



MDC DAQ upgrade: status

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OUTLINE

- MDC add on board.
- MDC driver card.

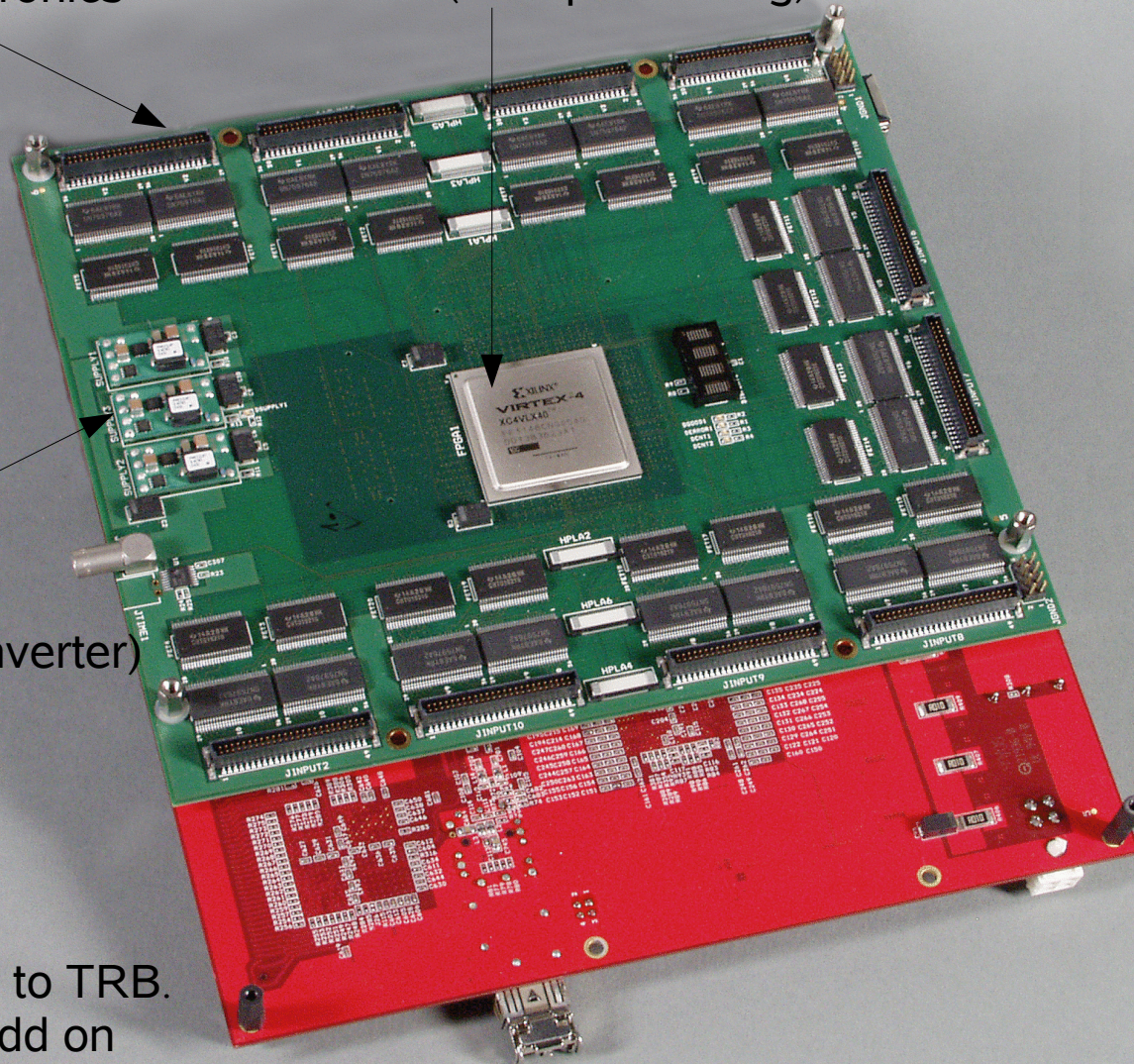
MDC add on board

CONNECTORS
to MDC Front
End Electronics
(TDCs)

VIRTEX FPGA
(data processing)

POWER
SUPPLY
(DC/DC converter)

Connectors to TRB.
(TRB and add on
connected back to back)



- 24 Boards will read out all HADES Chambers

- ~30.000 TDCs channels

- Possible platform to implement “on line” tracking or RICH ring/MDC segment correlation

- Easy configuration for all TDCs parameters (channel enable, threshold, spike suppression...)

