

DAMIC

ADC/Control Motherboard

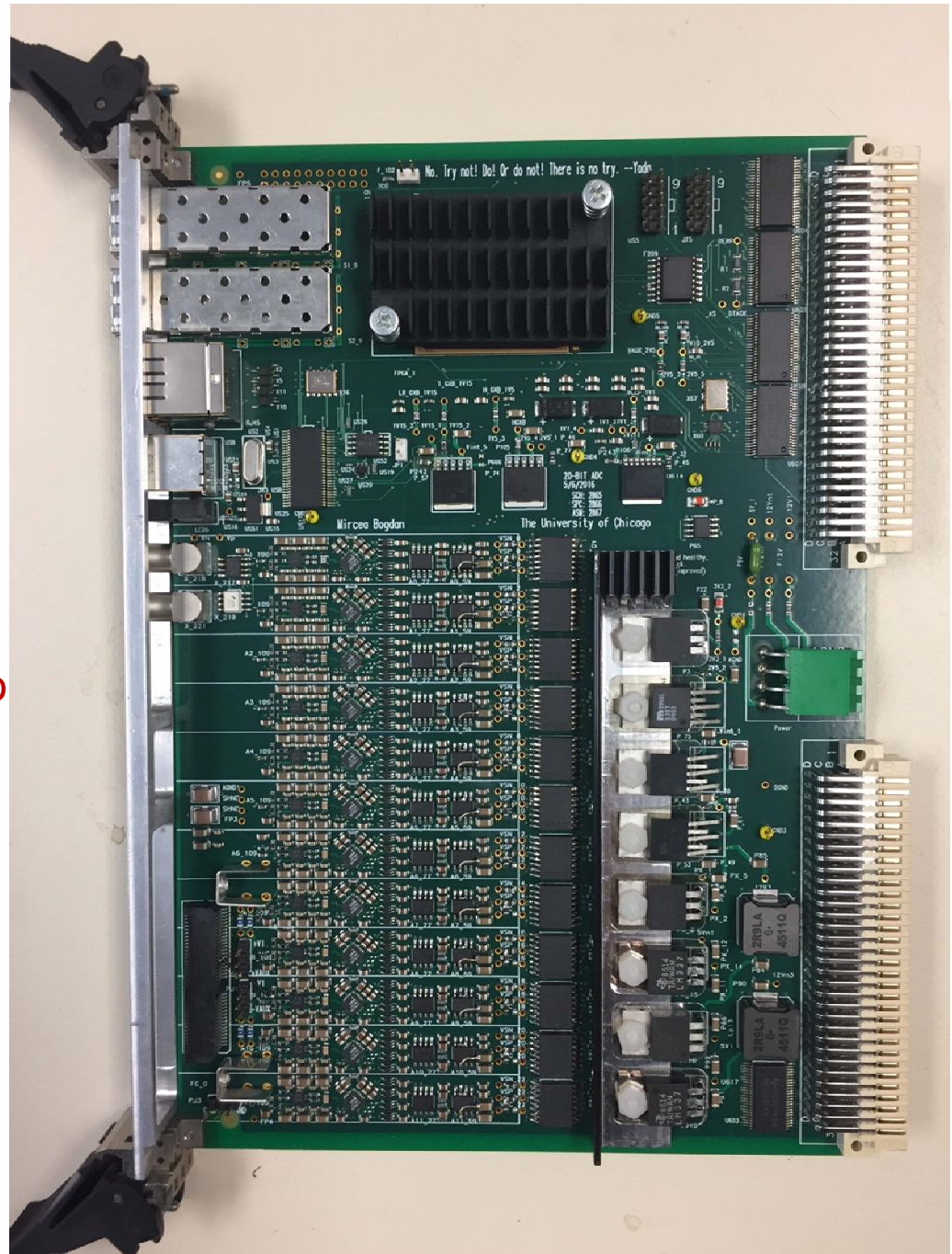
Mircea Bogdan
10/4/2018

The University of Chicago

20-BIT ADC Prototype

Module designed and tested in Chicago

http://edg.uchicago.edu/~bogdan/20BIT_ADC_Module/index.html



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6U VME or Stand Alone
20-BIT, 1,6MHz

