

BlueCat Linux Board Support Guide

BlueCat Linux Release 5.4

DOC-0742-00

for Motorola Lite5200/Lite5200B Boards

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— *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; <i>italicized</i> for emphasis, new terms, and book titles	Refer to the <i>BlueCat Linux User's Guide</i> .
Environment variables, filenames, functions, methods, options, parameter names, path names, commands, and computer data	<code>ls</code> <code>-l</code> <code>myprog.c</code> <code>/dev/null</code>
Commands that need to be highlighted within body text, or commands that must be typed as is by the user are bolded .	<code>login: myname</code> <code># cd /usr/home</code>
Text that represents a variable, such as a filename or a value that must be entered by the user, is <i>italicized</i> .	<code>cat <filename></code> <code>mv <file1> <file2></code>
Blocks of text that appear on the display screen after entering instructions or commands	<code>Linux version 2.4.10-1</code> <code>(bin@build1) (gcc version</code> <code>2.95.3 20010315 (release)) #5</code> <code>Tue Dec 18 13:33:08 MSK 2001</code> <code>Processor: Intel StrongARM-</code> <code>IXP1200 revision 3</code> <code>Architecture: Intel IXP1200</code> <code>On node 0 totalpages: 32768</code> <code>zone(0): 32768 pages.</code> <code>zone(1): 0 pages.</code> <code>zone(2): 0 pages.</code>
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

LynuxWorks Support handles support requests from current support subscribers.

For questions regarding LynuxWorks products or evaluation CDs, or to become a support subscriber, our knowledgeable sales staff will be pleased to help you (<http://www.lynuxworks.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 Lite5200/Lite5200B* Boards provides information about the BlueCat Linux Board Support Package (BSP) for the Lite5200/Lite5200B board.

The Motorola MPC5200 Lite5200/Lite5200B evaluation board is based on a 400 MHz MPC603e processor core with an integrated double precision Floating Point Unit that operates at -40 to 85 degrees C. The MPC5200 was designed for fast data throughput and processing. The integrated BestComm DMA controller offloads the main MPC603e core from I/O intensive data transfers. An integrated Double Data Rate (DDR) memory controller accelerates data access with an effective memory bus speed of 266 MHz. A high-speed PCI interface backed by the BestComm DMA controller and DDR support enables high-speed data transfers in and out of the MPC5200. The MPC5200 is well suited for networking, industrial control, and automotive applications. The MPC5200 serves the processing-intensive network gateway, automotive, Internet access, industrial automation, image detection/analysis, and electronic/medical instrumentation markets.

Throughout this Board Support Guide (BSG), the BSP is referred to as the “lite5200” and the target board is referred to as either the “Lite5200 board” or the “Lite5200B board.” If the instructions are common for both MPC5200 Lite5200 and Lite 5200B boards, the target board is referred to simply as the “target board.”

Features Overview

The following sections describe the new features of this release.

Kernel Version

BlueCat Linux release 5.4 is based on the Linux kernel version 2.6.13.4 available from www.kernel.org.

BlueCat Linux Cross-Development Tools

BlueCat Linux release 5.4 supports the following versions of the GNU toolchain:

- gcc version 3.4.3
- binutils version 2.14

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
Lite5200 board	<ul style="list-style-type: none"> • MPC603e PowerPC processor core with a double-precision FPU • Big-endian • 64 MByte SDR and DDR SDRAM • 16 KByte instruction cache, 16 KByte data cache integrated to the MPC603e PowerPC core • Memory Managements Units, one for each cache integrated to the MPC603e PowerPC core • Built-in BestComm DMA I/O subsystem • Built-in interrupt controller manages 4 external interrupt request lines and 47 internal interrupt sources • 16 MByte Flash Am29LV0652D • I²C on-chip controller designed to support 520 Kbps transfer rates • On-board 256 Byte PCF8582C I2C EEPROM • USB 1.1 on-chip OHCI host controller • Peripheral Serial Controller (PSC1) with transceiver • On-chip PCI-compatible external bus • Dual CAN2.0 A/B built-in controller modules • Built-in Fast Ethernet controller (FEC) with a 10 Mbps and 100 Mbps IEEE 802.3 MII and 10 Mbps 7-wire interface • Multiple, reconfigurable GPIO

Table 1-1: Hardware Supported (Continued)

Model	Description
Lite5200B board	<ul style="list-style-type: none">• MPC603e PowerPC processor core with a double-precision FPU• Big-endian• 256 MByte SDR and DDR SDRAM• 16 KByte instruction cache, 16 KByte data cache integrated to the MPC603e PowerPC core• Memory Managements Units, one for each cache integrated to the MPC603e PowerPC core• Built-in BestComm DMA I/O subsystem• Built-in interrupt controller manages 4 external interrupt request lines and 47 internal interrupt sources• Two banks of 16 MByte Spansion S29GL128N Flash• I²C on-chip controller designed to support 520 Kbps transfer rates• On-board 256 Byte PCF8582C I2C EEPROM• USB 1.1 on-chip OHCI host controller• Peripheral Serial Controller (PSC1) with transceiver• On-chip PCI-compatible external bus• Dual CAN2.0 A/B built-in controller modules• Built-in Fast Ethernet controller (FEC) with a 10 Mbps and 100 Mbps IEE 802.3 MII and 10 Mbps 7-wire interface• Multiple, reconfigurable GPIO

BlueCat Linux Debugging, Development, and Programming Tools for Embedded System Design

Please contact your LynuxWorks Account Manager for information about the availability of the following premium LynxOS development tools on the cross-development platforms listed for use with this BSP:

- Luminosity—an Eclipse-based IDE providing an enhanced tool set that enables embedded system developers to accelerate product time-to-market in the aerospace, telecommunications, and military sectors
- SpyKer—a dynamically instrumented system trace tool to debug, diagnose, and optimize system performance

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:

- PC running Windows XP Pro
- PC running Red Hat Enterprise Linux 4

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 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 PowerPC configuration and the lite5200 BSP have been installed on the development host. 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 lite5200 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 lite5200 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 target board consists of the following main steps:

- Setting up hardware
- Setting up the board firmware (the Motorola dBUG firmware for the Lite5200 target or U-boot for the Lite5200B target)
- Downloading and booting a BlueCat Linux system from the target Flash memory or a network

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

- The on-board firmware (dBUG or U-boot depending on the target)
- 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.

