

BlueCat Linux Target Support Guide

DOC-0376-00

For Motorola CPN5360 Boards

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The *BlueCat Linux Target Support Guide (TSG) for Motorola CPN5360 Boards* describes the BlueCat Linux Target Support Package (TSP) for the CPN5360 boards (based the Intel x86 architecture).

The cpn5360 Target Support Package (TSP) contains all the binary and source files necessary to build and run a customized BlueCat Linux embedded system on the CPN5360 board. These files are:

- `cpn5360_linux_bin.tgz`
- `cpn5360_linux_src.tgz`
- `cpn5360_win_bin.tgz`
- `cpn5360_win_src.tgz`
- `install_cpn5360.sh`

Throughout this TSG, the target board is referred to as the “CPN5360” and the TSP as the “cpn5360.”

Unless otherwise specified, this guide covers all the details related to BlueCat Linux on Linux and Windows-based cross development hosts

- **Chapter 1** is an overview of the TSG’s chapters.
- **Chapter 2** describes copying/downloading and booting BlueCat Linux on the CPN5360.
- **Chapter 3** provides configuration information about the prebuilt BlueCat Linux kernel contained in the cpn5360 TSP.
- **Chapter 4** in this guide summarizes the BlueCat Linux demo systems supported on the CPN5360 target board.
- **Chapter 5** shows the supported device drivers.

Booting BlueCat Linux on CPN5360 Targets

This chapter describes the BlueCat Linux download and boot procedure for the CPN5360 target board.

Installing the CPN5360 Distribution

Before booting BlueCat Linux on the target board, it must first be correctly installed on a Linux or a Windows cross development host.

Installing the Distribution on a Linux Host

Installation of the CPN5360 binary is performed using the base release of BlueCat Linux for the CPV5350 target board.

To install BlueCat Linux on CPN5360, ensure that BlueCat Linux distribution for the CPV5350 target board is installed on the cross development host.

The CPN5360 binary distribution is provided as a tar file `cpn5360_linux_bin.tgz` containing the files:

- `kernel_trg-bcboot-2.2.12-1.i386.rpm`
- `kernel_trg-cpci_cpv5350-2.2.12-1.i386.rpm`
- `kernel_trg-doc-2.2.12-1.i386.rpm`
- `kernel_trg-headers-2.2.12-1.i386.rpm`
- `kernel_trg-pcmcia-cs-2.2.12-1.i386.rpm`
- `kernel_trg-source-2.2.12-1.i386.rpm`
- `demo_trg-cpci_cpv5350-1.0-1.i386.rpm`
- `SETUP.sh.cpn5360`

- `uninstall.sh`
- `change_cpn5360`

Use the following procedure to install the cpn5360 Target Support Package (TSP) for a Linux cross development host:

1. Install the BlueCat Linux distribution for the CPV5350 board on a Linux cross development host. (Refer to the section entitled “Installing BlueCat Linux” in the *BlueCat Linux User’s Guide* for directions on installing BlueCat Linux for the CPV5350 board.)

2. The following files from the CPN5360 distribution are required:

```
- install_cpn5360.sh
- cpn5360_linux_bin.tgz
```

3. Change to the directory where the binary files for the CPN5360 distribution are stored, for example:

```
# cd /tmp/cpn5360/
```

It is assumed that `install_cpn5360.sh` and `cpn5360_linux_bin.tgz` are stored in the `/tmp/cpn5360/` directory.

4. Run the `install` script with the following options:

```
# ./install_cpn5360.sh -xy -bcpn5360 \
-d/home/BlueCat
```

It is assumed that the CPV5350 binary distribution is installed in `/home/BlueCat/`.

This command installs the cpn5360 TSP in `/home/BlueCat`. It also copies two other files, `uninstall.sh` and `change_cpn5360` in the `/home/BlueCat` directory. These files can be used to uninstall the cpn5360 TSP.

Running this command retains all the base (CPV5350) distribution demo systems, which are *not* supported by default for the cpn5360 TSP.

(For information on the `install` script, see Appendix A.)

5. After installation is complete, the following message appears on screen:

```
"Installation Complete...Execute \  
. SETUP.sh"
```

6. The above screen output is a prompt to change to the BlueCat Linux installation directory and execute the setup script:

```
# cd /home/BlueCat/  
  
# . SETUP.sh
```

This enables the BlueCat Linux environment for the CPN5360 board.

NOTE: *If required the distribution that has been installed can be removed using the `uninstall.sh` script file. Refer to the section entitled "Uninstallation" for details.*

Installing the CPN5360 Source on a Linux Host

Use the following procedure to install a source RPM:

1. Get a copy of the tar file provided for the CPN5360 target:

```
cpn5360_linux_src.tgz
```

The tar file `cpn5360_linux_src.tgz` has the following source RPM files:

```
- kernel_trg-2.2.12-1.src.rpm  
- demo_trg-1.0-1.src.rpm
```

2. Copy the tar file to a temporary folder, e.g., `/tmp/cpn5360`.

```
# cp cpn5360_linux_src.tgz /tmp/cpn5360
```

3. Untar the file:

```
# tar -xvzf cpn5360_linux_src.tgz
```

Upon execution of this command, the source RPMs, i.e., `kernel_trg-2.2.12-1.src.rpm` and `demo_trg-1.0-1.src.rpm`, are placed in the `/tmp/cpn5360` directory.

4. Change to the directory where the BlueCat Linux distribution for CPN5360 is installed.

```
# cd /home/BlueCat
```

5. Execute `. SETUP.sh` to enable the BlueCat Linux environment. Do this only if not already in the BlueCat Linux environment.
6. Install a source RPM with the `rpm` command:

```
# rpm -i /tmp/cpn5360/\
kernel_trg-2.2.12-1.src.rpm
```

Upon execution of this command, the `kernel_trg.spec` file, i.e., the RPM specification file, is placed in the `$BLUECAT_PREFIX/cdt/src/bluecat/SPECS` directory. The corresponding source tar files are placed in the `$BLUECAT_PREFIX/cdt/src/bluecat/SOURCES` directory. For details, refer to “Installing Sources of BlueCat Linux RPM Packages” in the *BlueCat Linux User’s Guide*.

The `demo_trg` RPM can be similarly installed.

Installing the Distribution on a Windows Host

The installation of the CPN5360 TSP for a Windows host requires the CPV5350 binary for a Windows host.

