

Minutes

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Date: 11.5.2011
Time: 15:00 ut
Location: Teleconference
Attended by: A. Whitney, W. Brisken, J. Romney, M. Lindqvist, C. Walker, H. Rottmann,
A. Szomoru, M. Kettenis, D. Graham
Chair: W. Alef
Minutes: W. Alef

Subject: US-EVN teleconference

0. Agenda

The following agenda was agreed upon:

1. Short NRAO progress report
2. Short Haystack progress report
3. Short EVN progress report
4. Tuning compatibility between RDBE/DBBC (DDC and PFB)
5. common tests of backends US – EVN
6. Report from the EVN-CBD meeting in Torun
7. AOB

Participants will provide Alef with email addresses of further participants of this semi-regular teleconference.

1. Short NRAO progress report

J. Romney, W. Brisken, C. Walker:

- FPGA PFB personality: The PFB is close to operation. The switched power calibration capability is still missing. Tests are working well. 8 VLBA antennas plus the GBT have been tested so far. The system will be put into official operation sometime after July 1st. It will always deliver 2 Gbps. Enough media for 2 Gbps are now available.
- FPGA DDC personality: The DDC is not yet ready. It may not be available by July 1st. The old analog system will be kept operational in parallel to the RDBE. The analog system will be used for smaller bandwidths. Numerical considerations may lead to limitation of the narrowest bandwidth to 1 MHz, at least initially. Higher spectral resolution could be provided with DiFX and the zoom mode.
JIVE indicated that the 1 MHz limit would not be a problem for JIVE either. Their software correlator would be used to give the demanded resolution, but at the “cost” of bigger data sets.
- Mark 5C: The Haystack software seems to be mostly working, but can't support both banks

at the moment; it does not recognize when a 2nd module is inserted.

3. Short Haystack progress report

A. Whitney

- At Haystack the RDBE is used in 2 configurations. The “geo” configuration (at NRAO also used for astronomy) takes 2 x 512 MHz input with a PFB to produce 32 x 32 MHz sub-bands of which 16 can be selected.
- In the other setup 2 GHz bandwidth is split into 4 x 512 MHz to yield 8 Gbps VDIF output which is transported on 2 x 10 Gb Ethernet (2 x 4 Gbps). This is mostly intended for mm-VLBI in the future.
- Switched power calibration has been designed and tested. It needs 1-2 weeks more for integration in the FPGA code.
- Mark 6: At the TOW 16 Gbps recording has been demonstrated (see: http://www.haystack.edu/tech/vlbi/mark6/mark6_memos/2011.05.11_Mark6_data_system-TOW_presentation.pdf slide 11) onto 32 disks in parallel. Correlation was done with DiFX. More testing is needed before the system can be announced as a successor for Mark 5. The transition could be organized in a fairly smooth way. Haystack may develop a conversion kit for existing modules in a few months. It might be more effective though to develop new modules which can be populated with the old disks.
- Mark 5 software is still supported by Haystack (C. Ruszczyk) while hardware support is fading (D. Smythe, retired).

2. Short EVN progress report

W. Alef:

- About 2/3 of session 1/2011 was recorded at Effelsberg with the DBBC in parallel to the old analogue system with various DDC modes. First results from JIVE indicate a good performance.
- Hobart12 observes since 9/2010 regularly in the geodetic R1-sessions with a DBBC.
- Warkworth observes in R1s since 2/2011 with a DBBC.
- Yaragadee started to observe with a DBBC.
- Soon Katherine to join...
- Onsala received a DBBC and will test it soon in an observation.
- Yebees could in principle observe with their DBBC in parallel if they could solve a problem with their PC.

- The second batch of systems under production has systems for:
 - 1) Irbene – delivery time should be end of May/beginning of June
 - 2) Torun – delivery time is end of June/beg. July
 - 3) Hartebeestoek1
 - 4) Hartebeestoek2
 - 5) Auscope4
- Delivery time for the remaining stations in in the following months.
- The FILA10G is in production and more units are under realization. (Mark 5C required)
- The 10 Gbit boards will be delivered as a kit with board, cables, software and installation instructions.
- More firmware modes are under development like e.g. 31 x 32 Mhz PFB or 512/1024 MHz single band. A DDC mode with 32 MHz channels is already available with 512 and 1024 MHz input bandwidth.
- Calibration with 80 Hz works for the DDC modes. (D. Graham)

DBBC specific requirements should be implemented in sched soon (C. Walker). Alef will inform Bach and Campbell. D. Small should be involved as the European sched contributor.

4. Tuning compatibility between RDBE/DBBC (DDC and PFB)

W. Brisken:

- With respect to the tuning there exist some incompatibilities between the old analog systems and the RDBE, to a much lesser degree between RDBE and DBBC. In addition some telescopes have limited LO tunability. Brisken explained that some of those incompatibilities would lead to LO offsets at the correlators with unpleasant side effects. Brisken will summarize the problem and proposed solution in a small report.

Outcome

Brisken will produce a short memo about the incompatibilities, the implications and possible solutions.

4. common tests of backends US – EVN

Outcome

- Onsala will test their DBBC in a geodetic session soon. During the 90 cm EVN session (3.-5.6.) a test with the PFB could be organised including Yebes and Effelsberg preferably at C-band.

- Tests with the VLBA (and possibly Westford) should follow at the end of June before the summer holidays.

5. Report from the EVN-CBD meeting in Torun

W. Brisken, W. Alef:

- Brisken reported on a few important items. (The minutes of the CBD meeting will be available shortly)

7. AOB

C. Walker:

- The first VLBA antenna has been equipped with an eVLA 4-6 GHz receiver. Receivers for the other antennas are nearing completion.

Follow-up	Who's responsible?	When?
Contact Bach, Campbell and Small for DDBC requirements for sched	Alef	18.5.2011
Memo on frequency compatibility	Brisken	31.5.2011
EVN-VLBA tests	Alef, Romney	30.6.2011

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