

MTCA Workshop for Industry and Research

More IO slots in MTCA.4 chassis, optimized usage of MCH slot(s)

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Save up to 6 slots and costs with your MTCA.4 system

The new NAT-MCH for Physics:
MCH and Intel® Core™ i7 in one slot

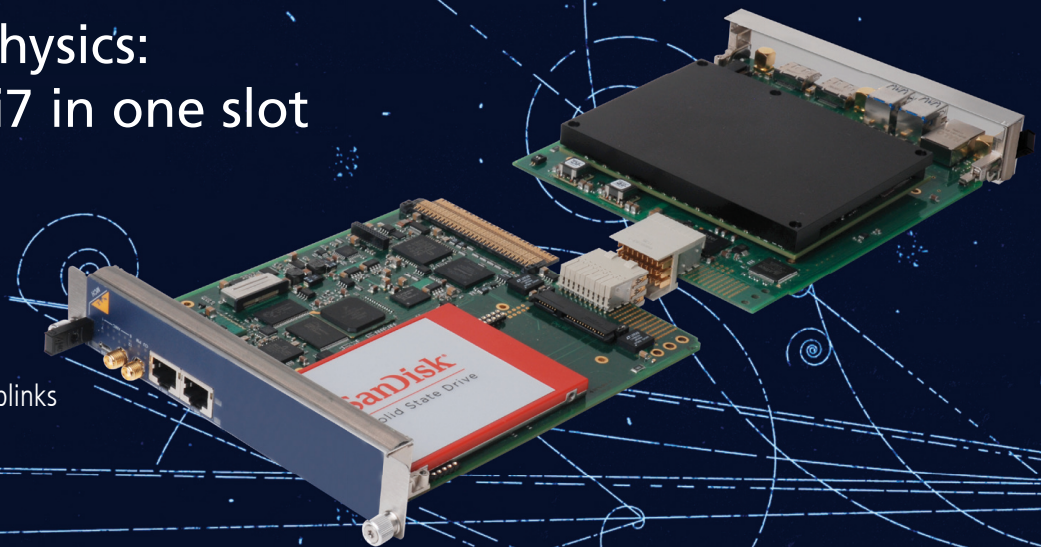
Key features

- full featured NAT-MCH
- special CLK module for Physics
- PCIe Gen3 switch for 12 additional AMCs and PCIe uplinks
- RTM with integrated Intel® Core™ i7 ComExpress module with direct access to fat pipe and base fabric
- slots for MicroSD and SIM cards
- SATA storage: up to 2x 1.8" (short) or 1x 2.5" SSD drives

Make our expertise your solution - talk to us... we care.
N.A.T. - Gesellschaft für Netzwerk- und Automatisierungs-Technologie mbH

Konrad-Zuse-Platz 9 | 53227 Bonn | Germany | Fon: +49 228 965 864 0 | Fax: +49 228 965 864 10
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MTCA WS for Industry&Research

More IO slots in MTCA.4 chassis



- Introduction N.A.T.
- Multi-PrAMCs in a standard MicroTCA system
- Change to MicroTCA.4
- Take advantage of COMexpress in MicroTCA.4
- Summary

About N.A.T. Network and Automation Technology



- Founded in 1990
- Hard- and Software design and manufacturing
- Focus on innovation in communication
- worldwide distribution network