The binary distribution of CPN5360 is in the form of a tar file, `cpn5360_win_bin.tgz`. This file contains the following files:

- `kernel_trg-bcboot-2.2.12-1.i386.rpm`
- `kernel_trg-cpci_cpv5350-2.2.12-1.i386.rpm`
- `kernel_trg-doc-2.2.12-1.i386.rpm`
- `kernel_trg-headers-2.2.12-1.i386.rpm`
- `kernel_trg-pcmcia-cs-2.2.12-1.i386.rpm`
- `kernel_trg-source-2.2.12-1.i386.rpm`
- `demo_trg-cpci_cpv5350-1.0-1.i386.rpm`
- `SETUP.sh.cpn5360`
- `uninstall.sh`
- `change_cpn5360`

For installation, use the following procedure:

1. Install the BlueCat Linux binary distribution for CPV5350 on a Windows host. Refer to Chapter 1, “Installation,” in the *BlueCat Linux User’s Guide* for directions on installing BlueCat Linux for the CPV5350 target board.
2. The following files from the CPN5360 distribution are required:

- `install_cpn5360.sh`
- `cpn5360_win_bin.tgz`

3. Bring up a `bash` shell. To open a `bash` window, run the `cygwin.bat` script that comes with the BlueCat Linux distribution for CPV5350 boards.
4. Change to the directory where the binary files for the CPN5360 board are temporarily stored.

```
# cd /home/temp
```

It is assumed that the `/home/temp` directory contains all the files (`install_cpn5360.sh` and `cpn5360_win_bin.tgz`)

5. Run the `install_cpn5360.sh` script with the following options:

```
# ./install_cpn5360.sh -xy -bcpn5360 \  
-d/home/BlueCat
```

It is assumed that the CPV5350 binary distribution is installed in `/home/BlueCat`.

This command installs the `cpn5360 TSP` in `/home/BlueCat`. It also copies two other files, `uninstall.sh` and `change_cpn5360` into `/home/BlueCat`.

This execution of `install_cpn5360.sh` retains all the base (CPV5350) distribution demos, which are *not* otherwise supported on the CPN5360.

(For information on the `install_cpn5360.sh` script, see Appendix A.)

6. After installation is complete, the following message appears on the screen:

```
"Installation Complete...Execute \  
. SETUP.sh"
```

7. The screen output above is a prompt to change to the BlueCat Linux installation directory and execute the setup script:

```
# cd /home/BlueCat/  
  
# . SETUP.sh
```

This enables the BlueCat Linux environment for the CPN5360 board.

NOTE: *If required the distribution that has been installed can be removed using the `uninstall.sh` script file. Refer to the section entitled "Uninstallation" for details.*

Installing the CPN5360 Source on a Windows Host

Use the following procedure to install a source RPM:

1. Get a copy of the tar file provided for the CPN5360 target board:

```
cpn5360_win_src.tgz
```

This file contains the following source RPM files:

```
- kernel_trg-2.2.12-1.src.rpm  
- demo_trg-1.0-1.src.rpm
```

2. Copy the tar file into a temporary folder, e.g., `/tmp/cpn5360`.

```
# cp cpn5360_win_src.tgz /tmp/cpn5360
```

3. Change to the temporary folder:

```
# cd /tmp/cpn5360
```

4. From this temporary folder, untar the file:

```
# tar -xvzf cpn5360_win_src.tgz
```

Upon completion of this command, the source RPMs, i.e., `kernel_trg-2.2.12-1.src.rpm` and

`demo_trg-1.0-1.src.rpm`, are placed in the `/tmp/cpn5360` directory.

5. Change to the directory where the BlueCat Linux binary distribution for CPN5360 has been installed.

```
# cd /home/BlueCat
```

6. Execute `. SETUP.sh` to enable the BlueCat Linux environment, if not already enabled.

7. Install a source RPM file with the `rpm` command:

```
# rpm -i /tmp/cpn5360/\
kernel_trg-2.2.12-1.src.rpm
```

Upon completion of this command, the RPM specification file, `kernel_trg.spec`, is placed in the `$BLUECAT_PREFIX/cdt/src/bluecat/SPECS` directory. The corresponding source tar files are placed in the `$BLUECAT_PREFIX/cdt/src/bluecat/SOURCES` directory.

For further details, refer to the section entitled “Installing Sources of BlueCat Linux RPM Packages” in the *BlueCat Linux User’s Guide*.

The `demo_trg` RPM can be similarly installed.

Uninstallation

After installation, the base distribution (in this case, for CPV5350 boards) can be restored using the `uninstall.sh` program. The script file `uninstall.sh` is copied to `/home/BlueCat` as part of the installation process. To uninstall the cpn5360 TSP, use the following steps:

1. Mount the base CD-ROM, i.e., CPV5350 (if not already auto-mounted):
 - For Linux cross development hosts:

```
mount /mnt/cdrom
```
 - For Windows cross development hosts:

```
mount -f e:/ /mnt/cdrom
```

2. Change to the directory where the cpn5360 TSP is installed:

```
cd /home/BlueCat
```

3. Run the `uninstall.sh` program:

```
./uninstall.sh -m/mnt/cdrom \  
-d/home/BlueCat
```

This command restores the CPV5350 base distribution.

(For information on the `uninstall.sh` script, see Appendix B.)

4. After uninstallation, the following message appears on the console:

```
"Uninstallation complete. Execute\  
. SETUP.sh on new shell"
```

BlueCat Linux Boot Options

The following subsections detail the BlueCat Linux boot options available for the CPV5360 target board.

Booting from a Floppy Disk

For support for a floppy drive, a transition module (CPN5360TM80) needs to be connected to the compact PCI chassis (corresponding to the same slot). The floppy drive can then be connected to the J9 connector on the transition module.

In the BIOS settings, ensure that the floppy drive is specified as the first boot device. To do this, enter into the BIOS `setup` utility (by pressing **F2** at boot time) and from the **BOOT** menu, select **Removable Devices** as the first boot option. The next reset boots BlueCat Linux onto the CPN5360 board from the floppy device.

Note that for BlueCat Linux to boot successfully, the kernel option `CONFIG_BLK_DEV_FD=y` should be set. This can be verified from the kernel configuration screen (by running `make xconfig`)—look for the

following choice: Block devices->Normal PC Floppy disk support.

Use the following procedure to boot BlueCat Linux on CPN5360 from a floppy disk.

1. Copy BlueCat Linux onto a floppy disk. A detailed description of the installation procedure is available in the *BlueCat Linux User's Guide* (Refer to the section entitled "Booting BlueCat Linux from a Floppy Disk" in the "Booting BlueCat Linux" chapter.). For example, to copy the `osloader` demo system onto a floppy disk:
2. Change to the directory where the BlueCat Linux distribution for cpn5360 is installed. Execute `. SETUP.sh` to set the BlueCat Linux environment (if not already enabled).

```
# cd /home/BlueCat
```

```
# . SETUP.sh
```

3. Change to the directory containing the `osloader` demo system.

```
# cd demo/osloader
```

4. Use the `mkboot` command to create a bootable floppy:

- For Linux cross development hosts:

```
# mkboot -b -k osloader.disk -f \
osloader.rfs -r 200 /dev/fd0
```

- For Windows cross development hosts:

```
# mkboot -b -k osloader.disk -f \
osloader.rfs -r 200 a:
```

5. Insert the floppy disk thus created into the floppy drive of the CPN5360 and reboot.

Booting from an IDE Disk

For support for the IDE disk, a transition module (CPN5360TM80) needs to be connected to the compact PCI chassis (corresponding to the same slot on the CPN5360 target board). The IDE disk can then be connected to the J26 connector on the transition module.

