

BlueCat Linux Target Support Guide

DOC-0373-00

For Force cPCI730 Boards

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This *BlueCat Linux Target Support Guide (TSG) for Intel Pentium II processor-based cPCI730 Boards* provides information about the BlueCat Linux Target Support Package (TSP) for cPCI730 target boards.

The cpci730 Target Support Package (TSP) contains all the binary and source files necessary to build and run a customized BlueCat Linux embedded system on the cPCI730 target board. These files are:

- `cpci730_linux_bin.tgz`
- `cpci730_linux_src.tgz`
- `cpci730_win_bin.tgz`
- `cpci730_win_src.tgz`
- `install_cpci730.sh`

Throughout this TSG, the board is referred to as the cPCI730 and the TSP as the “cpci730.” Unless otherwise specified, this guide covers all details related to BlueCat Linux on Linux and Windows cross development hosts.

- **Chapter 1** is an overview of the rest of this TSG’s chapters.
- **Chapter 2** describes the procedures for downloading/copying BlueCat Linux and booting it from the cPCI730 target board.
- **Chapter 3** provides information about the default BlueCat Linux kernel in the cpci730 TSP, and the kernel reconfiguration options available to the user.
- **Chapter 4** documents supported BlueCat Linux demo systems in the cpci730 TSP and their functionalities.
- **Chapter 5** lists BlueCat Linux supported device drivers and their requirements.

Booting BlueCat Linux on cPCI730 Targets

This chapter describes the BlueCat Linux install and boot procedures for the cPCI730 target board.

Installing the cPCI 730 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

The installation of the binary for cPCI730 target boards is performed using the base release of BlueCat Linux for CPV5350 target boards.

To install BlueCat Linux on cPCI730, ensure that BlueCat Linux for the CPV5350 target board is installed on the cross development host.

The cPCI730 binary distribution for Linux is provided as a tar file `cpci730_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`

Use the following procedure to install the `cpci730` Target Support Package (TSP) on a Linux cross development host:

1. Install the BlueCat Linux TSP for the CPV5350 board on a Linux cross development host. (Refer to the *BlueCat Linux User Guide* for directions on installing BlueCat Linux on CPV5350.)

2. The following files from the cPCI730 distribution are required:

- `install_cpci730.sh`
- `cpci730_linux_bin.tgz`

3. Change to the temporary directory where the binary files for the cpci730 distribution are stored, for example:

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

It is assumed that the `/home/temp` directory contains the files (`install_cpci730.sh` and `cpci730_linux_bin.tgz`) required for installation.

4. Run the `install_cpci730.sh` script with the following options:

```
# ./install_cpci730.sh -xy -d/home/bcl
```

This script assumes that the CPV5350 binary distribution is installed in the `/home/bcl/` directory.

This command installs the cpci730 TSP in `/home/bcl`. Also, it generates two other files, the `uninstall_cpci730.sh` and `SETUP.sh` files to the `/home/bcl` directory. The `uninstall_cpci730.sh` file can be used to uninstall the cpci730 TSP.

Running this command will retain the all the base (CPV5350) distribution demo systems, which are not supported by default for the cpci730 TSP.

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

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

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

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

```
# cd /home/bc1
# . SETUP.sh
```

NOTE: *If required, the distribution that has been installed can be removed using the `uninstall_cp730.sh` script file. Refer to the “Uninstallation” section for details.*

Installing the cPCI 730 Source on a Linux Host

Use the following procedure to install a source RPM:

1. Get a copy of the Linux source tar file provided for the cPCI730 target board:

```
cp730_linux_src.tgz
```

This tar file `cp730_linux_src.tgz` 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 to a temporary folder. For example, `/tmp/cpci730`:

```
# cp cp730_linux_src.tgz /tmp/cpci730
```

3. Change to the temporary folder:

```
# cd /tmp/cpci730
```

4. Untar the file:

```
# tar -xvzf cp730_linux_src.tgz
```

Upon execution of this command, the source RPMs (`kernel_trg-2.2.12-1.src.rpm` and `demo_trg-1.0-1.src.rpm`) are copied to the current directory, `/tmp/cpci730`.

