Tutorial for OpenCL Intallation on Linux/Ubuntu

I recommend to skim through OpenCL Release Notes before you commence with the tutorial. It includes information that you need to know before configuring your system for OpenCL.

Let's do it!!

1. Download the RPM package file from here.

2. Install RPM (a package management system) and Alien (converts packages from one format to another) package,
   sudo apt-get install rpm alien

3. Now convert .RPM package downloaded in <Step 1> to .DEB package using Alien,
   fakeroot alien /path-to-RPM-file-containing-folder/RPM-file-name
   (e.g fakeroot alien intel_ocl_sdk_2012_x64.rpm)

   Note: Ignore any warnings that you see.

4. Install the generated .DEB package,
   sudo dpkg -i /path-to-DEB-file-containing-folder/DEB-file-name
   (e.g sudo dpkg -i intel-ocl-sdk_2.0-31361_amd64.deb)

5. Install libnuma1,
   sudo apt-get install libnuma1

6. Add header files (manually) to /usr/include folder – this folder normally includes C programming header files,
   cd /usr/include

   sudo mkdir CL

   sudo wget http://www.khronos.org/registry/cl/api/1.1/cl_d3d10.h
   http://www.khronos.org/registry/cl/api/1.1/cl_ext.h
   http://www.khronos.org/registry/cl/api/1.1/cl_gl_ext.h
   http://www.khronos.org/registry/cl/api/1.1/cl_gl.h
   http://www.khronos.org/registry/cl/api/1.1/cl.h
   http://www.khronos.org/registry/cl/api/1.1/cl_platform.h
   http://www.khronos.org/registry/cl/api/1.1/opencl.h
   http://www.khronos.org/registry/cl/api/1.1/cl.hpp

7. Copy libOpenCL.so to the right location, originally it is placed at /usr/lib (for 32-bit machine) and /usr/lib64 (for 64-bit machine),
   Note: For 64-bit machines, by default, system checks for the library files in /usr/lib64 folder.
   (for 32-bit)
   sudo cp /usr/lib/libOpenCL.so /usr/lib/OpenCL/vendors/intel/

   (for 64-bit)
   sudo cp /usr/lib64/libOpenCL.so /usr/lib64/OpenCL/vendors/intel/

8. Installable Client Drivers (ICDs) for each platform stay in /etc/OpenCL/vendors. This ICD should be already exist at /etc/OpenCL/vendors,

```
sudo echo "libintelocl.so" > echo /etc/OpenCL/vendors/intelocl.icd
```

9. To make libraries available (to run the program), add opencl vendor config to ld.so.conf.d to avoid exporting the LD_LIBRARY_PATH over and over again,

```
(for 32-bit)
echo "/usr/lib/OpenCL/vendors/intel" > echo /etc/ld.so.conf.d/opencl-vendor-intel.conf

(for 64-bit)
echo "/usr/lib64/OpenCL/vendors/intel" > echo
/etc/ld.so.conf.d/opencl-   vendor-intel.conf

ldconfig
```

That's it, run your first OpenCL program.

Useful Links

- OpenCL Reference Pages
- A nice tutorial to start with OpenCL API basics.

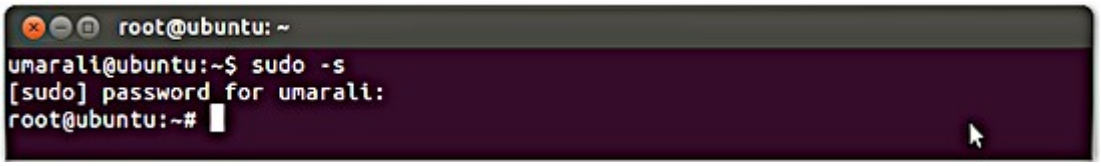
Reference Links (for this tutorial)

- http://mhr3.blogspot.com/2011/05/opencl-on-ubuntu.html
- http://streamcomputing.eu/wp-content/uploads/kalins-pdf/singles/install-opencl-on-debianubuntu-orderly.pdf
- http://www.thebigblob.com/getting-started-with-opencl-and-gpu-computing/
- http://www.fixstars.com/en/opencl/book/OpenCLProgrammingBook/first-opencl-program/

Appendix

- **(For Beginners) Good to Know Commands**
  cd is used to change directory, similar to Windows way.
  ls (similar to **dir** in Windows) lists all the folder(s) and file(s) in the current directory you're in.
  mkdir creates a directory with the name that follows it. For instance, **`sudo mkdir documents`** will create a folder named "document" in the current directory.

- **Important!!**
  While following the instructions below, you'll run some commands that has "sudo" (a program that runs commands as root/admin) string at the beginning. For a couple of such commands you may see a system error like "Permission Denied.". To resolve such issues, you'll need to switch to **<root>** user mode. You can do that by running,
  `sudo -s`
  If the systems asks for a password, please enter your system password followed by <Enter> key. Now try the command which failed to run. It should work now.



Note: If you want to go back to normal user mode, Run “exit”.