

Form Factors AMC-MTCA Backplane Topology

Tutorial Pre-Workshop MTCA

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MTCA Workshop 2018



Agenda

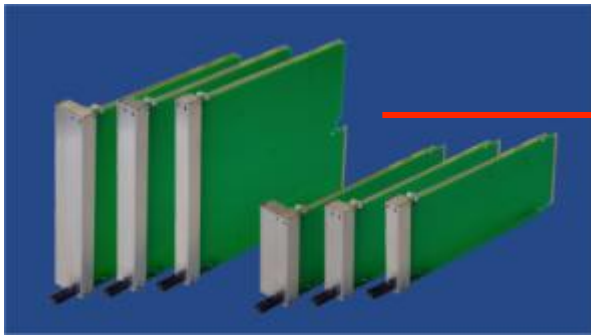
- **AMC Modules**
- **MTCA.0**
- **MTCA.1**
- **MTCA.2**
- **MTCA.3**
- **MTCA.4**
- **MTCA.4.1**
- **Backplane Topology MTCA Backplane**

AMC

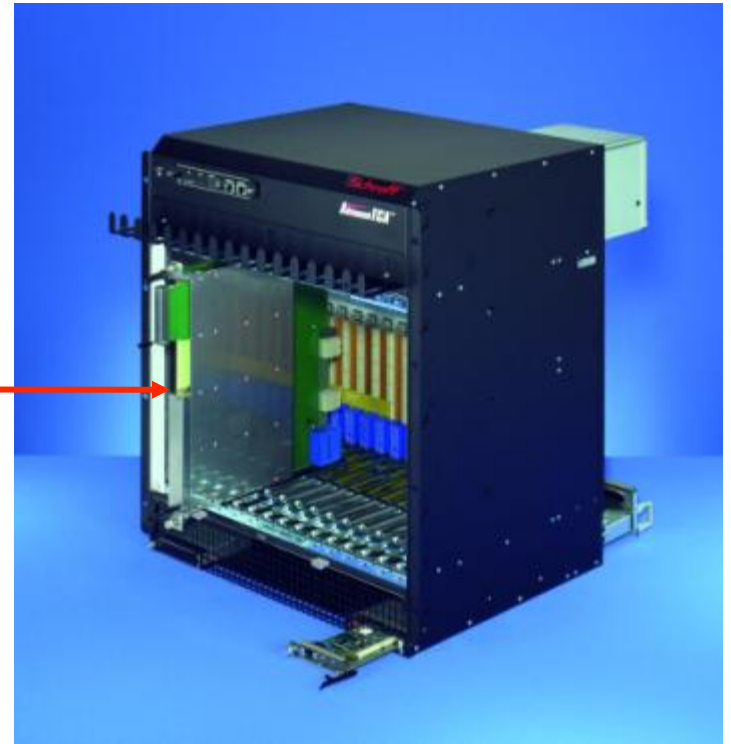
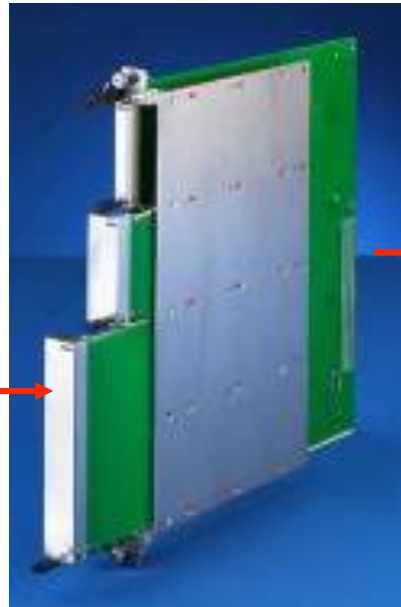
AMC Modules

- Initially developed as function extension for ATCA Boards
- Fully integrated into the ATCA IPMI management structure
- Plugged into a so called ATCA Carrier
- Hot Swap capability

