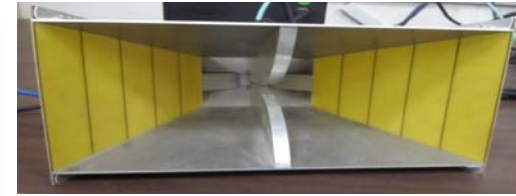


IAC 2017: RF Communications, Digital Signal Processing Facility

Applications to Radio Astronomy Instrumentation



4.5 metre dish: Capable of 100° motion in azimuth and 90° in elevation, dish surface capable of receiving up to 10 GHz in radio. Secondary reflector at 10 GHz; prime focus at lower frequencies, $f/D \sim 0.4$. **Reconfigurable Open Architecture Computing Hardware-2 (ROACH2-Rev2) x 16 Boards With Xilinx Virtex-6 FPGAs** – 95000 Logic Units, 9 million RAM Bits With 2 x SFP+ Mezzanine Cards for Fast, OFC-based Data Transfer With 2 x ADC1x5000-8 ADC cards with 5 GSa/s sampling speed for up to 2 GHz bandwidth per ADC – enabling up to 4 GHz bandwidth per ROACH2 Board DRAM memory modules, ATX power supply, Chassis, 1U Enclosure, LED board, fans, associated wiring. **Workstations:** 12 cores, 96 GB RAM + 4-core 32 GB RAM for DSP / digital design compilation / ROACH2 Board control & test. **4 x 2.5 metre dishes:** Prime focus, f/D 0.38, light Aluminium surfacing for reception up to 6 GHz, 3 dishes under construction. **1420 MHz Line Receiver:** Downconverted to 70 MHz, 5 MHz bandwidth, ~ 80 dB gain, Noise Figure ~ 0.5 - 0.6 dB, RF-over-OF. **Wideband Antenna with continuous coverage upto 18 GHz:** 1.0 to 18 GHz, Gain: 10 dBi.