MDC add on board: Configuration mode

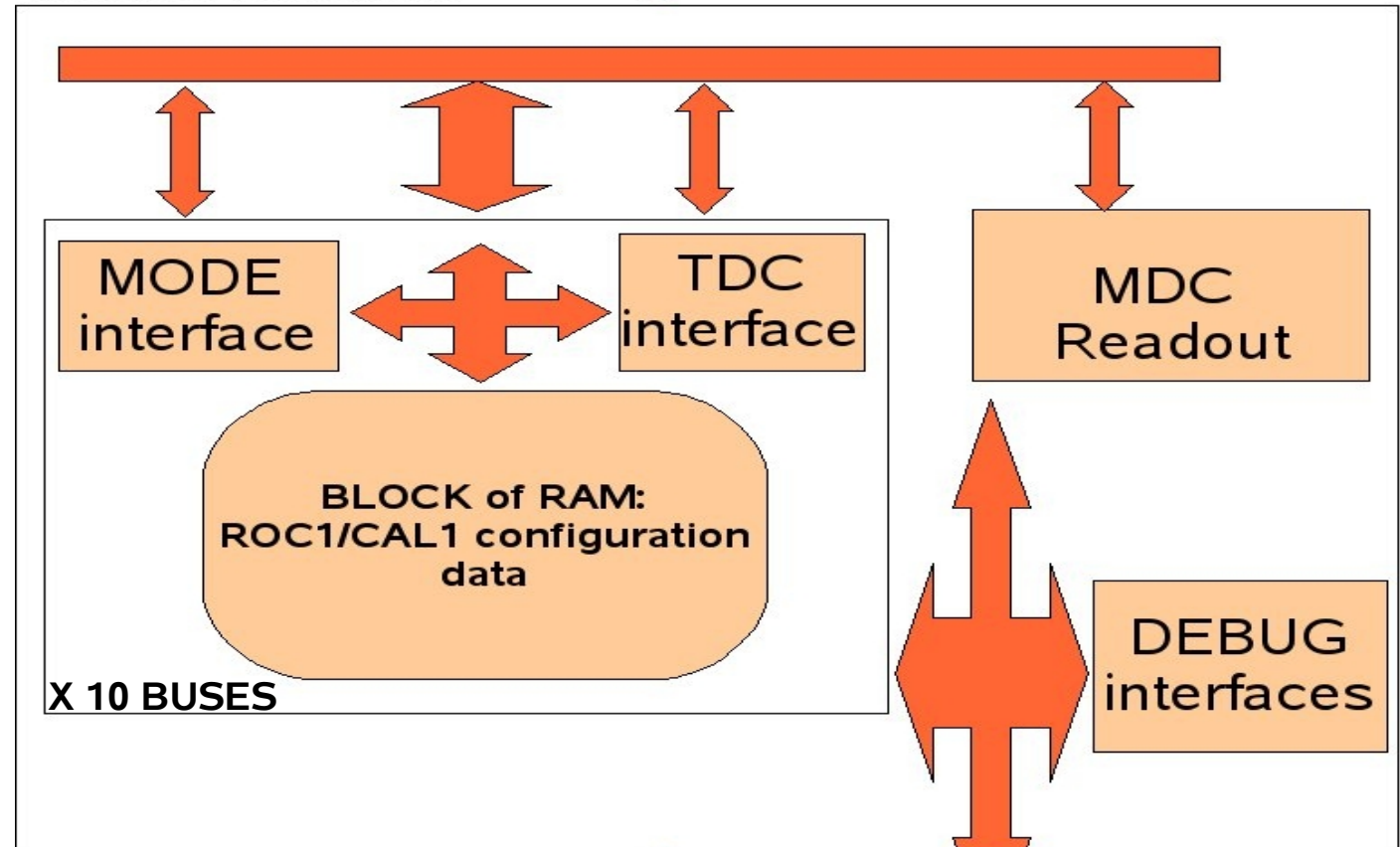
MDC FEE: 16 CPLDs, 136 TDCs(1088 channels)