SFP – max 6Gbps

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RJ45 – LVDS: 3In, 1out

USB

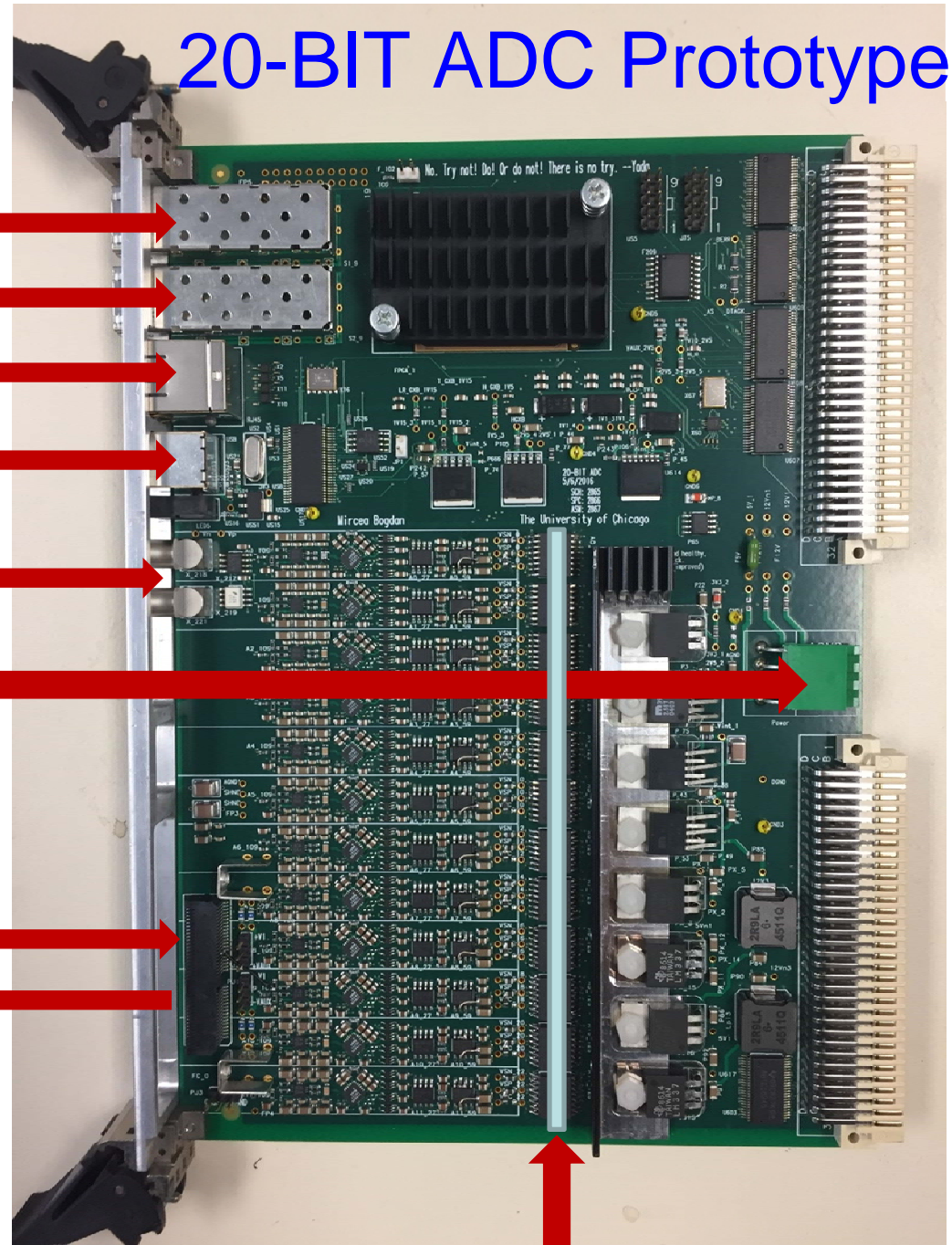
