

Mark 6 as a Flexbuff

Field Report from Effelsberg

Uwe Bach, Walter Alef

Motivation for Mark 6

- Need to co-observe with EVN, GMVA (ALMA), IVS, HSA, VLBA @ Effelsberg
 - Need system to handle 32 Gb/s (2x 4 GHz BW) (EVN??)
 - Need system for Flexbuff operation
 - System to replace Mark 5 is Mark 6 !
 - Uses standard RAID cards
- Mark 6 is normal fast server with RAID card(s), SATA connectors and removable modules
- Mark 6 can also be configured like normal RAID server
 - Used software RAID 5 as temporary storage on correlator
- Flexbuff software just assumes standard RAID cards
 - So, save money and use Mark 6 !
- Lend JIVE Mark 6 for software development

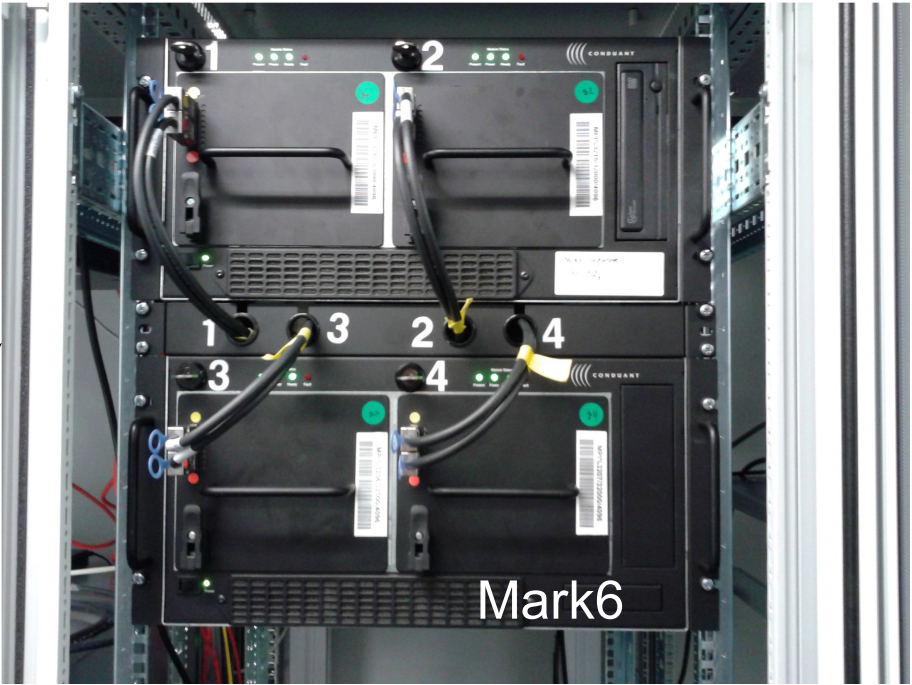
Installation @ Eb: Mark 6

- Documentation on TOG wiki
- Installation at Eb middle of May
- Configuration:
 - 2x double 10 GE interface cards (optical)
 - 2x RAID cards with total of 8 ext. connectors
 - 4 slots for modules (extension chassis) = 32 disks
 - 4 modules = 128 TB (to stay at Eb)
 - Debian Squeeze 6.0
 - Cost about 15.000 \$ plus disks for 4 modules
 - Can be cheaper if components are bought in Europe

Installation @ Eb: Mark 6



1 x 10 GE



GPS for time synchronisation

Mark 6 software

- Haystack software
 - dplane version 1.17-1
 - mark6-sc-module 0.13-1
 - python-cplane 1.0.20-1
 - Python-m6utils 1.0.7-2
- Standard procedure
 - Label modules
 - Define groups of modules
 - Define input data streams and assign to group
 - Record
 - Status and check commands as for Mark 5
- Test worked fine, but cplane Syntax is not yet supported by the Field System
 - Reboot for module change

JIVE5ab 2.6

- Install from source code
- Disk management outside jive5ab in cplane
- **Start:** `/opt/jivemark5a -m 3`
 - FS-9.11.8 knows about Flexbuff
 - Set up for parallel recording of Mark 6 & Mark 5B+ (Casey scripts)
 - FiLA10G and Flexbuff are set up
 - Recording controlled from snp/prc files
- **For full details see: TOG wiki**
https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Mark6%2F%2FFlexbuff/Mark6%2F%2FFlexbuff_Effelsberg_installation_notes

Mark 6 Flexbuff in session 2/15

- The new software (FS-9.11.8) and firmware (DBBC DDC V105, Fila10G v3.3.2_1) was used at Effelsberg to record the whole session in parallel.
- The DBBC was connected to the Fila10G which sends a copy of the incoming VSI data to the Mark5B+ recorder and a VDIF data stream via Ethernet to the Mark6 recorder.
- The Fila10G has an internal GPS receiver that is connected to an antenna on the roof of the observatory.
- The Fila10G was synced to the GPS at the beginning of the session and as long as no new firmware was loaded to the DBBC it stayed in sync for two weeks.
- Beside some hick-ups due to tests of scan_check? on the Mark6 in N15C2 no recordings were lost and the whole session of about 100 TB of data was recorded on both the Mark5B+ and the Mark6.
- Fringes in ftp-fringe tests showed equal quality for Mark6 VDIF data and Mark5B data in all NMEs
- Mark6 VDIF data from N15X1 has been e-transferred to JIVE for a full correlation.