdi :
> exec humount
```

6. Install the root file system on to the hard disk partition created in Step 2d. The example that follows uses the prebuilt `developer.tar` file system image:

```
> exec mke2fs /dev/sda3
> mount /dev/sda3 /mnt
> set FILE tftp developer.tar
> cd /mnt
> ntar
> cd /
> umount /mnt
```

The installation is complete. To boot the installed BlueCat Linux system from a hard disk, reset the target, start Open Firmware, and enter the following command at the Open Firmware prompt:

```
0 > boot hd:2,diskboot.kdi
```

---

## Booting BlueCat Linux from a CD-ROM

### Booting from a CD-ROM Overview

A CD-ROM bootable by the Open Firmware must have the following attributes:

- Hybrid HFS/ISO9660 file system
- MAC-style partition table
- Special (“blessed”) directory
- CHRP boot script
- HFS CREATOR/TYPED mapping

A bootable CD-ROM with a BlueCat Linux system installed on it contains the files listed in Table 2-1.

**Table 2-1: Bootable CD-ROM Files**

File	Description
/boot/ofboot.b	CHRP boot script, invoked by Open Firmware
/boot/hfs.map	HFS CREATOR/TYPED mapping file
/boot/cdrom.kdi	BlueCat Linux kernel and RFS
/ <i>&lt;demo&gt;</i> .iso	A BlueCat Linux system (such as <i>showcase demo system</i> ) root file system in ISO9660 format

The CD-ROM image is created by the standard Linux `mkisofs` tool.

---

**NOTE:** `mkisofs` is not included in the BlueCat Linux distribution. Unless available on the host, the user must install `mkisofs` from the Internet.

---

Upon boot-up, Open Firmware executes the `ofboot.b` script, which in turn loads and starts up the `cdrom.kdi` image. `cdrom.kdi` boots up as a regular BlueCat Linux KDI. Once the root file system is mounted (from RAM disk), a `.bashrc` script is invoked. This script contains commands to mount the CD-ROM and then mounts the ISO image from the CD-ROM, using the `loop` device driver. Then, `chroot` is invoked to change the root file system to the one mounted from the ISO image.

All these steps are performed transparently to the user, the net result being that BlueCat Linux has booted from the CD-ROM and the root file system is also mounted from the CD-ROM (from the ISO image of the particular BlueCat Linux embedded system).

Note that the use of a separate ISO image for the ultimate root file system (vs. having a root file system be part of the main CD tree mountable in one step) is a necessity. The problem is in creating device nodes on the root file system, which would require the superuser privileges if the nodes were in the main CD tree that is created by the standard `mkisofs` tool. The change-root approach described above is to overcome this potential drawback by limiting the device nodes to the ISO image that is created by the BlueCat Linux `mkrootfs` tool (which does not require the superuser privileges).

## Booting a BlueCat Linux Embedded System from a CD-ROM

To create a bootable CD-ROM with a BlueCat Linux embedded system installed on it, perform the steps below. This example uses the `showcase` demo system root file system image (`showcase.iso`) for demonstration. It can be replaced with the ISO9660 image of the root file system of any particular embedded application.

1. On the development host, create a BlueCat Linux KDI that will be booted from the CD-ROM. Refer to Appendix A, “Configuration Files Examples” for the full text of an example kernel configuration file and the root file system spec file that can be used. Appendix A, “Configuration Files Examples” lists the full text of the `.bashrc` file that is put in the root file system image.

Assuming the kernel and root file system images have been built, use the following command to create the KDI:

```
BlueCat:~$ mkboot -m -k cdrom.disk -f cdrom.rfs \
cdrom.kdi
```

2. On the development host, create a directory tree of the following structure:

File	Description
<code>&lt;user_directory&gt;/</code>	User-defined directory
<code>- boot/</code>	Directory containing the configuration files and bash script used for creating a bootable CD-ROM
<code>-- ofboot.b</code>	CHRP boot script, invoked by Open Firmware
<code>- -hfs.map</code>	HFS CREATOR/TYPED mapping file
<code>-- cdrom.kdi</code>	BlueCat Linux kernel and RFS
<code>- showcase.iso</code>	A BlueCat Linux system (such as the <code>showcase</code> demo system) root file system in ISO9660 format

Appendix A, “Configuration Files Examples” includes the full texts of the `hfs.map` and `ofboot.b` files mentioned above.

3. Create the bootable ISO image by executing the following command:

```
bash$ mkisofs -r -T --netatalk -hfs -probe -map \  
<user_directory>/boot/hfs.map -part \  
-no-desktop -hfs-bleed \  
<user_directory>/boot -hfs-volid BlueCat -o \  
cdboot.iso <user_directory>
```

4. Burn the BlueCat Linux image created in the previous step to a CD-R(W) disk using special software.

The installation of the BlueCat Linux `showcase` demo system on a CD-ROM is complete. To boot the `showcase` demo system from a CD-ROM, insert the CD-ROM into the CD drive of the Apple Power Mac G5 target and reset the target holding the `C` key pressed on the keyboard.

# *Kernel Configuration Options*

The pmac\_g5 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 pmac\_g5 BSP Distribution” below. Boldfaced entries in the tables represent subordinate menus. Italicized entries represent comments.

**Table 3-1: BlueCat Linux Default Configuration for the pmac\_g5 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”
Table 3-6: “Platform Options”
Table 3-7: “Bus Options”
Table 3-8: “Advanced Setup”
Table 3-9: “Memory Technology Devices (MTD)”
Table 3-10: “Plug and Play Support”
Table 3-11: “Block Devices”
Table 3-12: “Multidevice Support (RAID and LVM)”
Table 3-13: “ATA/ATAPI/MFM/RLL Support”
Table 3-14: “SCSI Device Support”
Table 3-15: “Fusion MPT Device Support”
Table 3-16: “IEEE 1394 (FireWire) Support (Experimental)”

**Table 3-1: BlueCat Linux Default Configuration for the pmac\_g5 BSP Distribution (Continued)**

<b>Table Number and Configuration Parameter</b>
Table 3-17: "I2O Device Support"
Table 3-18: "Networking Support"
Table 3-19: "ISDN Subsystem"
Table 3-20: "Graphics Support"
Table 3-21: "Input Device Support"
Table 3-22: "Macintosh Device Drivers"
Table 3-23: "Character Devices"
Table 3-24: "Multimedia Devices"
Table 3-25: "File Systems"
Table 3-26: "Sound"
Table 3-27: "USB Support"
Table 3-28: "Kernel Hacking"
Table 3-29: "Security Options"
Table 3-30: "Cryptographic Options"

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

<b>Description</b>	<b>Setting</b>
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	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	is not set
Sysctl support	is not set
Kernel log buffer size (16 => 64KB, 17 => 128KB)	17
Kernel <code>.config</code> support	is not set
Enable access to <code>.config</code> through <code>/proc/ikconfig</code>	is not set
<b>Remove Kernel Features (for Embedded Systems)</b>	
Load all symbols for debugging/kksymoops	Y
Enable futex support	Y
Enable eventpoll support	Y
No-op I/O scheduler	Y
Anticipatory I/O scheduler	Y
Deadline I/O scheduler	Y
<b>CODETEST device driver configuration</b>	is not set

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

Description	Setting
Enable loadable module support	Y
Module unloading	Y
Forced module unloading	is not set

**Table 3-4: Loadable Module Support (Continued)**

Description	Setting
Module versioning support (Experimental)	Y
Automatic kernel module loading	is not set

**Table 3-5: Processor**

Description	Setting
<b>Processor Type (POWER4 and 970 (G5))</b>	
6xx/7xx/74xx/8260	is not set
40x	is not set
44x	is not set
POWER3	is not set
POWER4 and 970 (G5)	Y
8xx	is not set
AltiVec support	is not set
CPU frequency scaling	is not set

**Table 3-6: Platform Options**

Description	Setting
<b>Machine Type (CHRP/PowerMac/PReP)</b>	
CHRP/PowerMac/PReP	Y
Amiga—APUS	is not set
Cogent—Willow	is not set
Force—PowerCore	is not set
Force—PowerPMC250	is not set
Galileo—EV-64260-BP	is not set

**Table 3-6: Platform Options (Continued)**

Description	Setting
IBM—Spruce	is not set
Motorola—LoPEC	is not set
Motorola—MCPN765	is not set
Motorola—MVME5100	is not set
Motorola—PowerPlus	is not set
Motorola—PrPMC750	is not set
Motorola—PrPMC800	is not set
Motorola—Sandpoint	is not set
SBS—Adirondack	is not set
SBS—K2	is not set
SBS—Palomar4	is not set
Synergy—Gemini	is not set
EST8260	is not set
SBS8260	is not set
RPXSUPER	is not set
TQM8260	is not set
Symmetric multiprocessing support	is not set
Preemptible kernel	Y
High memory support	is not set
Kernel support for ELF binaries	Y
Kernel support for MISC binaries	is not set
Support for Open Firmware device tree in <code>/proc</code>	Y
Support for RunTime Abstraction Services (RTAS) in <code>/proc</code>	is not set
Support for PReP Residual Data	is not set
Default boot loader kernel arguments	is not set

**Table 3-7: Bus Options**

Description	Setting
Support for ISA bus hardware	is not set
Legacy <code>/proc/pci</code> interface	is not set
PCI device name database	is not set
Support for hot-pluggable devices	is not set
<b>Parallel Port Support</b>	
Parallel port support	is not set

**Table 3-8: Advanced Setup**

Description	Setting
Prompt for advanced kernel configuration options	is not set
<i>--- Default settings for advanced configuration options are used.</i>	

**Table 3-9: Memory Technology Devices (MTD)**

Description	Settings
Memory Technology Device (MTD) support	is not set

**Table 3-10: Plug and Play Support**

Description	Settings
Plug and Play support	is not set

**Table 3-11: Block Devices**

Description	Settings
Normal floppy disk support	is not set
Compaq SMART2 support	is not set
Compaq Smart Array 5xxx support	is not set
Mylex DAC960/DAC1100 PCI RAID Controller support	is not set
Micro Memory MM5415 Battery Backed RAM support (Experimental)	is not set
Loopback device support	is not set
Network block device support	is not set
RAM disk support	Y
Default RAM disk size	8192
Initial RAM disk (initrd) support	is not set
BlueCat Linux RFS support	Y
Support for Large Block Devices	is not set

**Table 3-12: Multidevice Support (RAID and LVM)**

Description	Settings
Multiple devices driver support (RAID and LVM)	is not set

**Table 3-13: ATA/ATAPI/MFM/RLL Support**

Description	Settings
ATA/ATAPI/MFM/RLL support	Y
Enhanced IDE/MFM/RLL disk/cdrom/tape/floppy support	Y
<i>--- Please see Documentation/ide.txt for help/info on IDE drives.</i>	
Include IDE/ATA-2 DISK support	Y
Use multimode by default	is not set

**Table 3-13: ATA/ATAPI/MFM/RLL Support (Continued)**

<b>Description</b>	<b>Settings</b>
Auto-Geometry Resizing support	is not set
Include IDE/ATAPI CD-ROM support	Y
Include IDE/ATAPI tape support (Experimental)	is not set
Include IDE/ATAPI floppy support	is not set
SCSI emulation support	is not set
IDE taskfile access	is not set
IDE taskfile IO (Experimental)	is not set
<i>--- IDE chipset support/bug fixes</i>	
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
Winbond SL82c105 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	Y
Enable DMA only for disks	is not set
ATA Work(s) In Progress (Experimental)	is not set
AEC62XX chipset support	is not set
ALI M15x3 chipset support	is not set
AMD and nVidia 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

**Table 3-13: ATA/ATAPI/MFM/RLL Support (Continued)**

<b>Description</b>	<b>Settings</b>
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
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
SLC90E66 chipset support	is not set
Tekram TRM290 chipset support	is not set
VIA82CXXX chipset support	is not set
Built-in Power Mac IDE support	Y
Probe internal ATA/100 (Kauai) first	Y
Power Mac IDE DMA support	Y
Blink laptop LED on drive activity	is not set
Use DMA by default	Y
Ignore word93 validation bits	is not set

**Table 3-14: SCSI Device Support**

<b>Description</b>	<b>Settings</b>
SCSI device support	Y
legacy /proc/scsi/ support	is not set
<i>--- SCSI support type (disk, tape, CD-ROM)</i>	
SCSI disk support	Y
SCSI tape support	is not set

**Table 3-14: SCSI Device Support (Continued)**

Description	Settings
SCSI OnStream SC-x0 tape support	is not set
SCSI CD-ROM support	is not set
SCSI generic support	is not set
<i>--- Some SCSI devices (for example, CD jukebox) support multiple LUNs</i>	
Probe all LUNs on each SCSI device	is not set
Build with SCSI REPORT LUNS support	is not set
Verbose SCSI error reporting (kernel size +=12K)	is not set
SCSI logging facility	is not set
<b>SCSI low-level drivers</b>	
3ware Hardware ATA-RAID support	is not set
ACARD SCSI support	is not set
Adaptec AACRAID support (Experimental)	is not set
Adaptec AIC7xxx Fast -> U160 support (New Driver)	is not set
Adaptec AIC7xxx support (old driver)	is not set
Adaptec AIC79xx U320 support	is not set
AdvanSys SCSI support	is not set
AMI MegaRAID support	is not set
Serial ATA (SATA) support	Y
ServerWorks Frodo/Apple K2 SATA support (Experimental)	Y
Intel PIIX/ICH SATA support	is not set
Promise SATA support	is not set
VIA SATA support	is not set
BusLogic SCSI support	is not set
Compaq Fibre Channel 64-bit/66Mhz HBA support	is not set
DMX3191D SCSI support	is not set
EATA ISA/EISA/PCI (DPT and generic EATA/DMA-compliant boards) support	is not set

**Table 3-14: SCSI Device Support (Continued)**

Description	Settings