Isolated Trigger Inputs

2nd, Analog Power Input

12 Analog Signal Inputs

Analog Power Out

20-BIT ADC Prototype

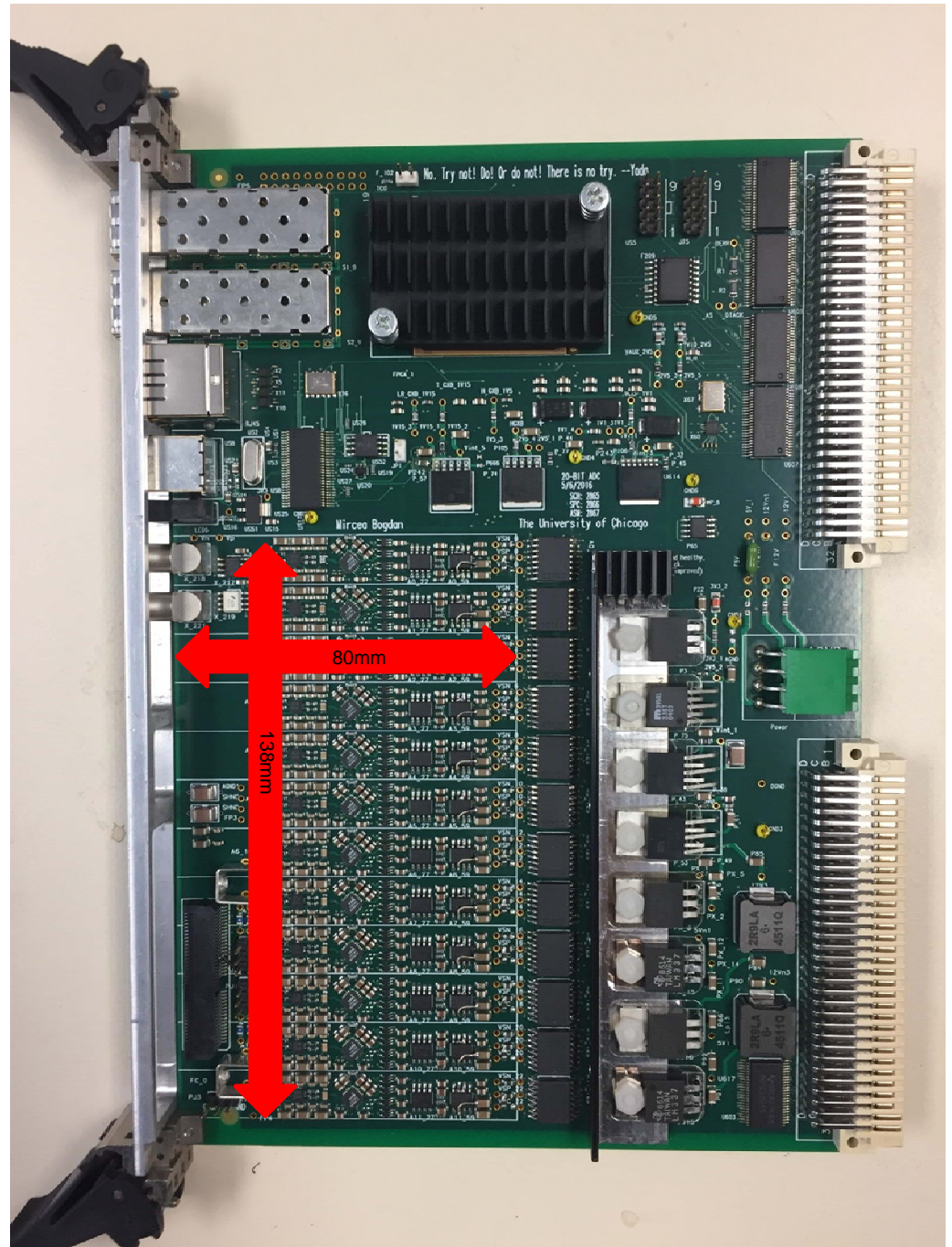