- Headquarters

Konrad-Zuse-Platz 9
53227 Bonn
Germany

- Dipl. Ing. Vollrath Dirksen,

- Strategic Business Development, vollrath@nateurope.com, +49-228-965 864 -42



MTCA WS for Industry&Research

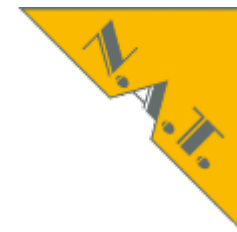
More IO slots in MTCA.4 chassis



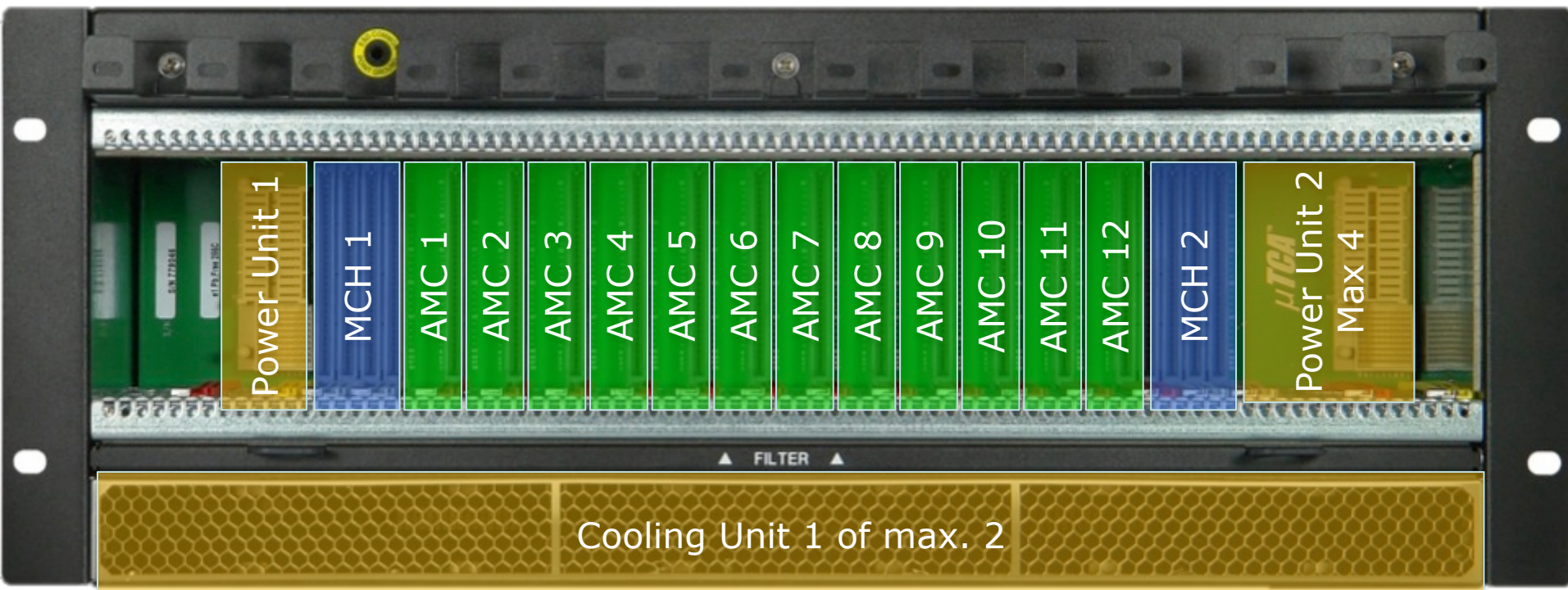
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4U MicroTCA

12 slots, high bandwidth, scalable



- 6 independent bidirectional GbE & PCIe & SATA xfrs at same time
- PCIe Gen3 = 32 Gb/s, SRIO Gen2.1 = 20 Gb/s
- Unicast and Multicast support
- Easy upgrade to redundancy
- Each slot independently power on/off



