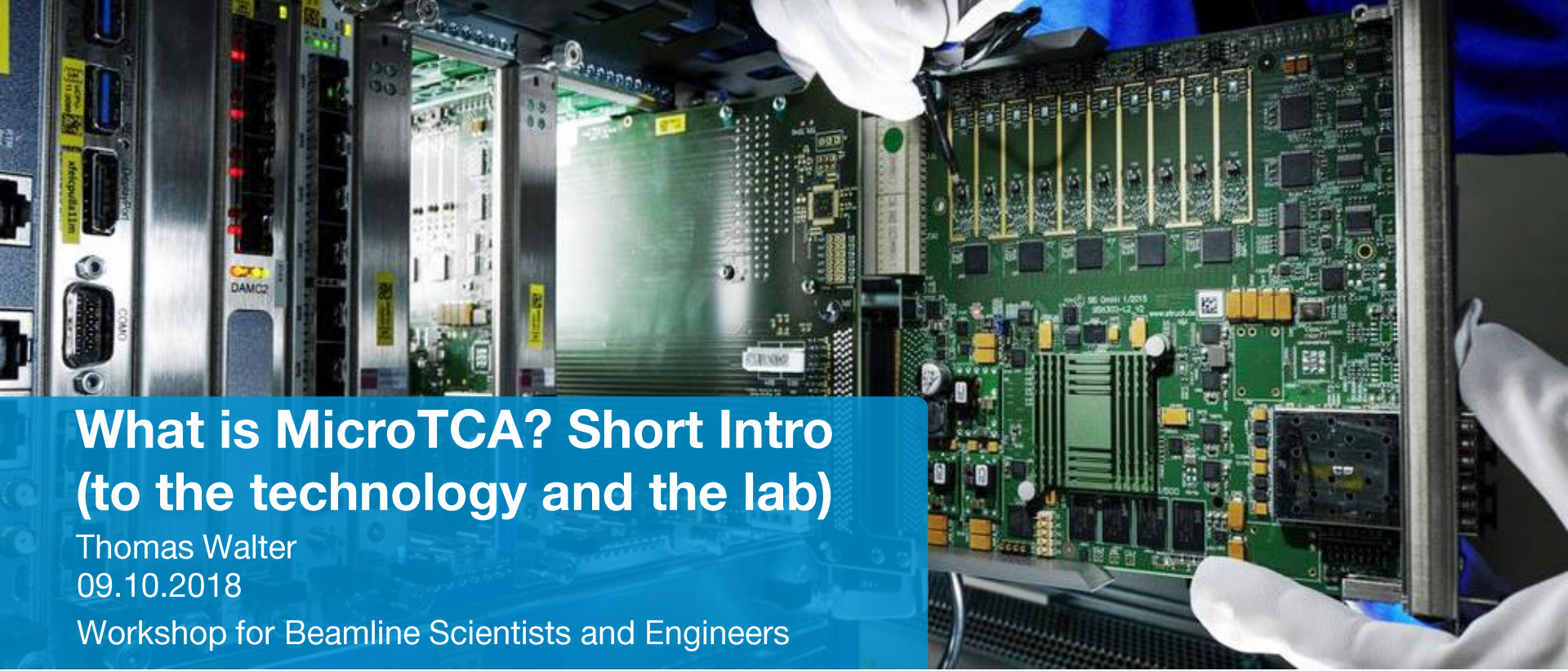


What is MicroTCA? Short Intro (to the technology and the lab)

