

BlueCat Linux Board Support Guide

BlueCat Linux Release 5.4

DOC-0755-00

for STx GP3SSA 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.linuxworks.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 <<i>filename</i>></code> <code>mv <<i>file1</i>> <<i>file2</i>></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 STx GP3SSA Boards provides information about the BlueCat Linux Board Support Package (BSP) for the STx GP3SSA board.

GP3-SSA is a mini-ITX form factor PowerPC motherboard with integral cryptographic accelerator and high-speed Ethernet. This is ideal for network security/virtual storage applications. Each GP3-SSA incorporates the following:

- Freescale e500-based CPU running at 833+ MHz
- Integrated encryption hardware engine
- Dual Gigabit Ethernet
- 10/100 debug Ethernet
- RS-232 serial port
- JTAG/COP interface for processor
- Dual IDE controller interface for CD-ROM, HDD, or both /see 2.2.11/
- I2C device for configuration
- High capacity DIMM module for RAM
- Flash memory on board up to 32 megabytes
- PCI card-edge expansion slot
- PMC card slot expansion slot
- Mini-PCI card expansion slot (for 802.11n, UWB, radios)
- Real time clock
- Firewire port
- Local bus expansion slot (supports STx G3Pio Xilinx Virtex 2pro FPGA)

Throughout this Board Support Guide (BSG), the BSP is referred to as the “GP3SSA” and the target board is referred to as the “STx GP3SSA board” or simply as the “target board.”

Features Overview

This 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
STx GP3SSA board	<ul style="list-style-type: none">• e500 Book E core available from 800 MHz up to 1.5 GHz• DDR Controller—up to 512MB DDR• PCI Interface - PCI-X bus through PMC Connectors• Serial Ports—two channel of RS-232• Flash -up to 32 MB• Ethernet—dual Gigabit Ethernet• RTC• On-board PCI-IDE controller

Available LynuxWorks Development Tools

Please contact your LynuxWorks Account Manager for information about the availability of the following premium LynuxWorks 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 Red Hat Enterprise Linux 4
- PC running Windows XP Pro

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 GP3SSA 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 GP3SSA 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 GP3SSA 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 U-Boot firmware
- 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:

- U-Boot 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.

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 two serial ports. The first port is used both by the U-Boot firmware and BlueCat Linux as the system console.

The serial port connected to the target serial port has a baud rate of 38400.

Throughout this chapter, the terminal window connected to the serial connector is referred to as the "*U-Boot 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 STx GP3SSA 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 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*.

Setting Up the Network

Before downloading BlueCat Linux to the target board, enter the following commands to set up network parameters:

```
set ipaddr <target_IP_address>
set serverip <host_IP_address>
set netmask <netmask>
set gatewayip <gateway_IP_address>
save
```

where *<target_IP_address>* is the target board IP address, *<host_IP_address>* is the IP address of the development host, *<netmask>* is the netmask, and *<gateway_IP_address>* is the gateway IP address of the network.

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 U-Boot 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 U-Boot Firmware

To download a BlueCat Linux embedded system into the 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. The only limitation is that the demo size should allow for storing the demo into the target Flash memory.

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 prompt, enter the following commands:

```
GP3ssa=> tftp 0x100000 osloader.kdi
GP3ssa=> erase ffc00000 fff7ffff
GP3ssa=> cp 0x100000 ffc00000 54300
```

where `54300` is the size of `osloader.kdi` divided by 4.

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:

```
GP3ssa=> go ffc07000
```

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 Linux 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. The only limitation is that the demo size should allow for storing the demo into the target Flash memory.

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 10. The BlueCat Linux OS loader prompt (`>`) appears 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 FILE tftp osloader.kdi
> exec flash_fdisk /dev/mtdchar0 0-29
> 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 0-29 is a correct parameter for the `osloader` demo system:

$$32\text{KB} + 16\text{KB} + 16\text{KB} + 64\text{KB} + 128\text{KB} * (30 - 4) = 3456\text{KB}$$

where 32 KB is the size of the first sector, 16 KB is the size of the second and third sectors, 64 KB is the size of the fourth sector, and 128 KB is the size of each of the other sectors. The calculated value 3456 KB is greater than the ROM requirement for the `osloader` demo (1379 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, enter the following command at the firmware prompt:

```
GP3ssa=> go ffc07000
```

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 U-boot firmware or the BlueCat Linux OS loader.