Use the following procedure to boot BlueCat Linux on CPN5360 target boards from an IDE disk.

1. Make sure that the kernel is generated with the `CONFIG_BLK_DEV_IDE=y` option set.

This can be verified from the kernel configuration screen (by running `make xconfig`)—enable the choice **Block devices->Enhanced IDE/MFM/RLL disk/cdrom/tape/floppy support**.
2. The following setup is needed to access IDE on CPN5360:
 - On CPN5360 target boards, an IDE disk can be connected to the primary IDE controller *only as a slave device*. The *primary device is always a SanDisk*. However, the IDE disk can be connected to the Secondary IDE controller either as a master or a slave device.
3. Select an appropriate boot device, depending on which interface the IDE disk is connected to. To do so, enter into the BIOS `setup` utility (by pressing F2 at boot time) and from the **BOOT** menu, select **Hard Drive** and set this as the first boot option. Now press **Ctrl + Enter**. This expands the **Hard Drive** options. Select the appropriate hard drive to boot from. The next reset boots BlueCat Linux onto the target board from the IDE disk.
4. Copy/download a BlueCat Linux embedded system onto the attached IDE disk. A detailed description of the installation procedure is available in the *BlueCat Linux User's Guide* (Refer to the sections entitled “Booting BlueCat Linux from a Hard Disk” and Installing BlueCat Linux to a Hard Disk from the OS Loader” in the “Booting BlueCat Linux” chapter.)

Booting from a SanDisk

The SanDisk is treated exactly like an IDE device. To install a BlueCat Linux embedded system on a SanDisk, follow the procedure described in “Booting from an IDE Disk”

1. On the CPN5360 target board, the SanDisk device connected to the Primary IDE controller *is configured only as a Primary Master device*.

2. Select an appropriate boot device in the BIOS settings as explained in the section “Booting from an IDE Disk” The next reset boots BlueCat Linux onto the target board from the SanDisk.
3. In disk-related demo systems relating to SanDisk, ensure that the starting cylinder for the BlueCat Linux boot loader is set with enough room for the compressed kernel image residing at the beginning of the disk. Failure to allocate sufficient space at the beginning of the disk results in BlueCat Linux crashing at boot, or similar results. The `fdisk` utility shows the number of bytes contained in the first cylinder. Use this number to calculate the appropriate starting cylinder.

For example, if the SanDisk used is Sundisk SDTB-128 (with a capacity of 16 MB), then the starting cylinder number for the BlueCat Linux boot loader is 10. (The Sundisk SDTB-128 has 2 heads, 32 sectors, and 490 cylinders. Each cylinder contains 64*512 bytes.) The starting cylinder is kept at 10, which is equivalent to approximately 320 KB. This is sufficient for the kernel size of the `hello` demo system (approximately 282 KB).

Booting over a Network

NOTE: *The CPN5360 BIOS does not provide the TFTP boot option. For this, use the BlueCat Linux OS loader to access files over a network via TFTP and NFS.*

Setting up Softlinks to Download Demo Systems over a TFTP Server

Softlinks to various demo system files under the path `/tftpboot` enables having multiple copies of BlueCat Linux on the cross development host. A utility to create softlinks for all demo system files under the `tftpboot` mountpoint has been provided. To invoke this utility:

1. Change to the BlueCat Linux installation and enable the BlueCat Linux environment, if not already enabled:

```
# cd /home/BlueCat
# . SETUP.sh
```

2. Change to the demo systems directory:

```
# cd $BLUECAT_PREFIX/demo
```

3. `./tftp_links.sh cpn5360`

where `cpn5360` is the name of the directory to be created under `/tftpboot`.

This creates softlinks for all files of the demo systems as shown below:

```
# ls -l /tftpboot/cpn5360/demo/hello.*
/tftpboot/cpn5360/demo/hello.tar \
->$BLUECAT_PREFIX/demo/hello/hello.tar
/tftpboot/cpn5360/demo/hello.disk \
->$BLUECAT_PREFIX/demo/hello/hello.disk
```

Setting up a TFTP Server on a Windows Host

On Windows machines, the Trivial File Transfer Protocol (TFTP) is not supported by default. The TFTP server must specifically be installed on a Windows cross development host. The user may download any of the shareware available for the Windows environment.

Booting BlueCat Linux

Use the following procedure to boot BlueCat Linux on CPN5360 over a network:

1. Install the OS loader (provided as a demo system called `osloader`) on a floppy disk. The OS loader itself is a BlueCat Linux embedded system, so all of the instructions in “Booting from a Floppy Disk” apply.
2. Take the floppy disk created on the cross development host and insert it into the target board’s floppy disk drive.

Power-on the CPN5360 target board (or press the **Reset** button). The target board will start booting using the OS loader floppy.
3. Enter the following commands on the target board console at the “>” prompt:

```
> set IP 1.0.3.2
> set HOST 1.0.3.1
> set IF eth0
> set KERNEL tftp \
/tftpboot/cpn5360/demo/hello.kernel
> set RFS tftp \
/tftpboot/cpn5360/demo/hello.rfs
> boot
```

(These commands assume that the cross development host IP address is 1.0.3.1, the target board IP address is 1.0.3.2, eth0 identifies the ethernet interface, the BlueCat Linux system kernel is hello.kernel, and the root filesystem is hello.rfs.)

Kernel Configuration Parameters

This chapter shows the configuration of the prebuilt BlueCat Linux kernel contained in the CPN5360 distribution. The following tables help find a specific parameter of interest.

Table 3-1: Kernel Configuration Parameters for the cpn5360 TSP

Parameter	Table and Page Number
Code Maturity Level Options	Table 3-2 on page 18
Processor Type and Features	Table 3-3 on page 19
Loadable Module Support	Table 3-4 on page 19
General Setup	Table 3-5 on page 19
Plug and Play Support	Table 3-6 on page 20
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Networking Options	Table 3-8 on page 21
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ARCnet Drivers	Table 3-12 on page 23
Ethernet (10 or 100 MBit)	Table 3-13 on page 24
Token Ring Devices	Table 3-14 on page 25
WAN Interfaces	Table 3-15 on page 25
Amateur Radio Support	Table 3-16 on page 25
IrDA Subsystem	Table 3-17 on page 25

Table 3-1: Kernel Configuration Parameters for the cpn5360 TSP (Continued)

Parameter	Table and Page Number
ISDN Subsystem	Table 3-18 on page 25
Old CD-ROM Drivers (not SCSI or IDE)	Table 3-19 on page 26
Character Devices	Table 3-20 on page 26
Mice	Table 3-21 on page 26
Video for Linux	Table 3-22 on page 27
Joystick Support	Table 3-23 on page 27
Floppy Tape Device Driver, Ftape	Table 3-24 on page 27
Filesystems	Table 3-25 on page 28
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Partition Types	Table 3-27 on page 29
Native Language Support	Table 3-28 on page 29
Console Drivers	Table 3-29 on page 30
Sound	Table 3-30 on page 31
Kernel Hacking	Table 3-31 on page 31
LynuxWorks Messenger Support	Table 3-32 on page 31
CPN5360 WDT Support	Table 3-33 on page 31

