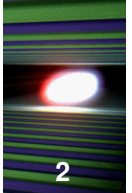




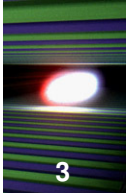
First FPGA Experts Meeting

Patrick Geßler

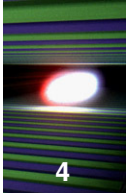




- Introduction
- Short Presentations of Projects
- Discussion of Problems and Goals
- Next Steps
- Find date and time for next meeting

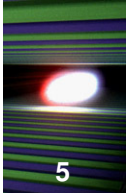


- ADC Sampling Frequency
1MHz → ~100MHz or higher
- New Timing System
- VME → μ TCA and ATCA
- Preprocessing & Realtime Applications in FPGA
- Specialized Solutions vs. Standard Systems



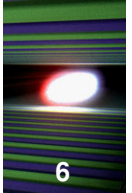
If everyone starts to build their own
Hardware or at least their own Firmware,
Driver and DOOCS Servers we won't
make it in Time!!!

What could we do?

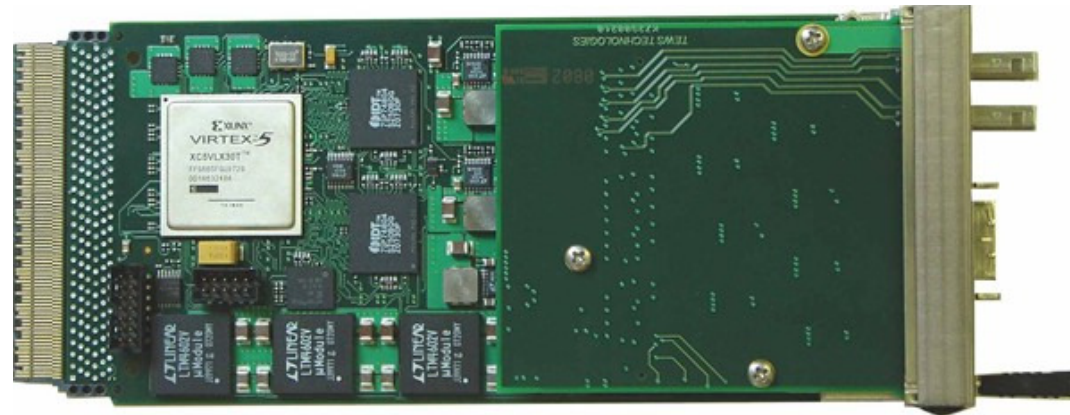
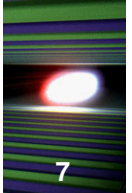


- Learn about others Projects
- Find common needs
- Define Interfaces to allow interchangeable modular code blocks
- Develop or adopt a type of Framework
- Try to reduce Hardware Platforms → μ RTM
- Spread Knowledge and Help others
- Attract additional People

What could we gain from that?

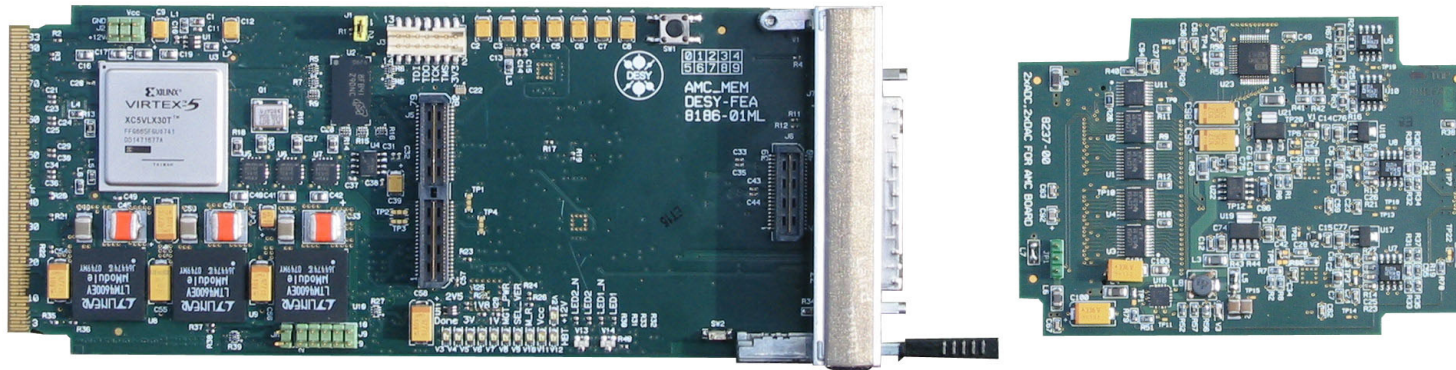


- Saves Time
- Develop faster a Firmware
- Produce stable Firmwares
- Easier to Maintain
- Easier to extend functionality
- Helps newcomers
- Reduces costs

