MicroTCA Technology Lab at DESY.

Jan Marjanovic (DESY)  9.6.2018

IEEE RT2018, MTCA pre-workshop
TRANSFER MTCA TO RESEARCH AND INDUSTRY

- Custom developments
- High-end test & measurement services
- System configuration & integration
- LLRF design

Marketing.
Services & Support.
Tech-Shop.
Status
Renovated office space
Equipment: LeCroy 80 GSPS scope
Projects
Projects: portfolio maintenance

DAMC-2
DAMC-TCK7
DAMC-FMC20
DRTM-DWC10
DAMC-X2timer
DAMC-FMC25
DRTM-PZT4
DRTM-VM2LF
DRTM-AD84
DRTM-DWC8VM1
DRTM-LOG1300
DFMC-MD22
RF Backplane
Projects: LLRF for TARLA

Turkish Accelerator and Radiation Laboratory Ankara

System integration test at DESY & preparation for final rack assembly
10G Ethernet UDP/IPv4 engine, MicroTCA Tech Lab (DESY)
# DRTM-AD84 Test Report

## 1 Test Info

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>9.6.2018</td>
</tr>
<tr>
<td>Location</td>
<td>DESY</td>
</tr>
</tbody>
</table>

## 2 Board Info

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board Type</td>
<td>DRTM-AD84</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>DESY</td>
</tr>
<tr>
<td>Version</td>
<td>V1.0</td>
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</tbody>
</table>

## 3 FPGA Info

<table>
<thead>
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<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPGA Type</td>
<td>Xilinx Spartan 6</td>
</tr>
<tr>
<td>FPGA Version</td>
<td>1.0</td>
</tr>
</tbody>
</table>

## 4 ADC Measurement

### 4.1 Filter Off

<table>
<thead>
<tr>
<th>Channel</th>
<th>ADC Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch1</td>
<td>123.45</td>
</tr>
<tr>
<td>Ch2</td>
<td>67.89</td>
</tr>
</tbody>
</table>

### 4.2 Filter On

<table>
<thead>
<tr>
<th>Channel</th>
<th>ADC Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch1</td>
<td>345.67</td>
</tr>
<tr>
<td>Ch2</td>
<td>98.76</td>
</tr>
</tbody>
</table>

## 5 DAC Measurement

<table>
<thead>
<tr>
<th>Channel</th>
<th>DAC Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch1</td>
<td>456.78</td>
</tr>
<tr>
<td>Ch2</td>
<td>23.45</td>
</tr>
</tbody>
</table>

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*Image: DRTM-AD84 Test Report*
Reaching the community
Conferences and trade fairs
https://techlab.desy.de
MicroTCA system configurator

ADVANCED MEZZANINE CARDS

- DAMC-TCK7
  - 4/8-pin SMA Input
  - 16-bit ADC
  - 12-bit DAC
  - 24-GHz clock

- DAMC-TCR11
  - 16-bit ADC
  - 12-bit DAC
  - 24-GHz clock

- DAMC-FMCS2
  - 24-bit ADC
  - 16-bit DAC
  - 24-GHz clock

- DAMC-FMCS3
  - 32-bit ADC
  - 24-bit DAC
  - 24-GHz clock

REAR TRANSITION MODULES

- DRTM-AD6
  - 8-channel ADC
  - 8-channel DAC
  - Remote switchable 50Ω on input
  - Remote switchable 50Ω on output

- DRTM-OSCM6
  - 10-channel OSC
  - 16-channel OCM
  - 16-channel PWM

- DRTM-CDC10
  - 10-channel high-frequency convertor from 50Ω to 400Ω
  - Short-term AM, PM, stability @ 50Ω
  - Supports medium-intensity frequencies between 50Ω and 400Ω

- DRTM-DWC10
  - 10-channel high-frequency convertor from 400Ω to 50Ω
  - Short-term AM, PM, stability @ 400Ω

- DRTM-DWSC10
  - 10-channel high-frequency convertor from 50Ω to 400Ω
  - Short-term AM, PM, stability @ 50Ω

- DRTM-DWSC10
  - 10-channel high-frequency convertor from 400Ω to 50Ω
  - Short-term AM, PM, stability @ 400Ω
§ 1 Subject of the Agreement

(1) The Subject of this Agreement is the cooperation between the Parties within the “Helmholtz Innovation Labs” with the title “MicroTCA Technology Lab - A Helmholtz Innovation Lab” (HIL-02) funded by the Helmholtz Association.

(2) The Parties shall cooperate in one or more of the following areas of activities:

- Advance research and development for next generation MicroTCA systems, including the investigation of new materials, design concepts, interfaces and communication protocols.
- Joint marketing activities to promote MicroTCA as a standard and foster its widespread adoption in research and industry through collaboration in market research, appearances in showroom, industry exhibitions on conferences and trade fairs.
- Implementation of a cutting edge lab for analog and digital developments.
- MicroTCA component design.
- Tutorials, trainings and workshops with a focus on MicroTCA, electronics design, test and measurement.
- Resolution of interoperability issues between MicroTCA components of different manufacturers through joint tests and design reviews.
- Pooling hardware to enable potential users a short term evaluation of MicroTCA systems on a loan basis.
7th MicroTCA Workshop for Industry & Research

5 – 6 Dec 2018

CFEL, DESY, Hamburg