EATA-PIO (old DPT PM2001, PM2012A) support	is not set
Future Domain 16xx SCSI/AHA-2920A support	is not set
Intel/ICP (former GDT SCSI Disk Array) RAID Controller support	is not set
IBM ServeRAID support	is not set
Initio INI-A100U2W support	is not set
SYM53C8XX Version 2 SCSI support	is not set
Qlogic ISP SCSI support	is not set
Qlogic ISP FC SCSI support	is not set
Qlogic QLA 1280 SCSI support	is not set
Tekram DC395(U/UW/F) and DC315(U) SCSI support (Experimental)	is not set
Workbit NinjaSCSI-32Bi/UDE support	is not set
SCSI debugging host simulator	is not set
MESH (Power Mac internal SCSI) support	is not set
53C94 (Power Mac external SCSI) support	is not set

**Table 3-15: Fusion MPT Device Support**

Description	Settings
Fusion MPT (base + ScsiHost) drivers	is not set

**Table 3-16: IEEE 1394 (FireWire) Support (Experimental)**

Description	Settings
IEEE 1394 (FireWire) support (Experimental)	is not set

**Table 3-17: I2O Device Support**

Description	Settings
I2O support	is not set

**Table 3-18: Networking Support**

Description	Settings
<b>Networking options</b>	Y
Packet socket	Y
Packet socket: mmaped IO	is not set
Netlink device emulation	is not set
UNIX domain sockets	is not set
PF_KEY sockets	is not set
TCP/IP networking	Y
IP: multicasting	is not set
IP: advanced router	is not set
IP: kernel level autoconfiguration	is not set
IP: tunneling	is not set
IP: GRE tunnels over IP	is not set
IP: ARP daemon support (Experimental)	is not set
IP: TCP Explicit Congestion Notification support	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
DECnet support	is not set
802.1d Ethernet Bridging	is not set

**Table 3-18: Networking Support (Continued)**

Description	Settings
<b>SCTP Configuration (Experimental)</b>	
The SCTP protocol (Experimental)	is not set
Asynchronous Transfer Mode (ATM)	is not set
802.1Q VLAN 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	is not set
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
Network device support	Y
<b>ARCnet devices</b>	
ARCnet support	is not set
Dummy net driver support	is not set
Bonding driver support	is not set
EQL (serial line load balancing) support	is not set
Universal TUN/TAP device driver support	is not set
<b>Ethernet (10 or 100Mbit)</b>	

**Table 3-18: Networking Support (Continued)**

Description	Settings
Ethernet (10 or 100Mbit)	Y
Generic Media Independent Interface device support	is not set
MACE (Power Mac Ethernet) support	is not set
BMAC (G3 Ethernet) support	is not set
National DP83902AV (Oak Ethernet) support	is not set
Sun Happy Meal 10/100baseT support	is not set
Sun GEM support	Y
3COM cards	is not set
<b>Tulip family network device support</b>	
“Tulip” family network device support	is not set
HP 10/100VG PCLAN (ISA, EISA, PCI) support	is not set
EISA, VLB, PCI and on-board controllers	is not set
<b>Ethernet (1000 Mbit)</b>	
Alteon AceNIC/3Com 3C985/NetGear GA620 Gigabit support	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)	is not set
Realtek 8169 Gigabit Ethernet support	is not set
SiS190 Gigabit Ethernet support (Experimental)	is not set
Marvell Yukon chipset/SysKonnect SK-98xx support	is not set
Broadcom Tigon3 support	is not set
<b>Ethernet (10000 Mbit)</b>	
Intel® PRO/10GbE support	is not set
<b>IBM On-chip net device</b>	is not set

**Table 3-18: Networking Support (Continued)**

Description	Settings
Fiber Distributed Data Interface (FDDI) driver support	is not set
High Performance Parallel Interface (HIPPI) driver support (Experimental)	is not set
Point-to-Point Protocol (PPP) support	is not set
Serial Line Internet Protocol (SLIP) support	is not set
<b>Wireless LAN (Non-Ham Radio)</b>	
Wireless LAN drivers (non-ham radio) and Wireless Extensions	is not set
<b>Token Ring devices</b>	
Token Ring driver support	is not set
Fibre Channel driver support	is not set
Red Creek Hardware VPN (Experimental)	is not set
Traffic Shaper (Experimental)	is not set
<b>WAN interfaces</b>	
WAN interfaces support	is not set
<b>Amateur Radio support</b>	
Amateur radio support	is not set
<b>IrDA (infrared) support</b>	
IrDA subsystem support	is not set
<b>Bluetooth support</b>	
Bluetooth subsystem support	is not set

**Table 3-19: ISDN Subsystem**

Description	Settings
ISDN support	is not set

**Table 3-20: Graphics Support**

Description	Settings
Support for frame buffer devices	Y
CyberPro 2000/2010/5000 support	is not set
Open Firmware frame buffer device support	Y
Apple “control” display support	is not set
Apple “platinum” display support	is not set
Apple “valkyrie” display support	is not set
Chips 65550 display support	is not set
IMS Twin Turbo display support	is not set
S3 Trio display support	is not set
VGA 16-color graphics support	is not set
nVidia Riva support	is not set
Matrox acceleration	is not set
ATI Radeon display support	Y
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
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>	
VGA text console	is not set
MDA text console (dual-headed) (Experimental)	is not set
Frame Buffer console support	Y
Select compiled-in fonts	is not set

**Table 3-20: Graphics Support (Continued)**

Description	Settings
<b>Logo configuration</b>	
Bootup logo	is not set

**Table 3-21: Input Device Support**

Description	Settings
<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	Y
Event debugging	is not set
<i>--- Input I/O drivers</i>	
Gameport support	is not set
Serial I/O support (needed for keyboard and mouse)	Y
i8042 PC keyboard controller	is not set
Serial port line discipline	is not set
ct82c710 auxiliary port controller	is not set
PCI PS/2 keyboard and PS/2 mouse controller	is not set
<i>--- Input Device Drivers</i>	
Keyboards	Y
AT keyboard support	is not set

**Table 3-21: Input Device Support (Continued)**

Description	Settings
Sun Type 4 and Type 5 keyboard support	is not set
XT keyboard support	is not set
Newton keyboard	is not set
Mice	is not set
PS/2 mouse	is not set
Serial mouse	is not set
Joysticks	is not set
Touchscreens	is not set
Misc	is not set

**Table 3-22: Macintosh Device Drivers**

Description	Settings
Support for CUDA-based Power Macs	is not set
Support for PMU-based Power Macs	Y
Power management support for PowerBooks	is not set
Backlight control for LCD screens	is not set
Support for Power Mac floppy	is not set
Support for Power Mac serial ports (Obsolete Driver)	is not set
Apple Desktop Bus (ADB) support	is not set
Support for mouse button 2+3 emulation	Y
Support for thermal management on Power Mac G5	Y

**Table 3-23: Character Devices**

Description	Settings
Virtual terminal	Y
Support for console on virtual terminal	Y
Nonstandard serial port support	Y
<b>Serial drivers</b>	
8250/16550 and compatible serial support	is not set
<i>--- Non-8250 serial port support</i>	
Power Mac z85c30 ESCC support	is not set
Unix98 PTY support	Y
Maximum number of Unix98 PTYs in use (0-2048)	256
<b>I2C support</b>	
I2C support	Y
I2C device interface	Y
<b>I2C Algorithms</b>	
I2C bit-banging interfaces	Y
I2C PCF 8584 interfaces	is not set
<b>I2C Hardware Bus support</b>	
ALI 1535	is not set
ALI 15x3	is not set
AMD 756/766	is not set
AMD 8111	is not set
Intel 801	is not set
Intel 810/815	is not set
Power Mac Keywest I2C interface	Y
Nvidia Nforce2	is not set
Intel PIIX4	is not set

**Table 3-23: Character Devices (Continued)**

Description	Settings
S3/VIA (Pro)Savage	is not set
S3 Savage 4	is not set
National Semiconductor SCx200 ACCESS.bus	is not set
SiS 5595	is not set
SiS 630/730	is not set
SiS 96x	is not set
VIA 82C586B	is not set
VIA 82C596/82C686/823x	is not set
Voodoo 3	is not set
<b>I2C Hardware Sensors Chip support</b>	
Analog Devices ADM1021 and compatibles	is not set
EEPROM (DIMM) reader	is not set
ITE IT87xx and compatibles	is not set
National Semiconductor LM75 and compatibles	is not set
National Semiconductor LM78 and compatibles	is not set
National Semiconductor LM85 and compatibles	is not set
VIA686A	is not set
Winbond W83781D, W83782D, W83783S, W83627HF, Asus AS99127F	is not set
<b>Mice</b>	
Bus mouse 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

**Table 3-23: Character Devices (Continued)**

Description	Settings
/dev/nvram support	is not set
Generic /dev/rtc emulation	is not set
Double Talk PC internal speech card support	is not set
Siemens R3964 line discipline	is not set
Applicom intelligent fieldbus card support	is not set
<b>Ftape, the floppy tape device driver</b>	
Ftape (QIC-80/Travan) support	is not set
/dev/agpgart (AGP support)	is not set
Direct Rendering Manager (XFree86 4.1.0 and higher DRI support)	is not set
RAW driver (/dev/raw/rawN)	is not set

**Table 3-24: Multimedia Devices**

Description	Settings
Video for Linux	
<b>Digital Video Broadcasting Devices</b>	
DVB for Linux	is not set

**Table 3-25: File Systems**

Description	Setting
Second extended file system support	Y
Ext2 extended attributes	Y