Table 3-2: Code Maturity Level Options

Option	Value	Description
CONFIG_EXPERIMENTAL	N	Prompts for development and/or incomplete code/drivers

Table 3-3: Processor Type and Features

Option	Value	Description
CONFIG_M386	N	386 processor family
CONFIG_1GB	N	Maximum physical memory 1 GB
CONFIG_MATH_EMULATIONS	N	Math emulation
CONFIG_MTRR	N	MTRR (Memory Type Range Register) support
CONFIG_SMP	N	Symmetric multi-processing support

Table 3-4: Loadable Module Support

Option	Value	Description
CONFIG_MODULES	Y	Enables loadable module support
CONFIG_MODVERSIONS	Y	Sets version information on all symbols for module
CONFIG_KMOD	Y	Kernel module loader

Table 3-5: General Setup

Option	Value	Description
CONFIG_NET	Y	Networking support
CONFIG_BLUECAT_LOADER	N	BlueCat Linux OS loader support
CONFIG_BLUECAT_IGNORE_PRINTK	N	BlueCat Linux Ignore printk
CONFIG_BLUECAT_SMALL_FOOTPRINT	N	BlueCat Linux small memory footprint
CONFIG_BLUECAT_MEMSIZE	N	Memory usage statistics
CONFIG_PCI	Y	PCI Support
CONFIG_PCI_GOBIOS	Any	PCI access mode
CONFIG_PCI_QUIRKS	N	PCI quirks
CONFIG_PCI_OLD_PROC	N	Backward-compatible /proc/pci
CONFIG_MCA	N	MCA Support

Table 3-5: General Setup (Continued)

Option	Value	Description
CONFIG_VOSWS	N	SGI Visual Workstation Support
CONFIG_SYSCTL	Y	Sysctl support
CONFIG_SYSVIPC	Y	System V IPC
CONFIG_BSD_PROCESS_ACCT	Y	BSD Process Accounting
CONFIG_BINFMT_MISC	M	Kernel support for MISC binaries
CONFIG_BINFMT_ELF	Y	Kernel support for ELF binaries
CONFIG_BINFMT_AOUT	M	Kernel support for a.out binaries
CONFIG_APM	N	Advanced Power Management BIOS support
CONFIG_PARPORT	Y	Parallel port support to access the device

Table 3-6: Plug and Play Support

Option	Value	Description
CONFIG_PNP	N	Plug and Play support

Table 3-7: Block Devices

Option	Value	Description
CONFIG_BLK_DEV_FD	Y	Normal PC floppy disk support
CONFIG_BLK_DEV_IDE	M	Enhanced IDE/MFM/RLL disk/ CD-ROM/tape/floppy support
CONFIG_BLK_DEV_HD_IDE	N	Uses old disk-only driver on primary interface
CONFIG_BLK_DEV_IDEDISK	M	Includes IDE/ATA-2 DISK support
CONFIG_BLK_DEV_IDECD	N	Includes IDE/ATAPI CD-ROM support
CONFIG_BLK_DEV_IDETAPE	N	Includes IDE/ATAPI TAPE support
CONFIG_BLK_DEV_IDEFLOPPY	N	Includes IDE/ATAPI FLOPPY support
CONFIG_BLK_DEV_IDESCSI	N	SCSI emulation support

Table 3-7: Block Devices (Continued)

Option	Value	Description
CONFIG_BLK_DEV_CMD640	N	CMD640 chipset bugfix/support
CONFIG_BLK_DEV_RZ1000	N	RZ1000 chipset bugfix/support
CONFIG_BLK_DEV_IDEPCI	Y	Generic PCI IDE chipset support
CONFIG_BLK_DEV_IDEDMA	N	Generic PCI bus-master DMA support
CONFIG_BLK_DEV_OFFBOARD	N	Boot off-board chipset first support
CONFIG_IDE_CHIPSETS	N	Other IDE chipset support
CONFIG_BLK_DEV_LOOP	M	Loopback device support
CONFIG_BLK_DEV_NBD	M	Network block device support
CONFIG_BLK_DEV_MD	N	Multiple device driver support
CONFIG_BLK_DEV_RAM	Y	RAM disk support
CONFIG_BLK_DEV_INITRD	N	Initial RAM disk (initrd) support
CONFIG_BLUECAT_RFS	Y	BlueCat Linux RFS support
CONFIG_BLK_DEV_GENERIC_FLASH_DOC	N	M-System DiskOnChip
CONFIG_BLK_DEV_XD	N	XT hard disk support
CONFIG_BLK_DEV_DAC960	N	Mylex DAC960/DAC1 100 PCI RAID Controller support
CONFIG_PARIDE_PARPORT	N	Parallel port IDE device support
CONFIG_BLK_CPQ_DA	N	Compaq SMART2 support

Table 3-8: Networking Options

Option	Value	Description
CONFIG_PACKET	N	Packet socket
CONFIG_NETLINK	N	Kernel/User netlink socket
CONFIG_FIREWALL	N	Network firewalls
CONFIG_FILTER	N	Socket filtering
CONFIG_UNIX	Y	UNIX domain sockets

Table 3-8: Networking Options (Continued)

Option	Value	Description
CONFIG_INET	Y	TCP/IP networking
CONFIG_IP_MULTICAST	N	IP: Multicasting
CONFIG_IP_ADVANCED_ROUTER	N	IP: Advanced router
CONFIG_IP_PNP	N	IP: Kernel level autoconfiguration
CONFIG_IP_ROUTER	N	IP: Optimizes as router not host
CONFIG_NET_IPIP	M	IP: Tunneling
CONFIG_NET_IPGRE	M	IP: GRE tunnels over IP
CONFIG_IP_ALIAS	N	IP: Aliasing support
CONFIG_SYN_COOKIES	N	IP: TCP syncookie support (not enabled per default)
CONFIG_INET_RARP	M	IP: Reverse ARP
CONFIG_SKB_LARGE	N	IP: Allows large windows (not recommended if <16 MB of memory)
CONFIG_IPV6	N	The IPv6 protocol (Experimental)
CONFIG_IPX	N	The IPX protocol
CONFIG_IPX_INTERN	N	IPX: Full Internal IPX Network
CONFIG_ATALK	N	Appletalk DDP

Table 3-9: SCSI Support

Option	Value	Description
CONFIG_SCSI	N	SCSI support

Table 3-10: SCSI Low-Level Drivers

Option	Value	Description
CONFIG_SCSI_G_NCR5380_PORT	Not set	SCSI low-level drivers NCR5380/530400 mapping method (use Port for T130B) (PORT)

Table 3-11: Network Device Support

Option	Value	Description
CONFIG_NETDEVICES	Y	Network device support
CONFIG_DUMMY	M	Dummy net driver support
CONFIG_EQUALIZER	M	EQL (serial line load balancing) support
CONFIG_NET_SB1000	N	General Instruments Surfboard 1000
CONFIG_FDDI	N	FDDI driver support
CONFIG_PPP	M	PPP (point-to-point) support
CONFIG_SLIP	N	SLIP (serial line) support
CONFIG_NET_RADIO	N	Wireless LAN (non-ham radio)
CONFIG_NET_FC	N	Fibre Channel driver support
CONFIG_SBNI	N	SBNI 12-xx support