Same Hardware Different Applications



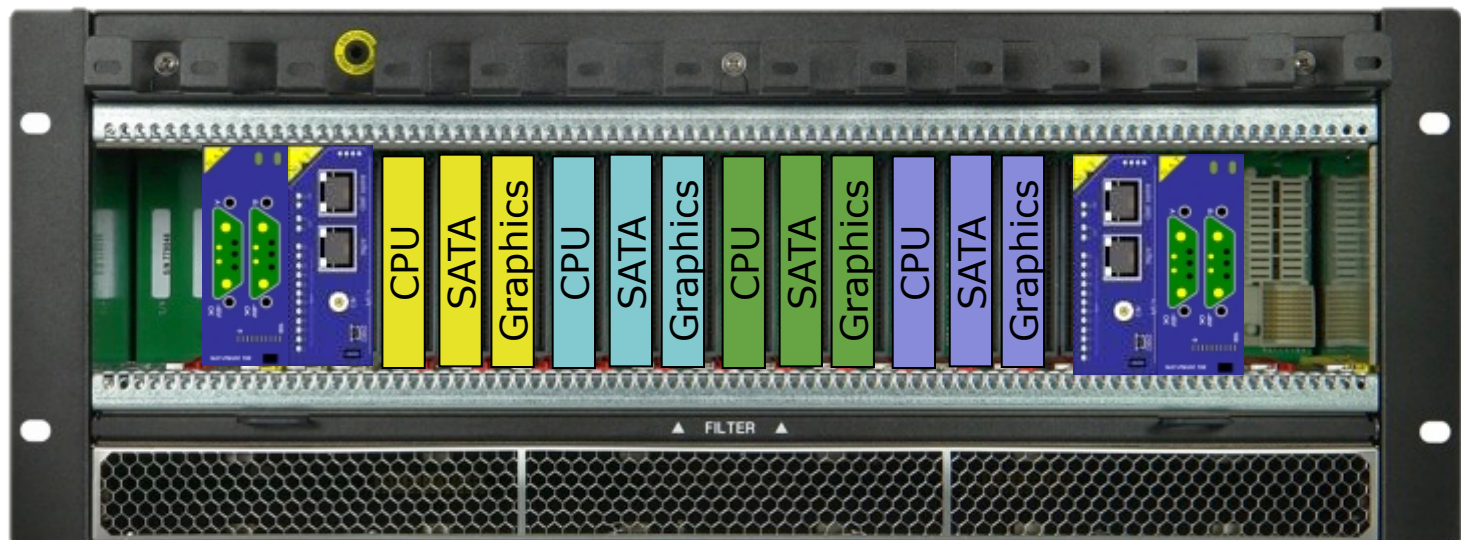
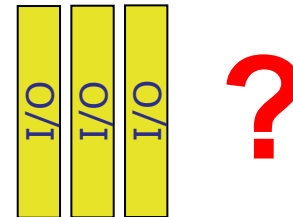
- IO-centric
- Redundant
- Multi-CPU



Multiple PrAMCs in a MicroTCA.0 system



- Using multiple PrAMCs in a standard MTCA.0 system
 - chassis with Cooling Units and Power Modules
 - MCH with multi-cluster capabilities
 - PrAMC
 - HDD
 - Graphics
 - I/O



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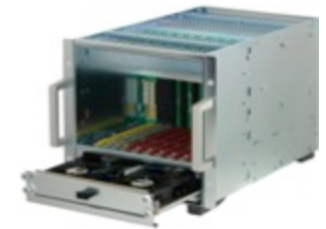
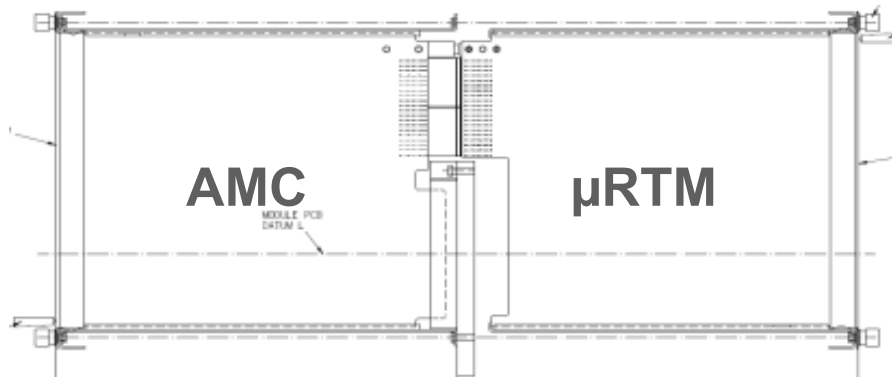
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Change to MicroTCA.4

The concept of MicroTCA.4



- MTCA.4
 - aka “MTCA for Physics”
 - adopted 8/22/2011
 - defines an AMC and a corresponding MicroRTM module set for rear I/O along with an appropriate MicroTCA shelf