Thomas Walter

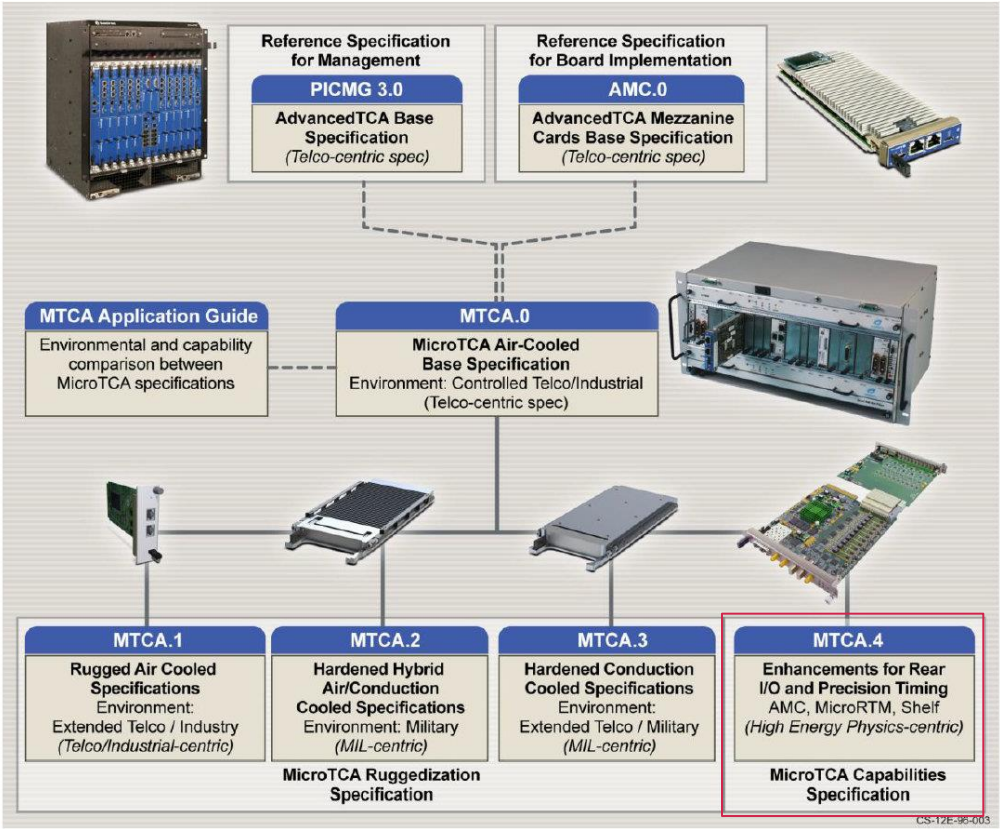
09.10.2018

Workshop for Beamline Scientists and Engineers

MicroTCA TECHNOLOGY LAB
A HELMHOLTZ INNOVATION LAB

DESY.

MicroTCA Standard



Source: **PICMG** MicroTCA Applications Guide

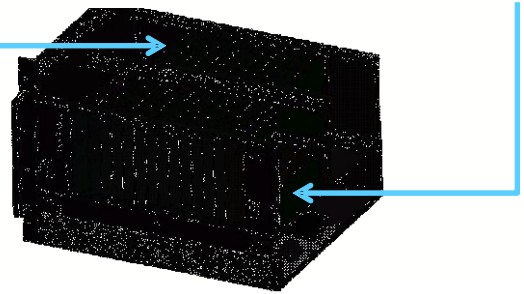
- Open, modular standard
- PICMG administration
- Component management (temperature, power, firmware)
- Remote diagnostics and remote management
- Hot-swap and redundancy options
- High-bandwidth digital signal processing and low-noise analog electronics in a single crate
- Decoupling of analog and digital development cycles
- Compact, versatile formats

MicroTCA.4: MicroTCA – the AMC / RTM concept

- lower life cycle costs
- better SNR
- clean front-end

Rear **T**ransfer **M**odule (**RTM**)

Advanced **M**ezzanine **C**ard (**AMC**)



MicroTCA at DESY / European XFEL

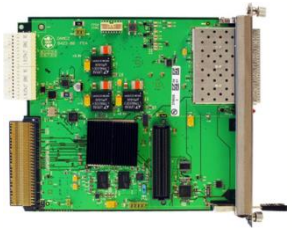
- 26 RF stations
- Beam control, beam diagnostics

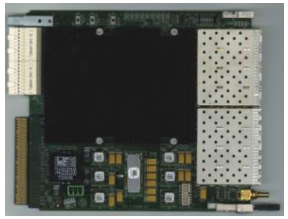
- Beam-side applications → Martin
- Synchrotrons

MicroTCA TECHNOLOGY LAB
A HELMHOLTZ INNOVATION LAB
HELMHOLTZ RESEARCH FOR GRAND CHALLENGES
DESY.