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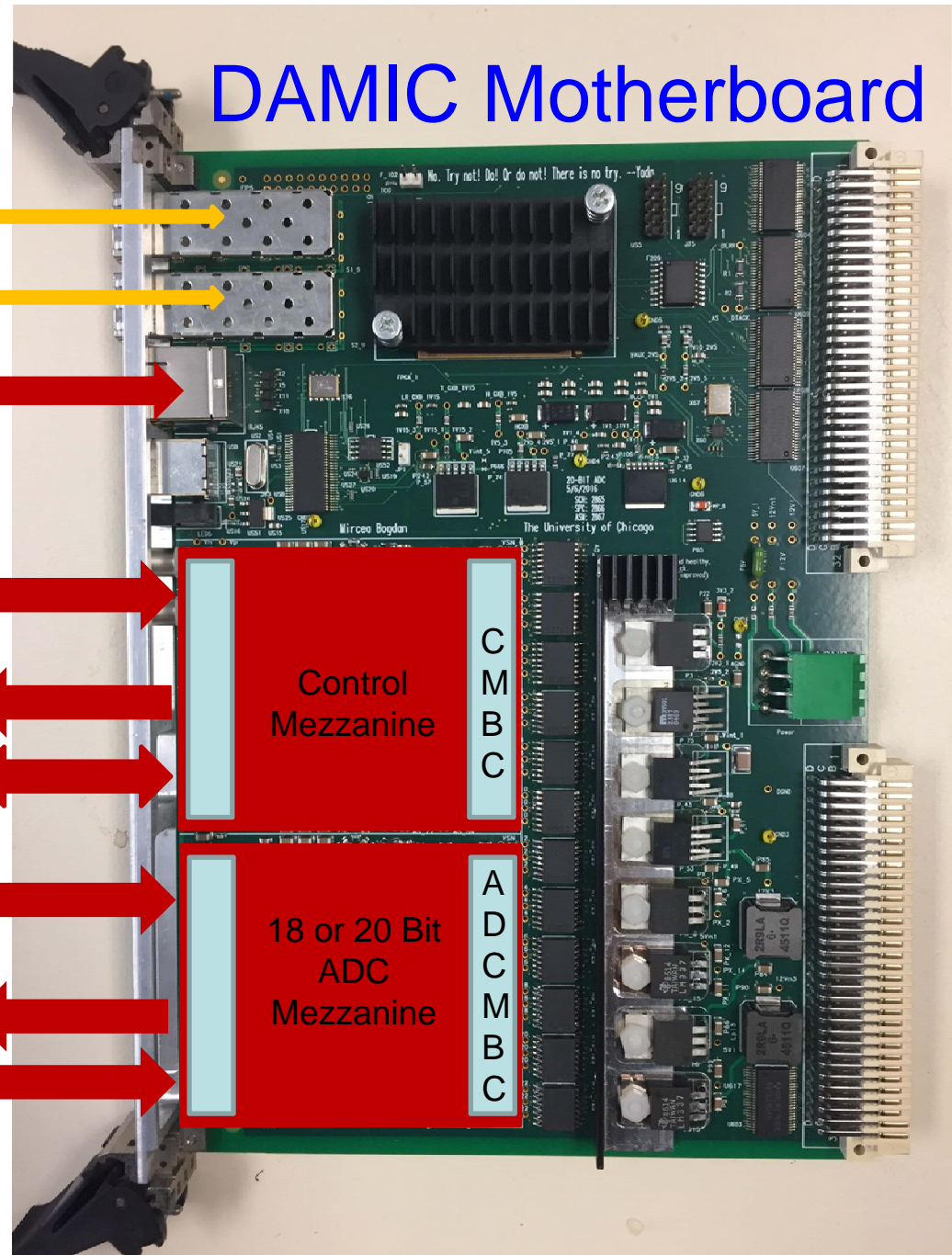
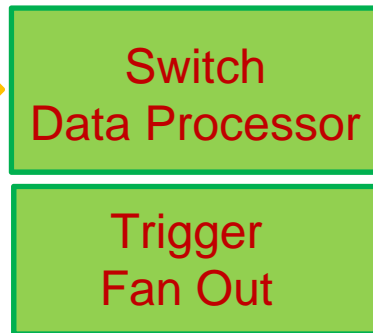
Galvanic Isolators