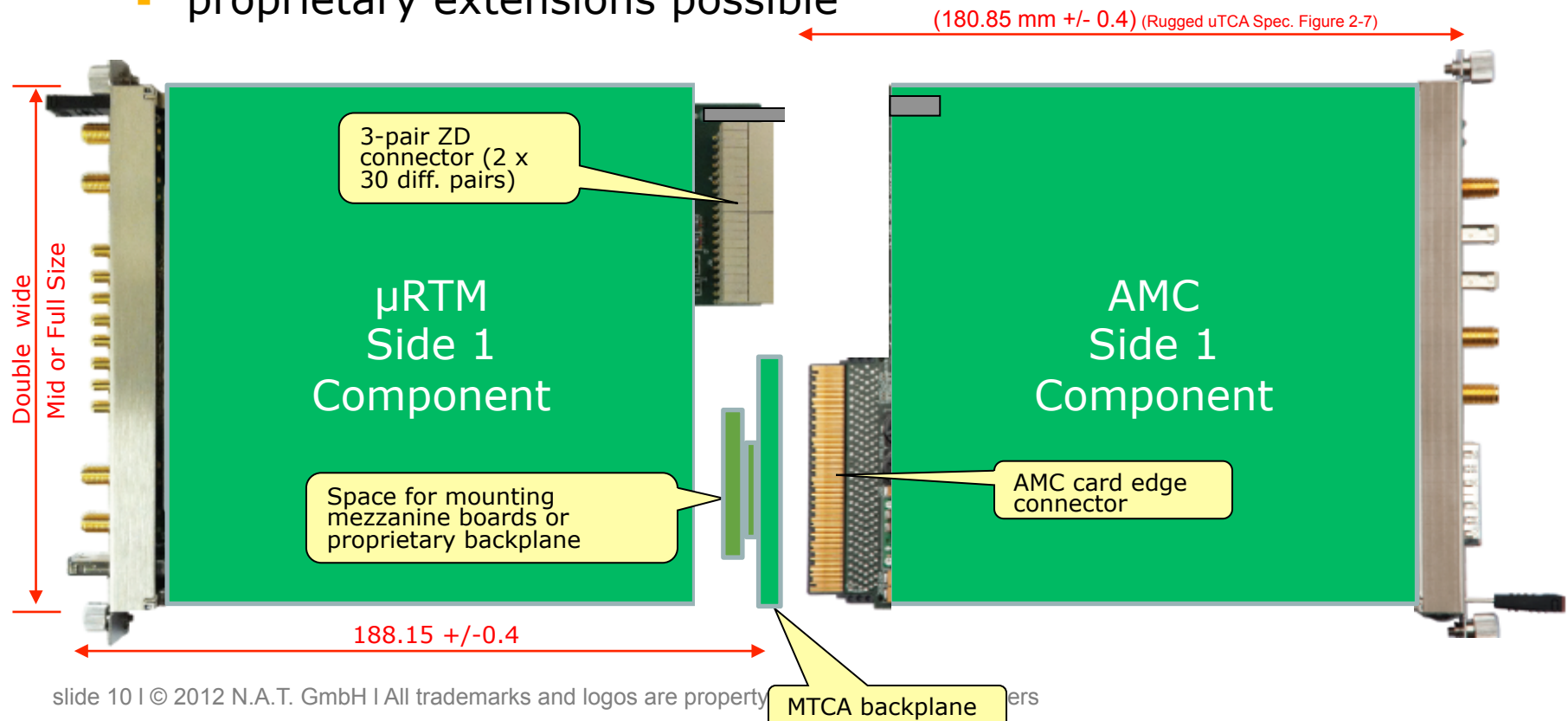


Change to MicroTCA.4

Size of MicroTCA.4



- main advantages
 - increased real estate
 - cabling to rear side of chassis
 - proprietary extensions possible