5. Change to the directory where the BlueCat Linux distribution for cPCI730 is installed:

```
# cd /home/bc1
```

6. If not already under the BlueCat Linux environment, execute `SETUP.sh` to enable this environment:

```
# . SETUP.sh
```

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

```
# rpm -i /tmp/cpci730/\
kernel_trg-2.2.12-1.src.rpm
```

Upon execution of this command, the `kernel_trg.spec` (the RPM specification file) is copied to the `$BLUECAT_PREFIX/cdt/src/bluecat/SPECS` directory and the corresponding source tar files are copied to the `$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 tar file for installing the BlueCat Linux binaries on a Windows cross development host is `cpci730_win_bin.tgz`, and contains the following RPM 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`

The `cpci730` TSP requires the base distribution for CPV5350 boards to be installed on the Windows host.

Use the following procedure to install the cpci730 BlueCat Linux TSP on Windows hosts:

1. Install the BlueCat Linux TSP for the CPV5350 board on a Windows cross development host.
2. The following files from the cPCI730 distribution are required:
 - `install_cpci730.sh`
 - `cpci730_win_bin.tgz`
3. Open a `bash` shell prompt. To open a `bash` window, run the `cygwin.bat` script included in the CPV5350 TSP.
4. Change to the directory where the binary files for the cpci730 distribution are stored, for example:

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

It is assumed that the `/home/temp` directory contains the files (`install_cpci730.sh` and `cpci730_win_bin.tgz`) required for the installation.

5. Run the `install_cpci730.sh` script with the following options:

```
# ./install_cpci730.sh -xy -d/home/bcl
```

This script assumes that the CPV5350 binary distribution is installed in the `/home/bcl/` directory.

This command installs the cpci730 TSP in `/home/bcl`. Also, it generates two other files, the `uninstall_cpci730.sh` and `SETUP.sh` files in the `/home/bcl` directory. The `uninstall_cpci730.sh` file can be used to uninstall the cpci730 TSP.

Running this command will retain the all the base (CPV5350) distribution demo systems, which are not supported by default for the cpci730 TSP.

(For information on the `install` 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.sh` script:

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

NOTE: *If required, the distribution that has been installed can be removed using the `uninstall_cpci730.sh` script file in the `/home/bcl` directory. Refer to the "Uninstallation" section for details.*

Installing the cPCI 730 Source on a Windows Host

Use the following procedure to install a source RPM on Windows:

1. Get a copy of the Windows source tar file provided for the cPCI730 target board:

```
cpci730_win_src.tgz
```

This tar file `cpci730_win_src.tgz` 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 to a temporary folder. For example, `/tmp/cpci730`:

```
# cp cpci730_win_src.tgz /tmp/cpci730
```

3. Change to the temporary folder:

```
# cd /tmp/cpci730
```

4. Untar the file:

```
# tar -xvzf cpci730_win_src.tgz
```

Upon execution of this command, the source RPMs (`kernel_trg-2.2.12-1.src.rpm` and `demo_trg-1.0-1.src.rpm`) are copied to the current directory, `/tmp/cpci730`.

5. Change to the directory where the BlueCat Linux distribution for cPCI730 is installed:

```
# cd /home/bcl
```

6. If not already enabled, or not already under the BlueCat Linux environment, execute `SETUP.sh` to enable the BlueCat Linux environment.

```
# . SETUP.sh
```

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

```
# rpm -i /tmp/cpci730/\  
kernel_trg-2.2.12-1.src.rpm
```

Upon execution of this command, the `kernel_trg.spec` (the RPM specification file) is copied to the `$BLUECAT_PREFIX/cdt/src/bluecat/SPECS` directory and the corresponding source tar files are copied to the `$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.

Uninstallation

Once the installation is complete, the base distribution (for CPV5350 boards, in this case) can be restored using the `uninstall_cpci730.sh` program. The script file `uninstall_cpci730.sh` is copied to `/home/bcl` as part of the installation process. To uninstall the cpci730 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 cpci730 TSP is installed.

```
cd /home/bcl
```

3. Run the `uninstall_cpci730.sh` program:

```
./uninstall_cpci730.sh -m/mnt/cdrom \  
-d/home/bcl
```

This restores the base CPV5350 distribution.

(For information on `uninstall_cpci730.sh` see Appendix B.)

