eicSys activities for MTCA.4 Technology

3rd MTCA.4 Workshop

DESY 10-11.Dec. 2014
Hamburg

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- MTCA.4 1U Crate
- Licensed Boards
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Review 2013/2014

- **Start of Collaboration Contract for System Development**
  - 1U MTCA.4 chassis
- **MCH efforts**
  - 1U MTCA.4 chassis MCH (PCIe, GbE, Timing receiver and clock dist.)
  - Timing receiver for ELMA MCH (WhiteRabbit and PTP)
- **Boards manufactured on DESY licence**
  - DAMC-FMC20 Eicsys Name: EAMC-FMC500
  - DRTM-PZT4 Eicsys Name: ERTM-P100
  - Stepper Driver contract is in progress

Review 2013/2014

- **Software support**
  - EAMC-FMC500 support for UniDaq firmware package
  - SIS8300L support for UniDaq firmware package
- **Conferences**
  - Icalepcs San Francisco
  - DESY Workshop 2013
  - Real Time Conference 2014 Nara

1U MTCA.4 Crate

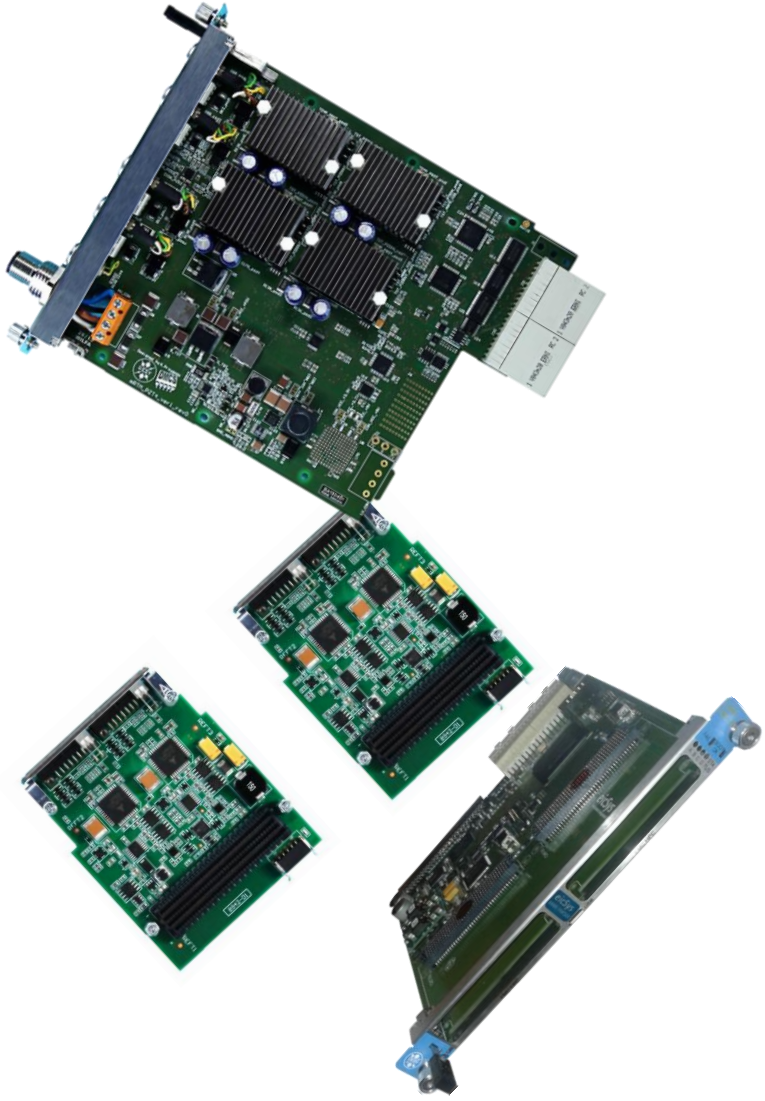
- **Efforts**:
  - Cost effective small starter kit for MTCA.4 Applications
    - DAQ System
      - 2 AMC Slots MTCA.4
      - 2 RTM Slots MTCA.4
      - 1 AMC Slot MTCA.0