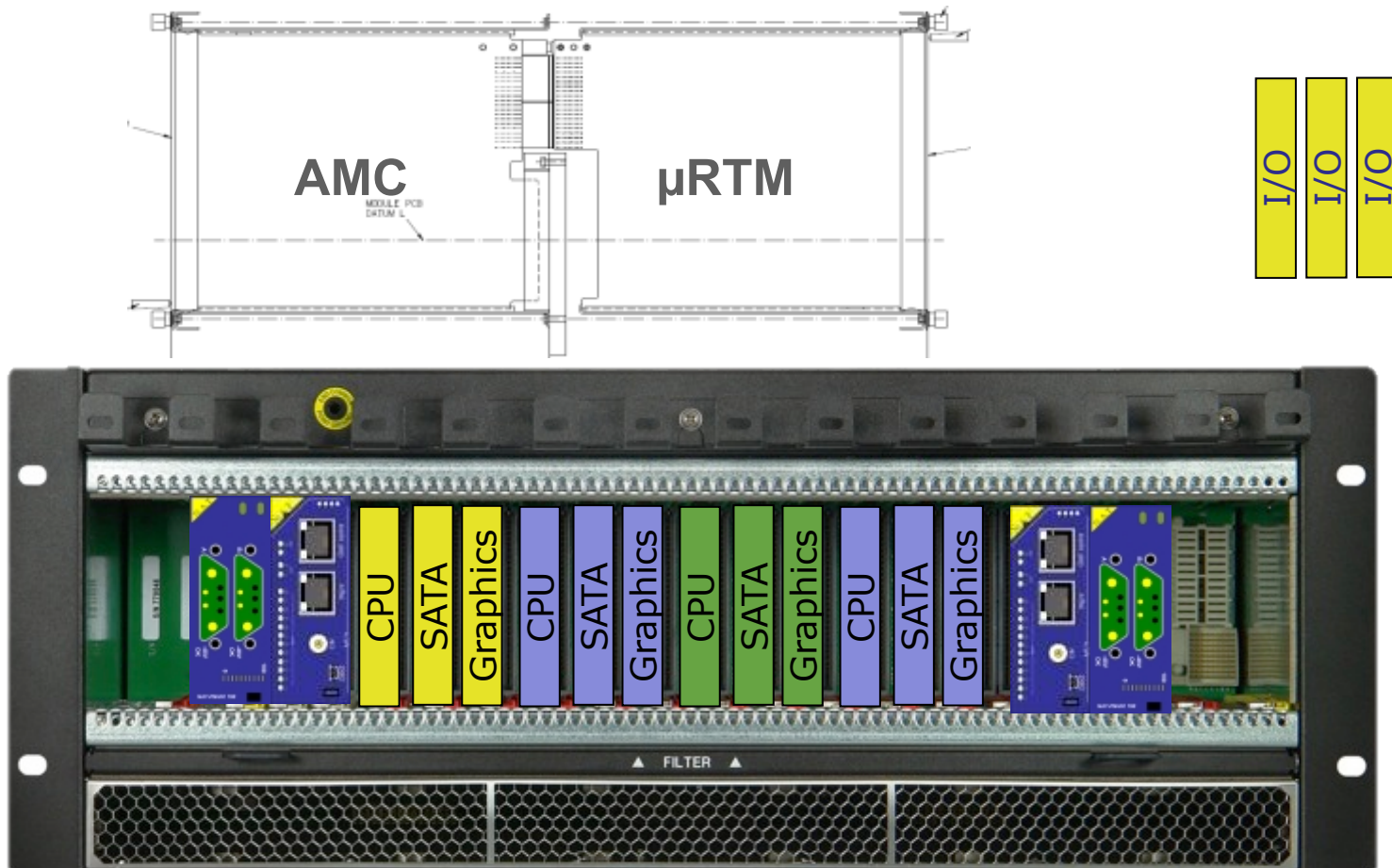


Change to MicroTCA.4

Advantage of MicroTCA.4



- How can MTCA.4 help with the previous problem?



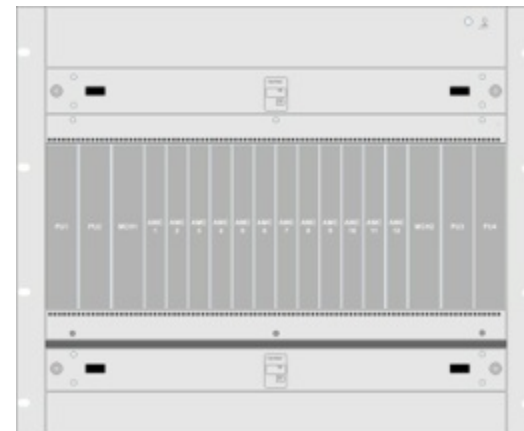
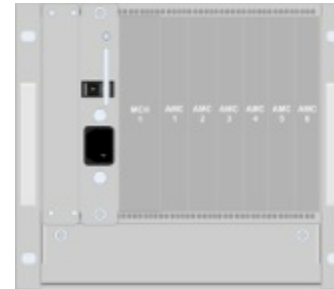
Change to MicroTCA.4