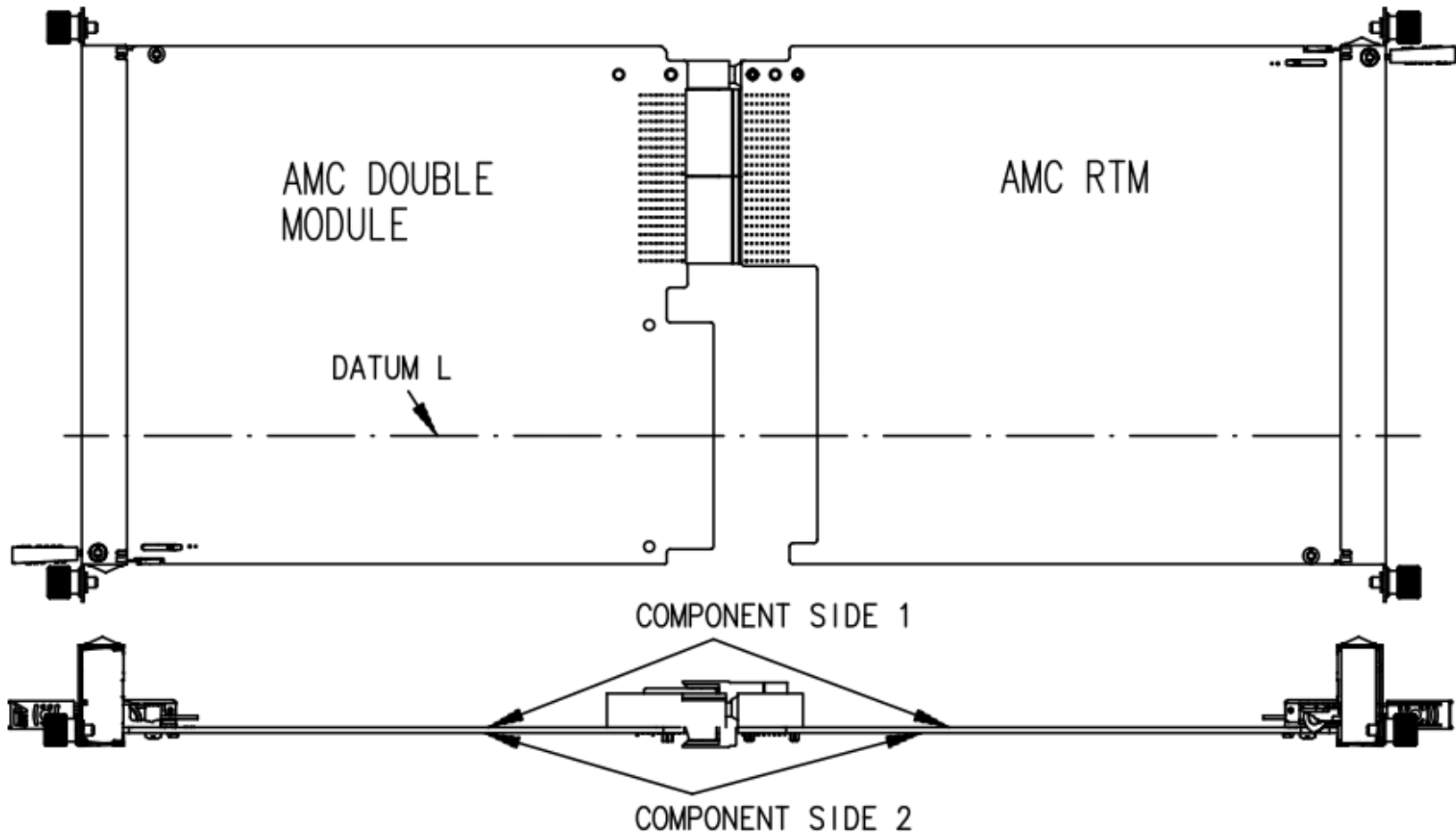
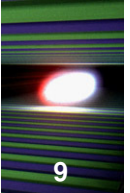


- 8 CH 125MSPS 14 Bit

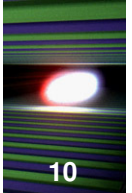
DAMC1 + ADC + DAC



- 2 CH ADC 125 MHz 14 Bit
- 2 CH DAC
- Firmware for ADC Function fully implemented including:
 - DDR Memory
 - DMA
- Tested at FLASH

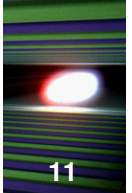


Modules not yet available



- DAMC2 (universal double size AMC)
 - 4 SFP Modules
 - Connector for μ RTM
 - Vita 57 Connector
- SIS8300
 - 10 CH 125 MHz 16 Bit ADC
 - Connector for μ RTM
- ESD Slow IO Card

Applications and planed Modules



Application	AMC Type	RTM type
Timing	Timing receiver	---
Klystron	SIS8300	8 Rf receivers, 2 diff in
3.9GHz monitoring	SIS8300	9 RF receivers @ 3.9GHz
1.3GHz monitoring	SIS8300	9 RF receivers @ 1.3GHz
Coupler Interlocks	DAMC2	ADCs, tests, sources
BPM	DAMC2	---
Toroid	DAMC2	ADC
Beam Loss Monitor	DAMC2	ADCs
Wire Scanner	DAMC2	2 diff. Signal conditioning
Beam Arrival Monitor	SIS8300	Optical in
EBPM	SIS8300	Optical in
Fs LASER sync	SIS8300	Optical in
Fs motors	DAMC2	Stepper card
Spectrometer	DAMC2	32 ch ADC
Machine Protection System	DAMC2	Signal conditioning