Table 3-12: ARCnet Drivers

Option	Value	Description
CONFIG_ARCNET	N	ARCnet support

Table 3-13: Ethernet (10 or 100 MBit)

Option	Value	Description
CONFIG_NET_ETHERNET	Y	Ethernet (10 or 100 MBit)
CONFIG_NET_VENDOR_3COM	N	3COM cards
CONFIG_LANCE	N	AMD LANCE and PCnet (AT 1500 and NE2100) support
CONFIG_NET_VENDOR_SMC	N	Western Digital/SMC cards
CONFIG_NET_VENDOR_RACAL	N	Racal-Interlan (micom) NI cards
CONFIG_YELLOWFIN	N	Packet Engines Yellowfin Gigabit-NC support
CONFIG_NET_ISA	N	Other ISA cards
CONFIG_NET_EISA	Y	EISA, VLB, PCI and on-board controllers
CONFIG_PCNET32	N	AMD PCnet32 (VLB and PCI) support
CONFIG_AC3200	N	Ansel Communications EIA 3200 support (Experimental)
CONFIG_APRICOT	N	Apricot Xen-II on board Ethernet
CONFIG_CS89x0	N	CS89x0 support
CONFIG_DM9102	N	DM9102 PCI Fast Ethernet Adapter support (Experimental)
CONFIG_DE4X5	N	Generic DEC chip & DIGITAL EtherWORKS PCI/EISA
CONFIG_DEC_ELCP	N	DEC chip Tulip (dc21x4x) PCI support
CONFIG_DGRS	N	Digi Intl. RightSwitch SE-X support
CONFIG_EEXPRESS_PRO100	Y	Ether ExpressPro/100 support
CONFIG_NE2K_PCI	N	PCI NE2000 support
CONFIG_TLAN	N	TI ThunderLAN support
CONFIG_VIA_RHINE	N	VIA Rhine support
CONFIG_NET_POCKET	N	Pocket and portable adaptors

Table 3-14: Token Ring Devices

Option	Value	Description
CONFIG_TR	N	Token Ring driver support

Table 3-15: Wan Interfaces

Option	Value	Description
CONFIG_HOSTESS_SV11	N	Control Hostess SV-11 support
CONFIG_COSA	N	COSA/SRP sync serial boards support
CONFIG_SEALEVEL_4021	N	Sealevel Systems 4021 support
CONFIG_WAN_DRIVERS	N	WAN Drivers
CONFIG_DLCI	N	Frame relay DLCI support

Table 3-16: Amateur Radio Support

Option	Value	Description
CONFIG_HAMRADIO	N	Amateur radio support

Table 3-17: IrDA Subsystem

Option	Value	Description
CONFIG_IRDA	N	IrDA subsystem support

Table 3-18: ISDN Subsystem

Option	Value	Description
CONFIG_ISDN	N	ISDN support

Table 3-19: Old CD-ROM Drivers (not SCSI or IDE)

Option	Value	Description
CONFIG_CD_NO_IDESCSI	N	Supports non-SCSI/IDE/ATARI CD-ROM drivers

Table 3-20: Character Devices

Option	Value	Description
CONFIG_VT	Y	Virtual terminal
CONFIG_VT_CONSOLE	Y	Support for console on virtual terminal
CONFIG_SERIAL	Y	Standard/generic (dumb) serial support
CONFIG_SERIAL_CONSOLE	Y	Support for console on serial port
CONFIG_SERIAL_EXTENDED	N	Extended dumb serial driver options
CONFIG_SERIAL_NONSTANDARD	N	Non-standard serial port support
CONFIG_UNIX98_PTYS	Y	UNIX98 PTY support
CONFIG_UNIX98_PTY_COUNT	256	UNIX98 PTY Support
CONFIG_MOUSE	Y	Mouse support (not serial mice)
CONFIG_QIC02_TAPE	N	QIC-02 tape support
CONFIG_WATCHDOG	N	Watchdog Timer Support
CONFIG_NVRAM	M	/dev/nvram support
CONFIG_RTC	N	Enhanced Real-Time Clock Support
CONFIG_DTLK	N	Double Talk PC internal speech card support

Table 3-21: Mice

Option	Value	Description
CONFIG_ATIXL_BUSMOUSE	N	ATIXL busmouse support
CONFIG_BUSMOUSE	N	Logitech busmouse support

Table 3-21: Mice (Continued)

Option	Value	Description
CONFIG_MS_BUSMOUSE	N	Microsoft busmouse support
CONFIG_PSMOUSE	N	PS/2 mouse (aka <i>auxiliary device</i>) support
CONFIG_82C710_MOUSE	N	C&T 82C710 mouse port support (as on TI Travlmate)
CONFIG_PC110_PAD	N	PC110 digitizer pad support

Table 3-22: Video for Linux

Option	Value	Description
CONFIG_VIDEO_DEV	N	Video For Linux

Table 3-23: Joystick Support

Option	Value	Description
CONFIG_JOYSTICK	N	Joystick support

Table 3-24: Floppy Tape Device Driver, Ftape

Option	Value	Description
CONFIG_FTAPE	N	Ftape (QIC-80/Travan) support
CONFIG_FT_NORMAL_DEBUG	Not Set	Debugging output
CONFIG_FT_FULL_DEBUG	Not Set	Floppy tape controller

Table 3-25: Filesystems

Option	Value	Description
CONFIG_QUOTA	N	Quota support
CONFIG_AUTOFS_FS	N	Kernel automounter support
CONFIG_AFFS_FS	N	Amiga FFS filesystem support
CONFIG_HFS_FS	N	Apple Macintosh filesystem support (Experimental)
CONFIG_FAT_FS	N	DOS FAT filesystem support
CONFIG_MSDOS_FS	N	MS-DOS filesystem support
CONFIG_VFAT_FS	N	VFAT (Windows-95) filesystem support
CONFIG_ISO9660_FS	N	ISO 9660 CD-ROM filesystem support
CONFIG_JOLIET	N	Microsoft Joliet CD-ROM extensions
CONFIG_MINIX_FS	N	Minix filesystem support
CONFIG_NTFS_FS	N	NTFS filesystem support (read-only)
CONFIG_HPFS_FS	N	OS/2 HPFS filesystem support (read-only)
CONFIG_PROC_FS	Y	/proc filesystem support
CONFIG_DEVPTS_FS	Y	/DEV/PTS filesystem for UNIX98 PTYs
CONFIG_ROMFS_FS	M	ROM filesystem support
CONFIG_EXT2_FS	Y	Second extended filesystem support
CONFIG_SYSV_FS	N	System V and Coherent filesystem support
CONFIG_UFS_FS	N	UFS filesystem support
CONFIG_UFS_FS_WRITE	N	UFS filesystem with write support

