

SDK Tutorial: Linux

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Aim

The aim of this tutorial is to get Linux running in a single cell system on the xscale based gumstix platform.

Installing the SDK

Download the **sdk-xscale-3.0.tar.gz** tar ball from the Open Kernel Labs Website:

<http://wiki.ok-labs.com/>

Expand the tarball using the following command:

```
tar -xzf sdk-xscale-3.0.tar.gz
```

Building Poky Linux

Obtain Poky Linux using the following command:

```
svn co -r5023 http://svn.o-hand.com/repos/poky/trunk poky
```

Change into the directory containing the Poky Linux checkout and download the Poky Linux patch from the Open Kernel Labs website:

<http://wiki.ok-labs.com/>

Apply the Poky Linux patch inside the Poky Linux directory using the following command:

```
patch -p1 < ./poky-linux.patch
```

Edit the linux gumstix defconfig. The defconfig file can be found at:

```
meta/packages/linux/linux-okl-2.6.24/defconfig-gumstix
```

The value of the **CONFIG_SDK** option in the linux defconfig file should be set to the following, where <SDK> is the location of the SDK obtained above:

```
CONFIG_SDK="<SDK>/okl4/xscale/micro-production"
```

Build Poky Linux for gumstix using the following commands. This step can take a long time:

```
source poky-init-build-env  
sh build_gumstix
```

After compilation has finished, vmlinux and ext2-file-system images can be found in the following directories respectively

```
build/tmp/staging/gumstix-poky-linux-gnueabi/kernel  
build/tmp/deploy/images
```

Please see the Poky documentation for more information on building Poky Linux.

Putting it all together

Copy the contents of the `linux` example directory from the following location in the SDK:

```
sdk/okl4/xscale/examples/linux
```

into the directory in which you wish to work.

To create an SDK environment variable which points to SDK root directory, type the following:

```
export OKL4_SDK_ROOT=path/to/sdk
```

Copy the `vmlinux` and `ext2-file-system` images to the `cell` directory inside the `linux` example directory. Rename the `ext2-file-system` image to `ext2ramdisk`.

Now change into the `linux` example directory and type the following line to create a runnable image:

```
make
```

This will create an image, `image.sim`, in the following directory:

```
build.micro-production/images/image.sim
```

Running Linux on OKL4

To simulate the image that you have created using the `skyeye` simulator, type the following line:

```
skyeye -c skyeye.conf -e build.micro-production/images/image.sim
```

Congratulations! You have just run linux in a cell on OKL4!