- Mode interface:** controls TDC working mode

- TDC interface:** loads configuration data into TDCs

- DEBUG interfaces:** send/receive data to ETRAX or VIRTEX in TRB

MDC addon

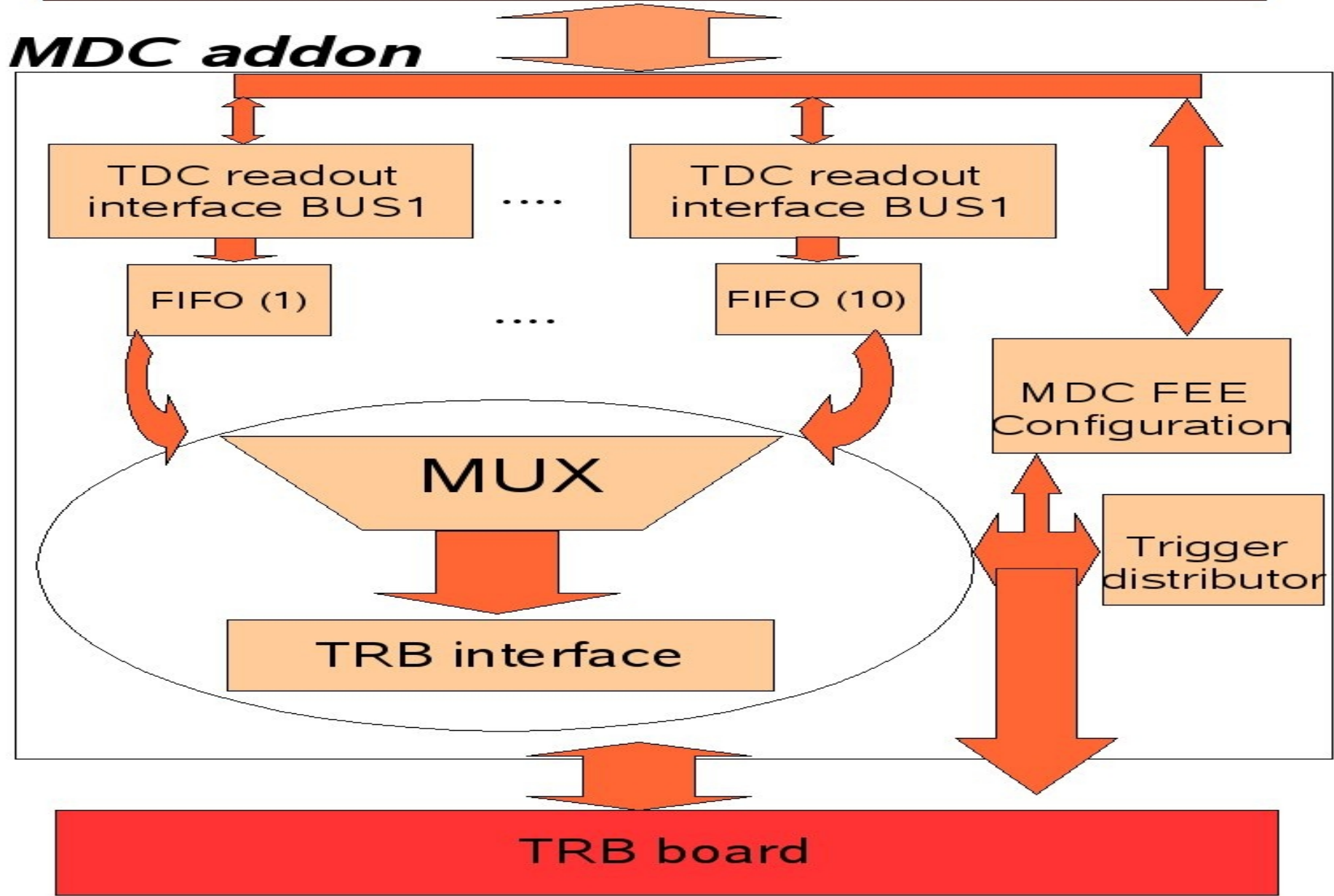


X 10 BUSES

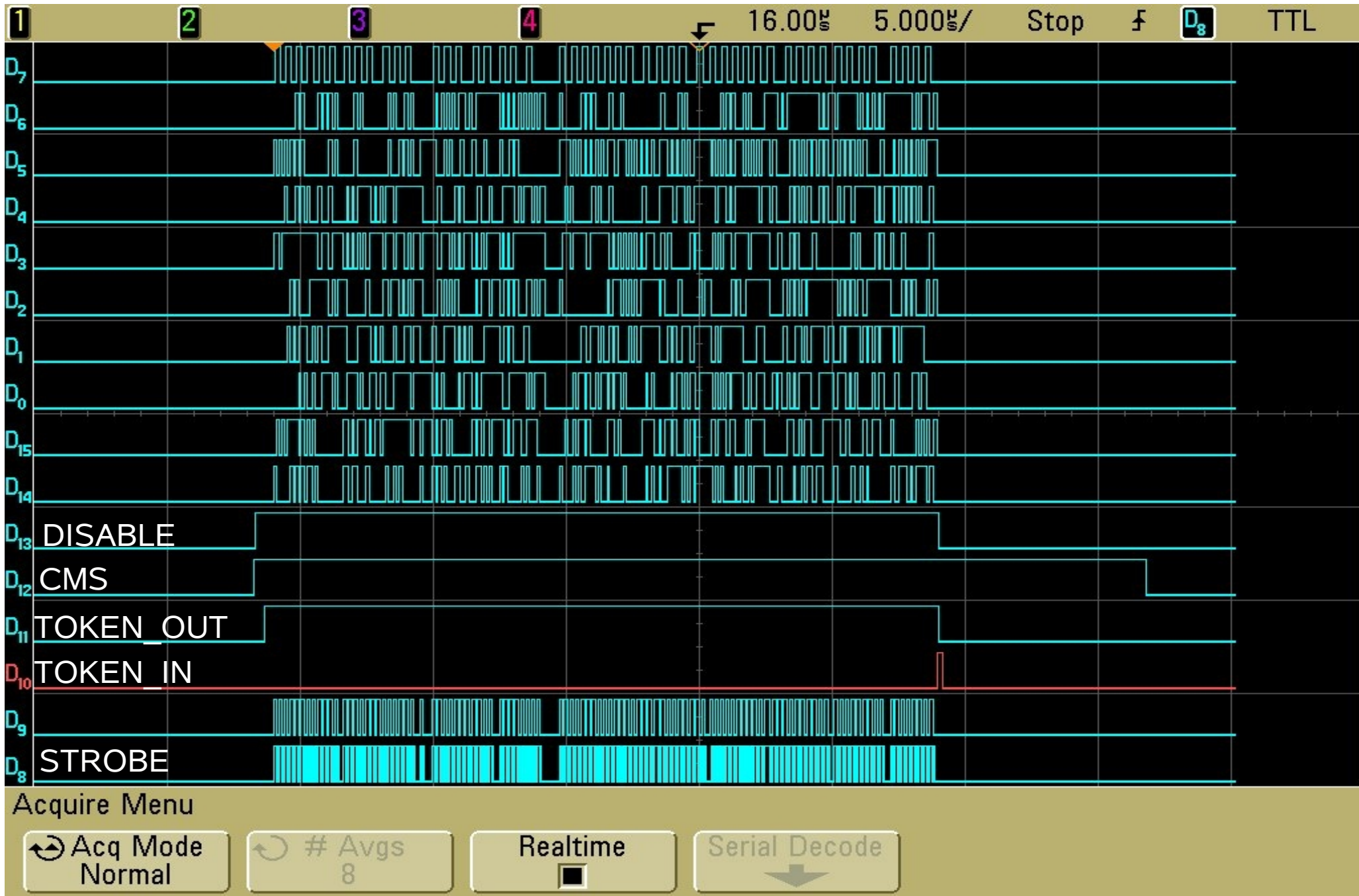
TRB board

MDC add on board: Readout in token Mode

MDC FEE: 16 CPLDs, 136 TDCs(1088 channels)



