

Project Monitor Form

Project: CMS FED

PMF number: 67

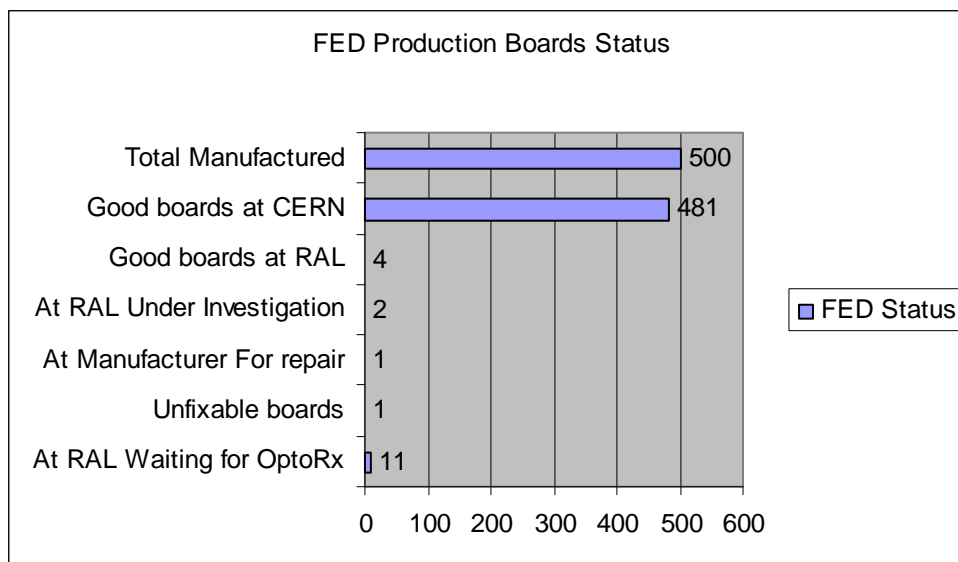
Date: Wednesday 6 June-2007

Sheet: 1 of 2

Project Implementation phase.

FED Production

A further 16 FEDs have been delivered to CERN.



Full details in Production [spreadsheet](#).

FEDs

Exception have now cleared the backlog of board repairs.
Ivan is in process of recovering ORx from only unfixable board.

Of the 5 boards returned from CERN so far: 3 have had faults identified (all different) and have been repaired ; cannot find any problems with remaining 2 boards (will return both to CERN and retest during Ivan's next visit).

CERN Contract

FED production code RQ09600 has been closed and balance of £24,735 transferred to FK50800.

CERN Installation and Commissioning :

A total of 306 FEDs are installed at USC with SLINK connections.
Awaiting tests with DAQ using fake data.

No more news on any rack grounding scheme changes.

Cooling related problems observed in TIF. Some FEDs were shutting down with over temperature.
Flexible pipes between manifold and cooling units were cleaned out. Found a lot of gunge inside. Waiting to see if this cures problem.

In parallel investigating ways of mitigating against cooling system problems on the FEDs by adding heat sinks to a couple of hottest ORx (see below) and installing blank cards (rather than just blank panels) in some slots.

Hi Jonathan,

I have managed to remove the copper heatsink from the FED in 904 and measured the LM82 temperatures with the same FED and crate.

FEDs in crate cmstracker003 : slot 3,4,5 10,11 with TTCoc in slot 9 Bin temperature: 23C FED hardware id: 38 in slot 10

Temperatures in slot 10:

Opto-Rx	With Heatsink	without heatsink
-----	-----	-----
8	38	38
7	49	54
6	56	61
5	52	56
4	45	46
3	36	36
2	33	33
1	31	31

As you can see, if the bin temperature remains constant there is a decrease of 5C.

Thanks,
OZ

SLINK Transition Cards

First batch of ~ 70 cards from CERN had shielded RJ45 connectors fitted (at Cemgraft) and have been returned to CERN.

Firmware and System Integration Tests

Generally the ~ 3 crates of FEDs have performed reliably during the TIF cosmic runs.

100kHz noise effects still seen in module tests at CERN. Now confirmed using Raw Data readout with new event downscaling option implemented in FE and BE firmware.

Problems “reported” with FEDs shutting down at run initialization during ORx setting adjustments? Is this related to TIF cooling issues?

Jon reports event data corrupted on a couple of FEDs during TIF runs. Oz will check these at 904.

Event Format changes to improve Filter unpacking efficiency. Necessary changes to BE have been investigated. Tests at CERN reported a 6 x increase in unpacking speed?? But this is not confirmed.

New DELAY FPGA Spy channel data with synchronous frame capture has now been verified against raw event data readout at CERN.

DELAY FPGA Fine Skew 64. Have observed “noise” during timing calibration runs on some FED channels (maybe a pattern exists). Suspect new firmware may have fitting problems.

New FPGA Compact Flash card updating software uses multiple threads to carry out parallel loading of all FEDs in a crate. On one occasion an accidental interruption of the process caused the corruption of all cards in FEDs in crate and necessitated physically removing and reprogramming all the compact flash cards (and of course FEDs).

No more news on other CF card file problem reloading problems.

Documentation

The new Delay FPGA Technical document was released.

A major revised version of VME FPGA Technical document has been circulated for comments.

sLHC

2nd CMS UK upgrade meeting held at RAL March.

CMS UK will submit a bid to grants committee in September. It was agreed to merge existing drafts for new FE chip (Mark Raymond) and off-detector readout work packages into a single Readout work package.