



CCLRC  
Rutherford Appleton Laboratory

## CMM status

*“I like work: it fascinates me. I can sit and look at it for hours.”*  
- J.K.J.

Ian Brawn. 26.4.4.

## CMM: Since last meeting...

- Re-designed VME interface to LUTs in CMM-Energy firmware
  - Inserted deadtime between readout events of 40 ticks
  - Corrected bunch-numbering scheme in readout data
  - Corrected cable disable mask in CMM-Energy firmware
  - Debugged I2C interface (see below)
  - Modified I2C CSR to match CPM -- *not yet downloaded to hardware.*
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## I2C adventures

- Norman & I debugged I2C access to TTCrx.
  - 3 problems:
    - Schematic error: buffer control signal routed via o/c device with no pull-up resistor. Simple hardware mod required for all boards. 3/5 fixed so far.
    - Intermittent firmware problem (~1 access in 20): state machine thrown into undefined state by VME signals arriving at bad time re 40 MHz clock. Added logic to sync. incoming VME signals. Fixed.
    - 1 of 3 boards tested had no 40 MHz clock to I2C FPGA. Suspect bad ball but couldn't confirm with Ersascope. Re-worked logic to use spare 10 MHz clock input. Fixed.
  - 3/5 CMMs now have working I2C interface. Hopefully other 2 will work once above mods are performed....
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## CMM: to do...

- Hardware test of new I2C CSR.
  - Change those parity bits in readout data received from other modules to parity error flags -- *VHDL written, not yet synthesized.*
  - Implement TTC broadcast commands -- *awaiting specification*
  - Document output to CTP for CMM-Energy.
  - Commission CMM#1
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