



Close out: *14th MicroTCA Workshop for Industry & Research (2025)*

Holger Schlarb, MSK/DESY
DESY, 04.12.2025

14th MicroTCA Workshop for Industry & Research

Statistics

52 new participants!

	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Participants	196	184	207	190	189	200	198	188	183	159	177	188	191	180
Institutes	25	26	30	26	29	37	34	22	27	25	31	30	30	25
Companies	29	25	27	23	21	23	25	31	24	28	36	39	39	29
Exhibitors	14	11	14	13	9	9	12	14	13	14	14	16	16	12
Talks	38	36	42	44	40	44	43	43	38	38	45	44	53	42

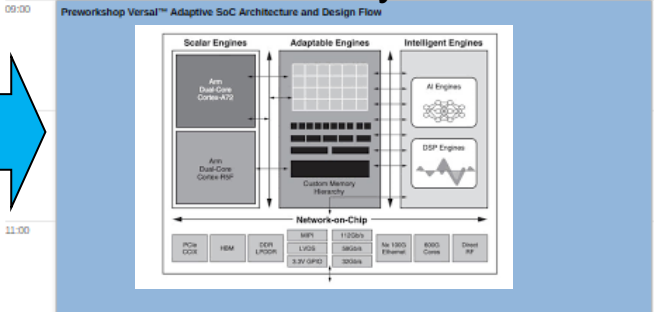
- Well prepared & clear talks
- Lively discussions ...
- Enthusiastic and very informative
- Networking in focus

Newcomers ~ 27 % (1st time)
High recurrent ~ 44 % (≥ 4)

Workshop program Mo / Tu / We / Th

Indico page: <https://indico.desy.de/event/49291/timetable/#20251201>
Morning: three tutorial tracks ~ 10 presentations, Tu 9:00 – 12:30
Keynotes: 1 Science

Monday



Pre-WS
Day

MicroTCA
Tutorials

Timing
session

Introduction	Kay Reihlich	09:00 - 09:05	Hardware Design in MicroTCA	Behzad Boghvari	09:00 - 10:00
The Basics	Ralf Waldt	09:05 - 09:35			
MicroTCA Management	Heiko Koerte	09:35 - 10:05			
Communication links, clocks and triggers	Kay Reihlich	10:05 - 10:30	EMI consideration for precision analogue electronics in MicroTCA	Frank Ludwig	10:30 - 11:00
Coffee break					
The MRF Timing System	Jukka Pietarinen	11:00 - 11:30	FWK Firmware Framework	Cagil Guemues et al.	11:00 - 11:45
The White Rabbit based Timing System	Dietrich Beck	11:30 - 12:00	Rapid hardware integration with the ChimeraTK software framework	Dr. Martin Christoph Hierholzer	11:45 - 12:30
The DESY x2 and x3 Timing Systems	Victor Andrei	12:00 - 12:30			

14.00 →

Tuesday

Welcome to DESY	Edgar Weckert	14:00 - 14:15
Introduction to Workshop	Dr Holger Schlarb	14:15 - 14:30
Deployment and Development of MicroTCA at ESS	Faye Chicken	14:30 - 14:45
Status of MicroTCA at the Spallation Neutron Source	Thomas Justice	14:45 - 15:00
Summary of MTCA Workshop in Japan 2025 and Status of MTCA at J-PARC in 2025	Fumihiko Tamura	15:00 - 15:15
RF Beam Noise Feedback System for the High-Luminosity LHC Crab Cavities	Dmitry Viktor Malinov	15:15 - 15:30
Discussion		15:30 - 15:45
Coffee Break		15:45 - 16:15
New FPGA, CPU and ADC/DAC products	Karl Judek	16:15 - 16:30
Overview of DMCS Projects and MicroTCA.4 Developments	Prof. Dariusz Makowski	16:30 - 16:45
Engineering Challenges in Scaling MicroTCA for High-Power Double Full-Size AMC Configurations	Christian Gahringer	16:45 - 17:00
New building blocks and uplink solutions with the NAT-MCH	Heiko Korte	17:00 - 17:15
Vadatech: Accelerating Your Development (DAQ ToolSuite)	Alex Annis	17:15 - 17:30
Libera Brilliance X: MTCA.4 Readout Electronics for Electron Synchrotrons.	Peter Paglovec	17:30 - 17:45
Discussion		17:45 - 18:00

