GPMDNA INSTALL NOTES

Centos install

1) If dual booting with windows, use compmgmt.msc to resize windows partition.

2) Don't choose “support virtualization”. Xen kernel does not support nVidia drivers.

3) To run CUDA and the SDK examples select 'Development' to get gcc (needed to compile Nvidia drivers). Also select freeglut, freeglut-devel, libXi-devel and libXmu-devel.

4) Select Servers->mysql-server. If need development environment, also select Dev libraries, Dev tools, mysql-devel.

5) Put SE linux in permissive mode (otherwise incompatible with CUDA).

6) When install complete, Install updates from internet.

CUDA support

7) Install CUDA driver, SDK, Toolkit
   $ su -
   # telinit 3
   # cudadriver_2.3_linux_64_190.18.run
   (follow instructions. NB if can't find kernel source, make sure link from /lib/modules to /usr/source/kernels exists. If source not present, “yum install linux-devel”)
   # telinit 5

8) As root, install toolkit (./cudatoolkit_2.3_linux_64_rhel5.3.run)

9) As ordinary user, install SDK (./cudasdk_2.3_linux.run) Set up PATH, LD_LIBRARY_PATH. In .bash_profile:
   ```
   export PATH=$PATH:$HOME/bin:/usr/local/cuda/bin
   export LD_LIBRARY_PATH=/usr/local/cuda/lib64
   ```

NB1. May have to install glut (with yum) and/or add a link to the glut library from /usr/lib64.

NB2 the above is for Tesla C1060 cards. For more recent cards, e.g. GeForce GTX-465 use e.g. devdriver_3.1, cudatoolkit_3.1.

Development environment

10) Eclipse: untar eclipse-cpp-galileo-linux-gtk-x86_64.tar.gz in home directory. Then link from ~/bin/eclipse to ~/eclipse/eclipse. (Install Centos package java-1.6.0-openjdk if needed).

11) Rpmforge: yum localinstall –nogpgcheck rpmforge-release-0.3.6-1.el5.rf.x86_64.rpm. Then edit /etc/yum.repos.d/rpmforge.repo and set enable=0.

12) Uninstall existing subversion packages and install subversion.x86_64: yum –enablerepo=rpmforge install subversion.

13) Install subversive (module for eclipse)
* first install eclipse updates (Help->Check for Updates)
* Eclipse → help → Install new software
→ Galileo → Collaboration → Subversive SVN team provider

* Add www.polarion.org/projects/subversive/download/eclipse/2.0/update-site
→ Polarion
→ Subversive SVN Connectors
✔ Subversive SVN Connectors
✓SVNKit 1.30 Implementation

14) UnitTest++: unpack source and type “make”.
Copy the .a into /usr/local/lib or /usr/local/lib64
Untar UnitTest++_headers.tar into /usr/local/include

15) OpenOffice 3.3:
Uninstall the centos (OO 3.1) packages (if present) and install from
OOo_3.3.0_Linux_x86-64_install-rpm-wJRE_en-US.tar.gz
yum remove openoffice*
(untar the .tar.gz)
cd RPMS
rpm -i *.rpm
cd desktop-integration
rpm -i *redhat*.rpm
(in OO, Tools → Options → OpenOffice.org → Java point to /usr/java/[1.6 runtime])

16) Firefox:
If online, install with yum from Centos Update, otherwise install 3.5.6 from mharris-el
yum erase firefox
yum erase xulrunner.i386
rpm -ivh http://mharris.ca/pub/el/mharris-el-repo-release.noarch.rpm
(edit /etc/yum.repos.d/mharris-el.repo enabled=0)
yum --enablerepo=mharris-el install firefox.x86-64
yum –enablerepo=rpmforge install flash-plugin

17) WxWidgets

2.8.10: Install from rpm

Eclipse Settings:
→ GCC C++ Compiler
→ → Directories (-I)
`/usr/lib64/wx/include/gtk2-unicode-release-2.8`

/usr/include/wx-2.8

→ → Miscellaneaous

```
-c -fmessage-length=0 -D_FILE_OFFSET_BITS=64 -D_LARGE_FILES -D__WXGTK__ -pthread
```

→ GCC C++ Linker

→ → Miscellaneous - Linker flags (-L)

```
-L/usr/lib64 -pthread   -L/usr/lib64   -lwx_gtk2u_richtext-2.8 -lwx_gtk2u_aui-2.8
-lwx_gtk2u_xrc-2.8 -lwx_gtk2u_qa-2.8 -lwx_gtk2u_html-2.8 -lwx_gtk2u_adv-2.8
-lwx_gtk2u_core-2.8 -lwx_baseu_xml-2.8 -lwx_baseu_net-2.8 -lwx_baseu-2.8
```

2.9.1: Build from source

```
-L/usr/local/lib -pthread   -lwx_gtk2u_xrc-2.9 -lwx_gtk2u_html-2.9 -lwx_gtk2u_qa-2.9
-lwx_gtk2u_adv-2.9 -lwx_gtk2u_core-2.9 -lwx_baseu_xml-2.9 -lwx_baseu_net-2.9
-lwx_baseu-2.9
```

18) Install boost libraries

```
$ bunzip2 boost_1_47_0.tar.bz2
$ tar xvf boost_1_47_0.tar
$ cd boost_1_47_0
$ ./bootstrap.sh --prefix=/usr/local
$ ./b2
$ ./b2 install
```

Libraries: `-L/usr/local/lib -lboost_regex` (etc).

19) MySQL

Initial setup for GPMDNA on new workstation (needs to be done only once)

In System -> Administration -> Server Settings -> Services tick mysqld and start it.

```
$ mysql -u root -p
```

(at password prompt press RETURN)

```
mysql> create database fand;
mysql> grant all on fand.* to ''@'localhost' ;
mysql> grant all on test.* to ''@'localhost' ;
mysql> quit
```

(four single quotes)

Also, if you want to do multi-GPU runs lasting more than 8 hours you will need to increase the database connection timeout. Eg to increase it to 24 hours add these lines to /etc/my.cnf (you will need the root password for the computer):

```
wait_timeout=86400
max_connections=500
```

Be sure to add this in the `[mysqld]` section, not the `[mysqld_safe]` section.

Binary install

20) Install GPMDNA software.

1. copy `.fand_meta.txt` file in users home directory. NB this is a hidden file.
2. put population databases in suitable place (e.g. users home directory)
   ```
   $ tar xvf popdata.tar
   ```
3. put latest GPMDNA version in suitable place (eg Desktop)
   ```
   $ cd Desktop
   $ tar zxvf V1.0.tar.gz
   ```
4. Review the environment variables set up V1.0/gmatch.sh
   (NB: Steps 1 and 2 are needed only the first time installing GPMDNA, or when those files change).

21) Run GPMDNA software

```
$ cd V1.0
$ ./gmatch.sh
```