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 1.1.2 (gp3-20040803-0) rev1/w (Apr 4 2006 - 08:22:39)
```

```

Freescale PowerPC
  Core: E500, Version: 2.0, (0x80200020)
  System: 8555, Version: 1.1, (0x80790011)
  Clocks: CPU: 660 MHz, CCB: 264 MHz, DDR: 132 MHz, LBC: 66 MHz
  L1 D-cache 32KB, L1 I-cache 32KB enabled.
Board: Silicon Tx GP3ssa
I2C: ready
DRAM: 256 MB
tsm: Apr 4 2006 08:22:48 ccsr=E0000000 in Flash ....
FLASH: 4 MB
L2 cache enabled: 256KB
In: serial
Out: serial
Err: serial
Net: MOTO ENET0: PHY is Marvell 88E1111 (1410cc1)
MOTO ENET1: PHY is Marvell 88E1111 (1410cc1)
MOTO ENET0, MOTO ENET1
Hit any key to stop autoboot: 0
GP3SSA=>

```

3. To download the `osloader` demo image, enter the following command:

```

GP3ssa=> tftp 0x100000 osloader.kdi
MOTO ENET0: No link.
Speed: 100, half duplex
Using MOTO ENET1 device
TFTP from server 192.168.4.41; our IP address is 192.168.4.47
Filename 'osloader.kdi'.
Load address: 0x100000
Loading:
#####
#####
#####
#####
done
Bytes transferred = 3871232 (3b1200 hex)
GP3ssa=>

```

4. To boot a BlueCat Linux system, enter the `go` command:

```

GP3ssa=>go 0x107000
## Starting application at 0x00107000 ...
loaded at: 00800000 00A4E600
zimage at: 00805885 00914500
initrd at: 00918000 00A4E600
avail ram: 00400000 00800000

Linux/PPC load: console=ttyS1,38400 root=/dev/ram rw hda=bswap
hdb=bswap
hdc=bswap hdd=bswap root=101
Uncompressing Linux...done.
Now booting the kernel
Memory CAM mapping: CAM0=256Mb, CAM1=0Mb, CAM2=0Mb residual: 0Mb
Linux version 2.6.13.4 (bin@build3) (gcc version 3.4.3) #4 Wed Oct 11
05:10:14 EDT 2006
Built 1 zonelists
Kernel command line: console=ttyS1,38400 root=/dev/ram rw hda=bswap

```

```
hdb=bswap hdc=bswap hdd=bswap root=101
OpenPIC Version 1.2 (1 CPUs and 60 IRQ sources) at fbfb9000
PID hash table entries: 2048 (order: 11, 32768 bytes)
Dentry cache hash table entries: 65536 (order: 6, 262144 bytes)
Inode-cache hash table entries: 32768 (order: 5, 131072 bytes)
Memory: 255744k available (1832k kernel code, 460k data, 108k init, 0k
highmem)
Mount-cache hash table entries: 512
NET: Registered protocol family 16
PCI: Probing PCI hardware
JFFS2 version 2.2. (NAND) (C) 2001-2003 Red Hat, Inc.
Generic RTC Driver v1.07
Serial: 8250/16550 driver $Revision: 1.90 $ 4 ports, IRQ sharing
disabled
ttyS0 at MMIO 0xe0004500 (irq = 90) is a 16550A
ttyS1 at MMIO 0xe0004600 (irq = 90) is a 16550A
io scheduler noop registered
io scheduler anticipatory registered
io scheduler deadline registered
io scheduler cfq registered
RAMDISK driver initialized: 16 RAM disks of 32768K size 1024 blocksize
loop: loaded (max 8 devices)
eth0: Gianfar Ethernet Controller Version 1.1, 00:e:0:c:07:9b:8a
eth0: Running with NAPI enabled
eth0: 256/256 RX/TX BD ring size
eth1: Gianfar Ethernet Controller Version 1.1, 63:6:d:64:3d:62:6f
eth1: Running with NAPI enabled
eth1: 256/256 RX/TX BD ring size
Uniform Multi-Platform E-IDE driver Revision: 7.00alpha2
ide: Assuming 33MHz system bus speed for PIO modes; override with
idebus=xx
IT8212: IDE controller at PCI slot 0001:01:12.0
IT8212: chipset revision 17
it8212: forcing chip initialization
it821x: controller in pass through mode.
IT8212: 100% native mode on irq 123
    ide0: BM-DMA at 0x1ffffd0-0x1ffffd7, BIOS settings: hda:pio, hdb:pio
    ide1: BM-DMA at 0x1ffffd8-0x1ffffdf, BIOS settings: hdc:pio, hdd:pio
hda: IBM-DJNA-371350, ATA DISK drive
ide0 at 0x1fffff8-0x1ffffff,0x1fffff6 on irq 123
hda: max request size: 128KiB
hda: 26520480 sectors (13578 MB) w/1966KiB Cache, CHS=26310/16/63,
UDMA(33)
hda: cache flushes not supported
    hda: unknown partition table
physmap flash device: 400000 at ffc00000
physmap_flash: Found 2 x16 devices at 0x0 in 32-bit bank
    Amd/Fujitsu Extended Query Table at 0x0040
number of CFI chips: 1
cfi_cmdset_0002: Disabling erase-suspend-program due to code
brokenness.
physmap flash device: configuration of partitions is :
physmap flash device: configured 0 partitions
i2c /dev entries driver
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
```

