

Lab Title MIGO-R Linux BSP Explore**Description:****Objectives**

1. Understand the structure of files/directories in BSP, Source code location for hardware specific device drivers
2. To be able to replace a peripheral, such as LCD or Camera

Lab Materials:

- Laptop with Fedora Core 6 Installed
- Linux BSP for MIGO-R

Skill Level : Advanced

- Have knowledge of General Linux commands in shell
- Have knowledge to write a device driver for Linux or other POSIX based OS

Time to Complete Lab: 10 minutes**Lab Sections**

- | | | |
|----------|---|----------------------------------|
| 1 | Login Linux and Bring up Terminal Window | Time to complete task: 2 minutes |
| 2 | Explore BSP | Time to complete task: 4 minutes |
| 3 | Configure Kernel & Build | Time to complete task: 4 minutes |

1 Login Linux and Bring up Terminal Window

Time to complete task: 2 minutes

Overview:

Login Linux and Bring up Terminal Window.

Procedural Steps

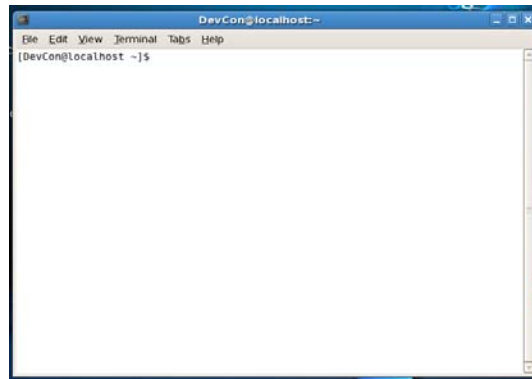
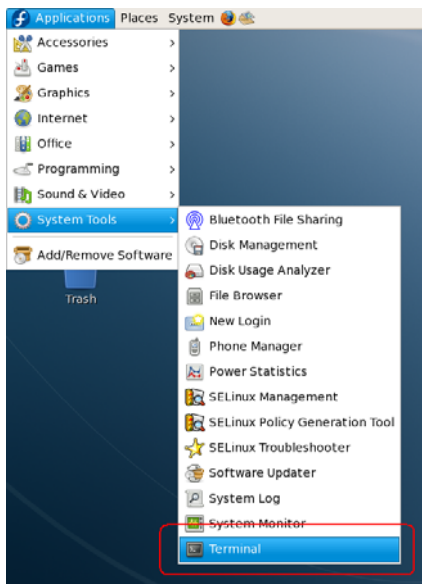
1. Login to Linux.

Username : DevCon password : 200810



2. Open Terminal Window

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2

Explore BSP

Time to complete task: 4 minutes

Overview:

Review source code for device drivers.

Procedural Steps:

1. Go to `/home/migor/kernel/src/linux-2.6.24.2/arch/sh/boards/Renesas/migor` directory in Terminal

```
cd /home/migor/kernel/src/linux-2.6.24.2/arch/sh/boards/Renesas/migor
```

2. Open `setup.c` with `gedit`

```
gedit setup.c &
```



From Line 203, you can find LCD specific parameters. There are two panels configuration in the kernel config setting. One is for WVGA(800x480), another one is QVGA(320x240). You should replace those numbers when you need to replace LCD panel to yours.

3. Go to `/home/migor/kernel/src/linux-2.6.24.2/drivers/media/video` directory in Terminal

```
cd /home/migor/kernel/src/linux-2.6.24.2/drivers/media/video
```

4. Open `ov772x_camera.c` with `gedit`

```
gedit ov772x_camera.c &
```



`ov772x_camera.c` is the camera module specific code, which is covering the functions to manipulate the camera module. MIGO-R uses OV7725 as the camera module. If you want to replace the camera to yours, you should modify this file.

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3

Configure Kernel & Build

Time to complete task: 4 minutes

Overview:

Review menuconfig options.

Procedural Steps:

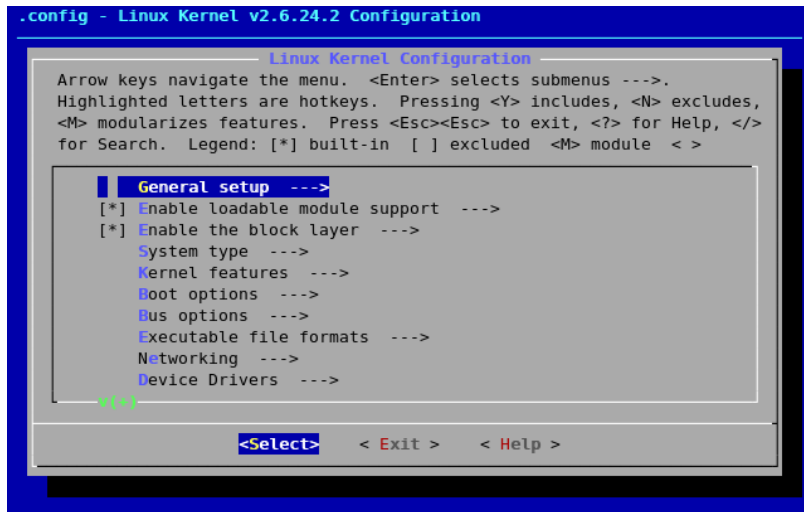
1. Go to /home/migor/kernel/src/linux-2.6.24.2

```
cd /home/migor/kernel/src/linux-2.6.24.2
```

2. run make menuconfig

```
make menuconfig
```

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3. Change LCD module option to 'WVGA LCD'

```
=>System type
=>Migo-R LCD Panel Board Selection
  > QVGA (320*240)
  > RTA WVGA (800*480)
Select WVGA option
```

4. Exit with Saving change

5. Make sure you are in /home/migor/kernel/src/linux-2.6.24.2 if you moved some other directory

```
cd /home/migor/kernel/src/linux-2.6.24.2
```

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| 6. Build kernel

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```
make
```



Kernel binary file, zImage will be generated at arch/sh/boot/zImage

Make process will take around 10 minutes. This Hands on Lab is completed as you invoke the make command. Do not wait for completion of the build process.