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 Target Board Serial Port to the Host

The target board has one serial port. This port is used both by the target on-board firmware and by the BlueCat Linux system console.

The board type (Lite5200 or Lite5200B) is automatically detected by the BSP. Depending on a particular board, the serial port baud rate is 9600 for the Lite5200 target and 115200 for the Lite5200B target.

Throughout this chapter, the terminal window connected to the serial connector is referred to as the “Firmware console” or the “BlueCat Linux console,” depending on the context.

Connecting the Target Platform Ethernet Card to the Host

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

It is also 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 as well as for the target board. These addresses are referred to as `<host_IP_address>` and `<target_IP_address>`, respectively. For more information on how to set up networking on the host, please refer to the system administration reference material.

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

Downloading a BlueCat Linux System into Flash

This section provides instructions on how a BlueCat Linux embedded system can be downloaded into the target Flash memory using either the on-board firmware or the BlueCat Linux OS loader. Refer also to the *BlueCat Linux User's Guide* for additional details about the BlueCat Linux OS loader.

Downloading a BlueCat Linux System into Flash Using the Motorola dBUG Firmware

To download a BlueCat Linux embedded system into the Lite5200 target Flash memory using the dBUG firmware, perform the steps below. This section uses the `osloader` demo system as an example, but these instructions are applicable to any of the demo systems.

1. Copy the `osloader.kdi` file from the `$(BLUECAT_PREFIX)/demo/osloader` directory to the `/tftpboot` directory on the development host:

```
BlueCat:$ cp \  
$(BLUECAT_PREFIX)/demo/osloader/osloader.kdi \  
/tftpboot/osloader.kdi
```

2. Reset the target board.

3. At the dBUG prompt, enter the following commands:

```
dBUG> dn osloader.kdi
dBUG> fe ff000000 ff14ffff
```

Type **YES** at the confirmation prompt.

```
dBUG> fp ff000000 ff14ffff 20000
```

As the result, the `osloader` demo is programmed into Flash.

To boot the `osloader` demo installed into the Flash memory, type the following command at the dBUG prompt:

```
dBUG> go ff000000
```

This command starts the `osloader` demo system programmed into Flash.

Downloading a BlueCat Linux System into Flash Using the U-Boot Firmware

To download a BlueCat Linux embedded system into the Lite5200B target Flash memory using the U-Boot firmware, perform the steps below. This section uses the `osloader` demo system as an example, but these instructions are applicable to any of the demo systems.

1. Copy the `osloader.kdi` file from the `$BLUECAT_PREFIX/demo/osloader` directory to the `/tftpboot` directory on the development host:

```
BlueCat:$ cp \
$BLUECAT_PREFIX/demo/osloader/osloader.kdi \
/tftpboot/osloader.kdi
```

2. Reset the target board.
3. At the U-Boot firmware prompt (`=>`), enter the following commands:

```
=> tftp 0x100000 osloader.kdi
=> erase ff000000 ff18ffff
=> cp 0x100000 ff000000 17fe00
```

where `17fe00` is the size of `osloader.kdi`.

As the result, the `osloader` demo is programmed into Flash.

To boot the `osloader` demo installed into the Flash memory, type the following command at the U-Boot prompt:

```
=> go ff007000
```

This command starts the `osloader` demo system programmed into Flash.

Downloading a BlueCat Linux System into Flash Using the OS Loader

To download a BlueCat Linux embedded system into the target Flash memory using the BlueCat OS loader, perform the steps below. This section uses the `osloader` demo system as an example, but these instructions are applicable to any of the demo systems.

1. Copy the `i_osloader.kdi` file from the `$BLUECAT_PREFIX/demo/osloader` directory to the `/tftpboot` directory on the development host:

```
BlueCat:$ cp \
$BLUECAT_PREFIX/demo/osloader/i_osloader.kdi \
/tftpboot/i_osloader.kdi
```

2. Copy the `osloader.kdi` file from the `$BLUECAT_PREFIX/demo/osloader` directory to the `/tftpboot` directory on the development host:

```
BlueCat:$ cp \
$BLUECAT_PREFIX/demo/osloader/osloader.kdi \
/tftpboot/osloader.kdi
```

3. Reset the target board.
4. Boot the `i_osloader` demo from a network as described in “Booting a BlueCat Linux System from a Network” on page 12. The BlueCat Linux OS loader prompt (`>`) appears on the console.
5. At the BlueCat Linux OS loader prompt, type the following commands:

```
> set IF eth0
> set IP <target_board_IP>
> set HOST <development_host_IP>
> set FILE tftp osloader.kdi
> exec flash_fdisk /dev/mtdchar0 0-23
> flash /dev/mtdchar1 erase
> reset
```

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

The partition size specified in the `flash_fdisk` command depends on the size of the system and should be large enough to hold the BlueCat Linux demo KDI. For the example above, the following calculation shows that a partition of size 0-60 is a correct parameter for the `osloader` demo system:

$$(23 - 0 + 1) * 64KB = 1536KB$$

where 64 KB is the size of the Flash sector. The calculated value 1536 KB is greater than the ROM requirement for the `osloader` demo (1246,5 KB). Refer to Chapter 4, “Supported Demo Systems” for details about the ROM requirements for all supported BlueCat Linux demo systems.

As the result, the `osloader` demo is programmed into Flash.

To boot the `osloader` demo installed into the Flash memory, type the following command at the firmware prompt:

```
go ff007000
```

This command starts the `osloader` demo system programmed into Flash.

Booting a BlueCat Linux System from a Network

A BlueCat Linux demo system can be booted from a network using either the on-board firmware or the BlueCat Linux OS loader.