Facilities with MicroTCA Installations

MicroTCA Hardware Portfolio

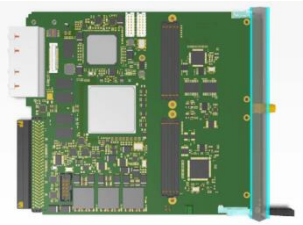

DAMC-2


DAMC-TCK7


DAMC-FMC20


DRTM-DWC10


DAMC-X2timer

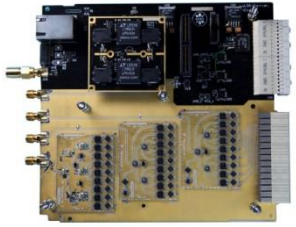

DAMC-FMC25


DRTM-PZT4

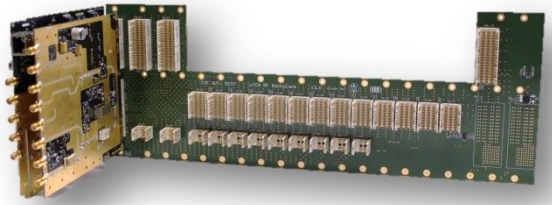

DRTM-VM2LF


DRTM-AD84


DRTM-DWC8VM1


DRTM-LOG1300


DFMC-MD22


RF Backplane

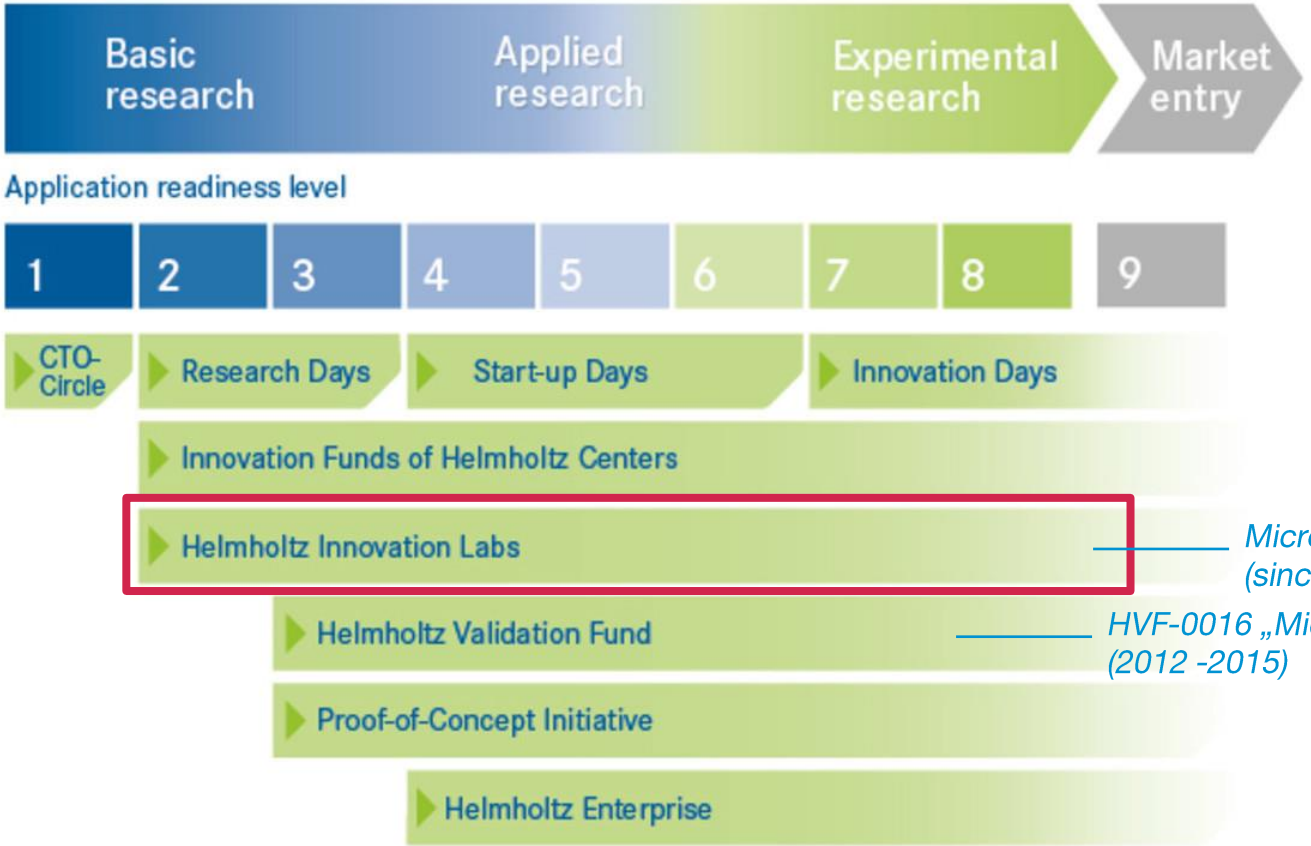
Licensing to Industry

NAMC-psTimer
(Source: NAT)

DAMC-FMC25
(Source: CAENels)

PRTM-PZDR4
(Source: Piezotechnics)

Technology Transfer in Helmholtz - Overview

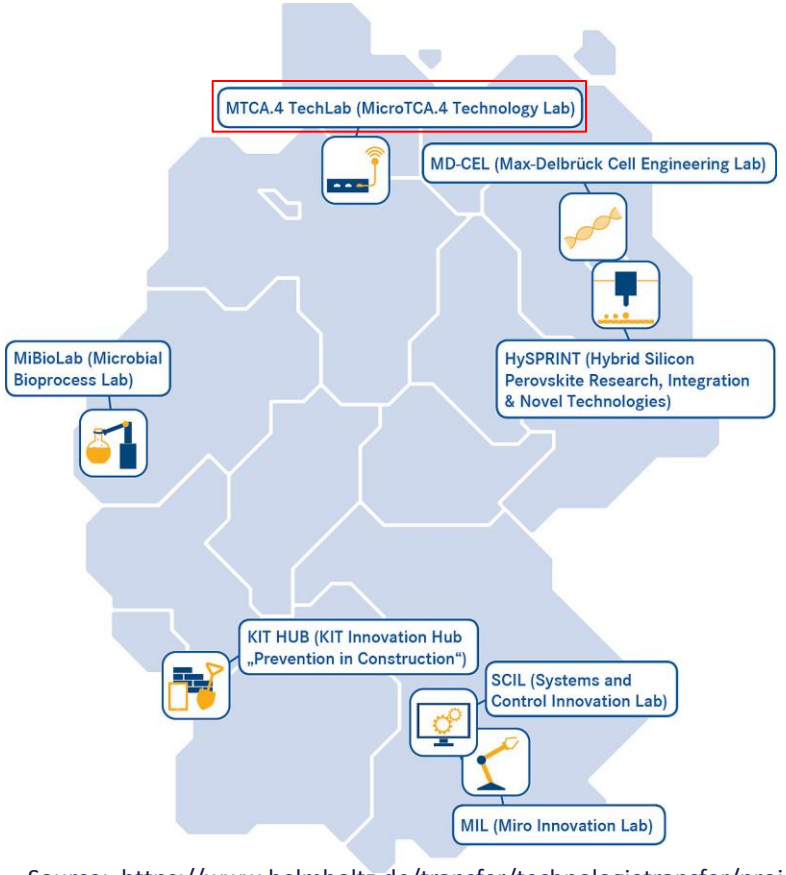


MicroTCA Technology Lab (since 2016)

HVF-0016 „MicroTCA.4 for Industry“ (2012 -2015)

Source:https://www.helmholtz.de/en/transfer/technology_transfer/innovation_and_funding_programms/

Helmholtz Innovation Labs at a glance



- First cohort started Q4/2016
- Official opening: April 2018
- „Enabling Space“ for innovative ideas and new business models
- Up to 5 million euros / 5 years (infrastructure, equipment, personnel, projects)
- Interim evaluation after 2.5 years
- Objective: self-sustaining operations
- ~ 10 FTE staff
- Optionial: spin-off

Source: https://www.helmholtz.de/transfer/technologietransfer/projekte_und_initiativen/innovation_labs/

MicroTCA Technology Lab (A Helmholtz Innovation Lab)

