

# OpenBLAS

Multiprocessing python code can work very slow (with linear equations) on multicore machines when numpy linked to the wrong blas library.  
Here is the link how to install OpenBLAS and numpy in a proper way to speed up the performance:

<https://hunseblog.wordpress.com/2014/09/15/installing-numpy-and-openblas/>

This procedure has been done on Server: rose

- `sudo apt-get install git python-dev gfortran`

## OpenBLAS

To install OpenBLAS, do the following commands

1. `cd ~/src`
2. `git clone https://github.com/xianyi/OpenBLAS`
3. `cd OpenBLAS`
4. `make FC=gfortran`
5. `sudo make PREFIX=/opt/openblas install`

Need to tell the system about the new library; create config file and insert the path to new library!

```
vi /etc/ld.so.conf.d/openblas.conf
```

`/opt/openblas/lib`

Update system with new library path!

```
sudo ldconfig
```

In case you have also the libblas lib installed, we need to change that.

```
update-alternatives --install /usr/lib/libblas/libblas.so.3 libblas.so.3  
/opt/openblas/lib/libopenblas.so 40  
update-alternatives --config libblas.so.3
```

There are 2 choices for the alternative libblas.so.3 (providing /usr/lib/libblas/libblas.so.3).

Selection	Path	Priority	Status
-----			
* 0	/opt/openblas/lib/libopenblas.so	40	auto mode
1	/opt/openblas/lib/libopenblas.so	40	manual
mode			
2	/usr/lib/atlas-base/atlas/libblas.so.3	35	manual
mode			

Press enter to keep the current choice[\*], or type selection number: 0

## Numpy

### Install Numpy

1. `cd ~/src`
2. `git clone https://github.com/numpy/numpy`
3. `cd ~/numpy`

By default, the repository will be on the current development (master) branch. I prefer to use the latest stable branch. To find this, type `git checkout v` and press Tab.

- `git checkout v1.11.1`

### Add a config file `site.cfg`

```
vi site.cfg
```

```
[default]
include_dirs = /opt/openblas/include
library_dirs = /opt/openblas/lib

[openblas]
openblas_libs = openblas
library_dirs = /opt/openblas/lib

[lapack]
lapack_libs = openblas
library_dirs = /opt/openblas/lib
```

Now run:

```
python setup.py config
python setup.py build --fcompiler=gnu95
```

If all configured without errors, finally install it!

```
python setup.py install
```

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