Table 3-26: Network Filesystems

Option	Value	Description
CONFIG_CODA_FS	M	Coda filesystem support (advanced network filesystem)
CONFIG_NFS_FS	M	NFS filesystem support

Table 3-26: Network Filesystems (Continued)

Option	Value	Description
CONFIG_SMB_FS	M	SMB filesystem support (to mount WfW shares, etc.)
CONFIG_NCP_FS	N	NCP filesystem support (to mount NetWare volumes)

Table 3-27: Partition Types

Option	Value	Description
CONFIG_BSD_DISKLABEL	N	BSD disklabel (BSD partition tables) support
CONFIG_MAC_PARTITION	N	Macintosh partition map support
CONFIG_SMD_DISKLABEL	N	SMD disklabel (Sun partition tables) support
CONFIG_SOLARIS_X86_PARTITION	N	Solaris (x86) partition table support
CONFIG_UNIXWARE_DISKLABEL	N	Unixware slices support (Experimental)

Table 3-28: Native Language Support

Option	Value	Description
CONFIG_NLS_CODEPAGE_437	M	Codepage 437 (United States, Canada)
CONFIG_NLS_CODEPAGE_737	M	Codepage 737 (Greek)
CONFIG_NLS_CODEPAGE_775	M	Codepage 775 (Baltic Rim)
CONFIG_NLS_CODEPAGE_850	M	Codepage 850 (Europe)
CONFIG_NLS_CODEPAGE_852	M	Codepage 852 (Central/Eastern Europe)
CONFIG_NLS_CODEPAGE_855	M	Codepage 855 (Cyrillic)
CONFIG_NLS_CODEPAGE_857	M	Codepage 857 (Turkish)
CONFIG_NLS_CODEPAGE_860	M	Codepage 860 (Portuguese)
CONFIG_NLS_CODEPAGE_861	M	Codepage 861 (Icelandic)
CONFIG_NLS_CODEPAGE_862	M	Codepage 862 (Hebrew)
CONFIG_NLS_CODEPAGE_863	M	Codepage 863 (Canadian French)
CONFIG_NLS_CODEPAGE_864	M	Codepage 864 (Arabic)

Table 3-28: Native Language Support (Continued)

Option	Value	Description
CONFIG_NLS_CODEPAGE_865	M	Codepage 865 (Norwegian, Danish)
CONFIG_NLS_CODEPAGE_866	M	Codepage 866 (Cyrillic, Russian)
CONFIG_NLS_CODEPAGE_869	M	Codepage 869 (Greek)
CONFIG_NLS_CODEPAGE_874	M	Codepage 874 (Thai)
CONFIG_NLS_ISO8859_1	M	NLS ISO 8859-1 (Latin: Western European Languages)
CONFIG_NLS_ISO8859_2	M	NLS ISO 8859-2 (Latin-2: Slavic/Central European Languages)
CONFIG_NLS_ISO8859_3	M	NLS ISO 8859-3 (Latin-3: Esperanto, Galician, Maltese, Turkish)
CONFIG_NLS_ISO8859_4	M	NLS ISO-4 (Latin-4: Estonian, Latvian, Lithuanian)
CONFIG_NLS_ISO8859_5	M	NLS ISO 8859-5 (Cyrillic)
CONFIG_NLS_ISO8859_6	M	NLS ISO 8859-6 (Arabic)
CONFIG_NLS_ISO8859_7	M	NLS ISO 8859-7 (Modern Greek)
CONFIG_NLS_ISO8859_8	M	NLS ISO 8859-8 (Hebrew)
CONFIG_NLS_ISO8859_9	M	NLS ISO 8859-9 (Latin-5: Turkish)
CONFIG_NLS_ISO8859_14	M	NLS ISO 8859-14 (Latin-8: Celtic)
CONFIG_NLS_ISO8859_15	M	NLS ISO 8859-15 (Latin-9: Western European Languages with Euro)
CONFIG_NLS_KOI8_R	M	NLS KOI8-R (Russian)

Table 3-29: Console Drivers

Option	Value	Description
CONFIG_VGA_CONSOLE	Y	VGA text console
CONFIG_VIDEO_SELECT	N	Video Mode Selection support

Table 3-30: Sound

Option	Value	Description
CONFIG_SOUND	Y	Sound card support

Table 3-31: Kernel Hacking

Option	Value	Description
CONFIG_MAGIC_SYSRQ	N	Magic Sys Rq key
CONFIG_BLUECAT_KDBG	Y	Includes BlueCat Linux kernel debugger

Table 3-32: LynuxWorks Messenger Support

Option	Value	Description
CONFIG_BLUECAT_IOPMAN	N	Enables LynuxWorks IOP Manager support

Table 3-33: CPN5360 WDT Support

Option	Value	Description
CONFIG_BLUECAT_CPNWDT	N	Enables CPN5360 WDT support

Supported Demo Systems

The following table shows the demo systems supported by the cpn5360 Target Support Package (TSP). Boot devices supported by the prebuilt demo systems included in the distribution are shown.

NOTE: *Please refer to Chapter 4 in the BlueCat Linux User's Guide for details on storage size and memory size, respectively.*

Table 4-1: Demo Systems Supported by the cpn5360 TSP

Demo	Requirements	Boot Devices Supported by Default
gdb	Storage: Small RAM: Small Network: Yes Disk: None Special: Host and target machines must be connected by a serial line to use remote debugging	Floppy Network using OS loader
hello	Storage: Tiny RAM: Tiny Network: None Disk: None Special: None	Floppy Network using OS loader

Table 4-1: Demo Systems Supported by the cpn5360 TSP (Continued)

Demo	Requirements	Boot Devices Supported by Default
kdbg	Storage: Small RAM: Small Network: None Disk: None Special: Host and target machines must be connected by a serial line to use remote debugging	Floppy Network using OS loader
memsize	Storage: Small RAM: Small Network: None Disk: None Special: None	Floppy Network using OS loader
osloader	Storage: Tiny RAM: Tiny Network: Yes Disk: None Special: None	Floppy
ping	Storage: Small RAM: Small Network: Yes Disk: None Special: None	Floppy Network using OS loader
rcp	Storage: Small RAM: Small Network: Yes Disk: None Special: None	Floppy Network using OS loader
shell	Storage: Small RAM: Small Network: None Disk: None Special: None	Floppy Network using OS loader
watchdog	Storage: Small RAM: Small Network: None Disk: None Special: None	Floppy Network using OS loader

Specific Details for Running Demo Systems

X-Based Demo Systems for CPV5350 on CPN5360

If an X-based demo system is tried using the demo systems provided on the base release (i.e., for CPV5350 target boards), and if the error `frequency out of range` appears:

1. For example, in the `$BLUECAT_PREFIX/demo/xdemo2/local/etc` directory, edit the `XF86Config` file.
2. In the `Screen` section corresponding to `Generic SVGA Card`, include `Generic Monitor`, and in the subsection `Display`, add the `640x480` mode in the `Modes` line.
3. To make the changes visible, rebuild the root filesystem. Execute `make rootfs` in the corresponding demo system directory.

