Status of CFEB, DMB, DDU

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(Reported by J. Gilmore)

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CFEB Production Status

• A total of 2500 CFEB’s will be built.

<table>
<thead>
<tr>
<th>Baseline</th>
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<tbody>
<tr>
<td>ME1/2, ME1/3, ME2/1,2 ME3/1,2</td>
<td>1728</td>
</tr>
<tr>
<td>ME1/1</td>
<td>360</td>
</tr>
<tr>
<td>Spares</td>
<td>412</td>
</tr>
<tr>
<td>Total</td>
<td>2500</td>
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• As of 3/2003, 2200 of the 2500 boards have been assembled and tested at Ohio State.
• Shipment to all FAST sites is on or ahead of schedule.
• Expect to finish production by June 03.
CFEB Repairs

• Some rejected CFEB’s had large pedestal shifts. Problem traced to bad soldering of LV regulator used on the early Rev-8 boards (125 boards).
  – National regulators were hand soldered on the 125 Rev-8 boards.
  – Solder flux underneath the resistor (or capacitor) was not removed well.
  – Moisture absorption lowers the effective resistance between pins, dropping the voltage to Buckeye chip.

• All Rev-8 CFEB’s not yet mounted were sent back to OSU and fixed. (Oct-02)
• B. Bylsma traveled to CERN in Jan-03 and fixed all Rev-8 boards already mounted on CSC’s.
Loose Screws

- Some screws holding skew-clear cable connector to the CFEB have fallen off after shipping to CERN.

- Solution proposed and adopted by the collaboration:
  - CFEB’s already mounted on CSC’s: check for screw tightness, dismount CFEB and tighten screw if necessary, then apply “lock-tite” fluid.
  - CFEB’s not yet mounted on CSC’s: check and tighten screws then use “lock-tite” fluid.
  - CFEB’s at OSU (~1300 to be shipped) have all been fixed.

These screws were put on after the board was tested by a technician. Apparently they were not tight enough.
## DMB Prototype History

<table>
<thead>
<tr>
<th>DMB – rev 4</th>
<th>Number</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2001-02)</td>
<td>15</td>
<td>13 delivered to UF, UCLA, IHEP, PNPI, CERN and DUBNA. 2 more assembled - to be tested and delivered to UF.</td>
</tr>
<tr>
<td>DMB – rev 5</td>
<td>4</td>
<td>Used for first integration test at UCLA in 4/02.</td>
</tr>
<tr>
<td>(2002)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DMB – rev 6</td>
<td>6</td>
<td>2 assembled and tested. To be used for tests at UCLA and CERN (4/03-5/03)</td>
</tr>
<tr>
<td>(2003)</td>
<td></td>
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</table>
Preproduction DMB (Rev6)

- Uses gold-plated traces - solves soldering problems that plagued Rev4 boards.
- Added a FIFO for ALCT data. Now there are seven FIFO’s, five for CFEBs, one for TMB, one for ALCT.
- Added another Flash Memory (AT49BV512) for BUCKEYE pattern loading.

- Optical transceiver changed from Agilent to Finisar.
- DDU or 'translator' card is required to send data from DMB to computer. Data path via Gigabit Ethernet removed.
- Added several serial resistors on LVMB signals as asked by UCD.
\textbf{DDU Development}

- First 9U DDU board. Produced and tested in 2002. This board will be used for beam test at CERN (May 03).
  - Full error checking implemented
  - Interface to VME
  - PC readout via Gigabit Ethernet (90 MB/s data transfer)
  - DMB calibration pulses, regular and random timing
  - S-Link64 tested
  - Need to integrate with FMM and TTS

- For next revision of DDU, we plan to use Virtex-II Pro FPGA’s to handle input logics, gigabit ethernet and main control. Output data will be sent to DCC’s via custom backplane.

- EMU will have 36 DDU’s and 8 DCC’s in 4 FED crates located in USC55. (\texttt{http://cmsdoc.cern.ch/~wsmith/USC55\_racks.html})