Ext2 POSIX Access Control Lists	is not set
Ext2 Security Labels	is not set
Ext3 journalling file system support	is not set

**Table 3-25: File Systems (Continued)**

Description	Setting
Reiserfs support	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	is not set
Quota support	is not set
Kernel automounter support	is not set
Kernel automounter version 4 support (also supports v3)	is not set
<b>CD-ROM/DVD File Systems</b>	
ISO 9660 CDROM file system support	is not set
UDF file system support	is not set
<b>DOS/FAT/NT File Systems</b>	
DOS FAT file system support	is not set
NTFS file system support	is not set
<b>Pseudo File Systems</b>	
/proc file system support	Y
/dev file system support (Obsolete)	is not set
/dev/pts file system for Unix98 PTYs	is not set
Virtual memory file system support (former shm file system)	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
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

**Table 3-25: File Systems (Continued)**

<b>Description</b>	<b>Setting</b>
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
<b>Network File Systems</b>	
NFS file system support	Y
Provide NFSv3 client support	Y
Provide NFSv4 client support (Experimental)	Y
Allow direct I/O on NFS files (Experimental)	is not set
NFS server support	is not set
Provide RPCSEC_GSS authentication (Experimental)	is not set
SMB file system support (to mount Windows shares, etc.)	is not set
CIFS support (advanced network file system for Samba, Window and other CIFS complix	is not set
NCP file system support (to mount NetWare volumes)	is not set
Coda file system support (advanced network file system)	is not set
InterMezzo file system support (replicating file system) (Experimental)	is not set
Andrew File System support (AFS) (Experimental)	is not set
<b>Partition Types</b>	
Advanced partition selection	Y
Acorn partition support	is not set
Alpha OSF partition support	is not set
Amiga partition table support	is not set
Atari partition table support	is not set
Macintosh partition map support	Y

**Table 3-25: File Systems (Continued)**

Description	Setting
PC BIOS (MS-DOS partition tables) support	is not set
Windows Logical Disk Manager (Dynamic Disk) support	is not set
NEC PC-9800 partition table support	is not set
SGI partition support	is not set
Ultrix partition table support	is not set
Sun partition tables support	is not set
EFI GUID Partition support	is not set

**Table 3-26: Sound**

Description	Setting
Sound card support	is not set

**Table 3-27: USB Support**

Description	Setting
Support for 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	Y
OHCI HCD support	Y
UHCI HCD (most Intel and VIA) support	is not set
<i>---USB Device Class drivers</i>	

**Table 3-27: USB Support (Continued)**

Description	Setting
USB Bluetooth TTY support	is not set
USB modem (CDC ACM) support	is not set
USB printer support	is not set
USB mass storage support	is not set
<i>---USB Human Interface Devices (HIDs)</i>	
USB Human Interface Device (full HID) support	Y
HID input layer support	Y
Force feedback support (Experimental)	is not se
/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
X-Box gamepad support	is not set
<i>---USB Imaging devices</i>	
USB Mustek MDC800 Digital Camera support (Experimental)	is not set
USB Scanner support	is not set
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 adapters</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

**Table 3-27: USB Support (Continued)**

Description	Setting
Multipurpose USB Networking Framework	is not set
<i>---USB port drivers</i>	
<b>USB Serial Converter support</b>	
USB Serial Converter support	is not set
<i>---USB Miscellaneous drivers</i>	
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
Tieman Voyager USB Braille display support (Experimental)	is not set
USB LCD driver support	is not set
USB testing driver (Development)	is not set
Support for USB Gadgets	is not set

**Table 3-28: Kernel Hacking**

Description	Setting
Kernel debugging	Y
Debug memory allocations	is not set
Magic SysRq key	Y
Spinlock debugging	is not set
Sleep-inside-spinlock checking	is not set
Include kgdb kernel debugger	is not set
BlueCat Linux kernel debugger	is not set
Sleep-inside-spinlock checking	is not set
Include xmon kernel debugger	is not set
Include BDI-2000 user context switcher	is not set

---

**Table 3-28: Kernel Hacking (Continued)**

Description	Setting
Compile the kernel with debug info	is not set
Support for early boot text console (BootX or Open Firmware only)	Y

**Table 3-29: Security Options**

Description	Setting
Enable different security models	is not set

**Table 3-30: Cryptographic Options**

Description	Setting
Cryptographic API	is not set



This chapter provides information about BlueCat Linux demo systems supported by the `pmac_g5` BSP.

---

## Demo Systems

Table 4-1 lists the demo systems supported in the `pmac_g5` BSP distribution, the boot devices supported by each demo system, and their respective RAM and ROM requirements.

**Table 4-1: Demo Systems Supported by `pmac_g5` BSP**

Demo	Boot Devices Supported by Default	ROM Requirements	RAM Requirements
<code>developer</code>	Network (using OS loader)	5099.5 KB	28534 KB
<code>osloader</code>	Network (using Open Firmware)	1234 KB	14922 KB
<code>showcase</code>	Network (using OS loader)	4057 KB	25168 KB

### developer Demo System

The `developer` demo system is a package consisting of the functionalities of `shell`, `ftp`, `ping`, and `gdb`. 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 system 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 pmac\_g5 BSP and provides important information about them.

**Table 5-1: Device Drivers Supported by the pmac\_g5 BSP**

Hardware Device	Device Drivers	Location in Source Tree	Kernel Configuration Options	Notes
Video Card NVIDIA GeForce FX 5200 Ultra	offb.c	drivers/video	CONFIG_FB_OF	
Ethernet 10Mb/100Mb/1Gb MAC interface with PHY	sungem.c	drivers/net	CONFIG_SUNGEM	
USB Host PCI USB controller	ohci-hcd.c ehci-hcd.c	drivers/usb/host	CONFIG_OHCI_HCD CONFIG_EHCI_HCD	
Hard Disk Serial ATA hard disk	pmac.c sata_svw.c	drivers/ide/ppc drivers/scsi	CONFIG_BLK_DEV_IDE_PMAC CONFIG_SCSI_SATA_SVW	
CD-ROM Ultra DMA ATA/100 CD-ROM device	ide-cd.c	drivers/ide	CONFIG_BLK_DEV_IDECD	

**Table 5-1: Device Drivers Supported by the pmac\_g5 BSP (Continued)**

<b>Hardware Device</b>	<b>Device Drivers</b>	<b>Location in Source Tree</b>	<b>Kernel Configuration Options</b>	<b>Notes</b>
Keyboard USB Apple keyboard	hid.c hid-core.c hid-input.c	drivers/usb/input	CONFIG_USB_HID	
Mouse USB Apple Mouse	hid.c hid-core.c hid-input.c	drivers/usb/input	CONFIG_USB_HID	
Fan Speed Control	therm_pm72.c	drivers/macintosh	CONFIG_THERM_PM72	

This chapter describes the new features of this release.

---

## **Kernel Version**

BlueCat Linux release 5.0 is based on the Linux kernel version 2.6.0 available from [www.kernel.org](http://www.kernel.org).

---

## **BlueCat Linux Cross-Development Tools**

BlueCat Linux Release 5.0 supports the following versions of GNU toolchain:

- `gcc` version 3.2.2
- `binutils` version 2.13

---

## **Supported Cross-Development Hosts**

The BlueCat Linux development environment requires an installed, functional cross-development host with an Apple Power Mac G5 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 9.0



This chapter describes known problems and limitations of this release.

---

## Apple Power Mac G5 Target Platform 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 5.0. This limitation is due to a defect in the Linux kernel 2.6.0, described by official kernel maintainer Andrew Morton ([www.lkml.org](http://www.lkml.org)):

*“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.”*

- The BlueCat Linux kernel debugger `kdbg` is not supported. This is due to a limitation of the Apple Power Mac G5 platform, which provides no serial port. Since debugging of BlueCat Linux over a serial line requires a dedicated serial port on the target, support of the kernel debugger on the Apple Power Mac G5 platform is not possible.
- Open Firmware does not support booting of large KDIs (with size above 4 MB). Use the BlueCat Linux OS loader to boot large KDIs via network.

---

## User Documentation Updates

- Chapter 4, “BlueCat Linux Demo Systems” in the *BlueCat Linux User’s Guide* provides incorrect values for the Storage and RAM requirements for the `developer` demo system. The correct requirements for `developer` are:
  - Storage: Medium
  - RAM: Large
- 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.

---

## APPENDIX A *Configuration Files Examples*

This appendix includes the contents of the configuration files and `.bashrc` script used for creating a bootable CD-ROM with a BlueCat Linux embedded system installed on it.

---

### cdrom.config File Example

