DBBC Production and delivery status

- HAT-Lab is a spin-off company endorsed by INAF, was set in July 2009

- HAT-Lab main task is to produce DBBC back- ends and related equipment in close collaboration with IRA and MPI

- Production activity is shared between Italy (Catania) and Germany (Bonn)

Pre-HAT-Lab system production
(in red EVN stations)

DBBC1   **Noto (later updated to DBBC2)**

DBBC1   **Wettzell1 (later updated to DBBC2)**

DBBC1   **Wettzell2 (later updated to DBBC2)**

DBBC1   **Wettzell3 (later updated to DBBC2)**

DBBC2   **Effelsberg**

DBBC2   **Yebes**

DBBC2   **Auscope1 (Hobart12M)**

HAT-Lab Batch 1 – production and delivery 2009-10

DBBC2 **Onsala1**

DBBC2 **SRT**

DBBC2 **Pico Veleta**

DBBC2 **APEX**

DBBC2 **Wark12M**

DBBC2 **Auscope2 (Kath12M)**

DBBC2 **Auscope3 (Yarr12M)**

HAT-Lab Batch 2 – production and delivery 2010-11

DBBC2   Torun

DBBC2   Irbene

DBBC2   Hartebeesthoek1

DBBC2   Hartebeesthoek2

DBBC2   Auscope4 (Ceduna)

HAT-Lab Batch 3 – production and delivery 2011-12

DBBC2 **Medicina**

DBBC2 **Metsahovi**

DBBC2 **Auscope5 (Hobart26)**

HAT-Lab Batch 4 – production and delivery 2012-13

DBBC2   Seshan65

DBBC2 Warkworth 2 (New Zealand)

DBBC2 AVN (Hb,Ghana)

HAT-Lab Batch 5 – production and delivery 2013-14

DBBC2   Ny Alesund

DBBC2   Onsala2

DBBC2   Yebes2

DBBC2   Jodrell Bank

HAT-Lab Batch 6 – production and delivery 2014-15

DBBC2   Yebes3

DBBC2   Wettzell4

DBBC2   Westerbork

DBBC3L   Hobart

Station	DBBC	Comment
Noto	Available	FILA10G available
Effelsberg	Available	FILA10G available + spare
Onsala	Available 2	FILA10G available
Yebes	Available 2, third ordered to be delivered in Dec 2014	FILA10G available
Wettzell	Available 3, fourth ordered	FILA10G 2 ordered
Torun	Available	
Metsähovi	Available	FILA10G available
Hartebeesthoek	Available 2	FILA10G available 2
Medicina	Available	FILA10G available
Westerbork	Ordered to be delivered in Dec 2014	
Jodrell Bank	Available	
Cambridge	-	
Svetloe	-	Own semi-digital system
Zelenchukskaya	-	Own semi-digital system
Badary	-	Own semi-digital system
Urumqi	Asked quotation	
Shanghai	Available	FILA10G available
Arecibo	-	
Robledo	-	
Sardinia	Available	FILA10G available
Simeiz	Asked quotation	
Venspils	Available	

New Firmware/New Functionality (1/4)

DDC_v105

- 'led=brd#' reports the Core2# leds status at 1pps transit
    useful for remote check when leds are not visible

- 'fila10g=..' direct commands through the serial connection
    no need to use a separate control program

- 'dbbcifx=……,update_time' in seconds, 1-3600
    slower agc update time, default was 1, Uwe's request

- 'calibration=brd#|all'
    added individual Core2 calibration, useful for Core2 on the same IF (Mh, Nt)

DDC_v105E

- same as v105, additionally

- 32 MHz new band (shape as today 16 MHz)

- 16 MHz improved shape (as today 8 MHz)

- 'vsi_clk=32|64' selection of output VSI clock frequency

DDC v105F

- same as v105E, additionally input bandwidth 1024 MHz

New Firmware/New Functionality (2/4)

PFB v15

- 'led=brd#' reports the Core2# leds status at 1pps transit
  useful for remote check when leds are not visible

- 'fila10g=..' direct commands through the serial connection
  no need to use a separate control program

- 'dbbcifx=……,update_time' in seconds, 1-3600
  slower agc update time, default was 1

- 'calibration=brd#|all'
  added individual Core2 calibration, useful for Core2 on the same IF (Mh, Nt)

PFB v15F

- same as v15, additionally

- Input bandwidth is 1024 MHz, output bandwidth is 64 MHz, vsi output clock 128MHz

DDC and PFB new version are to be validated: thanks Uwe!

New Firmware/New Functionality (3/4)

FILA10G v3

- format mode: MK5B, VDIF, RAW

- extended MK5B frame register (16-bit) for 4Gbps

- used for e-vlbi 4Gbps test

FILA10G v3.1

- corner turned data streams

- VDIF multi-thread with independent destination IP address

- decimation and bitmask for reduced amount of recorded data

- multi-mode VSI output selection (input copy, 10G rx raw format, 10G rx VSI-H format)

- support 2 or 4 VSI-H input ports for 8 Gbps as 4 x 2 Gbps or 2 x 4 Gbps (PFB v15F)

New Firmware/New Functionality (4/4)

FILA10G v3.2

- Added GPS support

- Added split mode (two 10G ports from different VSI)

FILA10G v3.3.1

- VSI output port indication with a red led (can be also input)

- Added green led flashing when second 0-10-20-30-40-50 is passing

- Added capability of *not* corner turning data for full band (naturally corner turned, e.g. EHT)