Booting a BlueCat Linux System from a Network using the Motorola dBUG Firmware

The Motorola dBUG firmware uses the TFTP network protocol to load BlueCat Linux images over a network. To boot the `osloader` demo system over a network using the dBUG firmware, perform the following steps:

1. Copy the `osloader.kdi` file from the `BLUECAT_PREFIX/demo/osloader` directory to the `/tftpboot` directory on the cross-development host.

```
BlueCat:$ cp $BLUECAT_PREFIX/demo/osloader/\
osloader.kdi /tftpboot/osloader.kdi
```

2. Reset the board.
3. To download the `osloader` demo image, execute the following command:

```
dBUG> dn -i osloader.kdi
```

```
Address: 0x00020000
Downloading Image 'osloader.kdi' from 172.17.0.1
.....
1567745 bytes read via TFTP
```

4. To boot a BlueCat Linux system, enter the `go` command as shown below.

```
dBUG> go
loaded at:      00800000 0097AC00
zimage at:     00805805 0091A797
initrd at:     0091E000 0097AC00
avail ram:     00400000 00800000

Linux/PPC load: console=ttyS0 root=/dev/ram0 rw panic=25
ip=192.168.4.16 hda=bswap hdb=bswap hdc=bswap hdd=bswap root=101
Uncompressing Linux...done.
Now booting the kernel
Linux version 2.6.13.4 (tester1@ent4-build) (gcc version 3.4.3) #5 Mon
Jul 17 07:04:51 EDT 2006
Built 1 zonelists
Kernel command line: console=ttyS0 root=/dev/ram0 rw panic=25
ip=192.168.4.16 hda=bswap hdb=bswap hdc=bswap hdd=bswap root=101
PID hash table entries: 512 (order: 9, 8192 bytes)
Dentry cache hash table entries: 16384 (order: 4, 65536 bytes)
Inode-cache hash table entries: 8192 (order: 3, 32768 bytes)
Memory: 61852k available (1768k kernel code, 644k data, 112k init, 0k
highmem)
Mount-cache hash table entries: 512
NET: Registered protocol family 16
PCI: Probing PCI hardware
SCSI subsystem initialized
usbcore: registered new driver hub
JFFS version 1.0, (C) 1999, 2000 Axis Communications AB
JFFS2 version 2.2. (C) 2001-2003 Red Hat, Inc.
Generic RTC Driver v1.07
Serial: MPC52xx PSC driver
ttyS0 at MMIO 0xf0002000 (irq = 39) is a MPC52xx PSC
io scheduler noop registered
io scheduler anticipatory registered
io scheduler deadline registered
io scheduler cfq registered
RAMDISK driver initialized: 16 RAM disks of 8192K size 1024 blocksize
Lite5200 Bank 0: Found 1 x8 devices at 0x0 in 8-bit bank
Lite5200 Bank 0: Found 1 x8 devices at 0x800000 in 8-bit bank
  Amd/Fujitsu Extended Query Table at 0x0040
Lite5200 Bank 0: CFI does not contain boot bank location. Assuming top.
number of CFI chips: 2
cfi_cmdset_0002: Disabling erase-suspend-program due to code
brokenness.
Lite5200 flash: registering 1 flash banks [FF000000 - FFFFFFFF = 16
Mbytes]
usbmon: debugfs is not available
ppc-soc-ohci ppc-soc-ohci: USB Host Controller
ppc-soc-ohci ppc-soc-ohci: new USB bus registered, assigned bus number 1
ppc-soc-ohci ppc-soc-ohci: irq 44, io mem 0xf0001000
hub 1-0:1.0: USB hub found
hub 1-0:1.0: 2 ports detected
mice: PS/2 mouse device common for all mice
pcan: *Name: Release_20030302_a *
pcan: major 91.
GPIO[MPC5200, Lite5200] driver init
```

```
eth0: Phy @ 0x0, type LXT971 (0x001378e2)
NET: Registered protocol family 2
IP route cache hash table entries: 1024 (order: 0, 4096 bytes)
TCP established hash table entries: 4096 (order: 3, 32768 bytes)
TCP bind hash table entries: 4096 (order: 2, 16384 bytes)
TCP: Hash tables configured (established 4096 bind 4096)
TCP reno registered
TCP bic registered
NET: Registered protocol family 1
NET: Registered protocol family 17
eth0: config: auto-negotiation on, 100FDX, 100HDX, 10FDX, 10HDX.
eth0: Waiting for the link to be up...
eth0: status: link up, 100 Mbps Full Duplex, auto-negotiation complete.
IP-Config: Incomplete network configuration information.
RAMDISK: Compressed image found at block 9336
Freeing BlueCat RFS memory: 371k freed
VFS: Mounted root (ext2 filesystem).
Freeing unused kernel memory: 112k init
BlueCat Loader Shell
>
```

Booting a BlueCat Linux System from a Network using the U-Boot Firmware

The U-Boot firmware uses the TFTP network protocol to load BlueCat Linux images over a network. To boot the `osloader` demo system over a network using the U-Boot firmware, perform the following steps:

1. Copy the `osloader.kdi` file from the `BLUECAT_PREFIX/demo/osloader` directory to the `/tftpboot` directory on the cross-development host.

```
BlueCat:$ cp $BLUECAT_PREFIX/demo/osloader/\
osloader.kdi /tftpboot/osloader.kdi
```