```
RAMDISK: Compressed image found at block 9312
Freeing BlueCat RFS memory: 1241k freed
EXT2-fs warning: checktime reached, running e2fsck is recommended
VFS: Mounted root (ext2 filesystem).
Freeing unused kernel memory: 108k 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 10.
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.

Booting BlueCat Linux Using the Root File System Installed onto a Hard Disk

This section describes an additional scenario to boot a BlueCat Linux system from Flash using the root file system installed onto a hard disk. This scenario includes the following main steps:

1. Installing the root file system on a hard disk using the `i_osloader` demo system
2. Creating a BlueCat Linux KDI that uses the root file system installed on the hard disk and downloading this KDI into Flash
3. Booting BlueCat Linux from Flash using the root file system from the hard disk

Installing BlueCat Linux Root File System on a Hard Disk

This section describes how to install the root file system on a hard disk using the `i_osloader` demo system. This section uses the `developer` demo system as an example. To install the root file system for `developer` on a hard disk, perform the following steps:

1. Attach an IDE hard disk to the target board.
2. Copy `developer.tar` from the `$BLUECAT_PREFIX/demo/developer` directory to the `/tftpboot` directory on the cross-development host:

```
BlueCat:$ cp \  
$BLUECAT_PREFIX/demo/developer/developer.tar \  
/tftpboot
```

3. Copy `i_osloader.kdi` from the `$BLUECAT_PREFIX/demo/osloader` directory to the `/tftpboot` directory on the cross-development host:

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

4. Boot the `i_osloader.kdi` onto the target board as described in the “Booting a BlueCat Linux System from a Network” on page 10.

5. Set the BLOSH environment variables, specifying the BlueCat Linux system to copy:

```
> set IF <ethernet_interface>
> set IP <target_board_IP>
> set HOST <development_host_IP>
> set FILE tftp developer.tar
```

where *<ethernet_interface>* is the Ethernet interface for the TFTP server being used to download BlueCat Linux, *<target_board_IP>* is the target IP address, *<development_host_IP>* is the cross-development host IP address, and *FILE* points to the tar image of the root file system, *developer*. For example:

```
> set IF eth0
> set IP 192.168.4.19
> set HOST 192.168.4.41
> set FILE tftp developer.tar
```

6. Create the file system on the hard disk:

```
> exec mke2fs /dev/hda
```

In the above example, */dev/hda* is the name of the hard disk device.

7. Mount the hard disk device, change to the mounted directory, copy the image from the TFTP server, and untar it using the `ntar` command:

```
> mount /dev/hda /mnt
> cd /mnt
> ntar
```

8. Unmount the hard disk.

```
> cd /
> umount /mnt
```

9. Reset the target board.

```
> sync
> sync
> reset
```

As a result, the root file system of the `developer` demo system is installed on the hard disk.

