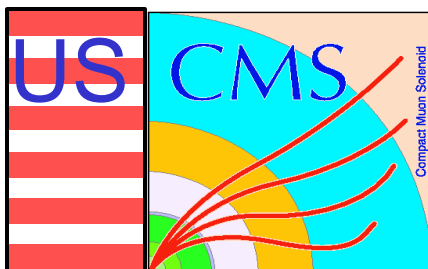


EMU Structured Beam Test Preparation



Dick Loveless, for J. Gilmore
CMS Week
Feb. 2003



Current Plans for CERN Test

- **Structured Beam Date at CERN**
 - May 23 – June 2
 - Begin setup May 15 at X5A, date confirmed
 - Followed by ~10 days of normal beam time, through June 12?
 - X5A reserved by CMOS experiment, arrangements in progress
- **Primary goal: test synchronization scheme**
 - 2-3 CSCs, TTC, DDU, Multiple peripheral crates
- **Other goals**
 - Trigger & DAQ performance tests
 - Include Sector Processor as L1 source if possible
 - All necessary equipment provided by trigger group
 - Test Slice DAQ as time & capability permit
 - Test in parallel readout path, Slice DAQ provides PC, software
- **Which CSCs will we use?**
 - Special FAST chamber shipment, or borrow from ISR storage?
 - Support stands need to be shipped & assembled at CERN



Infrastructure at X5A

- **Assume EMU gas rack near GIF can be used**
 - Need an EMU expert to verify this
 - Any special plumbing required?
- **Needs for X5A test area**
 - Space for 2-3 CSCs on support stands & 2-3 VME crates
 - Electricity outlets, space for HV racks, LV supplies
 - Scintillator paddles & support stand for triggering, plus associated electronics
- **Needs for X5A control area**
 - Space & electricity for 2-3 PCs and 1-2 VME crates
 - Ethernet access
- **Distance from test area to control area**
 - Cable/Fiber length?



Equipment Needs (1)

Institution responsible for each of the following:

digital oscilloscope with probes	?
pulse generator for random trigger	?
BNC/Lemo cables, tees, terminators and BNC-Lemo adapters	?
scintillator trigger system	?
3 CSCs and gas system	FAST?
HV supplies and cables	FAST?
cooling and tubing	not needed?

Instrumentation for 2-3 CSCs**: mostly available from FAST inventory

AFEBs	
AFEB-ALCT cables	
15 CFEBs	
15 CFEB-DMB cables	
3 DDU-capable DMBs	OSU
3 TMBs with updated firmware	UCLA
15 CFEB-TMB cables	
3 ALCTs with updated firmware	
ALCT-TMB cables	
3 LVDBs	
power cables to LVDB	UW
power cables from LVDB	
3 LVMBs w/cables to DMB	UCD



Equipment Needs (2)

Crate equipment**:

VME peripheral crate(s) & backplanes	FAST?
1 full and 2 partial VME backplanes	FAST?
Dynatem (slow control VME computers)	OSU/FAST
1 10-base-T switch, cables/Tees/terminators	FAST?
3 CCBs	RICE/FAST
1 DDU with fiber spools for DMB readout	OSU
1 Linux PC with gigabit/S-Link to readout DDU (1-2 fast hard drives, dual CPU with 64-bit/66MHz PCI)	OSU
TTCvi/vx and support, for 3 CCBs	Rice
NIM crates & Modules (delays, logic, etc)	CERN?
CAMAC crate & controller, TDCs, etc	not needed?
signal cables, short and long (Lemo/BNC)	CERN?
Trigger/Test Control Board (TCB)	OSU

Software:

Interim DAQ/Slow Control	OSU
--------------------------	-----

****Some equipment may already be present at FAST sites.**



Near Term Plans

- **Hardware Tests at UCLA (March 2003)**
 - **Waiting for UCLA to approve a specific date**
 1. **Single CSC DAQ & Trigger rate tests**
 2. **Multi-CSC tests**
 3. **Multi-crate tests**
- **Above testing includes**
 - **Peripheral crate electronics/firmware testing**
 - **Integration and performance shakedown**
 - **Tune & test control/DAQ software**
 - **Prepare operation routines for CERN tests**
 - **TTC implementation tests**
 - **Test implementation of multi-CSC Event Display**
- **CERN shipment deadline?**
 - **We need shipping expert input to set the date**
 - **Arrive at CERN by May 9 for safety margin?**



Logistics

- **Finalize plans at UF EMU week**
 - Approve equipment and responsables list
 - Specify manpower needs and availability
 - Define preparation and shipping schedule