MDC add on board: Readout in token Mode



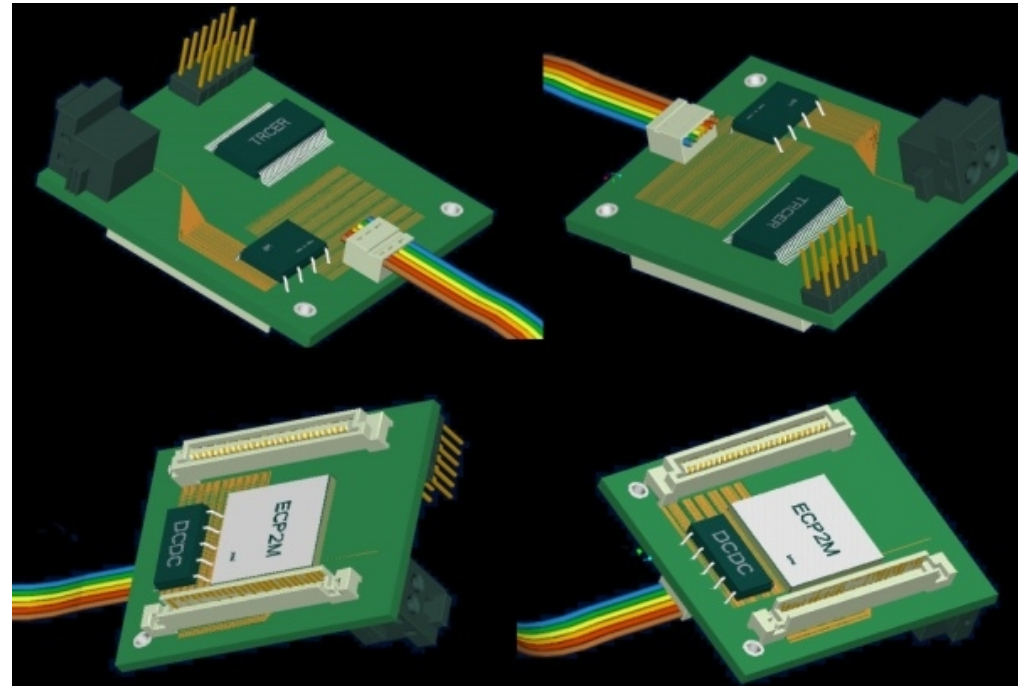
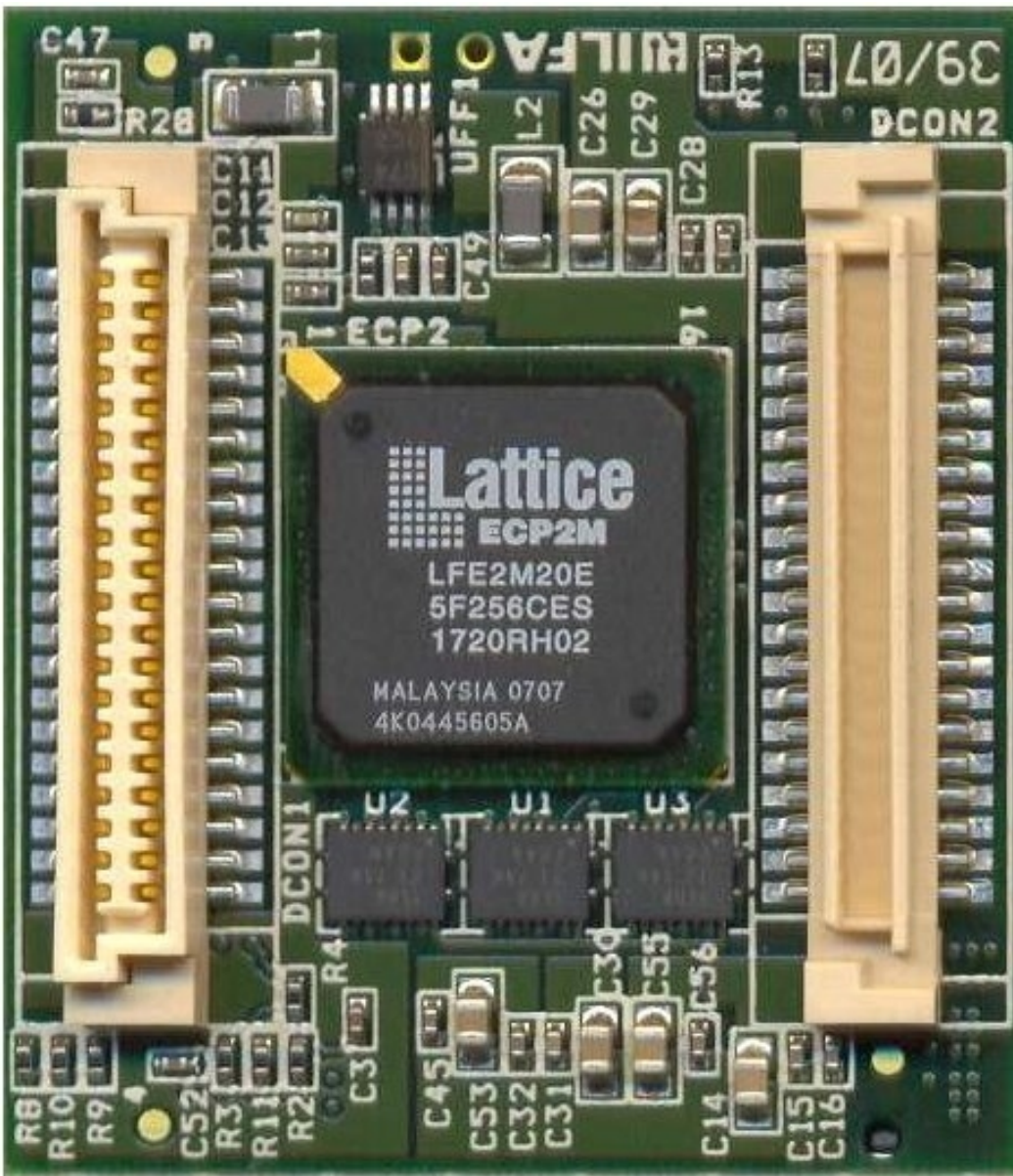
MDC add on board: Status up to now