Downloading a BlueCat Linux System into Flash

Prior to downloading the `developer` demo system into Flash, execute the command below on the development host in the `developer` demo system directory. This command specifies that the root file system is to be used from a hard disk.

```
BlueCat:$ echo root=0300 | \  
mkboot -m -k developer.disk -c stdin developer.kdi
```

where `0300` corresponds to `/dev/hda` (this parameter should be corrected in accordance to the hard disk device).

Download the `developer` demo system into Flash using one of the scenarios described in “Downloading a BlueCat Linux System into Flash” on page 7.

Booting BlueCat Linux from Flash Using the Root File System from the Hard Disk

To boot the `developer` demo system from the Flash memory using the root file system from the hard disk, enter the `go` command:

```
GP3ssa=> go ffc07000  
## Starting application at 0x0FF07000 ...  
loaded at:      00800000 0092D000  
zimage at:     00805861 00929DF9  
avail ram:     00400000 00800000  
  
Linux/PPC load: root=0300 ramdisk_size=28472 hda=bswap hdb=bswap  
hdc=bswap hdd=bswap  
Uncompressing Linux...done.  
Now booting the kernel  
Memory CAM mapping: CAM0=256Mb, CAM1=0Mb, CAM2=0Mb residual: 0Mb  
Linux version 2.6.13.4 (root@sudoers.auriga.ru) (gcc version 3.4.3) #37  
Fri Oct 13 07:17:30 EDT 2006  
Built 1 zonelists  
Kernel command line: root=0300 ramdisk_size=28472 hda=bswap hdb=bswap  
hdc=bswap hdd=bswap  
OpenPIC Version 1.2 (1 CPUs and 60 IRQ sources) at fbfb9000  
PID hash table entries: 2048 (order: 11, 32768 bytes)  
Dentry cache hash table entries: 65536 (order: 6, 262144 bytes)  
Inode-cache hash table entries: 32768 (order: 5, 131072 bytes)  
Memory: 256896k available (1828k kernel code, 464k data, 324k init, 0k  
highmem)  
Mount-cache hash table entries: 512  
NET: Registered protocol family 16  
PCI: Probing PCI hardware  
JFFS2 version 2.2. (NAND) (C) 2001-2003 Red Hat, Inc.  
Generic RTC Driver v1.07  
Serial: 8250/16550 driver $Revision: 1.90 $ 4 ports, IRQ sharing disabled  
ttyS0 at MMIO 0xe0004500 (irq = 90) is a 16550A  
ttyS1 at MMIO 0xe0004600 (irq = 90) is a 16550A  
io scheduler noop registered  
io scheduler anticipatory registered  
io scheduler deadline registered
```

```
io scheduler cfq registered
RAMDISK driver initialized: 16 RAM disks of 28472K size 1024 blocksize
loop: loaded (max 8 devices)
eth0: Gianfar Ethernet Controller Version 1.1, 00:e0:0c:07:9b:8a
eth0: Running with NAPI enabled
eth0: 256/256 RX/TX BD ring size
eth1: Gianfar Ethernet Controller Version 1.1, 63:6d:64:3d:62:6f
eth1: Running with NAPI enabled
eth1: 256/256 RX/TX BD ring size
Uniform Multi-Platform E-IDE driver Revision: 7.00alpha2
ide: Assuming 33MHz system bus speed for PIO modes; override with
idebus=xx
IT8212: IDE controller at PCI slot 0001:01:12.0
IT8212: chipset revision 17
it821x: controller in pass through mode.
IT8212: 100% native mode on irq 123
    ide0: BM-DMA at 0x1ffffd0-0x1ffffd7, BIOS settings: hda:DMA, hdb:pio
    ide1: BM-DMA at 0x1ffffd8-0x1ffffdf, BIOS settings: hdc:pio, hdd:pio
hda: IBM-DJNA-371350, ATA DISK drive
ide0 at 0x1fffff8-0x1ffffff,0x1fffff6 on irq 123
hda: max request size: 128KiB
hda: 26520480 sectors (13578 MB) w/1966KiB Cache, CHS=26310/16/63,
UDMA(33)
hda: cache flushes not supported
    hda: unknown partition table
physmap flash device: 400000 at ffc00000
phys_mapped_flash: Found 2 x16 devices at 0x0 in 32-bit bank
    Amd/Fujitsu Extended Query Table at 0x0040
number of CFI chips: 1
cfi_cmdset_0002: Disabling erase-suspend-program due to code brokenness.
physmap flash device: configuration of partitions is :
physmap flash device: configured 0 partitions
i2c /dev entries driver
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
RAMDISK: ext2 filesystem found at block 0
RAMDISK: image too big! (13260240KiB/28472KiB)
EXT2-fs warning: mounting unchecked fs, running e2fsck is recommended
VFS: Mounted root (ext2 filesystem).
Freeing unused kernel memory: 324k init
INIT: version 2.85 booting
eth0: PHY is Marvell 88E1101/88E1111 (1410cc1)
/etc/rc.d/rc.sysinit: line 22: routed: command not found
INIT: Entering runlevel: 1

myhostname login:
```


