struck innovative systeme

MicroTCA TECHNOLOGY LAB partner

MTCA.4/MTCA

LLRF/BI Electronics

www.struck.de

Modular Electronics for LLRF/BI

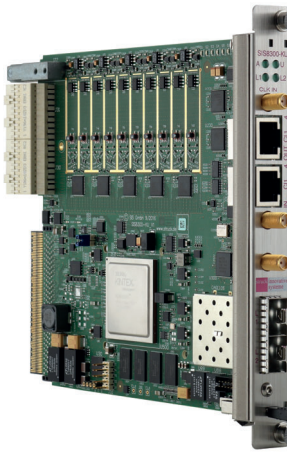
- Open Standard
- FPGA Families for Vivado based Design
- Firmware Frameworks
- Proven in Lepton and Hadron Machines
- System Integration with Partners

Kintex Ultrascale based
SIS8300-KU 10 channel 16-bit 125 MS/s MTCA.4 Digitizer

The SIS8300-x digitizer board family is in use for LLRF, BPM and controls applications in several accelerators. The SIS8300-KU is targeted at users who would like to develop or customize firmware with the Xilinx Vivado toolchain. The higher MGT speeds of the Ultrascale family result in performance improvements on the PCI Express and link side.

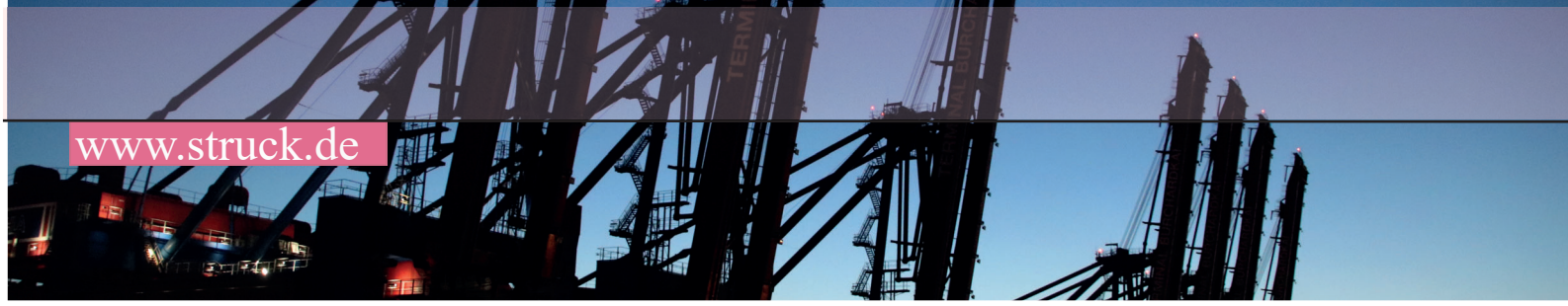
Functionality

- 4-lane PCI Express Gen3 Connectivity
- 10 Channels 125 MS/s 16-bit (or 250 MS/s 14-bit) ADC
- 10 MS/s to 125 MS/s Per Channel Sampling Speed
- AC or DC Input Stage
- Internal, Front Panel, RTM and Backplane Clock Sources
- Two 16-bit 250 MS/s DACs for Fast Feedback Implementation
- High Precision Clock Distribution Circuitry
- Programmable Delay of Dual Channel Digitizer Groups
- Multi Gigabit Link Port Implementation to Backplane
- Twin SFP+ Card Cage for High Speed System Interconnects
- White Rabbit Clock Option for SFP+ Ports
- Two RJ45 Connectors (One Clock + 3 Data or 4 Data In/Out)
- Xilinx XCKU040-1FFVA1156C Kintex Ultrascale FPGA



SIS8300-KU
MTCA.4
Digitizer

- 2 GByte DDR4 Memory (flexible partitioning scheme)
- Dual FPGA Configuration Flash
- In Field Firmware Upgrade Support
- Zone 3 class A1.0, A1.0C or A1.1CO Compatible
- MMC1.0 under DESY license LV91



2/4 Channel 2.5 GSPS 14-bit Digitizer AMC
SIS8160 Dual FMC Carrier/SFMC01 Combination

SIS8160 FMC Carrier Functionality

- 4-lane PCI Express Gen3 Connectivity
- Xilinx XCKU40- or XCKU060-1FFVA1156C Kintex Ultrascale FPGA
- Dual FPGA Configuration Flash
- Front Panel MMCX Clock Input
- Front Panel MMCX Digital In-/Output (Programmable)
- Point to Point Links
- 8 MLVDS lines (AMC Ports 17-20)
- 2 HPC FMC Sites
- Variable FMC V_{ADJ} (1.0V - 1.8V)
- Low Jitter Clock Generation and Management
- 2 x 2 GByte DDR4 Memory with two Memory Controllers
- White Rabbit Option (over FMC 2)
- Stand Alone Operation Option
- MMC1.0 under DESY license LV91

SIS8160 w. SFMC01

SFMC01 Functionality

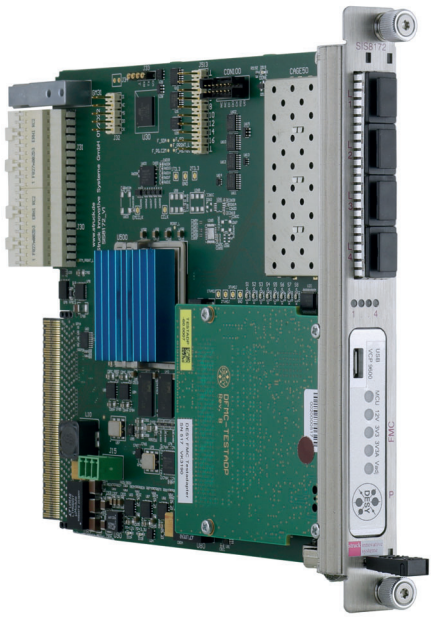
- 2 Channels 2.5 GSPS 14-bit ADC
- AC (Balun) or DC Coupled
- Up to 5 GHz AC Analog BW

Possible next JESD Digitizer FMCs

- 4 Channel 1 GSPS 16-bit ADC
- 8 Channel 500 MSPS 14-bit ADC
- Project Driven (DAC,...)

SIS8172 MTCA.4 Digital I/O Board/FMC Carrier

new



SIS8172 FMC Carrier
with DESY Test FMC

The SIS8172 is a versatile digital I/O board/FMC carrier with quad SFP+ front panel card cage. Analog I/O functionality can be implemented via a RTM or FMC.

SIS8172 FMC Carrier Functionality

- 4-lane PCI Express Gen2 Connectivity
- Xilinx XC7A200T-2FFG1156C Artix-7 FPGA
- Dual FPGA Configuration Flash
- Zone 3 Class D1.0 Implementation
- 4 Point to Point Link Backplane Interface
- 8 MLVDS lines (AMC Ports 17-20)
- One HPC FMC Site
- Variable FMC V_{ADJ} (1.2V - 3.3V)
- Quad SFP+ Card Cage
- Low Jitter Clock Generation and Management
- 256 M x 32 Bit DDR3 Memory
- White Rabbit Option
- Stand Alone Operation Option
- MMC1.0 under DESY license LV91

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