```
#
# Automatically generated make config: don't edit
#
CONFIG_MMU=y
CONFIG_RWSEM_XCHGADD_ALGORITHM=y
CONFIG_HAVE_DEC_LOCK=y
CONFIG_PPC=y
CONFIG_PPC32=y
CONFIG_GENERIC_NVRAM=y

#
# Code maturity level options
#
CONFIG_EXPERIMENTAL=y
CONFIG_CLEAN_COMPILE=y
CONFIG_STANDALONE=y
CONFIG_BROKEN_ON_SMP=y

#
# General setup
#
CONFIG_SWAP=y
CONFIG_SYSVIPC=y
# CONFIG_BLUECAT_LOADER is not set
# CONFIG_BLUECAT_IGNORE_PRINTK is not set
# CONFIG_BLUECAT_MEMSIZE is not set
# CONFIG_BSD_PROCESS_ACCT is not set
# CONFIG_SYSCTL is not set
CONFIG_LOG_BUF_SHIFT=17
# CONFIG_IKCONFIG is not set
CONFIG_EMBEDDED=y
CONFIG_KALLSYMS=y
CONFIG_FUTEX=y
CONFIG_EPOLL=y
```

```
CONFIG_IOSCHED_NOOP=y
CONFIG_IOSCHED_AS=y
CONFIG_IOSCHED_DEADLINE=y
# CONFIG_CODETEST is not set

#
# Loadable module support
#
# CONFIG_MODULES is not set

#
# Processor
#
# CONFIG_6xx is not set
# CONFIG_40x is not set
# CONFIG_44x is not set
# CONFIG_POWER3 is not set
CONFIG_POWER4=y
# CONFIG_8xx is not set
# CONFIG_ALTIVEC is not set
# CONFIG_CPU_FREQ is not set
CONFIG_PPC64BRIDGE=y
CONFIG_PPC_STD_MMU=y

#
# Platform options
#
CONFIG_PPC_MULTIPLATFORM=y
# CONFIG_APUS is not set
# CONFIG_WILLOW is not set
# CONFIG_PCORE is not set
# CONFIG_POWERPMC250 is not set
# CONFIG_EV64260 is not set
# CONFIG_SPRUCE is not set
# CONFIG_LOPEC is not set
# CONFIG_MCPN765 is not set
# CONFIG_MVME5100 is not set
# CONFIG_PPLUS is not set
# CONFIG_PRPCM750 is not set
# CONFIG_PRPCM800 is not set
# CONFIG_SANDPOINT is not set
# CONFIG_ADIR is not set
# CONFIG_K2 is not set
# CONFIG_PAL4 is not set
# CONFIG_GEMINI is not set
# CONFIG_EST8260 is not set
# CONFIG_SBS8260 is not set
# CONFIG_RPX6 is not set
# CONFIG_TQM8260 is not set
CONFIG_PPC_CHRP=y
CONFIG_PPC_PMAC=y
CONFIG_PPC_PREP=y
CONFIG_PPC_OF=y
CONFIG_PPCBUG_NVRAM=y
# CONFIG_SMP is not set
CONFIG_PREEMPT=y
# CONFIG_HIGHMEM is not set
CONFIG_KERNEL_ELF=y
CONFIG_BINFMT_ELF=y
# CONFIG_BINFMT_MISC is not set
CONFIG_PROC_DEVICETREE=y
# CONFIG_PPC_RTAS is not set
# CONFIG_PREP_RESIDUAL is not set
```

```
# CONFIG_CMDLINE_BOOL is not set

#
# Bus options
#
# CONFIG_ISA is not set
CONFIG_GENERIC_ISA_DMA=y
CONFIG_PCI=y
CONFIG_PCI_DOMAINS=y
# CONFIG_PCI_LEGACY_PROC is not set
# CONFIG_PCI_NAMES is not set
# CONFIG_HOTPLUG is not set

#
# Parallel port support
#
# CONFIG_PARPORT is not set

#
# Advanced setup
#
# CONFIG_ADVANCED_OPTIONS is not set

#
# Default settings for advanced configuration options are used
#
CONFIG_HIGHMEM_START=0xfe000000
CONFIG_LOWMEM_SIZE=0x30000000
CONFIG_KERNEL_START=0xc0000000
CONFIG_TASK_SIZE=0x80000000
CONFIG_BOOT_LOAD=0x00800000

#
# Generic Driver Options
#

#
# Memory Technology Devices (MTD)
#
# CONFIG_MTD is not set

#
# Plug and Play support
#
# CONFIG_PNP is not set

#
# Block devices
#
# CONFIG_BLK_DEV_FD is not set
# CONFIG_BLK_CPQ_DA is not set
# CONFIG_BLK_CPQ_CISS_DA is not set
# CONFIG_BLK_DEV_DAC960 is not set
# CONFIG_BLK_DEV_UMEM is not set
CONFIG_BLK_DEV_LOOP=y
# CONFIG_BLK_DEV_CRYPTLOOP is not set
# CONFIG_BLK_DEV_NBD is not set
CONFIG_BLK_DEV_RAM=y
CONFIG_BLK_DEV_RAM_SIZE=8192
# CONFIG_BLK_DEV_INITRD is not set
CONFIG_BLUECAT_RFS=y
# CONFIG_LBD is not set
```

```
#
# Multi-device support (RAID and LVM)
#
# CONFIG_MD is not set

#
# ATA/ATAPI/MFM/RLL support
#
CONFIG_IDE=y
CONFIG_BLK_DEV_IDE=y

#
# Please see Documentation/ide.txt for help/info on IDE drives
#
# CONFIG_BLK_DEV_IDEDISK is not set
CONFIG_BLK_DEV_IDECD=y
# CONFIG_BLK_DEV_IDETAPE is not set
# CONFIG_BLK_DEV_IDEFLOPPY is not set
# CONFIG_BLK_DEV_IDESCSI is not set
# CONFIG_IDE_TASK_IOCTL is not set
# CONFIG_IDE_TASKFILE_IO is not set

#
# IDE chipset support/bugfixes
#
CONFIG_BLK_DEV_IDEPCI=y
# CONFIG_IDEPCI_SHARE_IRQ is not set
# CONFIG_BLK_DEV_OFFBOARD is not set
# CONFIG_BLK_DEV_GENERIC is not set
# CONFIG_BLK_DEV_OPTI621 is not set
# CONFIG_BLK_DEV_SL82C105 is not set
CONFIG_BLK_DEV_IDEDMA_PCI=y
# CONFIG_BLK_DEV_IDEDMA_FORCED is not set
CONFIG_IDEDMA_PCI_AUTO=y
# CONFIG_IDEDMA_ONLYDISK is not set
# CONFIG_IDEDMA_PCI_WIP is not set
CONFIG_BLK_DEV_ADMA=y
# CONFIG_BLK_DEV_AEC62XX is not set
# CONFIG_BLK_DEV_ALI15X3 is not set
# CONFIG_BLK_DEV_AMD74XX is not set
# CONFIG_BLK_DEV_CMD64X is not set
# CONFIG_BLK_DEV_TRIFLEX is not set
# CONFIG_BLK_DEV_CY82C693 is not set
# CONFIG_BLK_DEV_CS5520 is not set
# CONFIG_BLK_DEV_CS5530 is not set
# CONFIG_BLK_DEV_HPT34X is not set
# CONFIG_BLK_DEV_HPT366 is not set
# CONFIG_BLK_DEV_SCI200 is not set
# CONFIG_BLK_DEV_PIIX is not set
# CONFIG_BLK_DEV_NS87415 is not set
# CONFIG_BLK_DEV_PDC202XX_OLD is not set
# CONFIG_BLK_DEV_PDC202XX_NEW is not set
# CONFIG_BLK_DEV_SVWKS is not set
# CONFIG_BLK_DEV_SIIMAGE is not set
# CONFIG_BLK_DEV_SLC90E66 is not set
# CONFIG_BLK_DEV_TRM290 is not set
# CONFIG_BLK_DEV_VIA82CXXX is not set
CONFIG_BLK_DEV_IDE_PMAC=y
CONFIG_BLK_DEV_IDE_PMAC_ATA100FIRST=y
CONFIG_BLK_DEV_IDEDMA_PMAC=y
# CONFIG_BLK_DEV_IDE_PMAC_BLINK is not set
CONFIG_BLK_DEV_IDEDMA_PMAC_AUTO=y
CONFIG_BLK_DEV_IDEDMA=y
```

```
# CONFIG_IDEDMA_IVB is not set
CONFIG_IDEDMA_AUTO=y
# CONFIG_DMA_NONPCI is not set
# CONFIG_BLK_DEV_HD is not set

#
# SCSI device support
#
CONFIG_SCSI=y
CONFIG_SCSI_PROC_FS=y

#
# SCSI support type (disk, tape, CD-ROM)
#
CONFIG_BLK_DEV_SD=y
# CONFIG_CHR_DEV_ST is not set
# CONFIG_CHR_DEV_OSST is not set
CONFIG_BLK_DEV_SR=y
# CONFIG_BLK_DEV_SR_VENDOR is not set
# CONFIG_CHR_DEV_SG is not set