Kernel Configuration Options

The GP3SSA 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 GP3SSA BSP Distribution” below. Boldfaced entries in the tables represent subordinate menus. Italicized entries represent comments.

Table 3-1: BlueCat Linux Default Configuration for the GP3SSA 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: “CPM2 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 GP3SSA 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 <code>.config</code> 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	is not set
Enable support for <code>printk</code>	Y
BUG() support	Y
Enable full-sized data structures for core	Y
Enable futex support	Y
Enable eventpoll support	is not set
CODETEST device driver configuration	is not set
Optimize for size	is not set
Use full <code>shmem</code> 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	Y
Module versioning support (Experimental)	Y
Source checksum for all modules	Y
Automatic kernel module loading	Y

Table 3-5: Processor

Description	Setting
Processor Type (e500)	
6xx/7xx/74xx/52xx/82xx/83xx	is not set
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	Y
Large physical address support	is not set
SPE support	Y
Math emulation	Y
kexec system call (Experimental)	is not set
CPU frequency scaling	is not set
Freescale 85xx options	
Machine type (Silicon Turnkey Express GP3-SSA)	
Freescale MPC8540 ADS	is not set
Freescale MPC8548 CDS	is not set
Freescale MPC8555 CDS	is not set
Freescale MPC8560 ADS	is not set
Wind River PowerQUICC III SBC8560	is not set
Silicon Turnkey Express GP3	is not set
Silicon Turnkey Express GP3-SSA	Y
Support for 2nd PCI host controller	Y
IRQ to user delivery	is not set

Table 3-6: Platform Options

Description	Setting
PC PS/2-style keyboard	is not set
High memory support	is not set
Timer frequency (250 HZ)	
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 boot loader kernel arguments	Y
Initial kernel command string	Console=ttyS1, 38400 root=/dev/ram rw
Power Management support	is not set
Enable <code>seccomp</code> 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
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 IO	is not set
UNIX domain sockets	Y
PF_KEY sockets	is not set
TCP/IP networking	Y
IP: multicasting	Y
IP: advanced router	is not set
IP: kernel level autoconfiguration	is not set

Table 3-9: Networking (Continued)

Description	Setting
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
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
The IPv6 protocol	is not set
Network packet filtering (replaces ipchains)	is not set
The SCTP Protocol (Experimental)	
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

Table 3-9: Networking (Continued)

Description	Setting
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
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
Memory Technology Devices	
Memory Technology Device (MTD) support	Y
Debugging	is not set
MTD concatenating support	Y
MTD partitioning support	Y
RedBoot partition table parsing	is not set
Command line partition table parsing	Y
<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

Table 3-10: Device Drivers (Continued)

Description	Settings
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
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	is not set
CFI Flash device in physical memory map	Y
Physical start address of Flash mapping	0x8000000
Physical length of Flash mapping	0x4000000
Bank width in octets	2
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

Table 3-10: Device Drivers (Continued)

Description	Settings
MTD using block device (rewrite)	is not set
--- <i>Disk-On-Chip Device Drivers</i>	is not set
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
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	
Block Devices	
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	Y
Cryptoloop 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 (kbytes)	32768
Initial RAM disk (<code>initrd</code>) support	is not set
Initramfs source file(s)	is not set

Table 3-10: Device Drivers (Continued)

Description	Settings
BlueCat Linux RFS support	Y
Support for Large Block Devices	is not set
Packet writing on CD-ROM/DVD media	is not set
IO Schedulers	
Anticipatory I/O scheduler	Y
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	Y
Sharing PCI IDE interrupts support	Y
Boot off-board chipsets first support	is not set
Generic PCI IDE chipset Support	Y
Sharing PCI IDE interrupts support	is not set

