DBBC: Status Report

G. Tuccari

March 18, 2006

A complete DBBC unit is has been assembled and showed at the 4th IVS General Meeting held in Conception in last January. The system is composed by four IF units (ConditioningModule), one digital system clock generator (CaTModule), four samplers (ADBoard), two in-out units (FiLaBoard), and a set of eight-sixteen processing boards (CoreModule).

MPI developed the ADBoard that has been successfully tested in the functionality. CoreModule has been developed in IRA specifically for the project and a version is today produced with enhanced performance. The CaT unit from IRA is still in a not final version and will be realized in the Core format in a new FiLa board version. FiLa boards, developed in IRA are VSI compatible and include DA monitoring features. ConditioningModules developed in IRA support a 3 GHz bandwidth in portions of band variable with selectable filters. Not all the filters are still realized.

Different configurations are today operative for a set of bandwidth ranging from 250 KHz to 16 MHz, with 256 MHz input bands spanned in the range 0 - 2.048 GHz. Output of these configurations is for two VSI units at a total data rate of 2.048 Gbit/s.

Other configurations are in development for 512 MHz input bands and different performance such as multi-channels and wide band channels, from 1 to 64.

The software operative in the DBBC is pretty simple and Field System-like commands are used. Integration in the FS will consist in the replication of commands from the FS computer to the DBBC controller, and viceversa.

Starting with 2006 a multi-step process will be necessary for testing the system, for developing new configurations, improving the performance with a new class of FPGA devices, today under test.
One observation per month is planned to be realized between Noto and Medicina, and at a later stage with Shanghai and Urumqi.

A second unit will be built for performing digital-digital testing. Additional stage of the project will take into consideration optional units for RFI mitigation and IF sampled transportation.

It's going to be evaluated the possibility to realize a particular version of DBBC including one or two VSIB Methsahovi boards, in order to get in a single box a complete processing and recording system for those stations with lack of VLBI equipment.