38 talks
1 Keynote

MicroTCA
Hardware

FW &SW
Frameworks

Wednesday

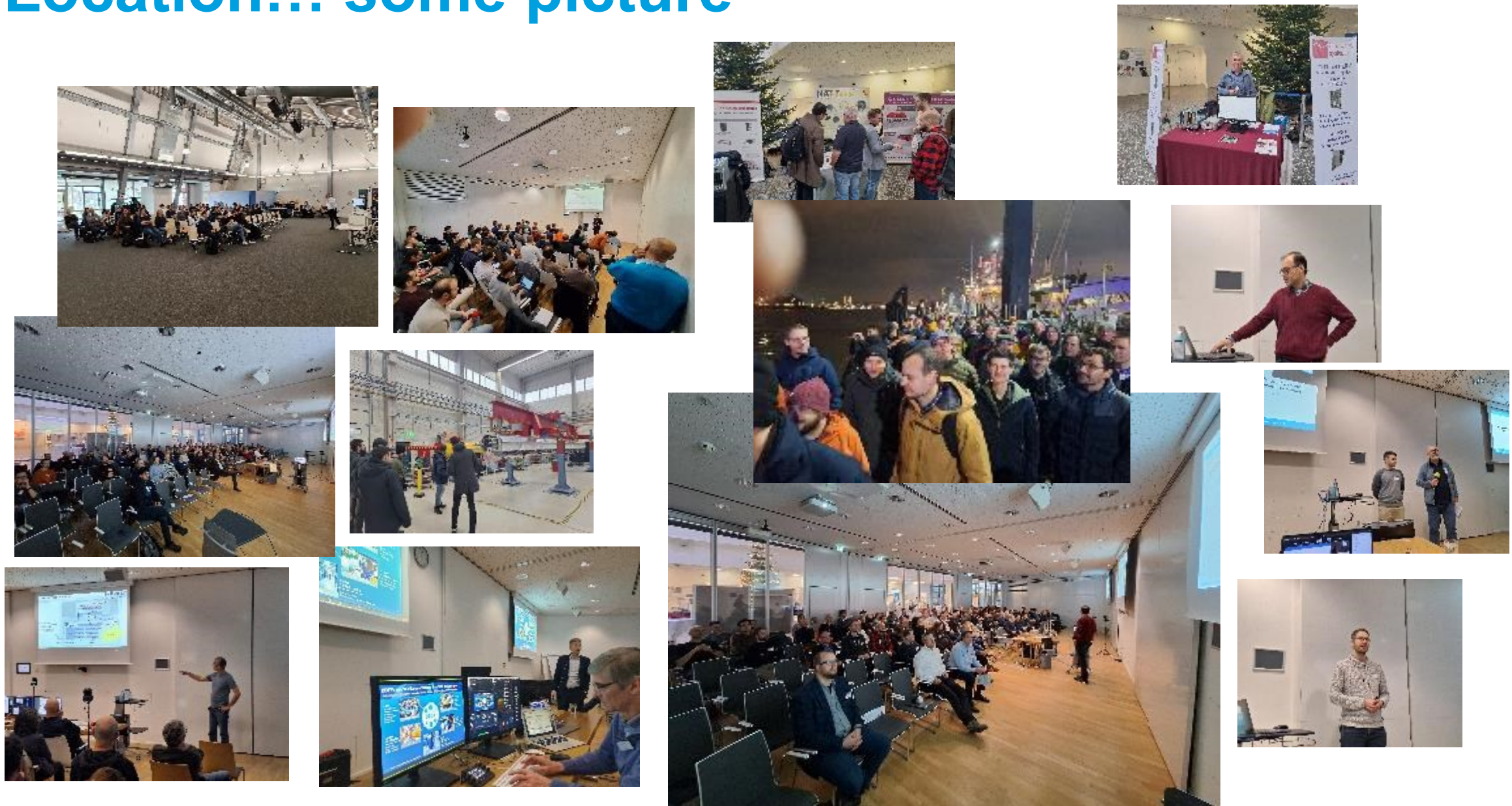
Keynote: Systematic Approaches for Accelerator Controls	Paul Chu	09:00 - 09:30
An "Industrial server" made of MicroTCA building blocks (& something else)	Herbert Ert	09:30 - 09:45
Smart Infrastructure around MTCA Crates	Udo Weides	09:45 - 10:00
VITA 93 QMC - Expanding Modularity and Performance: Unlocking New Potential for MTCA Platforms	Tim Thies	10:00 - 10:15
Vadatech: Accelerating Your Development (DAQ ToolSuite)	Alex Annis	10:15 - 10:30
Coffee Break		10:30 - 11:00
Experimental point-to-multipoint distribution of WR-Based clock and PPS signals through pTCA Backplane	Juan Fernandez et al.	11:00 - 11:15
DAMC-XSTIMER: Status Update on Hardware, Firmware, and Timing Infrastructure for PETRA IV	Hendrik Lippok	11:15 - 11:30
Precision Timing & Advanced RF Solutions for Particle Accelerators	Jiaoni Bai	11:30 - 11:45
for Controller synchronization using White Rabbit	Matthias Sotter	11:45 - 12:00
Temperature and Phase Stability of a LISA Phasemeter based on MicroTCA as ground-support equipment	Norbert Pionon	12:00 - 12:15