Table 3-10: Device Drivers (Continued)

Description	Settings
Boot off-board chipsets first support	is not set
Generic PCI IDE chipset Support	Y
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
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
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
IT821X IDE support	Y
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

Table 3-10: Device Drivers (Continued)

Description	Settings
Tekram TRM290 chipset support	is not set
VIA82CXXX chipset support	is not set
Ignore word93 Validation Bits	is not set
SCSI device support	is not set
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	is not set
IEEE 1394 (FireWire) support	is not set
I2O device support	
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	is not set
Ethernet (10 or 100 Mbit)	
Ethernet (10 or 100 Mbit)	Y

Table 3-10: Device Drivers (Continued)

Description	Settings
Ethernet (1000 Mbit)	
--- <i>Generic Media Independent Interface device support</i>	
Sun Happy Meal 10/100baseT support	is not set
Sun GEM support	is not set
3Com cards	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	Y
AMD PCnet32 PCI support	is not set
AMD 8111 (new PCI lance) support	is not set
Adaptec Starfire/DuraLAN support	is not set
Broadcom 4400 Ethernet support (Experimental)	is not set
Reverse Engineered nForce Ethernet support (Experimental)	is not set
Digi International RightSwitch SE-X support	is not set
EtherExpressPro/100 support (eeepro100, original Becker driver)	is not set
Intel PRO/100+ support	is not set
Myson MTD-8xx PCI Ethernet support	is not set
National Semiconductor DP8381x series PCI Ethernet support	is not set
PCI NE2000 and clones support (see help)	is not set
RealTek RTL-8139 C+ PCI Fast Ethernet Adapter support (Experimental)	is not set
RealTek RTL-8129/8130/8139 PCI Fast Ethernet Adapter support	is not set
SiS 900/7016 PCI Fast Ethernet Adapter support	is not set
SMC EtherPower II	is not set
Sundance Alta support	is not set
TI ThunderLAN support	is not set

Table 3-10: Device Drivers (Continued)

Description	Settings
VIA Rhine support	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
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 SysKonnnect GigaEthernet support (Experimental)	is not set
Marvell Yukon Chipset/SysKonnnect SK-98xx Support	is not set
VIA Velocity support	is not set
Broadcom Tigon3 support	is not set
Broadcom NetXtremeII support	is not set
Gianfar Ethernet	Y
NAPI support	Y
Ethernet (10000 Mbit)	
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 (nonham radio)	
Wireless LAN drivers (nonham radio) and wireless extensions	is not set
Wan interfaces	is not set
WAN interfaces support	is not set
Fiber Distributed Data Interface (FDDI) driver support	is not set

Table 3-10: Device Drivers (Continued)

Description	Settings
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	
ISDN support	is not set
Telephony Support	
Linux telephony support	is not set
Input device support	
Generic input layer (needed for keyboard, mouse, ...)	Y
<i>---Userland interfaces</i>	
Mouse interface	is not set
Joystick interface	is not set
Touchscreen interface	is not set
Event interface	is not set
Event debugging	is not set
<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	

Table 3-10: Device Drivers (Continued)

Description	Settings
Serial I/O support	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	Y
Console on 8250/16550 and compatible serial port	Y
Maximum number of 8250/16550 serial ports	4
Extended 8250/16550 serial driver options	is not set
<i>--- Non-8250 serial port support</i>	
CPM SCC/SMC serial port support	is not set
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	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

Table 3-10: Device Drivers (Continued)

Description	Settings
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	Y
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
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
ISA Bus support	is not set
MPC107/824x/85xx/52xx	Y
NVIDIA nForce2, nForce3, and nForce4	is not set
Parallel port adapter (light)	is not set

Table 3-10: Device Drivers (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
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	Y
Maxim/Dallas Semiconductor DS1374 Real Time Clock	is not set
EEPROM reader	is not set
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
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

Table 3-10: Device Drivers (Continued)

Description	Settings
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	y
National Semiconductor LM77	is not set
National Semiconductor LM78 and compatibles	is not set
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

Table 3-10: Device Drivers (Continued)

Description	Settings
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	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	Y
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	
Sound card support	is not set
USB support	
Support for host-side USB	is not set
USB Gadget Support	
Support for USB Gadgets	is not set
MMC/SD Card support	
MMC support	is not set
InfiniBand support	

