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MSU CMX Test Rig Status

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Level-1 Calorimeter Trigger Joint Meeting, 11/10/12

Overview

- The CMX module described in the previous talk will need a test rig for initial tests of the prototype and production modules.
- Modeled after the CERN test rig at the L1Calo lab in B104.
- Nearly complete setup is now in the computer room in B32.
- Some lingering technical issues (will discuss) to be resolved, but no showstoppers.
- Will be shipped to MSU and reassembled there in the coming months to be ready for the arrival of the CMX prototype (exact timescale still in flux).



9U Readout
Crate

Fan tray

Power supply

6UTTC crate

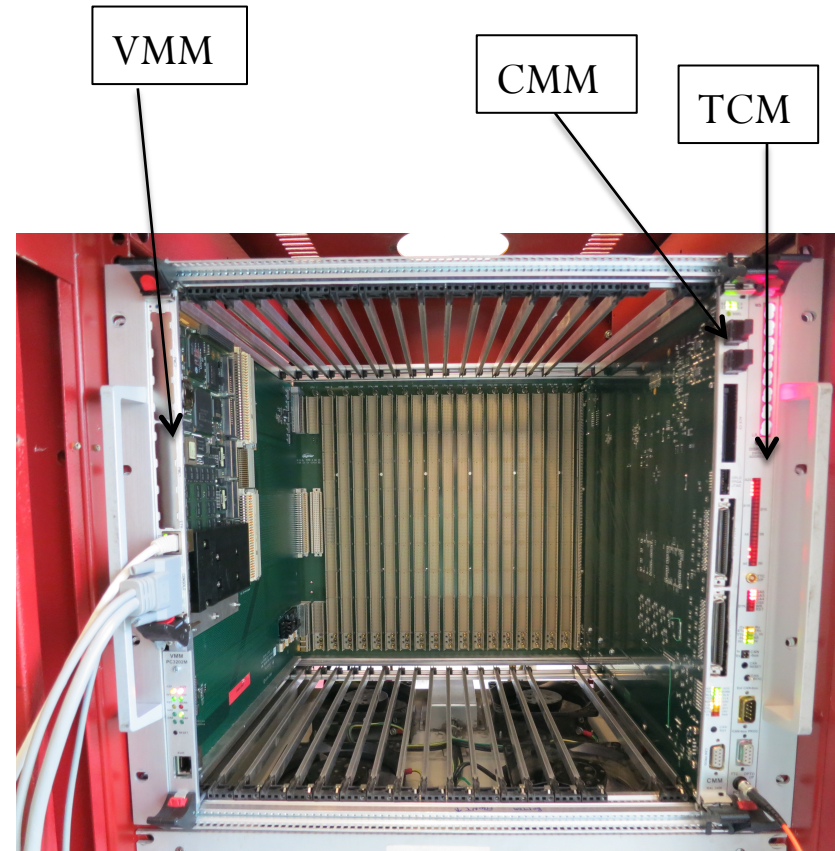
6U TTC Crate

- Provides Trigger Timing and Control signals necessary for running the TDAQ software.
- Local Trigger Processor emulates CTP functions
- TTCvx connects to TCM in L1Calo readout crate via optical cable
- Cabling copied from CERN test rig setup



9U Readout Crate

- Custom backplane for CP/JEP crate
- We have a (needed) CPM, but have been waiting on new handles (until this morning!)
- CMM placed in CMM-1 slot rather than CMM-0 to give the SBC more breathing room... weak fan, CPU gets warm sometimes.
- CMX eventually goes in CMM slot.



NB: CPM missing here!

OKS Database

- Functional database (partition named “MsuTest”) stored in dbFiles in SVN

- dbFiles/gen/msuTest.desc:

L1CaloReadoutCrate=(msu0,sbccmx00,9,CpJep) Ttcvi=(,12,0xc00000)

Ltp=(,14,0xd00000)

L1CaloReadoutCrate=(msu1,sbccmx01,11,CpJep) TcmMask=0x1 CmmMask=0x1

The screenshot displays the ATLAS TDAQ SOFTWARE interface for the Partition MsuTest. The main window shows the L1Calo Module Status for the module *msu1-cmm0*. The interface includes a tree view on the left with nodes for L1Calo, Crate msu0 (containing ttcvi and ltp), and Crate msu1 (containing tcm and cmm0). The status panel on the right lists the following parameters:

Module present	true
Module ID	512
Parity error count	0
Backplane slots 0..7	■ ■ ■ ■ ■ ■ ■ ■
Backplane slots 8..15	■ ■ ■ ■ ■ ■ ■ ■
Cable inputs 0..2	■ ■ ■

The interface also shows a timestamp of 2012-Oct-01 16:56:14.113012 and a status bar at the bottom with options for INFORMATION, Expression, and a Subscribe button.

Outstanding Issues

- Still need to plug in CPM and add to OKS; no foreseen issues here
- Experiencing some transient problems with the TTC:

The screenshot shows the ATLAS TDAQ Software interface for Partition MsuTest. The main window displays a tree view of the system components and their states:

- RootController: INITIAL
- L1Calo: INITIAL
- msuTest-processor: INITIAL
- msuTest-msu0-rc: CONFIGURED
- msuTest-msu1-rc: INITIAL
- msuTest-calibmon: CONFIGURED
- l1calo-sequencer-app: UP
- l1calo-simulation-app: CONFIGURED

The log window at the bottom shows several error messages:

TIME	SEVERITY	APPLICATION	NAME	MESSAGE
12:56:25	WARNING	l1calo-sequencer-app	l1calo:GenericError	Controller RootController is in Fault state: ignore!
12:56:24	WARNING	l1calo-sequencer-app	l1calo:GenericError	Controller RootController is in Fault state: ignore!
12:56:23	ERROR	msuTest-processor	OnlRec:ExpertSystemDecision	Raised Error state because of "msuTest-msu1-rc" APPLICATION_ERROR
12:56:22	ERROR	msuTest-msu1-rc	rc:ActionFailed	Action l1caloLoad failed in msu1
12:56:22	FATAL	msuTest-msu1-rc	rc:TransitionFailed	Transition CONFIGURE failed.
12:56:22	ERROR	msuTest-msu1-rc	rc:ModuleError	Exception from from msu1-cmm0:

An orange arrow points from the text "Exception from msu1-cmm0: Cannot enable TTC" to the corresponding error message in the log window.

Exception from msu1-cmm0:
Cannot enable TTC

- CERN/TDAQ computing environment has required some fiddling with ~/.ssh/config files and issuing kinit on crate SBCs
- Unclear how this will translate to MSU environment

Summary

- Test rig for CMX is set up in B32, nearly ready for use
- Will be shipped to MSU in the near future
 - Have written detailed documentation to guide the setup there

Hardware and Software Setup Instructions for
CMX Test Rig at MSU

September 19, 2012

- A couple of technical issues still outstanding, but nothing major (I think)
- Many thanks to Richard Staley, Ian Brawn, Uli Schaefer and Phillippe Farthouat for providing necessary components!
- Also to Murrough and Bruce for their help with the rig setup!
- Next steps: loading test vectors, reading output in absence of ROD crate