Thursday

Summary of the 2025 MicroTCA workshop in China	Jianguang Zhang	09:00 - 09:15
Update on the development and deployment of the MicroTCA based detector controller, NGCB	Matthias Richterhausen	09:15 - 09:30
The DAMC-DS60L4DR: A High-Speed, High-Performance RFSoC-Based Digitizer Utilizing AMD Zynq UltraScale+ Techno...	Dr. Behzad Boghvari	09:30 - 09:45
2025 Status Report — MYRRHAMINERVA LLRF System	Dr. Andrea Bellandi	09:45 - 10:00
Status Update on the Open-Source Synchronous Multi-Axis Motion Controller Solution for Large-Scale Experimental Ph...	Michael Randall	10:00 - 10:15
Discussion		10:15 - 10:30
Coffee Break		10:30 - 11:00
Advancing Optical Interlock System with Custom MicroTCA RTM Solution for MYRRHA	Mr. Kristian Penance	11:00 - 11:15
High channel count Simultaneous Analog IO to MTCA.4	John McLean	11:15 - 11:30
Bringing an AMC into operation with ChimeraTK	Christian Willner	11:30 - 11:45
MicroTCA for photon beamlines - on-the-fly scans with spec	Martin Tollstehn	11:45 - 12:00
Discussion		12:00 - 12:30
Close out	Dr. Holger Schlarb	12:30 - 12:45
Integration of prototyping a	Alejandro Pifas	12:45 - 13:00
Flashless, Network-Based S		13:00 - 13:15
Actually utilizing the standa	Simon Fischer	13:15 - 13:30
AMD Versal ACAP Devices		13:30 - 13:45
ESS Linux: Yocto based Linux on MicroTCA CPUs	Gabriel Fodda	13:45 - 14:00
MicroTCA Development for PIP-8 Beam Instrumentation at Fermilab	Robert Turner White	14:00 - 14:15
Discussion		14:15 - 14:30

← 14.00

Location... some picture



Participating entities...

Institutes:



Universities:



Exhibitors:



Industry:



Further dissemination of MicroTCA...

