

ACQ400-MTCA-RTM-2 Advance Product Specification



High Performance Simultaneous Data Acquisition

Preliminary Product Information

Subject to Change

CONFIDENTIAL

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1 Product Description

1. **ACQ400-MTCA-RTM-2** is a MicroTCA compliant, mid-size, double-width RTM module with sites for 2 x D-TACQ **ELF** modules.
2. Sites for two full-size D-TACQ **ELF** modules, with **ELF** front panel on the outward-facing edge of the RTM.
3. 2 x ADF-30 / ZD30 hard metric differential connectors to front side card. Pinout TBD.

Pinout shall allow compliance with all D-TACQ **ULPC** and **DLPC** modules. Includes i2c interface to monitor **ELF** PROMS and control analog psu.

4. Includes analog power supplies for **ELF** modules. Power supplies voltage controlled by i2c.

1.1 Product Variants

- **ACQ400-MTCA-RTM-2** : 2 sites,

1.2 Applications

- Instrumentation applications, control and monitoring.

1.3 Overview

- Micro TCA [1.4.1] provides an instrument data acquisition platform with high bandwidth connections using fast serial buses, and standardised platform management using IPMI.
- Micro TCA Extensions for Physics [1.4.2] provides for an RTM module that allows expansion for a processor card or adc module on the front side.
- The FMC standard [1.4.3] provides for low cost IO expansion to an FPGA processor module. D-TACQ provides a range of modules that extend this standard in two ways – the “**ELF**” [1.4.6] module, which more than doubles the payload of the module and the “**ULPC**” [1.4.7] and “**DLPC**” [1.4.8] pinouts that define a subset of IO's suitable for relatively low speed modules (up to 200MBytes/sec) and, in addition provide for analog power rails from the baseboard. D-TACQ designs and markets a range of **FMC** and **ELF** modules, where the **ELF** modules in particular enable both high channel density and high analog quality in the module.
- This document defines a MTCA.4 compliant RTM that can act as a carrier for 2 x **ELF** modules. The RTM is dependent on a suitable front side **AMC** module, similar to [1.4.10]

1.4 Glossary

1.4.1 [MTCA.0](#)

1.4.2 [MTCA.4](#)

1.4.3 FMC: [VITA57 FPGA Mezzanine Card](#).

1.4.4 [Xilinx ZYNQ System-on-chip](#).

1.4.5 LPC : FMC Low pin count wiring standard.

1.4.6 ELF variant of FMC

1.4.7 ULPC: FMC Ultra low pin count (D-TACQ).

1.4.8 DLPC: FMC Differential low pin count (D-TACQ)

1.4.9 Extended, ELF : FMC Extended size module (D-TACQ).

1.4.10 AMC Front-side module [DAMC-FMC20](#)

1.4.11 SPL : Single Pin Lemo

2 Product Description.

2.1 RTM Compliance

1. *ACQ400-MTCA-RTM-2* is an MTCA.4 compliant, mid-size, double width RTM module.
2. The ZONE 3 connector comprises 2 x ZD30 connectors. The pinout is assumed to be compatible with a front side processor board. Currently this is assumed to be *DAMC-FMC20* [1.4.10].

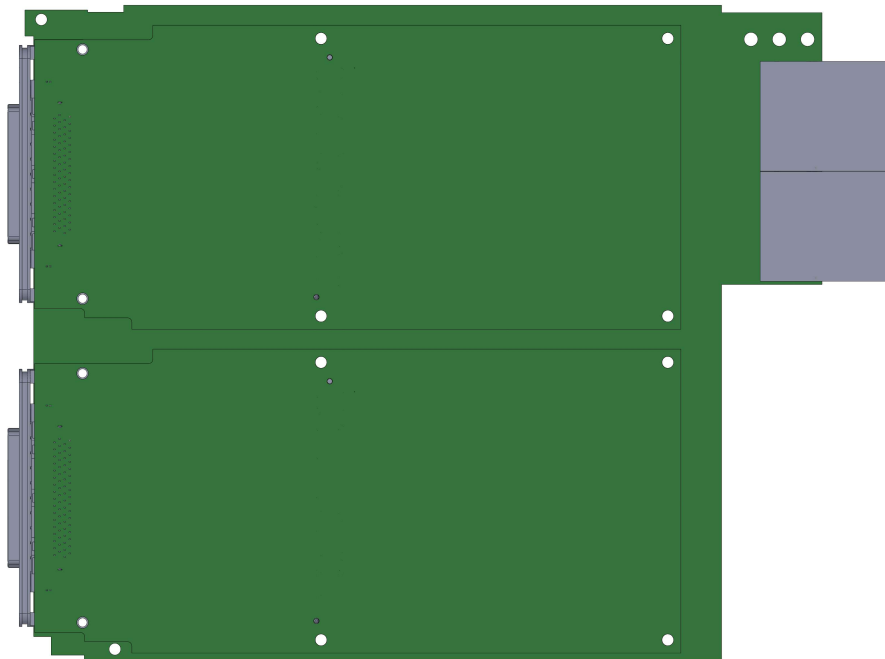
2.2 Functionality

1. *ACQ400-MTCA-RTM-2* provides 2 full-size *ELF* sites, currently allowing up to 64 ADC channels in one RTM.
2. *ACQ400-MTCA-RTM-2* includes analog power supplies for *ELF* modules, this is derived from the MTCA 12 V power line.
3. *ACQ400-MTCA-RTM-2* includes an ID PROM, psu voltage adjust and psu voltage/temperature monitoring.
4. The rear panel has cutouts for 2 x *FMC* front panels, and an addition *SPL* connector for optional external clock.

3 Physical

Diagram shows the double-width RTM module with the Zone3 connector pair at top right, and the two FMC front panels at the outer edge on the left hand side.

The ELF modules run the full length of the module. The module includes MTCA.4 compliant ID prom, psu switching and ELF-compliant clean analog power.



4 Interface Specification.

4.1 ZONE 3 connector

- 2 x 30 pair ZD
- Pinout compatible DAMC-FMC20

4.1.1 Pinout.

TBD

5 ACQ400-MTCA-RTM-2 Electrical Specification.

#	Parameter	Value
1	Number ELF Sites	2
2	Standards Compliance	MTCA.4
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