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

```
"Uninstallation complete. Execute\  
. SETUP.sh"
```

Booting BlueCat Linux on cPCI 730

This section describes booting BlueCat Linux from several sources, including floppy disk, hard disk, and over the network.

Booting from a Floppy Disk

To support floppy drives, a transition module (IOBP-CPU720, for example) must be connected to the compact PCI chassis in the corresponding slot. The floppy drive can then be connected to the floppy 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 the BIOS `setup` utility by pressing `F2` at the BIOS screen. From the **Boot** menu, select **Diskette Drive** as the first boot option. The next system reset boots BlueCat Linux on to the cPCI730 target board from the floppy device.

For a BlueCat Linux embedded system to boot successfully from a floppy disk, the kernel option `CONFIG_BLK_DEV_FD=y` must be set. This can be verified from the kernel configuration screen (by running `make xconfig`)—enable the choice **Block devices->Normal PC Floppy disk support**.

To boot BlueCat Linux on a cPCI730 target board from a floppy disk:

1. A BlueCat Linux embedded system must be installed on the floppy.

A detailed description of the installation procedure is available in the *BlueCat Linux User's Guide* in the “Booting BlueCat Linux” chapter. This example is based on installing the `osloader` demo system onto a floppy disk.

2. Change to the directory where the BlueCat Linux distribution for cPCI730 is installed and set up the environment (if not already enabled, or if not already under BlueCat Linux environment):

```
# cd /home/bc1
# . SETUP.sh
```

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

```
# cd demo/osloader
```

4. Use the `mkboot` command to create the 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 in the cPCI730 floppy drive and reboot the system.

Booting from an IDE Disk

To support booting from an IDE disk, a transition module (IOBP-CPU720, for example) must be connected to the compact PCI chassis to the corresponding slot. The IDE disk can then be connected to the secondary IDE connector on the transition module.

Use the following procedure to boot BlueCat Linux on a cPCI730 target board from an IDE disk.

1. Select an appropriate boot device, depending on which interface the IDE disk is connected to. Enter into the BIOS `setup` utility by pressing F2 at the BIOS screen. From the **Boot** menu, select **Hard Drive** as the first boot option. Press **Enter** to display additional **Hard Drive** options. Select the appropriate hard drive to boot from. The next reset boots BlueCat Linux on the target board from the IDE disk.
2. Ensure that the kernel is configured with the `CONFIG_BLK_DEV_IDE=y` option. 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**.
3. Copy/download a BlueCat Linux embedded system onto an IDE disk. A detailed description of the installation procedure is available in the *BlueCat Linux User's Guide*. Refer to the “Installing BlueCat Linux to a Hard Disk from the OS Loader” and “How Does Booting from a Hard Disk Work” sections in the “Booting BlueCat Linux” chapter.

Booting from a SanDisk

To install and boot BlueCat Linux on a SanDisk, use the same procedure as for an IDE disk (see “Booting from an IDE Disk” on page 12).

1. Select the SanDisk boot device in the BIOS settings as explained in “Booting from an IDE Disk” on page 12.
2. In demos relating to SanDisk, make sure 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 may cause BlueCat Linux to crash. The `fdisk` utility displays the number of bytes contained in the first cylinder. Use this number to calculate the appropriate starting cylinder.

If the Sundisk SDTB-128 (16 MB capacity) is used, 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 64x512 bytes. The starting cylinder is set to 10, which is approximately 320 KB. This is sufficient for the kernel size of the `hello` demo system (approximately 282 KB).

Booting over a Network

NOTE: *The cPCI730 BIOS does not provide the TFTP boot option. Use the BlueCat Linux OS loader to access files over network via TFTP and NFS. Refer also to “Setting up a TFTP Server on a Windows Host” below.*

Setting up Softlinks to Download Demo Systems over a TFTP Server

Softlinks to various demo system files allows having multiple copies of BlueCat Linux on the cross development host.

To create softlinks to all the available demo system files, an option is provided as part of the installation script. For more information on how to invoke this option, please refer to Appendix A, “`install_cpci730.sh`.”

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

To boot BlueCat Linux over a network, use the following procedure:

1. Install the OS loader on a floppy disk. Refer to the section “Booting from a Floppy Disk” on page 10 for instructions on copying the `osloader` demo system onto a floppy disk.
2. Boot the OS loader on the cPCI730 target board by inserting the floppy disk and pressing the **Reset** button.
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/cpci730/demo/hello.kernel
> set RFS tftp
/tftpboot/cpci730/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 embedded system kernel is `hello.kernel`, and the corresponding root filesystem is `hello.rfs`.)