2. Reset the board. The following information appears on the console:

```
U-Boot 1.1.3 (Aug 10 2005 - 11:07:57)

CPU:   MPC5200 v2.2 at 462 MHz
       Bus 132 MHz, IPB 132 MHz, PCI 33 MHz
Board: Freescale MPC5200 (Lite5200B)
I2C:   85 kHz, ready
DRAM:  256 MB
FLASH: 32 MB
PCI:   Bus Dev VenId DevId Class Int
       00 1a 1057 5809 0680 00
In:    serial
Out:   serial
Err:   serial
Net:   FEC ETHERNET
Hit any key to stop autoboot:  0
=>
```



```
number of CFI chips: 1
cfi_cmdset_0002: Disabling erase-suspend-program due to code
brokenness.
Lite5200 flash: registering 1 flash banks [FF000000 - FFFFFFFF = 16
Mbytes]
usbmon: debugfs is not available
ppc-soc-ohci ppc-soc-ohci: USB Host Controller
ppc-soc-ohci ppc-soc-ohci: new USB bus registered, assigned bus number 1
ppc-soc-ohci ppc-soc-ohci: irq 44, io mem 0xf0001000
hub 1-0:1.0: USB hub found
hub 1-0:1.0: 2 ports detected
mice: PS/2 mouse device common for all mice
pcan: *Name: Release_20030302_a *
pcan: major 91.
GPIO[MPC5200, Lite5200] driver init
eth0: Phy @ 0x0, type LXT971 (0x001378e2)
NET: Registered protocol family 2
IP route cache hash table entries: 4096 (order: 2, 16384 bytes)
TCP established hash table entries: 16384 (order: 5, 131072 bytes)
TCP bind hash table entries: 16384 (order: 4, 65536 bytes)
TCP: Hash tables configured (established 16384 bind 16384)
TCP reno registered
TCP bic registered
NET: Registered protocol family 1
NET: Registered protocol family 17
eth0: config: auto-negotiation on, 100FDX, 100HDX, 10FDX, 10HDX.
eth0: Waiting for the link to be up...
eth0: status: link up, 100 Mbps Full Duplex, auto-negotiation complete.
IP-Config: Incomplete network configuration information.
RAMDISK: Compressed image found at block 9340
Freeing BlueCat RFS memory: 371k freed
VFS: Mounted root (ext2 filesystem).
Freeing unused kernel memory: 112k init
BlueCat Loader Shell
>
```

