



L1Calo: Installation, Commissioning & Integration

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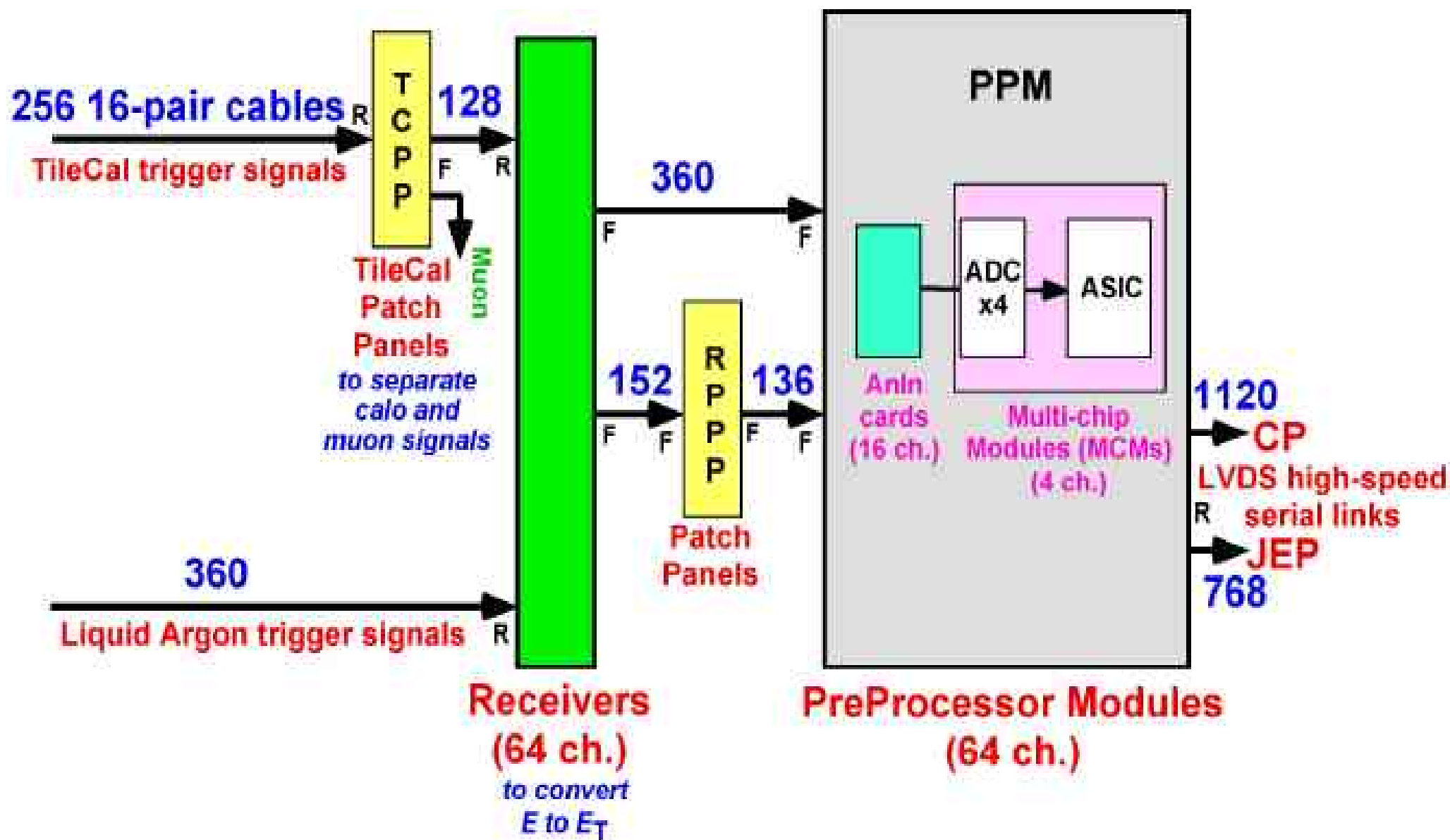
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L1Calo: Birmingham, Heidelberg, Mainz,
QMUL, RAL, Stockholm