Kernel Configuration Parameters

This chapter shows the configuration of the prebuilt BlueCat Linux kernel in the cpci730 Target Support Package (TSP). Each table in this chapter shows a kernel configuration parameter and the options that the user would change in order to reconfigure the kernel.

Table 3-1: BlueCat Linux Default Configuration for the cpci730 TSP

Parameters	Table and Page Number
Code Maturity Level Options	Table 3-2 on page 17
Processor Type and Features	Table 3-3 on page 17
Loadable Module Support	Table 3-4 on page 17
General Setup	Table 3-5 on page 17
Plug And Play Support	Table 3-6 on page 18
Block Devices	Table 3-7 on page 19
Networking Options	Table 3-8 on page 20
SCSI Support	the table “SCSI Support”
SCSI Low-Level Drivers	Table 3-10 on page 21
Network Device Support	Table 3-11 on page 21
ARCnet Drivers	Table 3-12 on page 22
Ethernet (10 or 100 Mbit)	Table 3-13 on page 22
Token Ring Devices	Table 3-14 on page 23
WAN Interfaces	Table 3-15 on page 23

Table 3-1: BlueCat Linux Default Configuration for the cpci730 TSP (Continued)

Parameters	Table and Page Number
Amateur Radio Support	Table 3-16 on page 24
IrDA Subsystem	Table 3-17 on page 24
ISDN Subsystem	Table 3-18 on page 24
Old CD-ROM Drivers (not SCSI, not IDE)	Table 3-19 on page 24
Character Devices	Table 3-20 on page 24
Mice	Table 3-21 on page 25
Video for Linux	Table 3-22 on page 25
Joystick Support	Table 3-23 on page 26
Floppy Tape Device Driver, Ftape	Table 3-24 on page 26
Filesystems	Table 3-25 on page 26
Network Filesystems	Table 3-26 on page 27
Partition Types	Table 3-27 on page 27
Native Language Support	Table 3-28 on page 28
Console Drivers	Table 3-29 on page 29
Sound	Table 3-30 on page 29
Kernel Hacking	Table 3-31 on page 29
LynuxWorks Messenger Support	Table 3-32 on page 30
Modular Advanced Power Management	Table 3-33 on page 30
CPN5360 WDT Support	Table 3-34 on page 30

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	Y	386 processor family
CONFIG_1GB	Y	Maximum physical memory 1 GB
CONFIG_MATH_EMULATION	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 modules
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 <code>printk</code>

Table 3-5: General Setup (Continued)

Option	Value	Description
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 <code>/proc/pci</code>
CONFIG_MCA	N	MCA Support
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	N	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 CDROM 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
CONFIG_BLK_DEV_CMD640	N	CMD640 chipset bugfix/support
CONFIG_BLK_DEV_RZ1000	N	RZ1000chipset 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

Table 3-7: Block Devices (Continued)

Option	Value	Description
CONFIG_BLK_DEV_DAC960	N	Mylex DAC960/DAC1 100 PCI RAID Controller support
CONFIG_PARIDE_PARPORT	Y	Parallel port IDE device support
CONFIG_BLK_CPQ_DA	N	Compaq SMART2 support

Table 3-8: Networking Options

Option	Value	Description
CONFIG_PACKET	M	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
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)

Table 3-8: Networking Options (Continued)

Option	Value	Description
CONFIG_IPX	M	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 NCR5380/53c400 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)

Table 3-11: Network Device Support (Continued)

Option	Value	Description
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-NIC 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)

Table 3-13: Ethernet (10 or 100 Mbit) (Continued)

Option	Value	Description
CONFIG_DE4X5	Y	Generic DECchip & DIGITAL EtherWORKS PCI/EISA
CONFIG_BLUECAT_DE4X5_WORKAROUND	N	Fix for buggy SROM on Motorola MCP(N) 750 cPCI board
CONFIG_DEC_ELCP	N	DECchip Tulip (dc21x4x) PCI support
CONFIG_DGRS	N	Digi Intl. RightSwitch SE-Xsupport
CONFIG_EEXPRESS_PRO100	N	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 CDROM 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