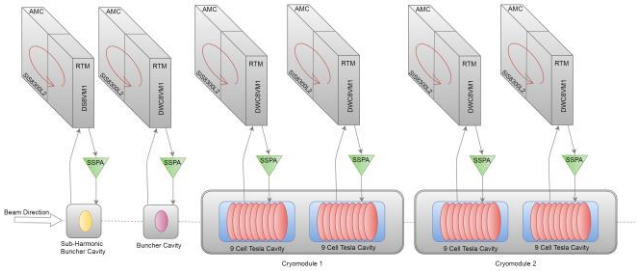
Core Activities

- Custom Development MTCA.4 (Hardware, Firmware, Software)
- High-end Test and Measurement
- System Configuration and Integration

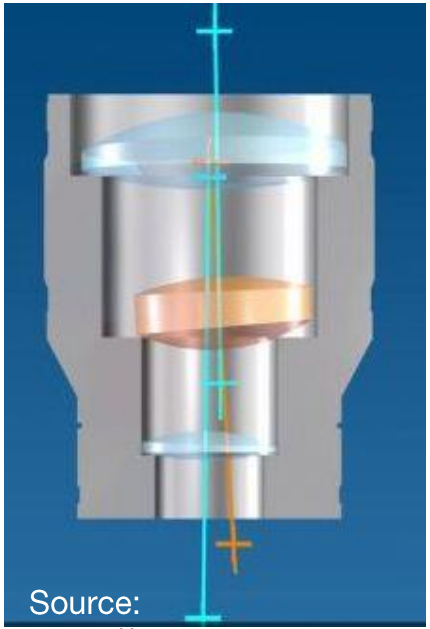
New Application Areas for MicroTCA

Project Examples

Turkish **A**ccelerator and
Radiation **L**aboratory **A**nkara



TRIOPTICS
See the Difference.



Source:
https://www.trioptics.com

GiGE VISION®

http://www.teledynedalsa.com/en/home/

→ Sven

MICROTCA TECHNOLOGY LAB
A HELMHOLTZ INNOVATION LAB

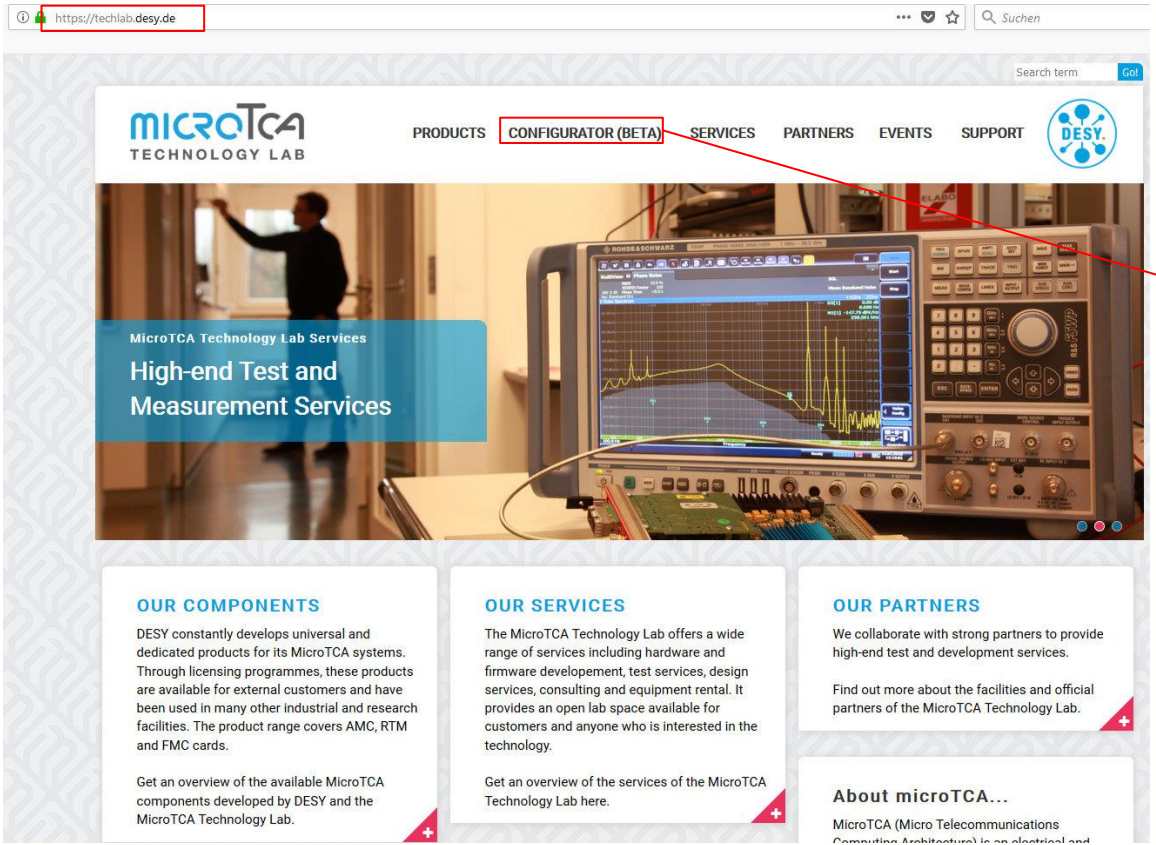
HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