Table 3-10: Device Drivers (Continued)

Description	Settings
InfiniBand support	is not set
SN Devices	is not set
CAN Support	
Controller Area Network (CAN) support	is not set

Table 3-11: File Systems

Description	Setting
Second extended file system support	Y
Ext2 extended attributes	is not set
Ext2 execute in place support	is not set
Ext3 journalling file system support	Y
Ext3 extended attributes	Y
Ext3 POSIX Access Control Lists	is not set
Ext3 Security Labels	is not set
JBD (ext3) debugging support	is not set
Reiserfs support	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

Table 3-11: File Systems (Continued)

Description	Setting
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 system support	is not set
VFAT (Windows 95) file system support	is not set
NTFS file system support	is not set
Pseudo File Systems	
<code>/proc</code> file system support	Y
<code>/proc/kcore</code> support	Y
<code>sysfs</code> file system support	Y
<code>/dev/pts</code> Extended Attributes	is not set
Virtual memory file system support (former shm file system)	Y
<code>tmpfs</code> Extended Attributes	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	is not set
Journalling Flash File System v2 (JFFS2) support	Y
JFFS2 debugging verbosity (0 = quiet, 2 = noisy)	0

Table 3-11: File Systems (Continued)

Description	Setting
JFFS2 write-buffering support	Y
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	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
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	Y
Acorn partition support	is not set
Alpha OSF partition support	is not set
Amiga partition table support	is not set

Table 3-11: File Systems (Continued)

Description	Setting
Atari partition table support	is not set
Macintosh partition map support	is not set
PC BIOS (MS-DOS partition tables) support	is not set
Windows Logical Disk Manager (Dynamic Disk) 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
Native Language Support	
Base native language support	is not set

Table 3-12: CPM2 Options

Description	Setting
CPM SCC Ethernet	is not set
FCC Ethernet	is not set

Table 3-13: Library Routines

Description	Setting
CRC-CCITT functions	is not set
---CRC32 functions	
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	is not set
BlueCat kernel debugger	is not set
Enable serial console through <code>kgdb</code> port	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 GP3SSA BSP.

Demo Systems

Table 4-1 lists the demo systems supported in the GP3SSA 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 GP3SSA BSP

Demo	Boot Devices Supported by Default	ROM Requirements	RAM Requirements
developer	Network (using U-Boot firmware) Network (using BlueCat Linux OS loader)	9285 KB	27732 KB
osloader	Network (using U-Boot firmware) ROM/Flash (using U-Boot firmware)	1379 KB	9426 KB
showcase	Network (using U-Boot firmware) Network (using BlueCat Linux OS loader) ROM/Flash (using U-Boot firmware) ROM/Flash (using BlueCat Linux OS loader)	3769 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.

CHAPTER 5 *Supported Device Drivers*

Table 5-1 lists the device drivers supported by the GP3SSA BSP and provides important information about them.

Table 5-1: Device Drivers Supported by the GP3SSA BSP

Hardware Device	Device Drivers	Location in Source Tree	Kernel Configuration Options
16550 UART	8250.c	drivers/serial	CONFIG_SERIAL_8250 CONFIG_SERIAL_8250_CONSOLE
Gbit Ethernet	gianfar.c gianfar_phy.c	drivers/net	CONFIG_GIANFAR
Flash Memory	physmap.c	drivers/mtd/maps	CONFIG_MTD CONFIG_MTD_PARTITIONS CONFIG_MTD_COMPLEX_MAPPING CONFIG_MTD_CFI CONFIG_MTD_CFI_AMDSTD CONFIG_MTD_PHYSMAP
PCI	ppc85xx_setup.c	arch/ppc/syslib	CONFIG_PCI
Onboard PCI-IDE	it821x.c	drivers/ide/pci	CONFIG_IDE CONFIG_BLK_DEV_IDE CONFIG_BLKDEV_IDE_DISK CONFIG_BLK_DEV_IT821X
User-space IRQ delivery	irq.c	arch/ppc	CONFIG_USER_IRQ CONFIG_SYSCT
RTC	ds1337.c	drivers/rtc	CONFIG_I2C_SENSOR CONFIG_SENSORS_DS1337