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 `showcase.kernel` and `showcase.rfs` files from the `$BLUECAT_PREFIX/demo/showcase` directory to the `/tftpboot` directory on the cross-development host.
2. Boot the OS loader as described in “Booting a BlueCat Linux System from a Network using the U-Boot Firmware” on page 14.
3. 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=28472
> boot
```

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

These commands load the *showcase* demo system from a network onto the target board and then automatically start it.

Kernel Configuration Options

The Lite5200/Lite5200B 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 Lite5200/Lite5200B BSP Distribution” below. Boldfaced entries in the tables represent subordinate menus. Italicized entries represent comments.

Table 3-1: BlueCat Linux Default Configuration for the Lite5200/Lite5200B BSP Distribution

Table Number and Configuration Parameter
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: “Networking”
Table 3-10: “Device Drivers”
Table 3-11: “File Systems”
Table 3-12: “MPC52xx CPM Options”
Table 3-13: “Library Routines”
Table 3-14: “Profiling Support”
Table 3-15: “Kernel Hacking”

Table 3-1: BlueCat Linux Default Configuration for the Lite5200/Lite5200B BSP Distribution (Continued)

Table Number and Configuration Parameter
Table 3-16: “Security Options”
Table 3-17: “Cryptographic Options”

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

Table 3-3: General Setup

Description	Setting
Local version—append to kernel release	is not set
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
Memory sizing benchmarks	is not set
BSD process accounting	is not set
sysctl support	Y
Auditing support	is not set
Support for hot-pluggable devices	is not set
Kernel Userspace Events	Y
Kernel .config support	is not set
Configure standard kernel features (for small systems)	Y
<i>--- Configure standard kernel features (for small systems).</i>	

Table 3-3: General Setup (Continued)

Description	Setting
Load all symbols for debugging/kksymoops	Y
Include all symbols in kallsyms	is not set
Do an extra kallsyms pass	is not set
Enable support for printk	Y
BUG() support	Y
Enable full-sized data structures for core	Y
Enable futex support	Y
Enable eventpoll support	Y
CODETEST device driver configuration	is not set
Optimize for size	is not set
Use full shmem file system	Y
Function alignment	0
Label alignment	0
Loop alignment	0
Jump alignment	0

Table 3-4: Loadable Module Support

Description	Setting
Enable loadable module support	Y
Module unloading	Y
Forced module unloading	is not set
Module versioning support (Experimental)	Y
Source checksum for all modules	is not set
Automatic kernel module loading	Y

Table 3-5: Processor

Description	Setting
Processor Type (6xx/7xx/74xx/52xx/82xx/83xx)	
6xx/7xx/74xx/52xx/82xx/83xx	Y
40x	is not set
44x	is not set
POWER3	is not set
POWER4 and 970 (G5)	is not set
8xx	is not set
e200	is not set
e500	is not set
AltiVec support	is not set
Thermal management support	is not set
kexec system call (Experimental)	is not set
CPU frequency scaling	is not set
IRQ to user delivery	Y

Table 3-6: Platform Options

Description	Setting
Platform options	
Machine Type (Freescale LITE5200/[IceCube])	
CHRP/PowerMac/PReP	is not set
Artesyn Katana	is not set
Cogent Willow	is not set
Force CPCI690	is not set
Force PowerCore	is not set

Table 3-6: Platform Options (Continued)

Description	Setting
Force PowerPMC250	is not set
IBM 750FX Eval board or 750GX Eval board	is not set
IBM-Spruce	is not set
Sky HDPU	is not set
Marvell EV64260BP	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
Radstone Technology PPC7D board	is not set
SBS Adirondack	is not set
SBS K2	is not set
SBS Palomar4	is not set
EST8260	is not set
SBC82xx	is not set
RPXSUPER	is not set
TQM8260	is not set
ADS8272	is not set
Freescale PQ2FADS	is not set
Freescale LITE5200/(IceCube)	Y
Freescale MPC834x SYS	is not set
Symmetric multiprocessing support	is not set
High memory support	is not set
Timer frequency (250 HZ)	

Table 3-6: Platform Options (Continued)

Description	Setting
100 HZ	is not set
250 HZ	Y
1000 HZ	is not set
Preemption Model (No Forced Preemption [Server])	
No Forced Preemption (Server)	Y
Voluntary Kernel Preemption (Desktop)	is not set
Preemptible Kernel (Low-Latency Desktop)	is not set
Memory model (Flat Memory)	
Flat Memory	Y
Kernel support for ELF binaries	Y
Kernel support for MISC binaries	is not set
Default bootloader kernel arguments	Y
Initial kernel command string	<code>console=ttyS0, root=/dev/ram rw</code>
Power management support	is not set
Enable seccomp to safely compute untrusted bytecode	Y

Table 3-7: Bus Options

Description	Setting
PCI support	Y
Legacy <code>/proc/pci</code> interface	is not set
PCI device name database	is not set
PCI debugging	is not set
PCCARD (PCMCIA/CardBus) support	
PCCard (PCMCIA/CardBus) 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: Networking

Description	Setting
Networking support	Y
Networking options	
Packet socket	Y
Packet socket: mmaped I/O	is not set
UNIX domain sockets	Y
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	Y
IP: DHCP support	is not set
IP: BOOTP support	is not set
IP: RARP support	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 syncookie support (disabled per default)	is not set
IP: AH transformation	is not set
IP: ESP transformation	is not set

Table 3-9: Networking (Continued)

Description	Setting
IP: IPComp transformation	is not set
IP: tunnel transformation	is not set
IP: TCP socket monitoring interface	is not set
TCP: advanced congestion control	is not set
IP: Virtual Server Configuration	is not set
IP virtual server support (Experimental)	is not set
The IPv6 protocol	is not set
Network packet filtering (replaces ipchains)	is not set
The SCTP Protocol (Experimental)	is not set
The SCTP Protocol (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	is not set
QoS and/or fair queueing	is not set
Network testing	is not set
Packet Generator (Use with Caution)	is not set
Amateur Radio support	is not set

Table 3-9: Networking (Continued)

Description	Setting
IrDA (infrared) subsystem support	is not set
Bluetooth subsystem support	is not set

Table 3-10: Device Drivers

Description	Settings
Generic Driver Options	
Select only drivers that don't need compile-time external firmware?	Y
Prevent firmware from being built	Y
Hotplug firmware loading support	is not set
Driver Core verbose debug messages	is not set
Memory Technology Devices	
Memory Technology Device (MTD) support	Y
Debugging	is not set
MTD concatenating support	is not set
MTD partitioning support	Y
RedBoot partition table parsing	is not set
Command line partition table parsing	is not set
<i>--- User Modules and Translation Layers</i>	
Direct character device access to MTD devices	Y
Caching block device access to MTD devices	Y
