32GbpsEVN telecon, 13 Feb 2019, 13:30 CET

Present: Rongbin Zhao, Jun Yang, Roger Hammargren, Michael
Lindquist, Simon Casey, Rüdiger Haas, Helge Rottmann, Sven
Dornbusch, Walter Alef, Uwe Bach, Javier Gonzalez Garcia, Arpad
Szomoru, Bob Campbell, Mark Kettenis, Harro Verkouter

Please find the list of action items at the bottom.

Agenda:
    * pick a number of dates for tests
    * pick Svens brain on how to use the DBBC3 at all
    * scheduling issues
    * decide on what we are going to test and when (2, 4, 8?)
    * AOB

No overlapping times between Effelsberg and Yebes on short term; EVN
session I runs from Feb 21 – Mar 14. Rüdiger+Javier: The VGOS
telescopes are on a bi-weekly observing schedule. The systems at
Onsala and Yebes can be made available for EVN tests in the
alternate weeks, Effelsberg and TianMa could join in when available.

Sven explains three DBBC3 modes:
    DSC = 1 x 4 GHz direct sampling, whole band.
          Needs post-processing before it's even valid VDIF.
          (We don't want this.)
    OCT = 2 x 2 GHz chunks, which we don't want either.
    DDC = 8 BBCs x 2 x 32 MHz channels (USB, LSB) per IF
          (= 2 Gbps / IF, so, at 1 polarization / IF
           that's 4 Gbps in total

Work is done on DDC firmware to enable 64 and 128 MHz filters as
well as expanding to 16 BBCs per IF. Should be on the order of two
months as some of the wider filters are already tested on DBBC2,
need verification on DBBC3.

MarkK: How does the VDIF look like?
Sven: The DBBC3 outputs one VDIF stream per IF containing all the
channels.

Scheduling and control

Rüdiger explains that for VGOS tests the Field System (FS) controls
the antenna but DRUDG does not create the (correct, any) procedures
to configure DBBC3. Helge has Python scripts that configure DBBC3
for the OCT mode and sais that editing it to configure DDC mode is a
few days work.

The FS also starts and stops the recording.
[At the time of writing the minutes Harro realises he forgot to ask
how – if any – the FS programs the recorder(s), this may affect
correlation]

First test observation:

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Stations        : Onsala and Yebes VGOS telescopes
Date            : 26 Feb 2019, 3 hrs starting at 10:00 UT (Tuesday)
Band            : 4.5 - 5.0 GHz (512 MHz)
                  [Uwe: 4.0 - 4.5 GHz contains RFI, 4.5-5 clean]
Mode            : DBBC3/DDC 8 x 32 MHz USB+LSB x 2 IF = 4 Gbps
Recorders       : GEO flexbuffs at Onsala, Yebes
Correlator      : JIVE
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e-transfer and/or ftp fringe tests? e-transfer only. The EVN session
is still ongoing and NME is being processed so JIVE support
scientists already allocated. Access to geo flexbuffs for e-transfer
needs to be set up and/or verified.

BobC can use any of the vt* (VGOS test) schedules from IVS master as
prototype; for correct correlation a proper VEX file is a necessary
precondition.

Proposed date of second test observation:
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14 Mar 2019; TianMa is available then, Effelsberg maybe also.

Action items
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- Adapt Python scripts to program DBBC3/DDC 8 BBCs (Helge Rottmann)
- There will be a short telecon on 25 Feb 2019, the day before the
first test observation (all)
- Assist Rongbin Zhao with DBBC3 operation (Jun Yang)
- Ensure access to GEO flexbuffs from JIVE (Simon Casey, Javier
Gonzales, Bob Eldering, Harro Verkouter)
- Check/verify recorder setup for compatibility with SFXC correlator
(Harro Verkouter)