#
# Some SCSI devices (e.g. CD jukebox) support multiple LUNs
#
# CONFIG_SCSI_MULTI_LUN is not set
CONFIG_SCSI_REPORT_LUNS=y
# CONFIG_SCSI_CONSTANTS is not set
# CONFIG_SCSI_LOGGING is not set

#
# SCSI low-level drivers
#
# CONFIG_BLK_DEV_3W_XXXX_RAID is not set
# CONFIG_SCSI_ACARD is not set
# CONFIG_SCSI_AACRAID is not set
# CONFIG_SCSI_AIC7XXX is not set
# CONFIG_SCSI_AIC7XXX_OLD is not set
# CONFIG_SCSI_AIC79XX is not set
# CONFIG_SCSI_ADVANSYS is not set
# CONFIG_SCSI_MEGARAID is not set
CONFIG_SCSI_SATA=y
CONFIG_SCSI_SATA_SVW=y
# CONFIG_SCSI_ATA_PIIX is not set
# CONFIG_SCSI_SATA_PROMISE is not set
# CONFIG_SCSI_SATA_VIA is not set
# CONFIG_SCSI_BUSLOGIC is not set
# CONFIG_SCSI_CPQFCTS is not set
# CONFIG_SCSI_DM3191D is not set
# CONFIG_SCSI_EATA is not set
# CONFIG_SCSI_EATA_PIO is not set
# CONFIG_SCSI_FUTURE_DOMAIN is not set
# CONFIG_SCSI_GDTH is not set
# CONFIG_SCSI_IPS is not set
# CONFIG_SCSI_INIA100 is not set
# CONFIG_SCSI_SYM53C8XX_2 is not set
# CONFIG_SCSI_QLOGIC_ISP is not set
# CONFIG_SCSI_QLOGIC_FC is not set
# CONFIG_SCSI_QLOGIC_1280 is not set
# CONFIG_SCSI_DC395x is not set
# CONFIG_SCSI_NSP32 is not set
# CONFIG_SCSI_DEBUG is not set
# CONFIG_SCSI_MESH is not set
# CONFIG_SCSI_MAC53C94 is not set
```

```
#
# Fusion MPT device support
#
# CONFIG_FUSION is not set

#
# IEEE 1394 (FireWire) support (EXPERIMENTAL)
#
# CONFIG_IEEE1394 is not set

#
# I2O device support
#
# CONFIG_I2O is not set

#
# Networking support
#
CONFIG_NET=y

#
# Networking options
#
CONFIG_PACKET=y
# CONFIG_PACKET_MMAP is not set
# CONFIG_NETLINK_DEV is not set
CONFIG_UNIX=y
# CONFIG_NET_KEY is not set
CONFIG_INET=y
# CONFIG_IP_MULTICAST is not set
# CONFIG_IP_ADVANCED_ROUTER is not set
# CONFIG_IP_PNP is not set
# CONFIG_NET_IPIP is not set
# CONFIG_NET_IPGRE is not set
# CONFIG_ARPD is not set
# CONFIG_INET_ECN is not set
# CONFIG_SYN_COOKIES is not set
# CONFIG_INET_AH is not set
# CONFIG_INET_ESP is not set
# CONFIG_INET_IPCOMP is not set
# CONFIG_IPV6 is not set
# CONFIG_DECNET is not set
# CONFIG_BRIDGE is not set
# CONFIG_NETFILTER is not set

#
# SCTP Configuration (EXPERIMENTAL)
#
CONFIG_IPV6_SCTP__=y
# CONFIG_IP_SCTP is not set
# CONFIG_ATM is not set
# CONFIG_VLAN_8021Q is not set
# CONFIG_LLC2 is not set
# CONFIG_IPX is not set
# CONFIG_ATALK is not set
# CONFIG_X25 is not set
# CONFIG_LAPB is not set
# CONFIG_NET_DIVERT is not set
# CONFIG_ECONET is not set
# CONFIG_WAN_ROUTER is not set
# CONFIG_NET_FASTROUTE is not set
# CONFIG_NET_HW_FLOWCONTROL is not set
```

```
#
# QoS and/or fair queueing
#
# CONFIG_NET_SCHED is not set

#
# Network testing
#
# CONFIG_NET_PKTGEN is not set
CONFIG_NETDEVICES=y

#
# ARCnet devices
#
# CONFIG_ARCNET is not set
# CONFIG_DUMMY is not set
# CONFIG_BONDING is not set
# CONFIG_EQUALIZER is not set
# CONFIG_TUN is not set

#
# Ethernet (10 or 100Mbit)
#
CONFIG_NET_ETHERNET=y
# CONFIG_MII is not set
# CONFIG_MACE is not set
# CONFIG_BMAC is not set
# CONFIG_OAKNET is not set
# CONFIG_HAPPYMEAL is not set
CONFIG_SUNGEM=y
# CONFIG_NET_VENDOR_3COM is not set

#
# Tulip family network device support
#
# CONFIG_NET_TULIP is not set
# CONFIG_HP100 is not set
# CONFIG_NET_PCI is not set

#
# Ethernet (1000 Mbit)
#
# CONFIG_ACENIC is not set
# CONFIG_DL2K is not set
# CONFIG_E1000 is not set
# CONFIG_NS83820 is not set
# CONFIG_HAMACHI is not set
# CONFIG_YELLOWFIN is not set
# CONFIG_R8169 is not set
# CONFIG_SIS190 is not set
# CONFIG_SK98LIN is not set
# CONFIG_TIGON3 is not set

#
# Ethernet (10000 Mbit)
#
# CONFIG_IXGB is not set

#
# IBM On-chip net device
#
CONFIG_CRC32=y
```

```
# CONFIG_FDDI is not set
# CONFIG_HIPPI is not set
# CONFIG_PPP is not set
# CONFIG_SLIP is not set

#
# Wireless LAN (non-hamradio)
#
# CONFIG_NET_RADIO is not set

#
# Token Ring devices
#
# CONFIG_TR is not set
# CONFIG_NET_FC is not set
# CONFIG_RCPCI is not set
# CONFIG_SHAPER is not set

#
# Wan interfaces
#
# CONFIG_WAN is not set

#
# Amateur Radio support
#
# CONFIG_HAMRADIO is not set

#
# IrDA (infrared) support
#
# CONFIG_IRDA is not set

#
# Bluetooth support
#
# CONFIG_BT is not set

#
# ISDN subsystem
#
# CONFIG_ISDN_BOOL is not set

#
# Graphics support
#
CONFIG_FB=y
# CONFIG_FB_CYBER2000 is not set
CONFIG_FB_OF=y
# CONFIG_FB_CONTROL is not set
# CONFIG_FB_PLATINUM is not set
# CONFIG_FB_VALKYRIE is not set
# CONFIG_FB_CT65550 is not set
# CONFIG_FB_IMSTT is not set
# CONFIG_FB_S3TRIO is not set
# CONFIG_FB_VGA16 is not set
# CONFIG_FB_RIVA is not set
# CONFIG_FB_MATROX is not set
# CONFIG_FB_RADEON is not set
# CONFIG_FB_ATY128 is not set
# CONFIG_FB_ATY is not set
# CONFIG_FB_SIS is not set
# CONFIG_FB_NEOMAGIC is not set
```

```
# CONFIG_FB_3DFX is not set
# CONFIG_FB_VOODOO1 is not set
# CONFIG_FB_TRIDENT is not set
# CONFIG_FB_VIRTUAL is not set

#
# Console display driver support
#
# CONFIG_VGA_CONSOLE is not set
# CONFIG_MDA_CONSOLE is not set
CONFIG_DUMMY_CONSOLE=y
CONFIG_FRAMEBUFFER_CONSOLE=y
CONFIG_PCI_CONSOLE=y
# CONFIG FONTS is not set
CONFIG_FONT_8x8=y
CONFIG_FONT_8x16=y

