

How to install IBM Cell SDK 3.0 on an x86 machine

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With the Cell SDK, you can develop and run your programs for IBM Cell Broadband Engine (Cell BE) on an x86 machine.

1. Install Fedora 7

- Download Fedora 7 ISO here: <http://mirrors.fedoraproject.org/publiclist/Fedora/7/i386/>. Select file F-7-i386-DVD.iso from "releases/7/Fedora/i386/iso". Burn the iso to a DVD disc.

- Boot with the DVD.

- When install Fedora 7, make sure to choose "Software Development" package. For dual-boot (e.g., with Windows Vista), install Grub on the root partition, NOT on the MBR!

- Reboot with installed Fedora 7.

- Possible problems: Dual-boot does not work. Show errors like "Grub error 15".

Solution:

Boot from the DVD, select rescue.

Type "chroot /mnt/sysimage".

Use "fdisk -l" to locate your linux and windows partitions.

Edit the grub.conf under /boot/grub. Set the partition of your Windows partition. For example, your Windows partition is on the second partition of the first disk, set it to (hd0, 2).

Type "grub".

In grub, type "root (hd0, 5)", if (hd0,5) is your Fedora partition.

Type "setup (hd0)".

Type "quit".

Reboot the machine to check whether Grub works.

2. Update linux kernel

- Use "ifconfig" to check whether your network works.

- If you have network connection, use "yum update kernel" to get the latest linux kernel.

- If you don't have network connection in Fedora (for example, on Dell XPS420):

Follow instructions here: <http://www.anbecom.com/wordpress/?p=379>. You can install newer kernel, instead of 2.6.22.

- Reboot

- Update system with "yum update".

3. Download Cell SDK 3.0

From http://www.ibm.com/developerworks/power/cell/pkgdownloads.html?S_TACT=105AGX16&S_CMP=LP. Click the "Fedora 7 download page" to download the installation rpm, the Developer package and the Extras package.

4. Install SDK

- Update and install some packages:

```
yum update selinux-policy selinux-policy-targeted
```

```
yum install rsync sed tcl wget
```

- Install sdk (assume the the installation rpm and the isos are stored at /root/cell/cellsdk/)

```
/etc/init.d/yum-updatesd stop
```

```
rpm -ivh cell-install-3.0.0-1.0.noarch.rpm
```

```
cd /opt/cell
```

```
cellsdk --iso /root/cell/cellsdk/ install
```

```
cellsdk_sync_simulator install
```

- Use "/opt/cell/cellsdk verify" to check packages of Cell SDK. Use yum to install optional packages you need.

- Add "PATH=/opt/ibm/systemsim-cell/bin:\$PATH " to your .bash_profile.

5. Install Java, Eclipse

- Download Java from <http://java.sun.com/j2se/1.4.2/download.html>. File: j2sdk_1_4_2_16-linux-i586.rpm.

- Download Eclipse 3.2.2 from <http://archive.eclipse.org/eclipse/downloads/drops/R-3.2.2-200702121330/index.php>. Select this file: "eclipse-SDK-3.2.2-linux-gtk.tar.gz".

- Download CDT for Eclipse from <http://www.eclipse.org/downloads/download.php?file=/tools/cdt/releases/callisto/dist/3.1.2/>. File: "org.eclipse.cdt.sdk-3.1.2-linux.x86.tar.gz".

- Install Java:

```
rpm -ivh j2sdk_1_4_2_16-linux-i586.rpm
```

```
update-alternatives --install /usr/bin/javac javac /usr/java/j2sdk1.4.2_16/bin/javac 120
```

```
update-alternatives --install /usr/bin/java java /usr/java/j2sdk1.4.2_16/jre/bin/java 120
```

```
alternatives --config javac
```

```
alternatives --config java
```

```
add "PATH=$PATH:/usr/java/j2sdk1.4.2_16/jre/bin" to your .bash_profile.
```

- Install Eclipse:

```
tar -xzf eclipse-SDK-3.2.2-linux-gtk.tar.gz
```

- add "PATH=\$PATH:/cellsdk_addon/eclipse3.2.2/eclipse" to your .bash_profile, where "/cellsdk_addon/eclipse3.2.2/eclipse" is the folder of the decompressed eclipse.

- Install CDT:

```
tar -xzf org.eclipse.cdt.sdk-3.1.2-linux.x86.tar.gz
```

Run Eclipse with "eclipse -vm /usr/java/j2sdk1.4.2_16/jre/bin/java".

In Eclipse, select Help>>Software Updates>>Find and Install...>>Search for new features to install>>New Local Site.... Add a local site at "file:/cellsdk_addon/CDT3.1.2/eclipse/" to install CDT, where "/cellsdk_addon/CDT3.1.2/eclipse/" is the folder of the decompressed CDT.

- Exclude updates to some packages:

```
add "exclude=blas kernel numactl oprofile" to /etc/yum.conf
```

- Restart yum-updatesd:

```
/etc/init.d/yum-updatesd start
```

6. Install SDK IDE

- Install the cellide package:

/opt/cell/cellsdk --iso ~/cell/cellsdk/ mount (if you reboot or umount /tmp/sdk, yum may not find sdk packages, in this case use this command to mount sdk isos)

```
yum install cellide
```

- In Eclipse, select Help>>Software Updates>>Find and Install...>>Search for new features to install>>New Local Site.... Add a local site at "file:/opt/cell/ide/com.ibm.cellidt.update/" to install the cell ide in Eclipse.

- Install the alf-ide-template package:

```
yum install alf-ide-template
```

7. Run the "Hello Cell"

- Compile samples included in the SDK:

```
cd /opt/cell/sdk/src
```

```
for i in /*.tar; do tar -xf $i; done
```

```
make
```

- Run "Hello Cell":

```
systemsim -g
```

Mode-->Fast Mode (shown as "in mode LOOSE")

```
press Go
```

In the simulator:

```
cd /opt/cell/sdk/usr/bin/tutorial
```

```
simple
```

- A bug of the simulator: VisualSPE doesn't work

Watch this thread: <http://www-128.ibm.com/developerworks/forums/thread.jspa?threadID=178168&start=0&tstart=0>