Flash Translation Layer (FTL) support	is not set
NAND Flash Translation Layer (NFTL) support	is not set
Inverse NAND Flash Translation Layer (INFTL) support	is not set
RAM/ROM/Flash chip drivers	
Detect Flash chips by Common Flash Interface (CFI) probe	Y

Table 3-10: Device Drivers (Continued)

Description	Settings
Detect non-CFI AMD/JEDEC-compatible Flash chips	is not set
Flash chip driver advanced configuration options	is not set
Support for Intel/Sharp Flash chips	is not set
Support for AMD/Fujitsu Flash chips	Y
Retry failed commands (erase/program)	0
Support for ST (Advanced Architecture) Flash chips	is not set
Support for RAM chips in bus mapping	is not set
Support for ROM chips in bus mapping	is not set
Support for absent chips in bus mapping	is not set
Mapping drivers for chip access	
Support nonlinear mappings of Flash chips	Y
CFI Flash device in physical memory map	is not set
CFI Flash device mapped for Motorola LITE5200	Y
Total Flash size	0x01000000
PCI MTD driver	is not set
Map driver for platform device RAM (mtd-ram)	is not set
Self-contained MTD device drivers	
Ramix PMC551 PCI Mezzanine RAM card support	is not set
Uncached system RAM	is not set
Physical system RAM	is not set
Test driver using RAM	is not set
MTD emulation using block device	is not set
MTD using block device (rewrite)	is not set
<i>--- Disk-On-Chip Device Drivers</i>	
M-Systems Disk-On-Chip 2000 and Millennium (Deprecated)	is not set
M-Systems Disk-On-Chip Millennium-only alternative driver (Deprecated)	is not set

Table 3-10: Device Drivers (Continued)

Description	Settings
M-Systems Disk-On-Chip Millennium Plus	is not set
NAND Flash Device Drivers	
NAND Device support	is not set
Parallel port support	
Parallel port support	is not set
Plug and Play support	is not set
Block Devices	is not set
Normal floppy disk support	is not set
Compaq SMART-2 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
Promise SATA SX8 (carmel) support	is not set
RAM disk support	Y
Default number of RAM disks	16
Default RAM disk size	8192
Initial RAM disk (<code>initrd</code>) support	is not set
Initramfs source file(s)	is not set
BlueCat Linux RFS support	Y
Support for Large Block Devices	is not set
Packet writing on CD/DVD media	is not set
I/O Schedulers	
Anticipatory I/O scheduler	Y

Table 3-10: Device Drivers (Continued)

Description	Settings
Deadline I/O scheduler	Y
CFQ I/O scheduler	Y
ATA over Ethernet support	is not set
ATA/ATAPI/MFM/RLL support	
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>	
Support for SATA (Deprecated; conflicts with libata SATA drives)	is not set
Include IDE/ATA-2 DISK support	Y
Use multimode by default	is not set
Include IDE/ATAPI CD-ROM support	is not set
Include IDE/ATAPI tape support (Experimental)	is not set
Include IDE/ATAPI floppy support	is not set
IDE Taskfile Access	is not set
<i>IDE chipset support/bugfixes</i>	
generic/default IDE chipset support	Y
PCI IDE chipset support	is not set
MPC52xx Built-in IDE support	Y
SCSI device support	
SCSI device support	is not set
Multiple device support (RAID and LVM)	
Multiple devices driver support (RAID and LVM)	is not set
Fusion MPT device support	
is not set	
IEEE 1394 (FireWire) support	
IEEE 1394 (FireWire) support	is not set
I2O device support	

Table 3-10: Device Drivers (Continued)

Description	Settings
I2O support	is not set
Macintosh device drivers	is not set
Networking device support	
Networking device support	Y
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
ARCnet devices	
ARCnet support	is not set
IBM On-chip net device	
IBM on-chip Ethernet	is not set
Ethernet (10 or 100Mbit)	
Ethernet (10 or 100 Mbit)	Y
Generic Media Independent Interface device support	is not set
Sun Happy Meal 10/100baseT support	is not set
Sun GEM support	Y
3Com cards	is not set
Tulip family network device support	
“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
Ethernet (1000 Mbit)	
Alteon AceNIC/3Com 3C985/NetGear GA620 Gigabit support	is not set
D-Link DL2000-based Gigabit Ethernet support	is not set

Table 3-10: Device Drivers (Continued)

Description	Settings
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
New SysKonnect GigaEthernet support (Experimental)	is not set
Marvell Yukon Chipset/SysKonnect SK-98xx support	is not set
Broadcom Tigon3 support	is not set
Broadcom NetXtremeII support	is not set
Ethernet (10000 Mbit)	is not set
Intel PRO/10GbE support	is not set
S2IO 10Gbe XFrame NIC	is not set
Token Ring devices	
Token Ring driver support	is not set
Wireless LAN (non-ham radio)	
Wireless LAN drivers (non-ham radio) and wireless extensions	is not set
WAN interfaces	
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
Point-to-Point Protocol (PPP) support	is not set
Serial Line Internet Protocol (SLIP) support	is not set
Traffic Shaper (Experimental)	is not set
Network console logging support (Experimental)	is not set
ISDN subsystem	

Table 3-10: Device Drivers (Continued)

Description	Settings
ISDN support	is not set
Telephony Support	
Linux telephony support	is not set
Input device support	
Generic input layer (needed for keyboard, mouse, ...)	Y
Userland interfaces	is not set
Mouse interface	Y
Provide legacy <code>/dev/psaux</code> 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	Y
<i>Input Device Drivers</i>	
Keyboards	is not set
Mouse	is not set
Joysticks	is not set
Touchscreens	is not set
Miscellaneous devices	is not set
Hardware I/O ports	
Serial I/O support	Y
i8042 PC keyboard controller	is not set
Serial port line discipline	Y
PCI PS/2 keyboard and PS/2 mouse controller	is not set

Table 3-10: Device Drivers (Continued)

Description	Settings
PS/2 driver library	is not set
Raw access to serio ports	is not set
Gameport support	is not set
Character devices	
Virtual terminal	is not set
Nonstandard serial port support	is not set
Serial drivers	
8250/16550 and compatible serial support	is not set
<i>--- Non-8250 serial port support</i>	
Freescale MPC52xx family PSC serial support	Y
Console on a Freescale MPC52xx family PSC serial port	Y
Freescale MPC52xx family PSC serial port baud	9600
Freescale MPC52xxB family PSC serial port baud	115200
Digi International NEO PCI support	is not set
Unix98 PTY support	Y
Legacy (BSD) PTY support	Y
Maximum number of legacy PTY in use	256
IPMI	
IPMI top-level message handler	is not set
Watchdog Cards	
Watchdog Timer support	Y
Disable watchdog shutdown on close	is not set
<i>--- Watchdog Device Drivers</i>	
Software watchdog	is not set
<i>--- PCI-based Watchdog Cards</i>	
Berkshire Products PCI-PC Watchdog	is not set

Table 3-10: Device Drivers (Continued)

Description	Settings
PCI-WDT500/501 Watchdog timer	is not set
<i>--- USB-based Watchdog Cards</i>	
Berkshire Products USB-PC Watchdog	is not set
/dev/nvram support	is not set
Generic /dev/rtc emulation	Y
Extended RTC operation	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