    - Crate Management

Standard configuration:	1GB Ethernet PCIe Gen.3 switch Clock distribution
Clock distribution:	Module supports external timing interface (trigger, clock) connected via data lines on Ports 17-20
Timing	FCLK, TCLKA and TCLKB are distributed to all AMC slots IEEE1588 receiver as option available
Several types available:	10G interface SFP+ to ports 4-7, AMC slots 1&2 PCIe switch

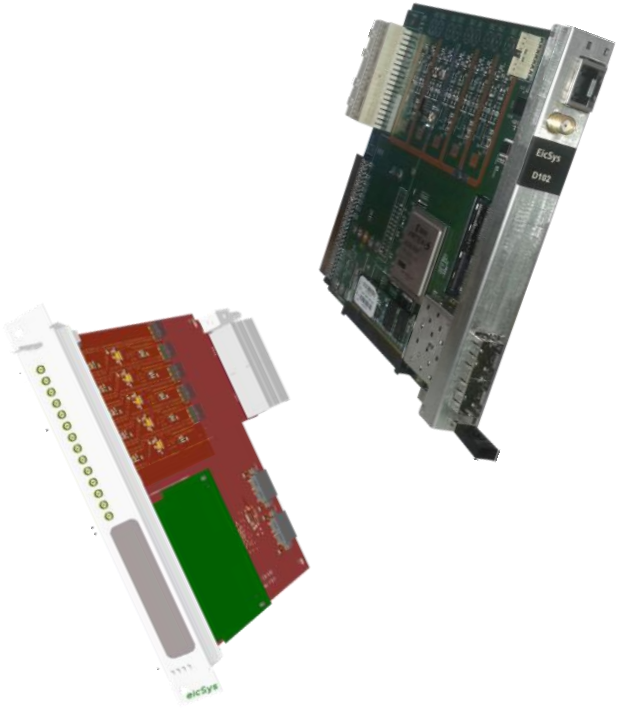
MTCA.4 Boards, FMC´s

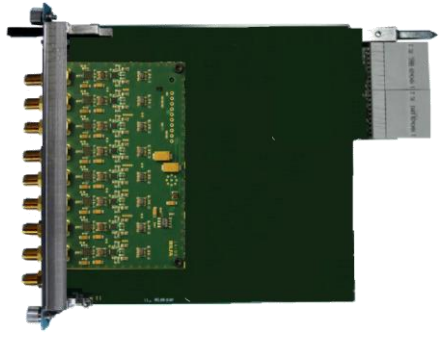
- **FMC Carrier:**
  - eicSys Number: EFMC-AMC500
  - With Board Support package,
  - ready to use f.e. with EFMC-MD2
- **Piezo Driver Board**
  - eicSys Number: ERTM-P100
  - Ready to use f. e. with EAMC-FMC500
- **Stepper Driver**
  - eicSys Number: EFMC- MD2



MTCA.4 Boards, FMC´s designed by eicSys

- **EAMC-D102**
  - Data aquisition board MTCA.4 Standard (10 channels, Virtex 6)
- **ERTM-D102**
  - Digitizer Board with 10 input analog feed-through and FMC HPC Slot to extend the functionality.
- **ERTM-RFI8-1,3GHz**
  - Downconverter Board, MTCA.4 Standard with 8 RF inputs (Cryoelectra GmbH)
  - 1250 MHz to 1350 MHz





FMC´s designed by eicSys

- EFMC-D081
  - 8 MMCX analog inputs
  - 1x Clock
  - 1x Trigger
  - Max 40 MSPS, Resolution 12 bit
- EFMC-D082
  - 8 MMCX analog inputs
  - 1x Clock
  - 1x Trigger
  - 40 MSPS, Resolution 14 bit
- EFMC-D041
  - 4 MMCX analog inputs
  - 1x Clock
  - 1x Trigger
  - Max 5 GSPS, Resolution 8 bit
- EFMC-DIO1
  - 16 digital I/O Channels input.
- EFMC-TEST1
  - Loopback test board with simple clock distribution