Table 3-20: Character Devices (Continued)

Option	Value	Description
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
CONFIG_BLUECAT_FORCEWDT	N	Enables cPCI730 WDT support

Table 3-21: Mice

Option	Value	Description
CONFIG_ATIXL_BUSMOUSE	N	ATIXL busmouse support
CONFIG_BUSMOUSE	N	Logitech busmouse support
CONFIG_MS_BUSMOUSE	N	Microsoft busmouse support
CONFIG_PSMOUSE	Y	PS/2 mouse (aka "auxiliary device") 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: Ftape, the Floppy Tape Device Driver

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	M	Amiga FFS filesystem support
CONFIG_HFS_FS	M	Apple Macintosh filesystem support (Experimental)
CONFIG_FAT_FS	M	DOS FAT filesystem support
CONFIG_MSdos_FS	M	MSDOS filesystem support
CONFIG_VFAT_FS	M	VFAT(Windows-95) filesystem support
CONFIG_ISO9660_FS	M	ISO 9660 CD-ROM filesystem support
CONFIG_JOLIET	M	Microsoft Joliet CD-ROM extensions
CONFIG_MINIX_FS	M	Minix filesystem support
CONFIG_NTFS_FS	M	NTFS filesystem support (Read-only)
CONFIG_HPFS_FS	M	OS/2 HPFS filesystem support (Read-only)
CONFIG_PROC_FS	Y	/proc filesystem support

Table 3-25: Filesystems (Continued)

Option	Value	Description
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	M	System V and Coherent filesystem support
CONFIG_UFS_FS	M	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
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)
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 8859-4 (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)

Table 3-28: Native Language Support (Continued)

Option	Value	Description
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	N	Sound card support

Table 3-31: Kernel Hacking

Option	Value	Description
CONFIG_MAGIC_SYSRQ	N	Magic SysRq key
CONFIG_BLUECAT_KDBG	N	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: Modular Advanced Power Management

Option	Value	Description
CONFIG_BLUECAT_APM	N	MAPM Support

Table 3-34: 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 cpci730 Target Support Package (TSP). Boot devices supported by the prebuilt demo systems in the distribution are shown. Refer to the *BlueCat Linux User's Guide* for a detailed description of demo system requirements.

Table 4-1: Demo Systems in the cpci730 TSP

Demo System	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 via a serial line	Floppy Network using OS loader
hello	Storage: Tiny RAM: Tiny Network: None Disk: None Special: None	Floppy Network using OS loader
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 via a serial line	Floppy Network using OS loader

Table 4-1: Demo Systems in the cpci730 TSP

Demo System	Requirements	Boot Devices Supported by Default
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

X-Based Demo Systems for CPV5350 on cPCI 730

When running X-based demos on cPCI730 target boards, note the following:

- If any X based demo uses the demos provided on the base release of the product (for the CPV5350 board), and if errors such as frequency out of range appear, do the following:
 1. In the `$BLUECAT_PREFIX/demo/xdemo_directory/local/etc` directory, edit the `XF86Config` file.
 2. In the `Screen` section in the `Generic SVGA Card` section, include `Generic Monitor`. In the subsection `Display`, add `640x480` in the `Modes` line.
 3. Execute `make rootfs` in the corresponding demo system directory to rebuild the root filesystem image from the `.spec` file.

Serial Mouse Support in X-Based Demo Systems

1. To enable serial mouse support in X-related demos, `CONFIG_SERIAL` configuration option must be set. This can be verified using the configuration screen (by running `make xconfig`)—enable `Character devices` -> `Standard/generic (dumb)` serial support.
2. Also, for example, in the `$BLUECAT_PREFIX/demo/xdemo2/local/etc/` `XF86Config` file, the section for `Pointer` needs to be modified according these settings:

```
Section "Pointer"
    Protocol "MouseMan"
    Device "/dev/ttyS1" /* here ttyS1
\
indicates com2 */
Endsection
```

Watchdog Timer Support

Watchdog support is demonstrated by the `watchdog` demo system provided. The Watchdog timer provided with cPCI730 target boards operates in three modes:

- Disabled
- Reset after specified timeout duration
- Generate NMI interrupt after specified timeout duration

The watchdog timer supports two timeout durations: 1.5 seconds and 6 seconds.