#
# Logo configuration
#
# CONFIG_LOGO is not set

#
# Input device support
#
CONFIG_INPUT=y

#
# Userland interfaces
#
# CONFIG_INPUT_MOUSEDEV is not set
# CONFIG_INPUT_JOYDEV is not set
# CONFIG_INPUT_TSDEV is not set
CONFIG_INPUT_EVDEV=y
# CONFIG_INPUT_EVBUG is not set

#
# Input I/O drivers
#
# CONFIG_GAMEPORT is not set
CONFIG_SOUND_GAMEPORT=y
CONFIG_SERIO=y
# CONFIG_SERIO_I8042 is not set
# CONFIG_SERIO_SERPORT is not set
# CONFIG_SERIO_CT82C710 is not set
# CONFIG_SERIO_PCIPS2 is not set

#
# Input Device Drivers
#
CONFIG_INPUT_KEYBOARD=y
# CONFIG_KEYBOARD_ATKBD is not set
# CONFIG_KEYBOARD_SUNKBD is not set
# CONFIG_KEYBOARD_XTKBD is not set
# CONFIG_KEYBOARD_NEWTON is not set
# CONFIG_INPUT_MOUSE is not set
# CONFIG_INPUT_JOYSTICK is not set
# CONFIG_INPUT_TOUCHSCREEN is not set
# CONFIG_INPUT_MISC is not set

#
# Macintosh device drivers
#
```

```
# CONFIG_ADB_CUDA is not set
CONFIG_ADB_PMU=y
# CONFIG_PMAC_PBOOK is not set
# CONFIG_PMAC_BACKLIGHT is not set
# CONFIG_MAC_FLOPPY is not set
# CONFIG_MAC_SERIAL is not set
# CONFIG_ADB is not set
CONFIG_MAC_EMUMOUSEBTN=y
CONFIG_THERM_PM72=y

#
# Character devices
#
CONFIG_VT=y
CONFIG_VT_CONSOLE=y
CONFIG_HW_CONSOLE=y
# CONFIG_SERIAL_NONSTANDARD is not set

#
# Serial drivers
#
# CONFIG_SERIAL_8250 is not set

#
# Non-8250 serial port support
#
# CONFIG_SERIAL_PMACZILLOG is not set
CONFIG_UNIX98_PTYS=y
CONFIG_UNIX98_PTY_COUNT=256

#
# I2C support
#
CONFIG_I2C=y
CONFIG_I2C_CHARDEV=y

#
# I2C Algorithms
#
CONFIG_I2C_ALGOBIT=y
# CONFIG_I2C_ALGOPCF is not set

#
# I2C Hardware Bus support
#
# CONFIG_I2C_ALI1535 is not set
# CONFIG_I2C_ALI15X3 is not set
# CONFIG_I2C_AMD756 is not set
# CONFIG_I2C_AMD8111 is not set
# CONFIG_I2C_I801 is not set
# CONFIG_I2C_I810 is not set
CONFIG_I2C_KEYWEST=y
# CONFIG_I2C_NFORCE2 is not set
# CONFIG_I2C_PII4 is not set
# CONFIG_I2C_PROSAVAGE is not set
# CONFIG_I2C_SAVAGE4 is not set
# CONFIG_SCx200_ACB is not set
# CONFIG_I2C_SIS5595 is not set
# CONFIG_I2C_SIS630 is not set
# CONFIG_I2C_SIS96X is not set
# CONFIG_I2C_VIA is not set
# CONFIG_I2C_VIAPRO is not set
# CONFIG_I2C_VOODOO3 is not set
```

```
#
# I2C Hardware Sensors Chip support
#
# CONFIG_I2C_SENSOR is not set
# CONFIG_SENSORS_ADM1021 is not set
# CONFIG_SENSORS_EEPROM is not set
# CONFIG_SENSORS_IT87 is not set
# CONFIG_SENSORS_LM75 is not set
# CONFIG_SENSORS_LM78 is not set
# CONFIG_SENSORS_LM85 is not set
# CONFIG_SENSORS_VIA686A is not set
# CONFIG_SENSORS_W83781D is not set

#
# Mice
#
# CONFIG_BUSMOUSE is not set
# CONFIG_QIC02_TAPE is not set

#
# IPMI
#
# CONFIG_IPMI_HANDLER is not set

#
# Watchdog Cards
#
# CONFIG_WATCHDOG is not set
CONFIG_NVRAM=y
# CONFIG_GEN_RTC is not set
# CONFIG_DTLK is not set
# CONFIG_R3964 is not set
# CONFIG_APPLICOM is not set

#
# Ftape, the floppy tape device driver
#
# CONFIG_FTAPE is not set
# CONFIG_AGP is not set
# CONFIG_DRM is not set
CONFIG_RAW_DRIVER=y
CONFIG_MAX_RAW_DEVS=256

#
# Multimedia devices
#
# CONFIG_VIDEO_DEV is not set

#
# Digital Video Broadcasting Devices
#
# CONFIG_DVB is not set

#
# File systems
#
CONFIG_EXT2_FS=y
CONFIG_EXT2_FS_XATTR=y
# CONFIG_EXT2_FS_POSIX_ACL is not set
# CONFIG_EXT2_FS_SECURITY is not set
# CONFIG_EXT3_FS is not set
# CONFIG_JBD is not set
```

```
CONFIG_FS_MBCACHE=y
# CONFIG_REISERFS_FS is not set
# CONFIG_JFS_FS is not set
# CONFIG_XFS_FS is not set
# CONFIG_MINIX_FS is not set
# CONFIG_ROMFS_FS is not set
# CONFIG_QUOTA is not set
# CONFIG_AUTOFS_FS is not set
# CONFIG_AUTOFS4_FS is not set

#
# CD-ROM/DVD Filesystems
#
CONFIG_ISO9660_FS=y
CONFIG_JOLIET=y
# CONFIG_ZISOFS is not set
# CONFIG_UDF_FS is not set

#
# DOS/FAT/NT Filesystems
#
# CONFIG_FAT_FS is not set
# CONFIG_NTFS_FS is not set

#
# Pseudo filesystems
#
CONFIG_PROC_FS=y
CONFIG_PROC_KCORE=y
# CONFIG_DEVFS_FS is not set
CONFIG_DEVPTS_FS=y
# CONFIG_DEVPTS_FS_XATTR is not set
CONFIG_TMPFS=y
# CONFIG_HUGETLB_PAGE is not set
# CONFIG_RAMFS is not set

#
# Miscellaneous filesystems
#
# CONFIG_ADFS_FS is not set
# CONFIG_AFFS_FS is not set
# CONFIG_HFS_FS is not set
# CONFIG_BEFS_FS is not set
# CONFIG_BFS_FS is not set
# CONFIG_EFS_FS is not set
# CONFIG_CRAMFS is not set
# CONFIG_VXFS_FS is not set
# CONFIG_HPFS_FS is not set
# CONFIG_QNX4FS_FS is not set
# CONFIG_SYSV_FS is not set
# CONFIG_UFS_FS is not set

#
# Network File Systems
#
# CONFIG_NFS_FS is not set
# CONFIG_NFSD is not set
# CONFIG_EXPORTFS is not set
# CONFIG_SMB_FS is not set
# CONFIG_CIFS is not set
# CONFIG_NCP_FS is not set
# CONFIG_CODA_FS is not set
# CONFIG_INTERMEZZO_FS is not set
```

```
# CONFIG_AFS_FS is not set

#
# Partition Types
#
CONFIG_PARTITION_ADVANCED=y
# CONFIG_ACORN_PARTITION is not set
# CONFIG_OSF_PARTITION is not set
# CONFIG_AMIGA_PARTITION is not set
# CONFIG_ATARI_PARTITION is not set
CONFIG_MAC_PARTITION=y
# CONFIG_MSDOS_PARTITION is not set
# CONFIG_LDM_PARTITION is not set
# CONFIG_NEC98_PARTITION is not set
# CONFIG_SGI_PARTITION is not set
# CONFIG_ULTRIX_PARTITION is not set
# CONFIG_SUN_PARTITION is not set
# CONFIG_EFI_PARTITION is not set
CONFIG_NLS=y