Ftape, the floppy tape device driver	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) (Obsolete)	is not set
TPM devices	
TPM Hardware support	is not set
I2C support	
I2C support	Y
I2C device interface	is not set
I2C Algorithms	
I2C bit-banging interfaces	is not set
I2C PCF 8584 interfaces	is not set
I2C PCA 9564 interfaces	is not set
I2C Hardware Bus support	
ALI 1535	is not set
ALI 1563	is not set
ALI 15x3	is not set

Table 3-10: Device Drivers (Continued)

Description	Settings
AMD 756/766/768/8111 and nVidia nForce	is not set
AMD 8111	is not set
Intel 82801 (ICH)	is not set
Intel 810/815	is not set
Intel PIIX4	is not set
MPC107/824x/85xx/52xx	Y
Nvidia nForce2, nForce3, and nForce4	is not set
Parallel port adapter (light)	is not set
S3/VIA (Pro)Savage	is not set
S3 Savage 4	is not set
NatSemi SCx200 ACCESS.bus	is not set
SiS 5595	is not set
SiS 630/730	is not set
SiS 96x	is not set
I2C/SMBus Test Stub	is not set
VIA 82C586B	is not set
VIA 82C596/82C686/823x	is not set
Voodoo 3	is not set
PCA9564 on an ISA bus	is not set
Miscellaneous I2C Chip support	
Dallas Semiconductor DS1337 and DS1339 Real Time Clock	is not set
Maxim/Dallas Semiconductor DS1374 Real Time Clock	is not set
EEPROM reader	Y
Philips PCF8574 and PCF8574A	is not set
Philips PCA9539 16-bit I/O port	is not set
Philips PCF8591	is not set
Epson 8564 RTC chip	is not set

Table 3-10: Device Drivers (Continued)

Description	Settings
ST M41T00 RTC chip	is not set
Maxim MAX6875 Power supply supervisor	is not set
I2C Core debugging messages	is not set
I2C Algorithm debugging messages	is not set
I2C Bus debugging messages	is not set
I2C Chip debugging messages	is not set
Dallas's 1-wire bus	
Dallas's 1-wire support	is not set
Hardware Monitoring support	
Hardware monitoring support	Y
Analog Devices ADM1021 and compatibles	is not set
Analog Devices ADM1025 and compatibles	is not set
Analog Devices ADM1026 and compatibles	is not set
Analog Devices ADM1031 and compatibles	is not set
Analog Devices ADM9240 and compatibles	is not set
Asus ASB100 Bach	is not set
Attansic ATXP1 VID controller	is not set
Dallas Semiconductor DS1621 and DS1625	is not set
FSC Hermes	is not set
FSC Poseidon	is not set
Genesys Logic GL518SM	is not set
Genesys Logic GL520SM	is not set
ITE IT87xx and compatibles	is not set
National Semiconductor LM63	is not set
National Semiconductor LM75 and compatibles	is not set
National Semiconductor LM77	is not set
National Semiconductor LM78 and compatibles	is not set

Table 3-10: Device Drivers (Continued)

Description	Settings
National Semiconductor LM80	is not set
National Semiconductor LM83	is not set
National Semiconductor LM85 and compatibles	is not set
National Semiconductor LM87	is not set
National Semiconductor LM90 and compatibles	is not set
National Semiconductor LM92 and compatibles	is not set
Maxim MAX1619 sensor chip	is not set
National Semiconductor PC87360 family	is not set
Silicon Integrated Systems Corp. SiS5595	is not set
SMSC LPC47M10x and compatibles	is not set
SMSC LPC47B397-NC	is not set
VIA686A	is not set
Winbond W83781D, W83782D, W83783S, W83627HF, Asus AS99127F	is not set
Winbond W83L785TS-S	is not set
Winbond W83627HF, W83627THF, W83637HF, W83697HF	is not set
Winbond W83627EHF	is not set
Hardware Monitoring Chip debugging messages	is not set
Misc devices	is not set
Multimedia devices	
Video for Linux	is not set
Digital Video Broadcasting Devices	
DVB for Linux	is not set
Graphics support	
Support for frame buffer devices	is not set
Sound	

Table 3-10: Device Drivers (Continued)

Description	Settings
Sound card support	is not set
USB support	
Support for host-side USB	Y
USB verbose debug messages	is not set
<i>--- Miscellaneous USB options</i>	
USB device file system	is not set
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
ISP116X HCD support	is not set
OHCI HCD support	Y
OHCI support for on-chip PPC USB controller	Y
OHCI support for PCI-bus USB controllers	is not set
UHCI HCD (most Intel and VIA) support	is not set
SL811HS HCD support	is not set
<i>--- USB Device Class drivers</i>	
USB Bluetooth TTY support	is not set
USB modem (CDC ACM) support	is not set
USB printer support	is not set
<i>-- NOTE: USB_STORAGE enables SCSI, and 'SCSI disk support' may also be needed.</i>	
USB Mass Storage support	is not set
<i>--- USB Input Devices</i>	
USB Human Interface Device (full HID) support	is not set
USB HID Boot Protocol drivers	
USB HIDBP Keyboard (simple Boot) support	is not set

Table 3-10: Device Drivers (Continued)

Description	Settings
USB HIDBP Mouse (simple Boot) support	is not set
Aiptek 6000U/8000U tablet support	is not set
Wacom Intuos/Graphire tablet support	is not set
Acecad Flair 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
ITM Touch USB Touchscreen Driver	is not set
eGalax TouchKit USB Touchscreen Driver	is not set
X-Box gamepad support	is not set
ATI/X10 USB RF remote control	is not set
Keyspan DMR USB remote control (Experimental)	is not set
<i>--- USB Imaging devices</i>	
USB Mustek MDC800 Digital Camera 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>	
USB Network Adapters	
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
USB Monitor	Y
<i>--- USB port drivers</i>	
USB Serial Converter support	

Table 3-10: Device Drivers (Continued)

Description	Settings
USB Serial Converter support	is not set
<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
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 PhidgetKit support	is not set
USB PhidgetServo support	is not set
Siemens ID USB Mouse Fingerprint sensor support	is not set
USB LD driver	is not set
USB DSL modem support	is not set
USB Gadget Support	is not set
Support for USB Gadgets	is not set
MMC/SD Card support	
MMC support	is not set
InfiniBand support	
InfiniBand support	is not set
SN Devices	is not set
CAN Support	
Controller Area Network (CAN) support	Y
MSCAN support	Y
Debugging support for MSCAN driver	is not set

Table 3-11: File Systems

Description	Setting
Second extended file system support	Y
Ext2 extended attributes	Y
Ext2 execute in place support	is not set
Ext3 journalling file system support	is not set
Reiserfs support	is not set
JFS file system support	is not set
XFS 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
Inotify file change notification support	Y
Quota support	is not set
Dnotify support	Y
Kernel automounter support	is not set
Kernel automounter version 4 support (also supports v3)	is not set
CD-ROM/DVD File Systems	
ISO 9660 CD-ROM file system support	is not set
UDF file system support	is not set
DOS/FAT/NT File Systems	
MS-DOS file systemsupport	is not set
VFAT (Windows 95) file system support	is not set
NTFS file system support	is not set
Pseudo File Systems	
/proc file system support	Y
/proc/kcore support	is not set

Table 3-11: File Systems (Continued)

Description	Setting
<code>sysfs</code> file system support	Y