Selection in MicroTCA.4



- Gain of space in and option of choice

- with μ RTMs
- without μ RTMs
- small systems
- big systems



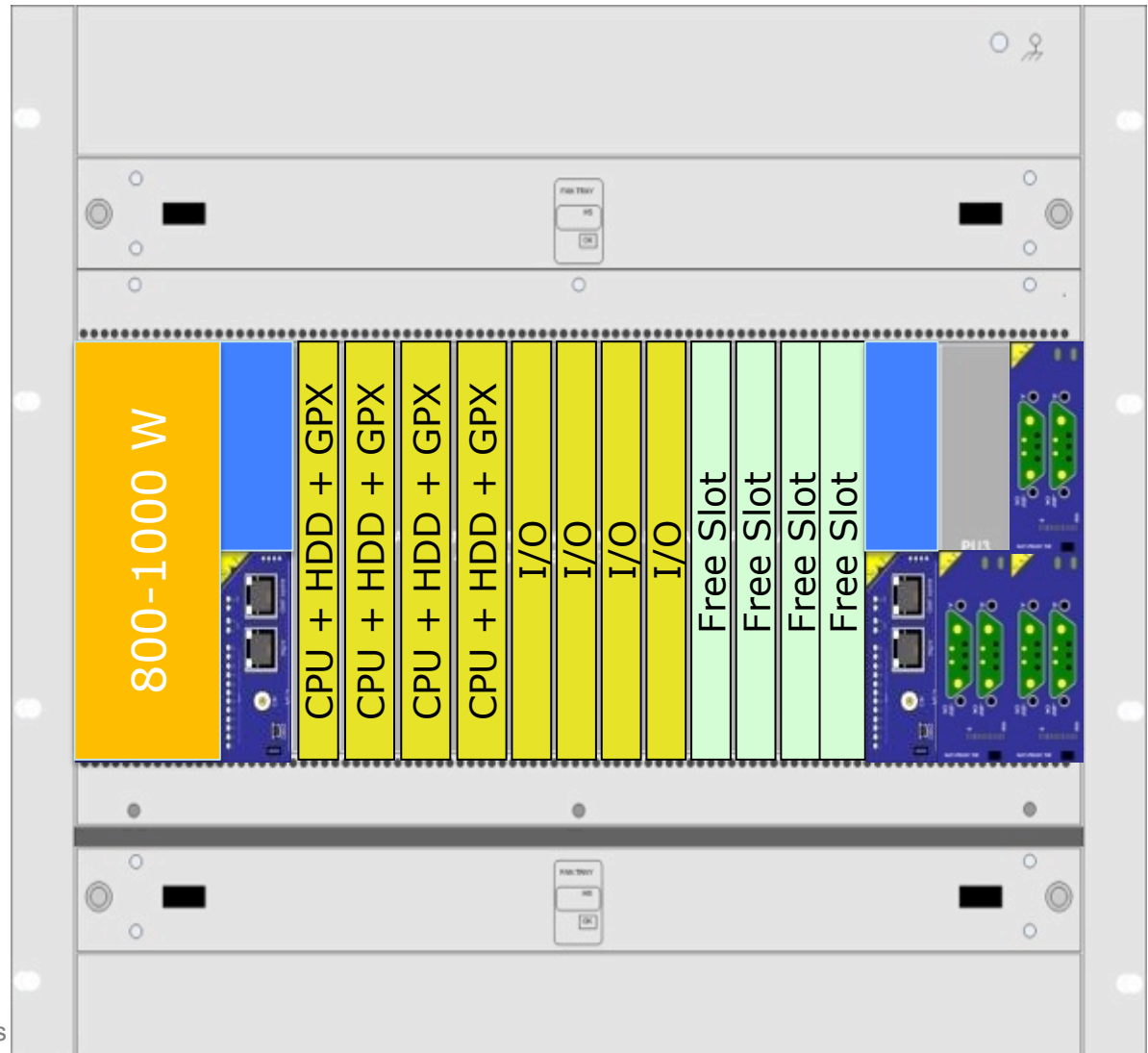
Change to MTCA.4

Multiple PrAMCs



However

- Which one is the Root Complex?
- Can we save more space?