Bit Descriptions

The following list details bit descriptions for the watchdog control register (0x010A):

- Bit 0—Enables or disables watchdog timer
- Bit 1—Controls sending an NMI or a reset if the watchdog timer is not retriggered within the timeout duration.
- Bit 2—Sets timer to 1.5 or 6 seconds
- Bit 3—Reserved

Table 4-2: Watchdog Timeout Bit Value Definitions

Bit 2	Bit 1	Bit 0	Description
0	0	0	Causes NMI after 6 seconds
0	0	1	Watchdog is disabled
0	1	0	Causes reset after 6 seconds
0	1	1	Watchdog is disabled
1	0	0	Causes NMI after 1.5 seconds
1	0	1	Watchdog is disabled
1	1	0	Causes reset after 1.5 seconds
1	1	1	Watchdog is disabled

The following list details the bit descriptions for the watchdog retrigger register (0x010D):

- Bit 0—Toggling the bit retriggers the watchdog timer (when watchdog timer is enabled). This must be done at least every 1.5 or 6 seconds to prevent a watchdog timeout.
- All other bits are reserved.

The following list details the bit descriptions for the NMI status register (0x010C):

- Bit 0—Reserved
- Bit 1—Indicates whether the watchdog timer caused an NMI since the last clearance of the status bus via a write access to the register.
 - Value=0 —No NMI caused
 - Value=1—Watchdog timer caused an NMI interrupt

The following list details the bit descriptions for the switch control register (0x0109):

- Bit 0—Enables or disables front panel reset key
 - Value=0 —Key disabled
 - Value=1—Key enabled if SW2D=OFF

The following list details the bit descriptions for the LED control register (0x0100)

- Bits 1 & 0 —Control status LED 2
 - Value = 00 means LED OFF
 - Value = 01 means LED is RED
 - Value = 10 means LED is GREEN
 - Value = 11 means LED OFF
- Bits 3 & 2 —Control status LED 1
 - Value = 00 means LED OFF
 - Value = 01 means LED is RED
 - Value = 10 means LED is GREEN
 - Value = 11 means LED OFF

- Bits 5 & 4 —Control HD LED
 - Value = 01 means LED is RED during HD access
 - Value = 10 means LED is GREEN during HD access
 - Other values are reserved
- Bits 7 & 6 —Control status LED 3
 - Value = 00 means LED OFF
 - Value = 01 means LED is RED
 - Value = 10 means LED is GREEN
 - Value = 11 means LED OFF

Permitted IOCTLs for the Watchdog Timer

The following list details the permitted IOCTLs for the Watchdog timer:

- FORCE_WDT_SETLEDS
- FORCE_WDT_GETSTATUS
- FORCE_WDT_SETOPTIONS
- FORCE_WDT_KEEPAKIVE
- FORCE_WDT_GETNMI_STATUS
- FORCE_WDT_SW_GETSTATUS
- FORCE_WDT_SW_SETSTATUS

The watchdog timer uses the major number 130, and the device is `/dev/forcewatchdog`.

- `FORCE_WDT_SETLEDS` controls the front panel LEDs of the cPCI730 board by writing to the LED control register. For example,

```
devfd = open("/dev/forcewatchdog", O_RDWR)
ioctl(devfd, FORCE_WDT_SETLEDS, &setstatus)
```

The value specified in the `setstatus` register is written in the LED control register.

- `FORCE_WDT_GETSTATUS` is used to determine the status of the watchdog timer. For example,

```

devfd = \
open("/dev/forcewatchdog", O_RDONLY)

ioctl(devfd, \
FORCE_WDT_GETSTATUS, &getstatus)

```

The value is returned in the `getstatus` variable.

- `FORCE_WDT_SETOPTIONS` writes to the watchdog control register.
- `FORCE_WDT_KEEPAKIVE` writes to the watchdog retrigger register to keep the watchdog running.
- `FORCE_WDT_GETNMI_STATUS` reads the NMI status register and returns the value to the user.
- `FORCE_WDT_SW_GETSTATUS` returns the value contained in the switch control register.
- `FORCE_WDT_SW_SETSTATUS` writes to the switch control register. This option is useful in enabling or disabling the front panel Reset key of cPCI730 boards.

