

DBBC Production and delivery status

- **HAT-Lab is a spin-off company endorsed by INAF, set in July 2009**
- **HAT-Lab main task is to produce DBBC back-ends in close collaboration with IRA and MPI**
- **Production activity is shared between Italy (Catania and Noto) and Germany (Bonn)**
- **Development of new VLBI components and equipment in collaboration with EVN partners**

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

DBBC1 Noto

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 Onsala

DBBC2 Sardinia Radio Telescope

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
(still under definition)

DBBC2 Medicina

DBBC2 Metsahovi

DBBC2 Auscope5 (Hobart26)

DBBC2 Seshan

Station	DBBC	Comment
Noto	Available (to be upgraded VLBI2010)	FILA10G order under way
Effelsberg	Available	FILA10G available
Onsala	Available	FILA10G ordered
Yebes	Available	FILA10G order under way
Wettzell	Available 3 (to be upgraded UNICA4)	
Torun	Available	
Metsähovi	Ordered (to be delivered in few weeks)	FILA10G ordered
Hartebeesthoek	Available 2	FILA10G available 2
Medicina	Ordered (to be delivered in September)	FILA10G ordered
Westerbork	-	
Jodrell Bank	-	
Cambridge	-	
Svetloe	-	Own semi-digital system
Zelenchukskaya	-	Own semi-digital system
Badary	-	Own semi-digital system
Urumqi	-	Own digital system
Shanghai	Ordered	FILA10G ordered + own digital system
Arecibo	-	RDBE
Robledo	-	
Sardinia	Available	FILA10G available
Simeiz	-	
Venspils	Available	Second system with FILA10G to be ordered
Evpatoria	-	

Existing Firmware/Functionality

DDC – 4 IF to produce 16 bbc tunable 16-8-4-2-1 MHz
(2 x 1 Gbps) = 2 Gbps

PFB - 4 IF to produce 15 fixed 32 MHz / IF
(4 x 2 Gbps) = 8 Gbps

DSC (Direct sampling Conversion) - 512 MHz
in a single band (4 x 2 Gbps) = 8 Gbps

DSC (Direct sampling Conversion) - 1024 MHz
in a single band (4 x 4 Gbps) = 16 Gbps

SPECTRA – 4 x 512 MHz, 16K spectral channels
(beta software)

■ Firmware development :

- DDC: 512/1024 MHz with 32 MHz sub-bands (to be tested)
- PFB: 1 GHz Polyphase Filterbank with 16 x 64 MHz channels
- FILA10G: Phase Cal tone detection
- FILA10G: DDC Fringe stopped

■ Hardware under development

- Phase cal tones generator unit