## Install OpenCL on Ubuntu

For developers OpenCL consists of 5 parts:

* GPUs-only: drivers with OpenCL-support
* The OpenCL header-files
* Vendor specific libraries (needed when using -lOpenCL)
* libOpenCL.so -> a special driver
* An installable client driver

Currently GPU-drivers are always OpenCL-capable, so you only need to secure 4 steps. These are discussed below.

Here we use the SDK from AMD. Firstly we need to download [AMD APP SDK 3.0](http://developer.amd.com/tools-and-sdks/opencl-zone/amd-accelerated-parallel-processing-app-sdk/), and install it. If we do not change the default directory, it will be installed in /home/user/AMDAPPSDK-3.0/.

1. **Header-files**

We need to put all headers from the /home/user/AMDAPPSDK-3.0/include/CL/ in **/usr/include/CL/:**

*cd /include*

*sudo mkdir CL*

*cd CL*

*cp –rf AMDAPPSDK-3.0/include/CL/\* /usr/include/CL/*

1. **Libaries**

All vendors have their favourite spot to put their libraries; but actually a “just put your coat where you find a spot” is not the best to do. According to the best answer on [stackoverflow](http://stackoverflow.com/questions/3685716/where-to-put-third-party-libraries-to-setup-a-c-linux-development-environment), the libraries should be in /usr/local/lib, but since these are shared libraries, Intel has found a good location: /usr/lib/OpenCL/vendors/.

For AMD, we need to move the lib-directory to **/usr/lib(64)/OpenCL/vendors/,** for 64 bit system:

mkdir –p */usr/lib64/OpenCL/vendors/amd/*

*mv* *AMDAPPSDK-3.0/lib/x86\_64/\* /usr/lib64/OpenCL/vendors/amd/*

Then we need to add them to ld-config.

*echo "/usr/lib64/OpenCL/vendors/amd" > /etc/ld.so.conf.d/opencl-vendor-amd.conf*

Then run

*ldconfig*

1. **LibOpenCL.so**

This library handles the selecting of the platforms (the vendors) and providing the correct libraries to the software needing the functionality. It is located under /usr/lib or /usr/lib64. You need to select which vendor you want to use.

*sudo ln -s /usr/lib64/OpenCL/vendors/amd/libOpenCL.so /usr/lib64/libOpenCL.so.1*

*sudo ln -s /usr/lib64/OpenCL/vendors/amd/libOpenCL.so /usr/lib64/libOpenCL.so*

1. **Installable Client Drivers**

In *AMDAPPSDK-3.0*/etc/OpenCL/vendor/ all ICDs need to be put in /etc/OpenCL/vendor/:

*cp –rf AMDAPPSDK-3.0/etc/\* /etc/*