XDAQ Integration Test at the CERN Demonstrator

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Aims of the Project

- Getting experience to use the CERN demonstrator
- Keeping coherency among the EVB related software developments
- Checking stability of the software with a configuration larger than the FNAL test bench

Software Elements

- XDAQ (V1.1)
- XDAQ EVB direct-mode sample application
  - with modifications and bug fixes mainly on RM and RUI code
- libFRB
  - A reliable broad cast library was implemented on Ethernet/UDP
- ptFRB
  - XDAQ peer-transport wrapping libFRB
- dummy GTP
  - An independent program mimicking GTP

Preparation

- Tests at Fermilab
  - libFRB — done
  - ptFRB — done
  - dummy GTP — done
  - EVB+GTP — done
  - EVB+RCN — done
  - EVB+RCN+FRB — not done
  - EVB+RCN+FRB+GTP — not done
- Software installation on the demonstrator
  - GM 1.5.2.1
  - Xerces-C 1.6.0

Tests done at CERN

- libFRB functionality tests
- ptFRB one-to-many functionality tests
- dummy GTP
- EVB (no RM, RUI and RM)
- EVB+GTP (up to 2x2)
- EVB+RCN (up to 2x2)
- EVB+RCN+FRB (up to 2x1)
- EVB+RCN+FRB+GTP (up to 2x2)

Plan for Tomorrow

- EVB+RCN+FRB+GTP (16x16 or 28x28)
- Benchmark tests
  - with GM or GigaEther as a BCN/BDN
  - ptFRB up to 57 receivers

Summary

- Experience
  - This was the first time and it worked successfully
- Coherency
  - All software modules were integrated with a XDAQ event builder
  - We will keep better communication with S.Murray for future releases
- Scalability
  - Not fully tested. But, reasonably well done.
  - More preparation could have been done in advance.
- Many thanks to people in the CMD, especially to Eric Cano