Large-scale accelerators:

➔ Truly International

America

SNS



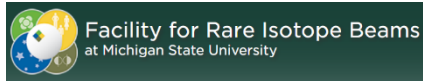
APS-U



Fermilab



Sirius



Europe

EuXFEL



ESS



CERN



FAIR - GSI



Diamond



Alba



MYRRHA *new*



Asia

PAL-FEL



Spring 8



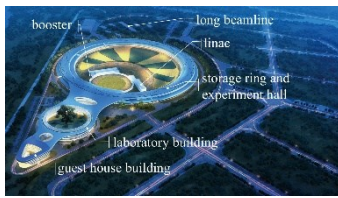
J-PARC



CSNS



HEPS



HALF/HLS-II



UTEF *new*



SXFEL



BEPC



S3FEL... *new*



Ansto



Community is steadily growing...

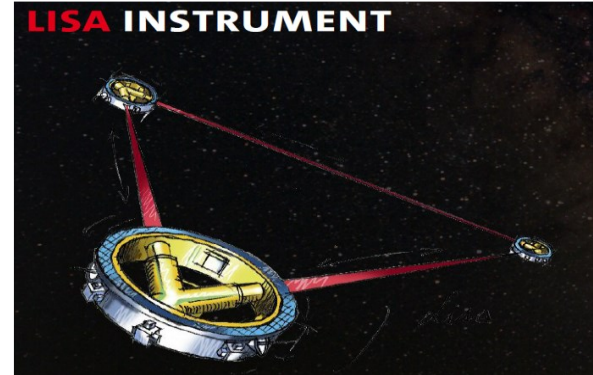
Looking forward on updates & news from:

→ Cross discipline synergies

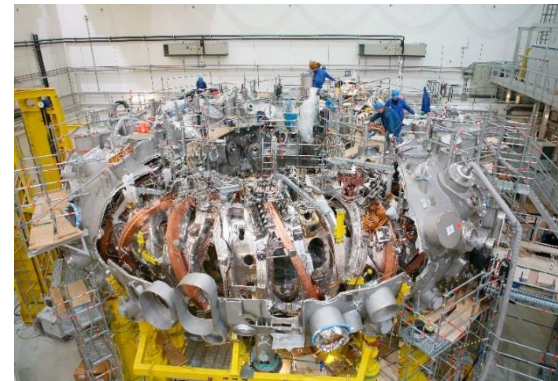
Astrophysics Observatories



Gravitational Wave Detection



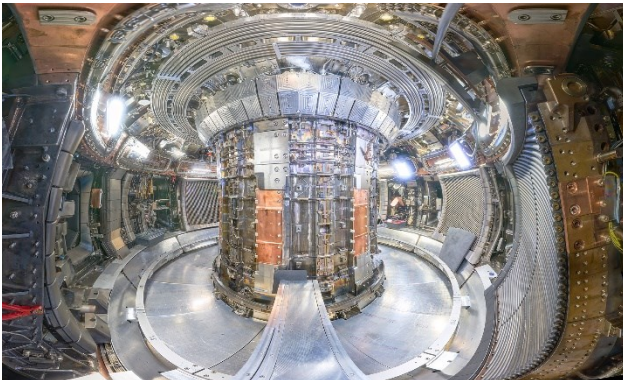
Fusion: W7-X Stellerator



Fusion: ITER



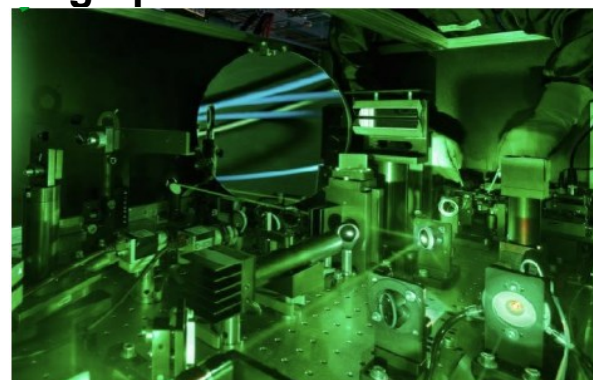
Fusion: ASDEX



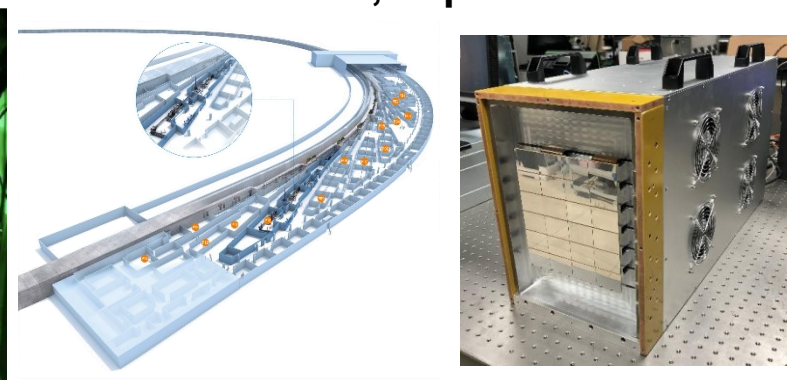
Quantum Comp.



High power lasers

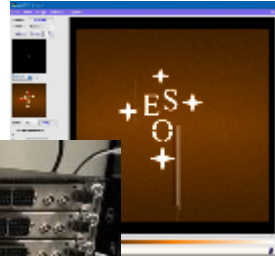


Photon beamline, exp. and detectors



Takeaway from 14th MicroTCA Workshop

Successful deployments...



- Detector performance fully validated in 2023 and 2024
- Need to deliver ~25 Systems in 2026 and 2027

Ecosystem expansion...



Successful commissioning / extension...