Watchdog Timer Demo System

DEMO

`watchdog`—Watchdog timer demonstration

SYNOPSIS

Demonstrates the use of the watchdog timer support for cPCI730 target boards.

REQUIREMENTS

Storage:	Small
RAM:	Small
Network:	None
Disk:	None
Special:	None

DESCRIPTION

A new option `CONFIG_BLUECAT_FORCEWDT` has been provided to enable watchdog support. Set `CONFIG_BLUECAT_FORCEWDT=y` and execute `make`

kernel. The system boots up in single-user mode. Init starts `bash` without a login prompt.

The following are the tests provided in this demo system:

- `wdt_stat`—returns the watchdog timer status
- `wdt_reset`—enables the watchdog timer with a timeout value of 6 seconds
- `wdt_reset_alt`—enables the watchdog timer with a timeout value of 1.5 seconds
- `wdt`—enables the watchdog timer to generate an NMI after the timeout value
- `wdt_nmi`—reads the NMI status register
- `all_red`—turns the front panel status LEDs red
- `all_green`—turns the front panel status LEDs green
- `all_off`—turns the front panel status LEDs off
- `sw_stat`—returns the status of the switch control register
- `sw_set`—demonstrates disabling the front panel reset switch
- `wdt_fork`—enables the watchdog timer and forks a child process to keep the watchdog running

Test Case I

- Test 1— Execute `wdt_stat` (In the root directory, issue `./wdt_stat`). This returns the status of the watchdog timer.
- Test 2— Execute `all_red`. This sets the front panel status LEDs red.
- Test 3— Execute `all_green`. This sets the front panel status LEDs green.
- Test 4— Execute `all_off`. This turns off the front panel status LEDs.
- Test 5— Execute `sw_stat`. This returns the status of the switch control register.
- Test 6— Execute `sw_set`. This toggles the status of the front panel Reset key.
- Test 7— Execute `sw_stat` again. The status of the front panel Reset key changes as a result of Test 6.

- Test 8—Execute `wdt_fork` in the background (`./wdt_fork &`). Issue the command:

```
ps -aef
```

Note that there are two processes with the name `wdt_fork`. One is the parent process, and the other is the child process. Note the process ID of the child `wdt_fork`.

- Test 9—Execute `wdt`. This operation should not be permitted at this stage.
- Test 10—Execute `wdt_reset_alt`. This changes the timeout duration of the watchdog timer.
- Test 11—Execute `wdt_reset`. This changes the timeout duration of the watchdog timer.
- Test 12—Execute `kill -9 pid_of_wdt_fork_child`
This reboots the machine after the specified timeout duration.

Test Case II

- Test 1—Execute `wdt_stat` (In the root directory issue `./wdt_stat`). This returns the status of the watchdog timer.
- Test 2—Execute `wdt`. This enables the watchdog timer to generate an NMI interrupt after a specified timeout if the watchdog is not retriggered.
- Test 3—Execute `wdt_nmi`. This program displays the message "Received NMI interrupt as a result of watchdog timeout" upon receipt of the interrupt from the watchdog timer. Otherwise, it prints the message "No NMI interrupt as yet".

After the above sequence in Test Case II, the user is required to hard boot the system. A soft reset is not permitted.

Supported Device Drivers

The following table lists supported device drivers for the cPCI730 target board.

Table 5-1: Supported Device Drivers

Hardware Device	Device Drivers	Location in Source Tree	Kernel Configuration Options
Ethernet Controller DEC 21143	DEC "de4x5" driver	drivers/net/de4x5.c	CONFIG_DE4X5
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

Table 5-1: Supported Device Drivers (Continued)

Hardware Device	Device Drivers	Location in Source Tree	Kernel Configuration Options
SanDisk Surface mounted SanDisk 16 MB Flash memory (Primary Master)	Generic IDE disk driver	<code>drivers/block/ide_disk.c</code>	<code>CONFIG_BLK_DEV_IDEDISK</code>
Video Chips B69030	XF86_SVGA driver	<code>drivers/video/vgacon.c</code>	
Note: This is a part of the XServer 3.3.5 binary. The VGA hardware is not part of the cPCI730 board and is part of an add-on PMC-mezzanine board (Force PMC-VGA).			
Keyboard/ Mouse PS/2	PC keyboard driver	<code>drivers/char/pc_keyb.c</code>	<code>CONFIG_PCmouse</code>
Watchdog Timer	Watchdog Timer driver	<code>drivers/char/forcewdt.c</code>	<code>CONFIG_BLUECAT_FORCEWDT</code>

install_cpci730.sh

Command Reference

NAME

`install_cpci730.sh` — Installs the cpci730 TSP on the specified base distribution (in this case, the CPV5350 TSP)