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ComExpress

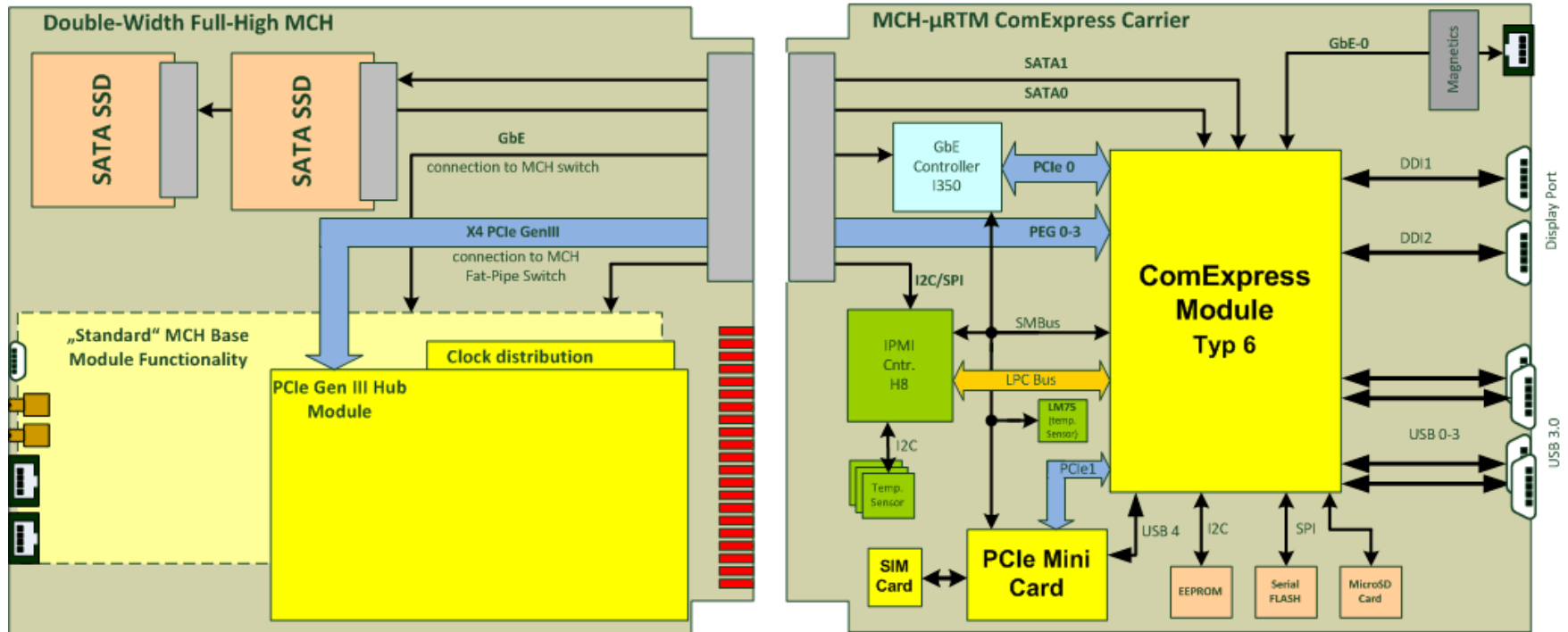
Options of interest



- ComExpress Type-6
- Available Processors
 - Core-i7 (Ivy-Bridge)
 - – 4Corei735W(SV)
 - 2Corei725W(LV)
 - 2 Core i7 17W (ULV)
 - PowerPC (QorIQ-P1022)
 - VIA (Eden, Nano)
- Memory
 - Up to 8 Gbyte DDR3 incl ECC
- Display-Ports
- SATA
- USB3.0



NAT-MCH, double-width with μ RTM ComExpress Carrier



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Summary

NAT-MCH-PHYS & NAT-MCH-COMex-i7



- NAT-MCH and Intel® Core™ i7 (Ivy-Bridge)
 - fully featured NAT-MCH with PCIe Gen3 switch
 - µRTM:
 - integrated Intel® Core™ i7 ComExpress module
 - direct access to fat pipe and base fabric
 - 3x Display Port, 4x USB, 1x GbE at front panel
 - Slots for MicroSD, SIM cards and WLAN
 - Clock generation/distribution with less than 3 ns
 - SATA SSD storage (2x 1.8" or 1x 2.5")
- Advantages:
 - dedicated slot for root complex
 - fully featured processor board(s)
 - optimized usage of MCH slot
 - up to 12 front IO-Slots and up to 12 rear IO slots



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Thank you very much!

Questions?



Vollrath Dirksen
Strategic Business Development

vollrath@nateurope.com

N.A.T. GmbH
Konrad-Zuse-Platz 9
53227 Bonn, Germany

www.nateurope.com

