

The following is the procedure to capture Pulsar TEST data using Beamformer Design and Depacketize the design.(for pulsar test)

#### RUN THE PACKETIZED BEAMFORMER DESIGN:

1. ssh -X [root@192.168.4.71](mailto:root@192.168.4.71)
2. ./home/gmrt/Packetized\_BF/
3. vim config\_4ant  
(In this check the bitstream\_x=des2x\_30oct\_2013\_Oct\_30\_1655.bof this is the bof file to be burnt on the X-engines)
4. Then type the following commands:  
**corr\_init.py config\_4ant**  
(after you see Enabling KITT...done enter the following command)
- 5 vim init\_8new.py  
(check my\_corr.write\_int("no\_cycle",1) from line 43 to 46 this means base integration)
6. Then run the python initialization script:  
**./init\_8new.py**

#### CAPTURE THE DATA:

1. In a new tab  
ssh -X [root@192.168.4.71](mailto:root@192.168.4.71)  
cd home/gmrt/Packetized\_BF/Pranjali/Depack\_prog/
2. To make changes to gulp code(i.e. to change number of packets)  
cd gulp/  
vim gulp.c  
In line 295: num\_packets=<enter the number of packets desired> (-1 if infinite number of packets to be captured) minimum number of packets = 8
3. Save it. and enter make command
4. Enter the following commands to capture packets:  
cd ..  
**./gulp/gulp -i eth0 > <name of dump file.dat>**  
(In case of infinite packet capture case it will capture until you press cntrl+C)

(Keep capturing the data for 10-15 minutes)

#### BREAK THE CAPTURED DATA IN CHUNKS OF 2GB:

( The data captured by pulsar will be greater than 2 GB. For the Depacketization codes to be used we have to break them into chunks of 2GB files. Use the following command)

command:

- 1) **dd if=<name of dumped file.dat>.dat of= <name of dumped file.dat1>.dat bs=199999832 count=1 skip=0.**

(The above command will cut first 2GB of the dumped file)

- 2) **dd if=<name of dumped file.dat>.dat of= <name of dumped file.dat2>.dat bs=199999832 count=1 skip=1.**

(The above command will cut next 2GB of the dumped file)

And so on..

Till you have sufficient data.

(Usually 6-8 GB for strong pulsar of data is enough. So run the above command by changing the value in skip=2,3,4... .)

For each of the above 2 GB files, the Depacketization codes have to be run separately. Give different names to the binary files created in the end. follow the following for Depacketization:

#### DEPACKETIZATION:

1. From binary to ascii:

**`./gulp_ascii_8.o <name of dumpedfile1.dat> <packet_size> <scaling factor>`**

(packet size=554)

(scaling: 4 taken as standard by us.)

The above command has also separated the packets into 8 different files.

Now to convert them to single interleaved file with all 512 channels enter the following command.

2. **`./intleave_signed.o > <name of ascii interleaved file1.txt>`**

At this satge interleaving is done.

3. The <name of ascii interleaved file.txt> can be viewed on **gnuplot**.

4. To convert to **pmon** compatible follow the following command:

**`./pmon_bin.o <name of ascii interleaved file .txt> <name of binary interleaved file.txt>`**

(Note: When you are done with depacketization of all the 2GB files (that were cut using dd command) in the above manner then proceed to the next step).

#### **CONCATENATING FILES:**

Each of the above binary files will be of 441 MB.

We have to concatenate these files to see proper pulsar shape on pmon.

The command used is:

**`cat <name of binary interleaved file1.raw> <name of binary interleaved file2.raw> <name of binary interleaved file3.raw> <.....> > <name of final concatenated file.raw>`**

then,

Keep concatenating till the last .raw file.

Then this final .raw file will contain data from all the binary files created earlier.

This final .raw file can be seen on **pmon**.

2) The following are the steps to run the Packetized Beamformer Design, capture data and Depacketize it. (Usually for noise and sine wave test)

Steps 1 and 2 – running the design and capturing the data are same as above

DEPACKETIZATION:

1. From binary to ascii:

**./gulp\_ascii\_8.o <name of dumpedfile.dat> <packet\_size> <scaling factor>**

(packet size=554)

(scaling: 4 taken as standard by us.)

The above command has also separated the packets into 8 different files.

Now to convert them to single interleaved file with all 512 channels enter the following command.

2. **./intleave\_signed.o > <name of ascii interleaved file.txt>**

At this satge interleaving is done.

3. The <name of ascii interleaved file.txt> can be viewed on **gnuplot**.

4. To convert to **pmon** compatible follow the following command:

**./pmon\_bin.o <name of ascii interleaved file .txt> <name of binary interleaved file.txt>**

This file is ready to be seen on pmon.