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Installation guide for the ISP1761 peripheral controller on Linux 2.6.9

Rev. 01 — 15 October 2007   **User manual**

Revision history

Rev	Date	Description
01	20071015	First release.

Contact information

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1. Introduction

This document explains the installation of Linux version 2.6.9, with the kernel directory **/usr/src/linux-2.6.9** for the ISP1761 Peripheral Controller.

2. Installation environment

This document is based on the installation of the ISP1761 PCI card on a newly formatted hard disk, and using Fedora core 2 with kernel version 2.6.5-1.358 as the initial install. Kernel version 2.6.5-1.358 must be changed to kernel version 2.6.9. Linux-2.6.9 kernel source can be downloaded from the kernel.org site. Make sure that you have the required files to run the ISP1761 Peripheral controller **ISP1761_Linux269_DCD_Ver2.0.0.0.tar.gz** and the optional **.config** file.

3. Extracting source files

Place the downloaded kernel source (**Linux-2.6.9.tar.bz2** or **gz**) in the **/usr/src** directory and extract the kernel source files to the directory.

Steps to extract gz files:

```
#cd /usr/src
#tar -zxvf linux-2.6.9.tar.gz
```

Steps to extract bz/bz2 files:

```
#cd /usr/src
#tar -jxvf linux-2.6.9.tar.bz
```

Or,

```
#cd /usr/src
#tar -jxvf linux-2.6.9.tar.bz2
```

4. Extracting pehcd modules

Copy **ISP1761_Linux269_DCD_Ver2.0.0.0.tar.gz** to **/usr/src/linux-2.6.9/drivers/usb/**.

Go to **/usr/src/linux-2.6.9/drivers/usb/** and run:

```
#tar -xvzf   ISP1761_Linux269_DCD_Ver2.0.0.0.tar.gz
```

Go back to **/usr/src/linux-2.6.9**.

5. Compiling and installing Linux-2.6.9

Compile and install **Linux kernel version 2.6.9** with module support enabled.

Go to **/usr/src/linux-2.6.9/**, and run:

```
#make menuconfig
```

Save and exit the configuration.

Or,

Copy the given **.config** file to the root directory of your kernel source.

```
#make menuconfig
```

Save and exit the configuration.

After exiting **menuconfig**, a new **.config** is created.

Run the following commands:

```
#make
#make modules
#make modules_install
#make install
```

If you are using **grub bootloader**, the kernel image is already added to the **grub.conf**.

If you are using **lilo bootloader**, run **lilo** every time modification is made to **lilo.conf**.

Then reboot your computer and run the newly compiled kernel.

6. Creating and inserting binaries for the peripheral controller

After installing the new kernel (Linux-2.6.9).

Go to **/usr/src/linux-2.6.9/drivers/usb/pehcd** and run:

```
#make clean
#make all
```

This will create binaries required for the NXP Peripheral controller in the **/usr/src/linux-2.6.9/drivers/usb/pehcd/objs** directory.

Go to **/usr/src/linux-2.6.9/drivers/usb/pehcd/** and run:

Remark: Perform this set of four commands only when installing a fresh driver:

```
#mkdir /dev/usb/otg
#mknod /dev/usb/otg/otgdev0 c 18 0
#mknod /dev/usb/otg/otgfsm0 c 244 0
#dd if=/dev/zero of=/dev/usb/otg/otgdisk count=16388 bs=512
```

Every time you want to unload the driver, run:

```
#./stop
```

Every time you want to load the driver, run:

```
#./start
```

7. Enabling messages

All debug levels are defined in **/hal/isp1761.h**.

You can enable required debug messages by defining the related macros.

Example: To enable entry or exit of functions:

```
#undef HCD_DEBUG_LEVEL1   change to   #define HCD_DEBUG_LEVEL1
```

8. Enabling MTP support

If you have a Media Transfer Protocol (MTP) client driver, you can enable the MTP support by defining the MTP_ENABLE macro in **/hal/isp1761.h**.

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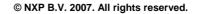
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