<code>/dev/pts</code> Extended Attributes	is not set
Virtual memory file system support (former <code>shm</code> file system)	is not set
Miscellaneous File Systems	
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
Journalling Flash File System (JFFS) support	Y
JFFS debugging verbosity (0 = quiet, 3 = noisy)	0
JFFS stats available in <code>/proc</code> file system	is not set
Journalling Flash File System v2 (JFFS2) support	Y
JFFS2 debugging verbosity (0 = quiet, 2 = noisy)	0
JFFS2 write-buffering support	is not set
Advanced compression options for JFFS2	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
Network File Systems	
NFS file system support	Y
Provide NFSv3 client support	Y

Table 3-11: File Systems (Continued)

Description	Setting
Provide client support for the NFSv3 ACL protocol extension	is not set
Provide NFSv4 client support (Experimental)	is not set
Allow direct I/O on NFS files (Experimental)	is not set
NFS server support	is not set
Root file system on NFS	Y
Secure RPC: Kerberos V mechanism (Experimental)	is not set
Secure RPC: SPKM3 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)	is not set
Coda file system support (advanced network file system)	is not set
Andrew File System (AFS) support (Experimental)	is not set
Partition Types	
Advanced partition selection	is not set
Native Language Support	
Base native language support	Y
Default NLS Option	iso8859-1
Codepage 437 (United States, Canada)	is not set
Codepage 737 (Greek)	is not set
Codepage 775 (Baltic Rim)	is not set
Codepage 850 (Europe)	is not set
Codepage 852 (Central/Eastern Europe)	is not set
Codepage 855 (Cyrillic)	is not set
Codepage 857 (Turkish)	is not set
Codepage 860 (Portuguese)	is not set
Codepage 861 (Icelandic)	is not set

Table 3-11: File Systems (Continued)

Description	Setting
Codepage 862 (Hebrew)	is not set
Codepage 863 (Canadian French)	is not set
Codepage 864 (Arabic)	is not set
Codepage 865 (Norwegian, Danish)	is not set
Codepage 866 (Cyrillic/Russian)	is not set
Codepage 869 (Greek)	is not set
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)	is not set
Hebrew character sets (ISO-8859-8, CP1255)	is not set
Windows CP1250 (Slavic/Central European Languages)	is not set
Windows CP1251 (Bulgarian, Belarusian)	is not set
ASCII (United States)	is not set
NLS ISO 8859-1 (Latin 1; Western European Languages)	M
NLS ISO 8859-2 (Latin 2; Slavic/Central European Languages)	is not set
NLS ISO 8859-3 (Latin 3; Esperanto, Galician, Maltese, Turkish)	is not set
NLS ISO 8859-4 (Latin 4; old Baltic character set)	is not set
NLS ISO 8859-5 (Cyrillic)	is not set
NLS ISO 8859-6 (Arabic)	is not set
NLS ISO 8859-7 (Modern Greek)	is not set
NLS ISO 8859-9 (Latin 5; Turkish)	is not set
NLS ISO 8859-13 (Latin 7; Baltic)	is not set
NLS ISO 8859-14 (Latin 8; Celtic)	is not set
NLS ISO 8859-15 (Latin 9; Western European Languages with Euro)	is not set
NLS KOI8-R (Russian)	is not set

Table 3-11: File Systems (Continued)

Description	Setting
NLS KOI8-U/RU (Ukrainian, Belarusian)	is not set
NLS UTF8	is not set

Table 3-12: MPC52xx CPM Options

Description	Setting
<i>--- Use USE Motorola BestComm API Implementation.</i>	
MPC52xx FEC Ethernet	Y
Use MDIO for PHY configuration	Y
Generic PHY support	Y
Support LXT971 PHY	Y
Support for MPC52xx GPIO control	Y

Table 3-13: Library Routines

Description	Setting
CRC-CCITT functions	is not set
<i>CRC32 functions</i>	is not set
CRC32c (Castagnoli et al.) Cyclic Redundancy-Check	is not set

Table 3-14: Profiling Support

Description	Setting
Profiling support (Experimental)	is not set

Table 3-15: Kernel Hacking

Description	Setting
Show timing information on <code>printks</code>	is not set
Kernel debugging	Y
Magic SysRq key	Y
Kernel log buffer size (16 => 64KB, 17 => 128KB)	17
Collect scheduler statistics	is not set
Debug memory allocations	is not set
Spinlock debugging	is not set
Sleep-inside-spinlock checking	is not set
kobject debugging	is not set
Compile the kernel with debug info	is not set
Debug file system	is not set
BlueCat Linux kernel debugger	is not set
Include <code>kgdb</code> kernel debugger	is not set
Include <code>xmon</code> kernel debugger	is not set
Include BDI-2000 user context switcher	is not set
Support for early boot texts over serial port	is not set

Table 3-16: Security Options

Description	Setting
Enable access key retention support	is not set
Enable different security models	is not set

Table 3-17: Cryptographic Options

Description	Setting
Cryptographic API	is not set
Hardware crypto devices	is not set

This chapter provides information about BlueCat Linux demo systems supported by the lite5200 BSP.

Demo Systems

Table 4-1 lists the demo systems supported in the lite5200 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 lite5200 BSP

Demo	Boot Devices Supported by Default	ROM Requirements	RAM Requirements
developer	Network (using on-board firmware) Network (using BlueCat Linux OS loader) ROM/Flash (using on-board firmware) ROM/Flash (using BlueCat Linux OS loader)	5254.5 KB	27732 KB
osloader	Network (using on-board firmware) ROM/Flash (using on-board firmware)	1246.5 KB	9426 KB
showcase	Network (using on-board firmware) Network (using BlueCat Linux OS loader) ROM/Flash (using on-board firmware) ROM/Flash (using BlueCat Linux OS loader)	4103 KB	20153 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 lite5200 BSP and provides important information about them.

Table 5-1: Device Drivers Supported by the lite5200 BSP

Hardware Device	Device Drivers	Location in Source Tree	Kernel Configuration Options
MPC52xx PSC	mpc52xx_uart.c	drivers/serial	CONFIG_SERIAL CONFIG_SERIAL_MPC52xx CONFIG_SERIAL_MPC52xx_CONSOLE
Fast Ethernet Controller	fec.c	arch/ppc/5xxx_io	CONFIG_FEC_ENET CONFIG_USE_MDIO CONFIG_FEC_LXT971
BestComm DMA Controller	sdma.c	arch/ppc/5xxx_io/bestcomm/	CONFIG_BESTCOMM_API
CAN Controller	*.c	pcan/drivers	CONFIG_CAN_BUS CONFIG_PCAN_MPC5200
Flash Memory	lite5200.c	drivers/mtd/maps	CONFIG_MTD CONFIG_MTD_PARTITIONS CONFIG_MTD_COMPLEX_MAPPING CONFIG_MTD_CFI CONFIG_MTD_CFI_AMDSTD CONFIG_MTD_LITE5200 CONFIG_MTD_LITE5200_LEN
I ² C	i2c-mpc.c	drivers/i2c/busses	CONFIG_I2C CONFIG_I2C_MPC
USB	ohci-*.c	drivers/usb/host	CONFIG_USB CONFIG_USB_OHCI_HCD
User space IRQ delivery	irq.c	arch/ppc	CONFIG_USER_IRQ CONFIG_SYSCCTL

Table 5-1: Device Drivers Supported by the lite5200 BSP (Continued)

Hardware Device	Device Drivers	Location in Source Tree	Kernel Configuration Options
GPIO	gpio.c	arch/ppc/5xxx_io	CONFIG_GPIO
PCI	mpc52xx_pci.c mpc52xx_pci_ub.c	arch/ppc/syslib	CONFIG_PCI

This chapter describes known problems and limitations of this release.

Lite5200/Lite5200B Target Board Problems and Limitations

The following are known problems and limitations of this release:

- The PCI interface is not tested for the Lite5200B board.
- BlueCat Linux is not booted with IDE support enabled in the kernel configuration.