Serial Mouse Support in X-Based Demo Systems

1. To enable serial mouse support in X-related demo systems, the `CONFIG_SERIAL` configuration option must be set.
2. In the `XF86Config` file in the `$BLUECAT_PREFIX/demo/xdemo_directory/local/etc/` directory, the section for `Pointer` needs to be modified as explained below:

```
Section "Pointer"

    Protocol "MouseMan"

    Device "/dev/ttyS1" /* here ttyS1\
indicate com2 */

Endsection
```

Ethernet Device Support

As CPN5360 supports two ethernet devices, under the `ping` demo system directory, the ethernet devices need to be specified as part of `ping` command. This can be done using the `-I` option with the `ping` command.

```
#ping -I eth0 IP_Address_to_ping
#ping -I eth1 IP_Address_to_ping
```

Watchdog Timer Support

CPN5360 provides built-in support for the watchdog timer. The details of watchdog support in BlueCat Linux and a watchdog support demo system are shown below.

NOTE: *The `watchdog` demo system is specific to the CPN5360 target board*

The watchdog timer provided in CPN5360 operates in four modes:

- Disable watchdog timer support.
- Set the `timeout` flag in the Watchdog Strobe/Status port in the ISA I/O memory map.
- Set the `timeout` flag in the Watchdog Strobe/Status port in the ISA I/O memory map, and assert a selectable interrupt (ISA IRQ).
- Set the `timeout` flag in the Watchdog Strobe/Status port in the ISA I/O memory map, and assert an NMI followed by a system or software reset.

The watchdog timer can support a range of count down times-out of up to eight minutes.

The following are the bit descriptions for the watchdog timer register.

Table 4-2: Bit Descriptions for the Watchdog Timer Register

Bit	Description
Bit 0 (Least significant bit)	SEL0
Bit 1	SEL1

Table 4-2: Bit Descriptions for the Watchdog Timer Register (Continued)

Bit	Description
Bit 2	SEL2
Bit 3	WD0
Bit 4	WD1
Bit 5	SOFT_RST
Bit 6	ALARM_SET
Bit 7	CLR_STATUS

SELO, SEL1, and SEL2 (the three least significant bits) are used for selecting the timeout value.

Table 4-3: Selecting Timeout Values

Period	SEL2	SEL1	SELO
.46 seconds	0	0	0
.93 seconds	0	0	1
3.73 seconds	0	1	0
14.91 seconds	0	1	1
29.8 seconds	1	0	0
119 seconds (1.99 minutes)	1	0	1
238 seconds (3.97 minutes)	1	1	0
477 seconds (7.95 minutes)	1	1	1

Table 4-4: Bit Values Defining Watchdog Timeout and Disabling

Name	WD1	WDO	Description
Disabled	0	0	Resets watchdog. This mode disables the watchdog timer. No watchdog events occur.
Polled	0	1	This mode sets the watchdog into polled mode. The Watchdog Strobe/Status port big 2 polls for a watchdog event.
FPGA IRQ	1	0	This mode generates an IRQ on a watchdog timeout. (Refer to the section below regarding the Interrupt Select Register for programming a particular interrupt.)
NMI followed by reset	1	1	This mode first generates an NMI interrupt and then a reset.

Interrupt Select Register

The only selectable IRQs are IRQ 5, IRQ 7, IRQ 9, IRQ 10 and IRQ 11. Bit descriptions for the interrupt select register are:

Table 4-5: Interrupt Select Register Bit Descriptions

Bit Description	Interrupt Select Register
7 (most significant bit)	Unused
6	Unused
5	Unused
4	Unused
3	IRQSEL3
2	IRQSEL2
1	IRQSEL1
0 (least significant bit)	IRQSEL0

Table 4-6: Bit Values for Determining Driven IRQ Lines

Interrupt Line	IRQSEL3	IRQSEL2	IRQSEL1	IRQSELO
No IRQ selected	0	0	0	0
No IRQ selected	0	0	0	1
No IRQ selected	0	0	1	0
No IRQ selected	0	0	1	1
No IRQ selected	0	1	0	0
Select IRQ 5	0	1	0	1
No IRQ selected	0	1	1	0
Select IRQ 7	0	1	1	1
No IRQ selected	1	0	0	0
Select IRQ 9	1	0	0	1
Select IRQ 10	1	0	1	0
Select IRQ 11	1	0	1	1
No IRQ selected	1	1	0	0
No IRQ selected	1	1	0	1
No IRQ selected	1	1	1	0
No IRQ selected	1	1	1	1

Alarm Enable Register

The alarm enable register defines the events that generate an alarm output. Bit descriptions for the alarm enable register are:

Table 4-7: Alarm Enable Register Bit Descriptions

Bit Description	Alarm Enable Register
7 (most significant bit)	ENABLE
6	Unused
5	Unused

Table 4-7: Alarm Enable Register Bit Descriptions (Continued)

Bit Description	Alarm Enable Register
4	ENUM
3	ALARM_A
2	ALARM_B
1	TEMP
0	SMB_ALERT

The bit that would be currently be used is Bit 2: `ALARM_B` bit. This is set to logic 1 to allow the generation of an alarm.

Permitted IOCTLs for the Watchdog Timer

The following are the permitted IOCTLs for the watchdog timer:

- `CPN_WDT_GETSTATUS`

Returns the current watchdog status, i.e, it reads in the watchdog timer register and returns the value read:

```
devfd = open("/dev/cpnwatchdog", O_RDWR)
ioctl(devfd, CPN_WDT_GETSTATUS, &getstatus)
```

The value is returned in the `GETSTATUS` variable (`getstatus` is `int *`)

- `CPN_WDT_SETOPTIONS`

Used to write to the watchdog register, e.g.,

```
ioctl(devfd, CPN_WDT_SETOPTIONS, setstatus)
```

- `CPN_WDT_KEEPAVIVE`

Does not write anything to the register—It simply resets the watchdog timer by the timeout value.

- `CPN_IRQ_GETSTATUS`

Returns the value contained in the Interrupt Select Register.

- `CPN_IRQ_SETOPTIONS`

Sets the IRQ number to be generated in case watchdog timer events occur and if the timer has been set accordingly (i.e., the timer has been configured using `CPN_WDT_SETOPTIONS` to generate an IRQ interrupt). The only selectable IRQs are 5, 7, 9, 10 and 11.
- `CPN_STAT_GETSTATUS`

Reads in the status register. This is useful if the watchdog timer is configured to be used in the polled mode.
- `CPN_ALEN_GETSTATUS`

Reads the alarm enable register.
- `CPN_ALEN_SETOPTIONS`

Used to write to the alarm enable register—This is useful when the watchdog timer has been configured in polled mode. Set bit 2 of this register to 1, i.e., passing a value 4 to `IOCTL` while using this option.

Watchdog Timer Demo System

SYNOPSIS

This demonstrates the use of the watchdog timer support available in the cpn5360 TSP.

