Heimdall install Memo

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Thanks Andrew Jameson

Instructions are basically from: https://sourceforge.net/p/heimdall-astro/wiki/Install/

Required:

- Dedisp
- Thrust version >=1.6
- Boost version >= 1.49
- PSRDADA
- CUDA version >= 4.2

I have tried Ubuntu 14.04 , 18.04 and centos6, 7. Heimdall can work for all the versions.
This Memo is for Ubuntu 18.04, gcc version 7.4.0

Before install:

- sudo apt-get install libtool-bin
- sudo apt-get install apr*
- vi ~/.bashrc

```
export ASTROSOFT=/home/nch/Pulsar_software
#GPU bash
export PATH=/usr/local/cuda-10.1/bin${PATH:+:${PATH}}
export LD_LIBRARY_PATH=/usr/local/cuda-
10.1/lib64${LD_LIBRARY_PATH:+:${LD_LIBRARY_PATH}}

#HEIMDALL
#export CUDA_NVCC_FLAGS="-O3 -arch sm_61"
#export CUDA_NVCC_FLAGS="-O3 -arch sm_75" #--device-c
#export CUDA_NVCC_FLAGS="-O3 -arch sm_60" #--device-c
export CUDA_NVCC_FLAGS="-O3 -arch sm_50" #--device-c

PATH="$ASTROSOFT/bin:$ASTROSOFT/HEIMDALL/heimdall/Applications:$ASTROSOFT/HEIMDALL/d
edisp:$ASTROSOFT/HEIMDALL/psrdata:$PATH"
export LD_LIBRARY_PATH=$ASTROSOFT/lib:$LD_LIBRARY_PATH:/usr/local/lib:/usr/lib:/usr/lib64
```

1) Dedisp:

- Modify Makefile.inc:

```
CUDA_PATH ?= /usr/local/cuda-10.1
THRUST_DIR ?= $(ASTROSOFT)/HEIMDALL/thrust-1.6
GPU_ARCH      = sm_50
```

- make && make install

2) PSRDADA:

- Download:

Two ways to download the psrdada, the first method is the working one. The second one is from the official website.

i. git clone https://git.code.sf.net/p/psrdada/code psrdada

ii. the PSRDADA CVS repository can be accessed through anonymous (pserver) CVS as follows. First, log in to the CVS server with the following two commands:

```
touch $HOME/.cvspass

cvs -d:pserver:anonymous@psrdada.cvs.sourceforge.net:/cvsroot/psrdada login
```

When prompted for the password for anonymous, simply hit Enter. Finally, check out the software with the following command:

```
cvs -z3 -d:pserver:anonymous@psrdada.cvs.sourceforge.net:/cvsroot/psrdada co -P psrdada
```

- ./bootstrap
- ./configure prefix=$ASTROSOFT --with-cuda-include-dir=/usr/local/cuda-10.1/include --with-cuda-lib-dir=/usr/local/cuda-10.1/lib64
- make && make install

3) Boost:

http://www.boost.org/users/history/version_1_63_0.html
I download boost from the link above.
Use the boost from /boost_1_66_0/tools/build
3.1 sh bootstrap.sh
3.2 ./b2 install --prefix=$ASTROSOFT

4) Heimdall install:

- git clone git://git.code.sf.net/p/heimdall-astro/code heimdall
- ./bootstrap
- ./configure prefix=$ASTROSOFT --with-thrust-include-dir=$ASTROSOFT/HEIMDALL/thrust-1.6 --with-dedisp-dir=$ASTROSOFT/ --with-psrdada-dir=$ASTROSOFT --with-boost=$ASTROSOFT/HEIMDALL/boost_1_66_0 --with-cuda-include-dir=/usr/local/cuda-10.1/include --with-cuda-lib-dir=/usr/local/cuda-10.1/lib64
- make && make install

run Heimdall:

heimdall -f PM0141_017A1.fil -dm_nbits 32 -v -output_dir .

Small Tricks(Keng Keng):

Error :

sh: 1: libtool: not found
/bin/bash ../libtool --tag=CXX --mode=link g++ -g -O2 -I/usr/local/cuda-10.1/include -o libhdpipeline.la -rpath /home/nch/Pulsar_software/lib default_params.lo error.lo

Trick: install libtool , try make realclean, then make again

Error:

"Can not compiled through with sm_arch 50." Try 20, 30, 60

Error:

"PSRDADA, mopsr CUDA ,wrong." Try to download from the github version.

Error:

"Bootst problem". Try to install Boost >1.66 on your own directory.

Error:

"Candidates.C problem". Try to git check new version