32T System Integration

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Two Phases of Integration

- establishing end to end operation in the lab at Haystack
- integration of the complete system on site at Boolardy
- differences:
  - 1 vs. 4 receivers and 1 vs. 12 fibres
  - single data path vs. full width processing
  - test software vs. operational software
  - lab PC vs. RTC (of some form)
32T Digital Architecture
Data Path for Integration at Haystack
Elements:

- AgFo packet formation
- SFF fibre transmission (Finisar FTLF1421)
- SFP dual Rx reception (untested - Gennum G02920)
- new (untested) PFB RTM
- packet reception on PFB board

Deepak Kumar at RRI has successfully transmitted and received packets from AgFo to AgFo over 3 km of fibre

Russell McWhirter has this task
PFB to CB

- Elements:
  - Packet generation code on PFB
  - PFB RTM to CB RTM on Infiniband cable
  - Packet reception and verification by way of correlator code on CB
  - Small step beyond CB loop-back test
  - Bart Kincaid & Russ McWhirter share task
CB to PC

- gigE to an Ubuntu PC capturing data to RAM or disk
- data rate is 477 Mb/s
- compared to software model of result
- tasked to Bart Kincaid and Roger Cappallo
Additional Integration at Haystack

- full internal parallel paths of PFB and CB tested via signal replication
- testing with operational (field) software
- integration with RTC system (if possible)
- verify all optical input paths working
- simultaneous e2e from dipole to RTC may be achievable before the Rx returns to site
Datapath Integration Status

* Receiver to PFB
  * waiting for Rx (en route from ANU to Haystack)
  * waiting for PFB (to be shipped from CSIRO, now that the Rocket I/O problem is fixed)
  * waiting for Deepak’s packet test code from RRI

* PFB to CB
  * waiting for PFB
  * awaiting completion of CB loopback test

* CB to PC
  * will proceed after CB firmware check out
Onsite Integration of Full 32T

- single ATCA cage with PFB, CB, 2 RTM’s
- reconfigure power supply for 240V
- first tests of multiple fibres into PFB
- other elements of 32T system previously rung out using software correlator!
- circa April 2009