(DIC 2007)

The MDC addon is able to:

- Set mode lines of the CPLD on Motherboards:
 - Configuration data readout in SETR mode.
 - TDC “Real” data readout in token mode.
- Configuration of short/long MBs:
 - load all parameters necessary for the readout in token mode (REG0,...,REG3,DAQ REG and THR REG)
- Readout “real data”:
 - readout of short/long MBs and chains.
- DEBUG interfaces/processes:
 - Send debug information directly to ETRAX (while DAQ is running)
 - Communication with FPGA on TRB(Marek's protocol while DAQ is not running).
 - Count number of dataword and does an average over 100 events.

MDC driver card



•Schematics by Michael Traxler and Peter Skott.

MDC driver card: Status up to now (DIC 2007)

- Tested the main components:
 - we can program the ECP2M FPGA (JTAG).
 - we can program the flash memory.
 - we started testing the SERDES and the optical communication.
 - we are working on the communication between ECP Lattice and the 2 flash memories

Literature

- A General Purpose Trigger and Readout Board (TRB), for HADES and FAIR-Experiments, GSI Scientific report GSI 2006

M. Traxler, I. Froehlich, M. Kajetanowicz, K. Korcyl, W. Krzemien, M. Palka, P. Salabura, C. Schrader, H. Stroebele, J. Stroth, P. Skott, A. Tarantola, R. Trebacz

- 128 channel high resolution TDC with integrated DAQ-system

M. Traxler, D. Gil, M. Kajetanowicz, K. Korcyl, M. Palka, P. Salabura, P. Skott, R. Trebacz

- ETRAX, Axis www.axis.com