SYNOPSIS

```
install_cpci730.sh [-i -v] -x $y/n$  \  
-d $absolute\_path\_of\_base\_directory$  \  
-t $absolute\_path\_to\_create\_links\_under\_tftpboot$ 
```

OPTIONS

- i Specification to run in “info mode”
- v Specification to run in “verbose mode”
- x Specifies whether the install command installs the base (CPV5350 TSP) demos. Installs if argument is set to y
- t Specifies the absolute path of the directory where softlinks for all the files of all the demo systems will be created
- d Specifies the absolute path where base binaries (i.e., CPV5350) are installed

NOTE: *No spaces should be entered between the argument and its options in this script, for example, between -m and “mountpoint,” or between -d and “absolute_path_of_base_directory.”*

DESCRIPTION

Besides the installation, the `install_cpci730.sh` program generates additional files named `SETUP.sh` and `uninstall_cpci730.sh`. The latter is used for uninstallation of the cpci730 TSP and restoration of the base (the binaries for the CPV5350 board).

This program runs in three modes:

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

Info Mode

In information mode, only information about the files is provided. No installation takes place. This mode displays all RPMs to be installed. Use the `-i` option to activate the Info mode.

To obtain a list of RPMs to be installed and deleted, use the following command:

```
./install_cpci730.sh -i -dabsolute_path_of_base_directory
```

Normal Mode

This mode installs the TSP on the specified base. All messages are sent to the console in this mode; no messages are logged.

For normal mode, use the following command:

```
./install_cpci730.sh -xy -dabsolute_path_of_base_directory
```

If the `-x` option is specified with `y`, then the install command retains all of the base (in this case, the TSP for CPV5350 boards) demo systems not supported by the cpci730 TSP.

If the `-t` option is specified, the `install_cpci730.sh` command creates softlinks (under the directory specified with this option) for all the files of all the demo systems under `/tftpboot`.

```
# ./install_cpci730.sh \  
-tabsolute_path_to_create_links_under_tftpboot \  
-dabsolute_path_of_base_directory
```

For example,

```
# ./install_cpci730.sh -t/tftpboot/cpci730 \  
-d/home/bcl  
  
# ls -la /tftpboot/cpci730/demo/hello*  
hello.kernel-> /home/bcl/demo/hello/hello.kernel  
hello.rfs-> /home/bcl/demo/hello/hello.rfs  
hello.disk-> /home/bcl/demo/hello/hello.disk  
hello.tar-> /home/bcl/demo/hello/hello.tar  
hello.kdi-> /home/bcl/demo/hello/hello.kdi
```

Verbose Mode

This mode is used in conjunction with the `install` option. Installation messages are appended to a file, instead of being sent to the console. In this mode, installation logs are outputted to a file in the `/home/bcl` directory named `v_install_sh.log`.

For verbose mode, specify the `-v` option:

```
./install_cpci730.sh -v -xy \  
-dabsolute_path_of_base_directory
```


uninstall_cpci730.sh

Command Reference

This appendix describes the `uninstall_cpci730.sh` utility.

UTILITY

`uninstall_cpci730.sh`

SYNOPSIS

`uninstall_cpci730.sh [-i] -m mountpoint \
-d absolute_path_to_installed_tsp`

DESCRIPTION

`uninstall_cpci730.sh` uninstalls the BlueCat Linux Target Support Package (TSP) for cPCI730 target boards.

OPTIONS

<code>-i</code>	Runs in info mode
<code>-m</code>	Specifies the mountpoint 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_cpci730.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_cpci730.sh -i -mmountpoint \  
-dabsolute_path_to_installed_tsp
```

Uninstall Mode

To uninstall the cpci730 TSP, issue the following command:

```
./uninstall_cpci730.sh -mmountpoint \  
-dabsolute_path_to_installed_tsp
```