Planned Industrial Applications

- Image Processing for mobile Camera application
  - 30 systems for train security (day/night obstacle detection)

- Inline Quality Inspection Systems in Production plants
- Test Equipment for non destructive testing

Future Developments

- **MTCA.4 Boards**
  - AMC for SRS Systems (used at CERN)
    - existing systems are ATCA based
  - AMC for Image processing (for mobile application)
  - RTM ComEx Carrier (for ELMA MCH)
- **Systems**
  - Ready to use data acquisition systems based on 1U chassis and digitizer board

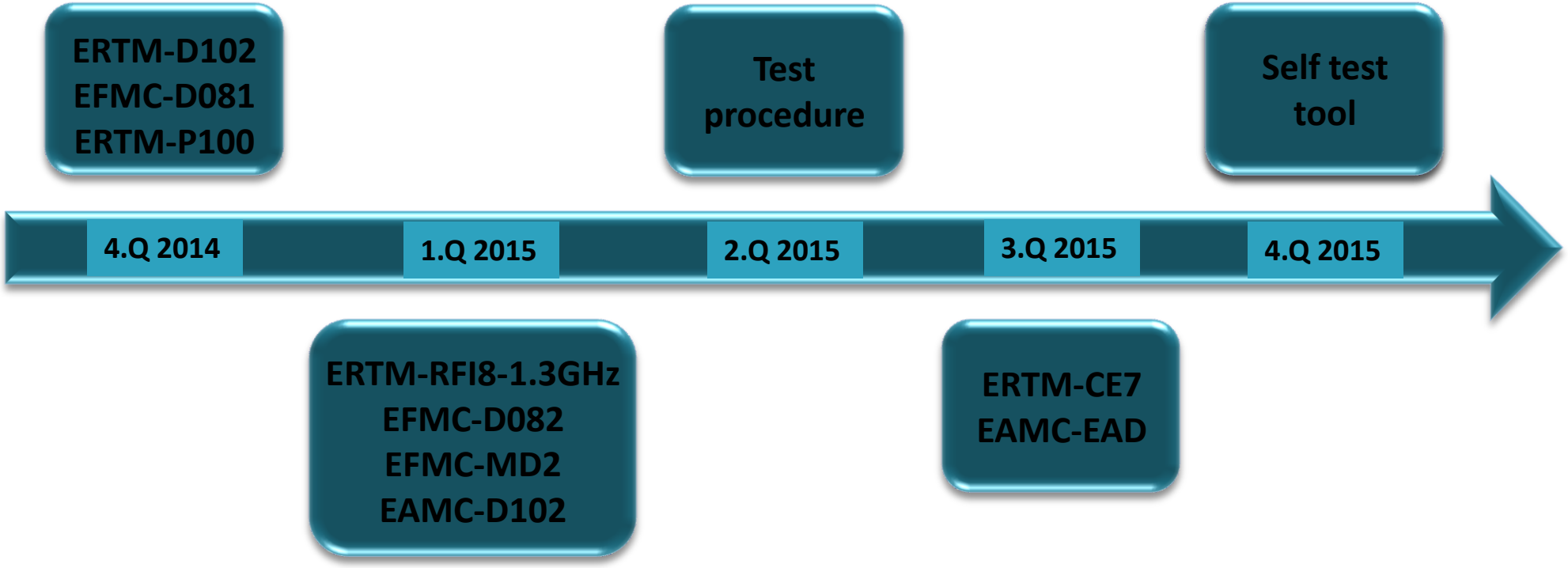
Future Developments

Self diagnostic procedures for our boards and systems

It is a common development together with

Viconnis Test Technologie GmbH, www.viconnis.com

Roadmap


ERTM-D102
EFMC-D081
ERTM-P100
Test procedure
Self test tool
4.Q 2014
1.Q 2015
2.Q 2015
3.Q 2015
4.Q 2015
ERTM-RFI8-1.3GHz
EFMC-D082
EFMC-MD2
EAMC-D102
ERTM-CE7
EAMC-EAD

Thank you for your Attention

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