From ADC Prototype to DAMIC Motherboard



One Motherboard per CCD

DAMIC Motherboard

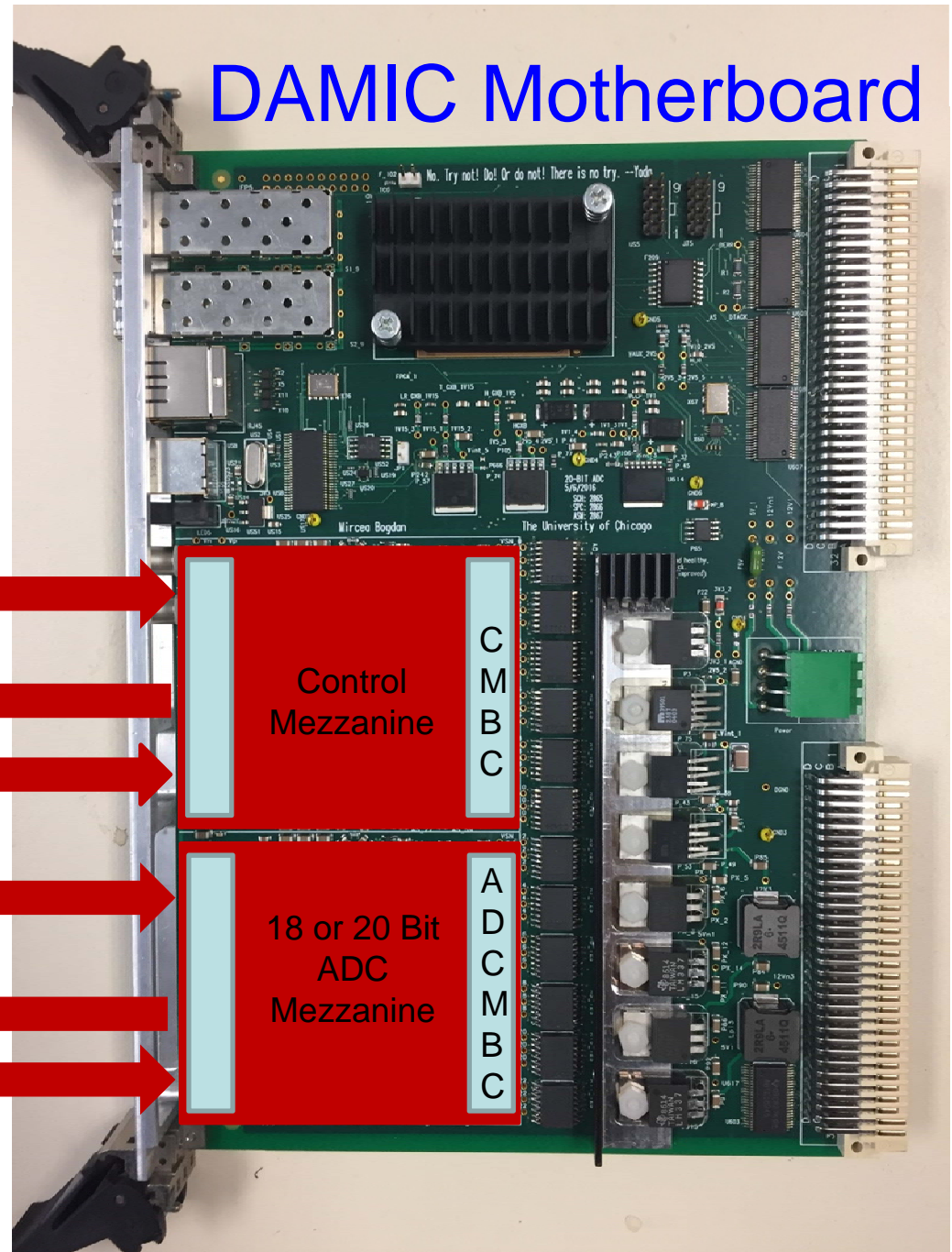


Service 1 CCD:

- Control
- Power
- DAQ
- SFP Readout

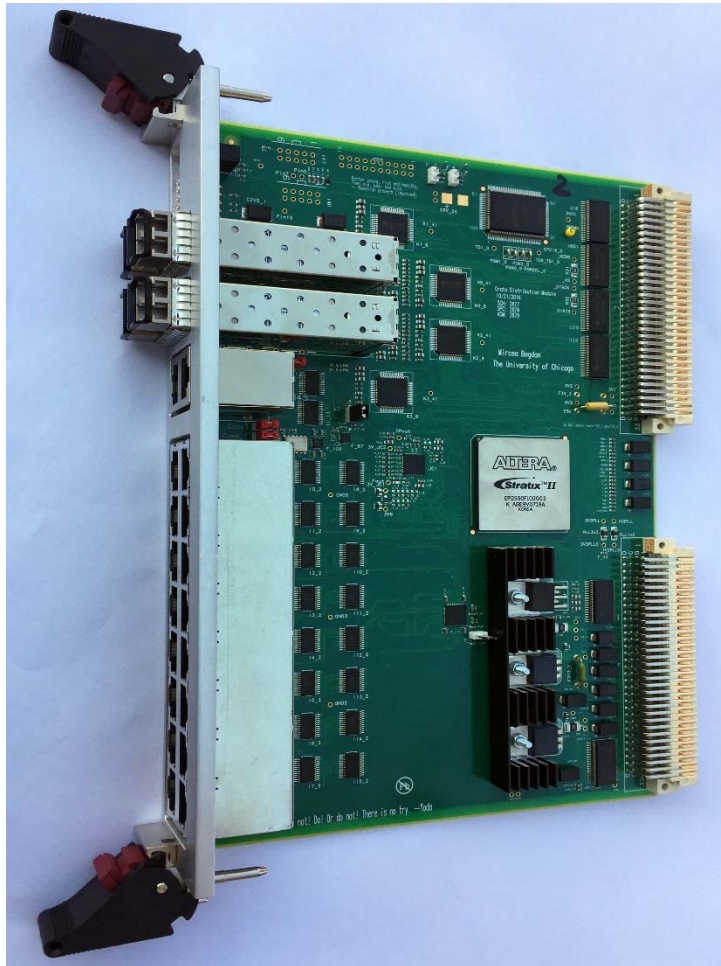
DAMIC Motherboard

Start design?
Size of Mezzanine Cards?
Connector Choice?
Number of Connectors?
Number of Lines?
Lines that are isolated?

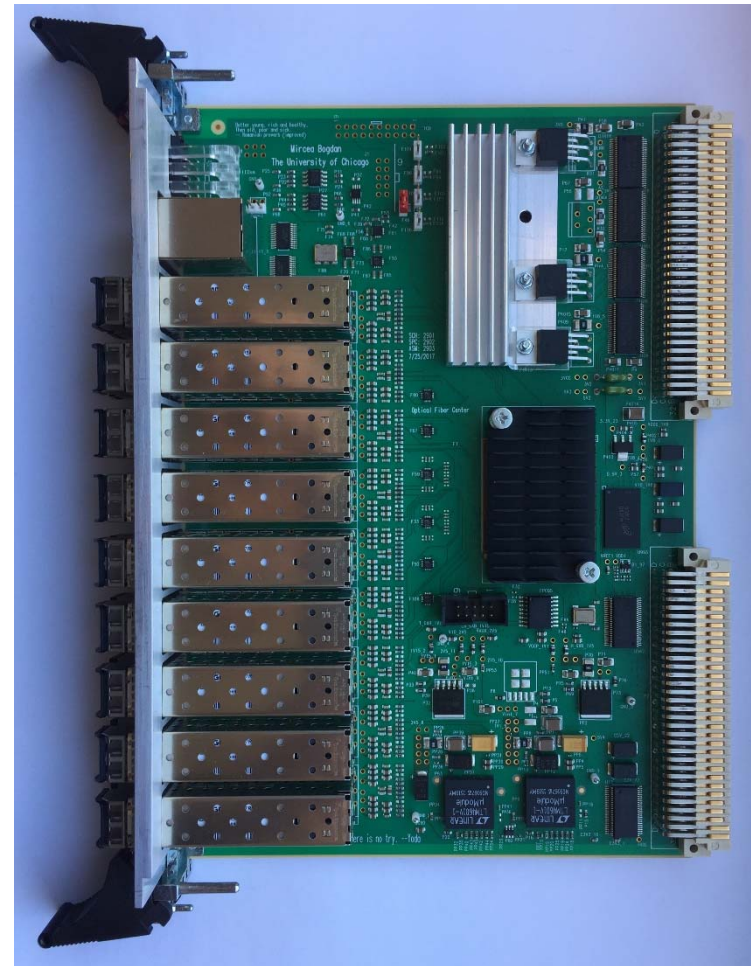


Other Potential DAMIC DAQ Modules

Designed in Chicago and used in JPARC since 2017



1 to 16 RJ45-LVDS Smart Fan Out Module



Data Processing Module with 18 SFPs

Mircea Bogdan

DAMIC CCD Flex

Looking into materials: Espanex, CuFlon, Pyralux, Ultem, Upilex.

- Espanex – contacted PCB company, material is discontinued
- CuFlon – contacted vendor Polyflon, and PCB house:
 - max size 12"x16", 2 layer, 10mil thick, 8 mil clearance (~250/piece?)
 - will investigate if 3-5 layer flex are possible
- Pyralux – similar to Kapton
- Ultem – contacted PCB company that has used it in the past, should get updates soon.

Will contact more PCB companies