EUROPEAN
SPALLATION
SOURCE



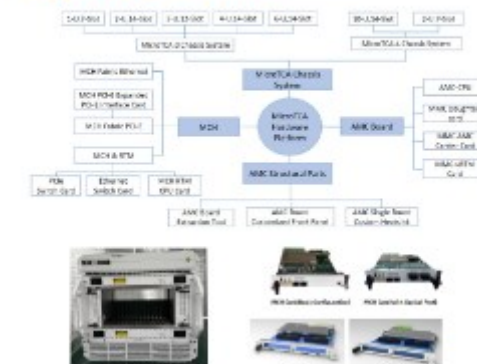
OAK RIDGE
National Laboratory

Products from industry

Hongrui Cao, ASIPP



中能聚控
ZONENG



MEDS
Technologies
StarBridge
A Switched Fabric Technology Company



UBER
SUBRACK • CASE & PANEL



Kanadevia
Technology for people and planet

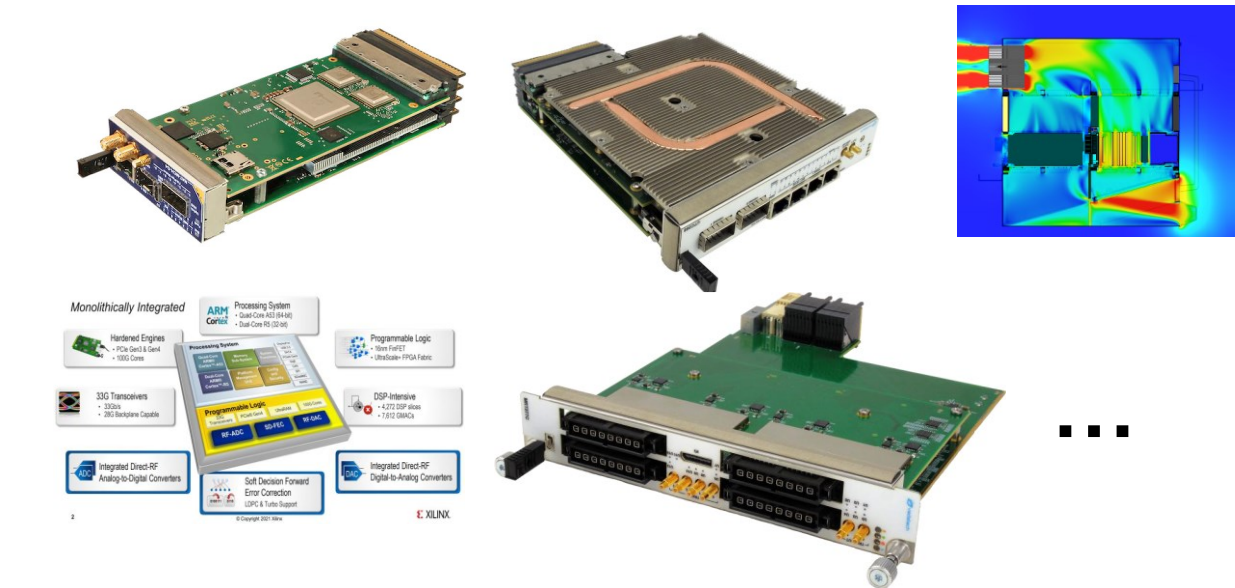


TELEDYNE SP DEVICES
Everywhere you look™

Takeaway from 14th MicroTCA Workshop

Standardization and industrial solutions...

New Technology & capabilities & high-end Solution...



Frameworks & Community support & Integration



400KHz (Fast-Mode) IPMB preliminary proposal

MicroTCA Carrier Management Controller (CMC)

(MCMC) Module Management Controller (MMC)



ESS Linux

Component	Location
Boot ROM	On chip
FSBL	QSPI flash or /boot on SD/eMMC
U-Boot	
Linux Kernel	Loaded via TFTP or NFS from network
RootFS init	

Boot Flow

Takeaway from 14th MicroTCA Workshop

➤ **Face-to-face** (~181) + online-participation (~15)

➤ Indispensable for building a **network**:

- Get to know each other... who is who
- Exchange solutions and ideas
- Creation of an innovative space ...
- Community support ...

Almost familiar atmosphere

➔ **Cross-discipline synergies**

➤ **Keep format** (~ 1-2 keynotes / compact talks/ buffer discussion)

➤ **Tutorial tracks** (Basic, HW/FW/SW, Timing)

- **Education** of young engineers & scientists

➤ **FW and SW Frameworks & Developments**

➔ *Became new bond*

Topics:

- **Embedded system handling high-speed ADC / Versal Architecture**
- **Asset management, deployment tools, system integration...**
- **Next generation of components / MicroTCA**



Chair: Kai Rehlich

Thanks to

Advisory committee:

Kay Rehlich (Chair)	DESY
Holger Schlarb (Chair)	DESY
Christian Ganninger	nVent - Schroff GmbH
Tobias Hoffmann	GSI
Thomas Holzapfel	powerBridge
Timo Korhonen	ESS
Heiko Koerte	N.A.T.
Augusto Fraga Giachero	LNLS
Rong Liu	Beijing DAQ Technology Co. Ltd
Alex Malcom	Vadatech
Paul Chu	Nanjing University
Alan Justice	ORNL
Jan Marjanovic	Atom Computing
Fumihiko Tamura	J-PARC Center, Japan
Axel Winter	MPI Plasmaphysik

Valuable input for shaping the workshop!!!

Local organization:

Hanna Kunze	DESY
Gohar Ayvazyan	DESY



Hanna Kunze



+ R. Seibert & S. Chystiakov & B. Kumpmann & B. Szczepanski

Tour Guides





Save the date 15th MicroTCA WS:

01-03.12.2026

(Tu-Th)

+ Likely 30.11. Pre-Workshop Day (Versal)

14th MicroTCA Workshop for Industry & Research

**Thank you for joining
&
Save return Journey**