DESY.

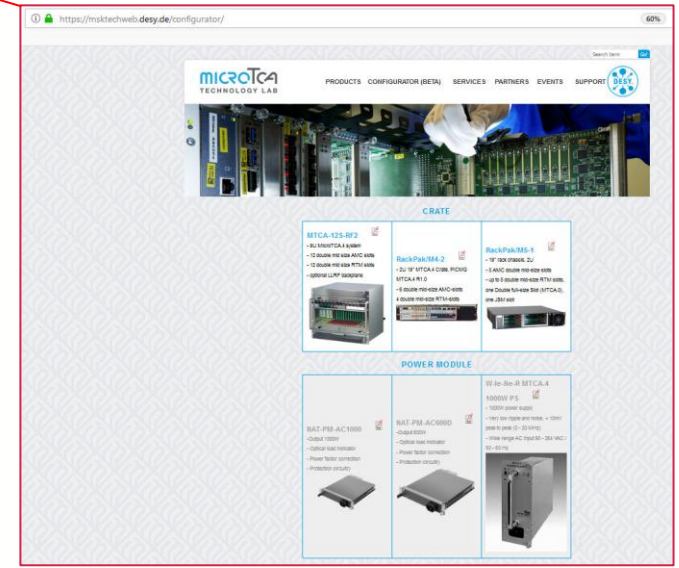
Industry Partners

- Joint product development/ improvement
- Industry solutions, new clients
- Interoperability
- Marketing
- Trainings and Tutorials
- Test stands
- Hardware on loan
- Hardware configurator (beta)

Hardware Configurator



- Mix & match components
- Request quotations
- Starter Kits



Community Support: Training

- Overview of standards
- MicroTCA building blocks
- Tools
- Driver installations
- Hand-on sessions system configuration and operation
- Troubleshooting

- Dates and registration: https://techlab.desy.de/services/training/

Community Support: Annual Workshop

Pre-Workshop Program 4th December

- Integration workshop
- Tutorials

Main topics 5-6 December

- Application in industry
- Application in research
- New products
- Interoperability
- Software
- Industrial Exhibition
- Social Program

Events and Tutorials

IPAC17

TWEPP-17
Topical Workshop on Electronics for Particle Physics

LLRF2017
Low Level Radio Frequency Workshop

PCaPAC 2016

ICALEPCS2017
Barcelona · Spain, October 8-13 · Palau de Congressos de Catalunya

IBIC 2018
Shanghai China

productronica
innovation all along the line

embeddedworld2018
Exhibition&Conference
... it´s a smarter world

electronica

MicroTCA TECHNOLOGY LAB
A HELMHOLTZ INNOVATION LAB

HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

DESY.

Contact

MICROTCA TECHNOLOGY LAB
A HELMHOLTZ INNOVATION LAB

Dr. Thomas Walter
Head of MicroTCA Technology Lab

Deutsches Elektronen-Synchrotron DESY
A Research Centre of the Helmholtz Association
Notkestr. 85, 22607 Hamburg, Germany

phone: +49 (0) 40 8998 1887
mobile: +49 (0) 175 5080 473
email: thomas.walter@desy.de
skype: thw.office
visitors: building 3, room 310

- Questions about MicroTCA?
- Feature Requests?
- Project ideas?
- …

MICROTCA TECHNOLOGY LAB A HELMHOLTZ INNOVATION LAB
HELMHOLTZ RESEARCH FOR GRAND CHALLENGES
DESY.