REQUIREMENTS

Storage	Small
RAM	Small
Network	None
Disk	None
Special	None

DESCRIPTION

A new tri-state option `CONFIG_BLUECAT_CPNWDT` has been provided to enable the watchdog support.

1. Set `CONFIG_BLUECAT_CPNWDT=m` and then execute `make kernel`.
2. The system boots up in single-user mode. Initialization starts `bash` without a login prompt. Load the module `cpnwdt.o` using the `insmod` command.

```
insmod cpnwdt.o
```
3. Once the module is loaded in the kernel, it prints the following message on the system console:

```
cpn_wdt : Registered Watchdog Timer for
CPN5360
```

The following are the three independent tests provided in this demo:

Test 1

Execute the binary file `wdt` provided. This generates an NMI and reboots the machine in 14 seconds.

Test 2

Run the `wdt_irq` executable. This generates an IRQ 9 interrupt when the watchdog expires (in 14 seconds). The interrupt handler runs and prints three times:

```
I am the interrupt handler
```

Reboot manually.

Test 3

Run `wdt_stat`. This test puts the watchdog in polled mode. Note the status change from 251 to 255 after the first loop cycle.

Supported Device Drivers

The following table lists the device drivers supported by the CPN5360 target board.

Table 5-1: Device Drivers Supported by CPN5360

Hardware Device	Device Driver	Location in Source Tree	Kernel Configuration Options	Notes
Ethernet Controller Dual Ethernet 82559	EtherExpressPro /100 driver	drivers/net/ eepr0100.c	CONFIG_EEXPRESS _PRO100	
FDD Controller One Floppy port	Standard PC floppy disk driver	drivers/ block/ floppy.c	CONFIG_BLK_DEV _FD	
Serial Ports Two async serial ports with RS-232 interface	Standard serial driver	drivers/char/ serial.c	CONFIG_SERIAL	
Parallel Port One parallel printer port	Parallel port driver	drivers/char/ lp.c	CONFIG_PARPORT	
EIDE Controller Intel 82440BX chipset	Generic IDE	Drivers/block/ ide.c	CONFIG_BLK_DEV _IDE	
IDE Hard Disk	Generic IDE disk driver	Drivers/block/ ide_disk.c	CONFIG_BLK_DEV _IDEDISK	
SanDisk Surface mounted SanDisk 16 MB Flash (Primary Master)	Generic IDE disk driver	Drivers/block/ ide_disk.c	CONFIG_BLK_DEV _IDEDISK	

Table 5-1: Device Drivers Supported by CPN5360 (Continued)

Hardware Device	Device Driver	Location in Source Tree	Kernel Configuration Options	Notes
Video CHIPS 69000 2D accelerated video	XF86_SVGA driver	Drivers/video/vgacon.c		This is a part of the Xserver 3.3.5 binary
Keyboard/Mouse PS/2	PC keyboard driver	drivers/char/pc_keyb.c	CONFIG_PCMOUSE	

install_cpn5360.sh

This appendix describes the BlueCat Linux `install_cpn5360.sh` utility for the CPN5360 target board.

UTILITY

```
install_cpn5360.sh
```

SYNOPSIS

```
install_cpn5360.sh [-i -v] -xy/n -btsp_name  
-dabsolute_path_of_base_directory
```

DESCRIPTION

`install_cpn5360.sh` installs the BlueCat Linux Target Support Package (TSP) for CPN5360 target boards. The script also generates two additional files, `uninstall.sh` and `change_cpn5360`, for installation and restoring the base (CPV5350 TSP), respectively.

OPTIONS

- | | |
|-----------------|--|
| <code>-i</code> | Runs in <i>info mode</i> |
| <code>-v</code> | Runs in <i>verbose mode</i> |
| <code>-x</code> | Specifies whether the <code>install</code> command retains base (CPV5350) demos, which are not supported by the TSP for the CPN5360 board. If <code>y</code> , then the base demos are retained, if <code>n</code> then they are not |
| <code>-b</code> | Specifies the TSP name |

`-d` Specifies the absolute path where the CPV5350 binary distribution is installed

NOTE: *There should be no spaces between `-x` and “y/n,” `-b` and “tsp_name,” `-d` and “absolute_path_of_base_directory.”*

`install_cpn5360.sh` runs in three modes:

- *Info mode*
- *Normal mode*
- *Verbose mode*

Info Mode

In this mode, information about files related to this (i.e., cpn5360) distribution only is displayed. To enable the info mode, use the `-i` option.

Information on the TSPs that can be installed on top of a given base (e.g., CPV5350) distribution is displayed. For this information, issue the following command:

```
./install_cpn5360.sh -i -dabsolute_path_of_base_directory
```

This command also displays the list of all the RPMs to be deleted from the CPV5350 binary and the list of CPN5360-specific RPMs that are installed. For this information, issue the following command:

```
./install_cpn5360.sh -i -btsp_name \  
-dabsolute_path_of_base_directory
```

Normal Mode

In this mode, no information is logged, and all messages appear in the console window. The TSP is installed on a specified base (e.g., CPV5350). To enable the normal mode, issue the following command:

```
./install_cpn5360.sh -xy -btsp_name \  
-dabsolute_path_of_base_directory
```

If the `-x` option is specified with `y` then this installation retains the CPV5350 demos, which are not supported by the cpn5360 TSP by default.

Verbose Mode

This mode is used in conjunction with the `install` option. The detailed installation messages are logged in a file instead of being displayed on the console screen. In this mode, installation is performed with a log file, `v_install_sh.log`, in the CPV5350 binary distribution directory.

To invoke the verbose mode, specify the `-v` option:

```
./install_cpn5360.sh -v -xy -btsp_name \  
-dabsolute_path_of_base_directory
```

This command will also display a list of RPMs to be deleted from the CPV5350 binary and the list of CPN5360-specific RPMs to be installed.

uninstall.sh

This appendix describes the `uninstall.sh` utility.

UTILITY

`uninstall.sh`

SYNOPSIS

```
uninstall.sh [-i] -m mountpoint \  
-d absolute_path_to_installed_tsp
```

DESCRIPTION

`uninstall.sh` uninstalls the BlueCat Linux Target Support Package (TSP) for CPN5360 target boards.

OPTIONS

<code>-i</code>	Runs in info mode
<code>-m</code>	Specifies the mount point of the base CD
<code>-d</code>	Specifies the absolute path to the TSP

NOTE: *Please ensure that there are no spaces between `-m` and “mountpoint,” and `-d` and “absolute_path_to_installed_tsp.”*

`uninstall.sh` runs in two modes:

- *Info mode*
- *Uninstall mode*

Info Mode

This mode only displays information about Target Support Packages to be uninstalled and RPMs to be deleted and inserted, without any actual deletion or insertion of RPMs.

```
./uninstall.sh -i -mmountpoint \  
-dabsolute_path_to_installed_tsp
```

Uninstall Mode

To uninstall the cpci_cpv5360 TSP, issue the following command:

```
./uninstall.sh -mmountpoint -dabsolute_path_to_installed_tsp
```