#
# Native Language Support
#
CONFIG_NLS_DEFAULT="iso8859-1"
# CONFIG_NLS_CODEPAGE_437 is not set
# CONFIG_NLS_CODEPAGE_737 is not set
# CONFIG_NLS_CODEPAGE_775 is not set
# CONFIG_NLS_CODEPAGE_850 is not set
# CONFIG_NLS_CODEPAGE_852 is not set
# CONFIG_NLS_CODEPAGE_855 is not set
# CONFIG_NLS_CODEPAGE_857 is not set
# CONFIG_NLS_CODEPAGE_860 is not set
# CONFIG_NLS_CODEPAGE_861 is not set
# CONFIG_NLS_CODEPAGE_862 is not set
# CONFIG_NLS_CODEPAGE_863 is not set
# CONFIG_NLS_CODEPAGE_864 is not set
# CONFIG_NLS_CODEPAGE_865 is not set
# CONFIG_NLS_CODEPAGE_866 is not set
# CONFIG_NLS_CODEPAGE_869 is not set
# CONFIG_NLS_CODEPAGE_936 is not set
# CONFIG_NLS_CODEPAGE_950 is not set
# CONFIG_NLS_CODEPAGE_932 is not set
# CONFIG_NLS_CODEPAGE_949 is not set
# CONFIG_NLS_CODEPAGE_874 is not set
# CONFIG_NLS_ISO8859_8 is not set
# CONFIG_NLS_CODEPAGE_1250 is not set
# CONFIG_NLS_CODEPAGE_1251 is not set
# CONFIG_NLS_ISO8859_1 is not set
# CONFIG_NLS_ISO8859_2 is not set
# CONFIG_NLS_ISO8859_3 is not set
# CONFIG_NLS_ISO8859_4 is not set
# CONFIG_NLS_ISO8859_5 is not set
# CONFIG_NLS_ISO8859_6 is not set
# CONFIG_NLS_ISO8859_7 is not set
# CONFIG_NLS_ISO8859_9 is not set
# CONFIG_NLS_ISO8859_13 is not set
# CONFIG_NLS_ISO8859_14 is not set
# CONFIG_NLS_ISO8859_15 is not set
# CONFIG_NLS_KOI8_R is not set
# CONFIG_NLS_KOI8_U is not set
# CONFIG_NLS_UTF8 is not set

#
```

```
# Sound
#
# CONFIG_SOUND is not set

#
# USB support
#
CONFIG_USB=y
# CONFIG_USB_DEBUG is not set

#
# Miscellaneous USB options
#
CONFIG_USB_DEVICEFS=y
# CONFIG_USB_BANDWIDTH is not set
# CONFIG_USB_DYNAMIC_MINORS is not set

#
# USB Host Controller Drivers
#
CONFIG_USB_EHCI_HCD=y
CONFIG_USB_OHCI_HCD=y
# CONFIG_USB_UHCI_HCD is not set

#
# USB Device Class drivers
#
# CONFIG_USB_BLUETOOTH_TTY is not set
# CONFIG_USB_ACM is not set
# CONFIG_USB_PRINTER is not set
# CONFIG_USB_STORAGE is not set

#
# USB Human Interface Devices (HID)
#
CONFIG_USB_HID=y
CONFIG_USB_HIDINPUT=y
# CONFIG_HID_FF is not set
# CONFIG_USB_HIDDEV is not set
# CONFIG_USB_AIPTEK is not set
# CONFIG_USB_WACOM is not set
# CONFIG_USB_KBTAB is not set
# CONFIG_USB_POWERMATE is not set
# CONFIG_USB_XPAD is not set

#
# USB Imaging devices
#
# CONFIG_USB_MDC800 is not set
# CONFIG_USB_SCANNER is not set
# CONFIG_USB_MICROTEK is not set
# CONFIG_USB_HPUSBSCSI is not set

#
# USB Multimedia devices
#
# CONFIG_USB_DABUSB is not set

#
# Video4Linux support is needed for USB Multimedia device support
#
#
```

```
# USB Network adaptors
#
# CONFIG_USB_CATC is not set
# CONFIG_USB_KAWETH is not set
# CONFIG_USB_PEGASUS is not set
# CONFIG_USB_RTL8150 is not set
# CONFIG_USB_USBNET is not set

#
# USB port drivers
#

#
# USB Serial Converter support
#
# CONFIG_USB_SERIAL is not set

#
# USB Miscellaneous drivers
#
# CONFIG_USB_TIGL is not set
# CONFIG_USB_AUERSWALD is not set
# CONFIG_USB_RIO500 is not set
# CONFIG_USB_BRLVGER is not set
# CONFIG_USB_LCD is not set
# CONFIG_USB_TEST is not set
# CONFIG_USB_GADGET is not set

#
# Library routines
#

#
# Kernel hacking
#
CONFIG_DEBUG_KERNEL=y
# CONFIG_DEBUG_SLAB is not set
CONFIG_MAGIC_SYSRQ=y
# CONFIG_DEBUG_SPINLOCK is not set
# CONFIG_DEBUG_SPINLOCK_SLEEP is not set
# CONFIG_KGDB is not set
# CONFIG_BLUECAT_KDBG is not set
# CONFIG_XMON is not set
# CONFIG_BDI_SWITCH is not set
# CONFIG_DEBUG_INFO is not set
CONFIG_BOOTX_TEXT=y

#
# Security options
#
# CONFIG_SECURITY is not set

#
# Cryptographic options
#
# CONFIG_CRYPTO is not set
```

## cdrom.spec File Example

```
# cdrom.spec
#
strip on

mkdir /dev
mknod /dev/console c 5 1
mknod /dev/null c 1 3
mknod /dev/tty c 5 0
mknod /dev/ttyl c 4 1

mknod /dev/ttyS0 c 4 64
mknod /dev/ttyS1 c 4 65

mkdir -p /lib
mkdir /bin
mkdir /sbin
mkdir /proc
mkdir /tmp
mkdir /etc
mkdir -p /var/run

mkdir -p /var/log

mkdir /root

mkdir -p /mnt/cdrom
mkdir -p /mnt/iso

mkdir /dev/pts
mknod /dev/ptmx c 5 2

chmod 0666 /dev/ptmx

mknod /dev/hda b 3 0
mknod /dev/loop0 b 7 0

cp ./local/cdrom/bashrc ./bashrc
cp ./local/cdrom/fstab /etc

cp ${BLUECAT_PREFIX}/lib/libnss_files-*.so /lib
cp ${BLUECAT_PREFIX}/lib/libnss_dns-*.so /lib

lcd ${BLUECAT_PREFIX}/sbin
cp reboot shutdown halt /sbin

ln -s /bin/bash /sbin/init

cp ${BLUECAT_PREFIX}/usr/sbin/chroot /sbin

#
# General Binaries
#
lcd ${BLUECAT_PREFIX}/bin
cp mount bash cat mkdir ls grep ps touch /bin
cp mknod mv rm chown chmod umount ln /bin
ln -s /bin/bash /bin/sh

chmod 755 /bin /sbin
```

```
# End of File
```

---

## .bashrc File Example

```
# This is a bash profile

mount /dev/hda /mnt/cdrom -o ro
mount -o loop /mnt/cdrom/showcase.iso /mnt/iso

mount none /mnt/iso/var/log/httpd -t tmpfs
mount none /mnt/iso/var/run -t tmpfs
mount none /mnt/iso/var/lock -t tmpfs
mount none /mnt/iso/var/cache/httpd -t tmpfs

cd /mnt/iso
exec /sbin/chroot . /sbin/init <dev/console >dev/console 2>&1
```

---

## fstab File Example

```
#fstab file is empty
#
```

---

## hfs.map File Example

```
# ext.  xlate  creator  type  comment
.b      Raw    'UNIX'  'tbxi' 'bootstrap"
.kdi    Raw    'UNIX'  'boot'  "bootstrap"
*       Ascii  '????'  '????'  "Text file"
```

---

## ofboot.b File Example

```
<CHRP-BOOT>
```

```
<COMPATIBLE>
MacRISC MacRISC3 MacRISC4
</COMPATIBLE>
<DESCRIPTION>
BlueCat Linux Power MAC G5
</DESCRIPTION>
<BOOT-SCRIPT>
" screen" output
load-base release-load-area
boot cd:,\boot\cdrom.kdi
</BOOT-SCRIPT>
</CHRP-BOOT>
```