- Installation Activities
- Integration Tests and Plans
- Commissioning



Analogue Infrastructure





Analogue Infrastructure (1)

- Cabling
 - 776 short stiff heavy analogue cables to install in USA15
 - Procedure: preliminary installation, measure length, remove, add connectors (commercial company), test, reinstall
 - Status: 90% measured, 55% final installation
 - Estimated completion Nov/Dec 2006





Analogue Infrastructure (2)

- **TileCal patch panels**
 - All four crates are installed
 - 90% of the required 64 modules are installed (few modules need repair)
 - Already used in TileCal cosmic trigger for LAr/Tile joint runs
- **Receiver-PPM patch panels**
 - All six crates have been installed
 - All 80 modules produced and ready to ship to CERN
 - Expect to install them in October
- **Receiver system (Pittsburgh)**
 - Fully installed for several months



Digital Cables

- Preprocessor to CP/JEP systems
 - 1888 thin, flexible, fixed length, pretested cables
 - All 8 PP crates are connected to all 6 CP/JEP crates
 - So want all crates installed before doing this cabling
 - Expected schedule November 2006 to January 2007
- Fibres to L1Calo RODs
 - ~300 fibres to be installed, late 2006
- L1Calo to CTP
 - Preliminary installation for integration test
 - Some problems observed (not seen in basic cable tests)
 - Cables (7) need to be removed, fixed and reinstalled
- L1Calo to ROS/RoIB
 - Installation of all fibres early October 2006



Integration Tests (1)

- **Calorimeter Cable Tests**
 - Subset of trigger cables from calorimeters (mainly TileCal) checked using two prototype preprocessors and VME readout (no RODs)
 - Results presented at last TDAQ week
 - LAr cables also tested thoroughly by Pittsburgh
 - Since then focus on ROD readout of preprocessors
 - Will repeat this calorimeter integration and cable test exercise with ROD readout and full crate of final preprocessors as these become available - aiming for late October 2006
 - Test bed for development of calibration procedures
 - Lot of work still to do: online/offline SW, databases...



Integration Tests (2)

- L1Calo (CMM) to CTP
 - Successful integration test of one final merger module (CMM) to CTP input was made in July
 - Some problems with faulty cables identified
 - Minor CMM firmware bug in treatment of parity
 - Successful connection from CTP output to LTP



Integration Tests (3)

- L1Calo ROD to ROS
 - Tests of a prototype 9U ROD in USA15 environment with inputs from preprocessor and cluster processor modules and output to “mobile” ROS with FILARs
 - Expect integration test of this prototype ROD with final ROS (ROBins) in October – once ROL fibres laid
 - Later, test integration with LAr/Tile/DAQ partition...



Integration Tests (4)

- L1Calo ROD to RoIB
 - First integration test of our prototype 9U ROD to final RoIB in October 2006 (after ROLs laid)





Installation of the Full Trigger (1)

- **Cluster & Jet/Energy Processors**
 - Modules now in production
 - Expect full installation & commissioning from end of 2006
 - Final connection to CTP on similar timescale
- **Preprocessor**
 - One crate of preproduction PPMs expected to be installed at CERN in October
 - First modules from full production expected Jan 2007
- **RODs**
 - One prototype now in USA15 for integration tests
 - First modules from full production expected Jan 2007



Installation of the Full Trigger (2)

- DCS

- Need operational DCS before running full crates in USA15
- Custom monitoring of L1Calo crates developed
 - Monitors both crates and modules
 - Lot of work so far, but all outside CERN
- DCS PC for LVL1 now installed in USA15 (by DCS group)
- Still to be commissioned, cabled and used by L1Calo
 - Now needs to be a priority



Summary

- Progress

- Analogue infrastructure installation proceeding well
- Some integration tests in USA15 completed successfully

- Schedule

- Digital infrastructure (crates, cables) coming soon
- Installation of algorithmic parts (Cluster, Jet/Energy triggers) starting last quarter of 2006
- Preprocessor and readout in first quarter of 2007