AMC Modules

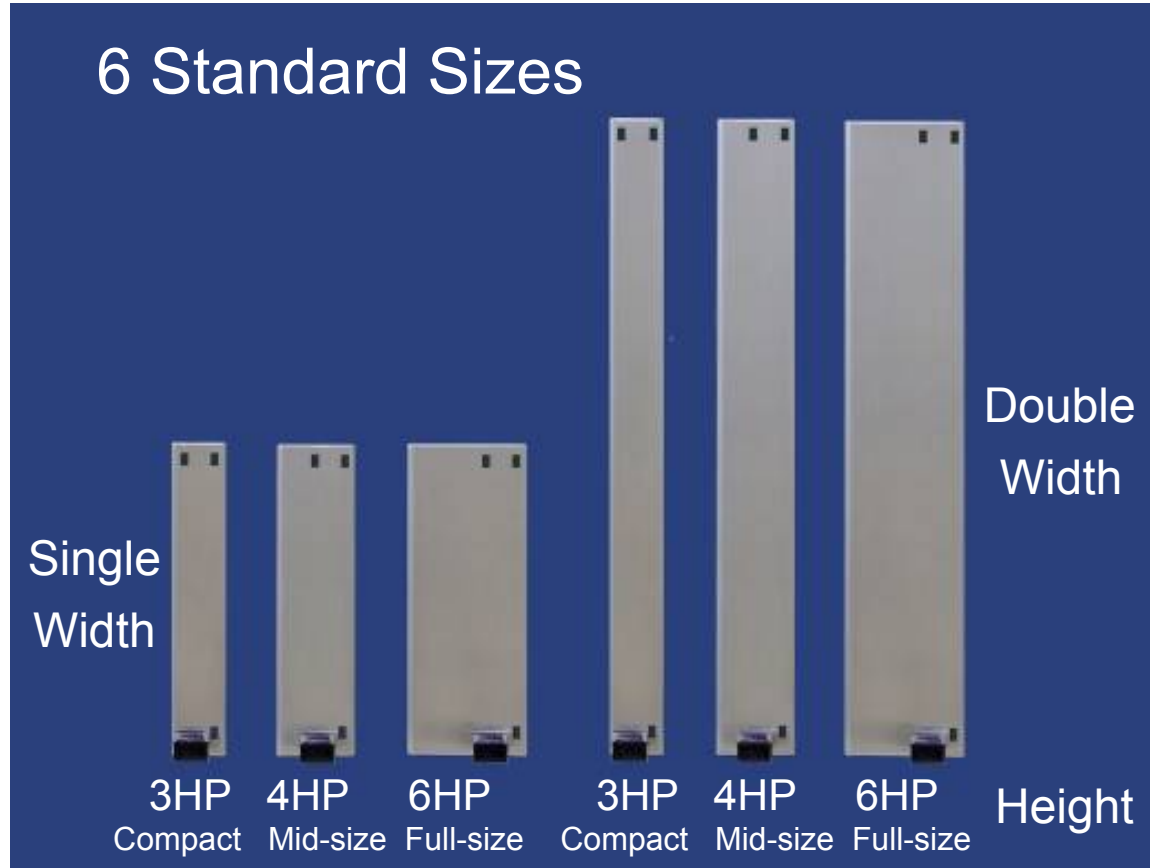
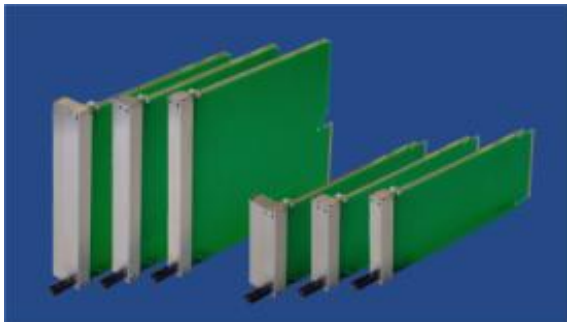
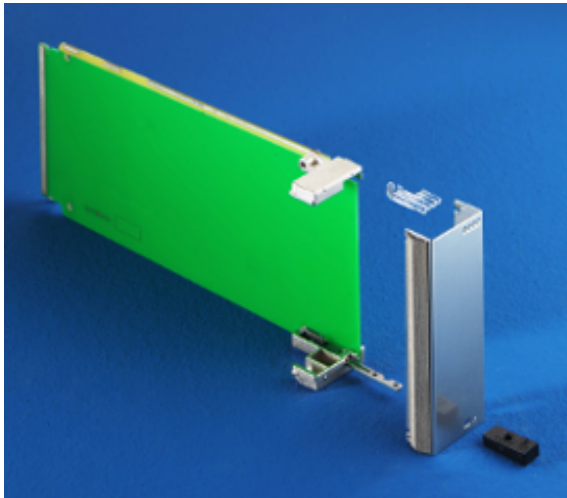


AMC Carrier



AMC Modules

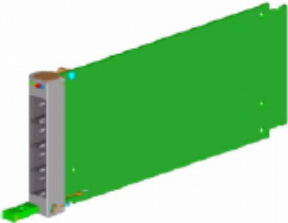
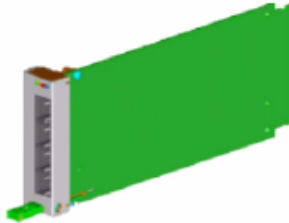
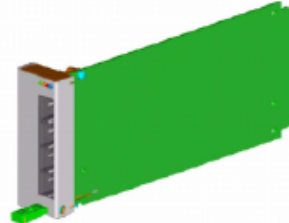
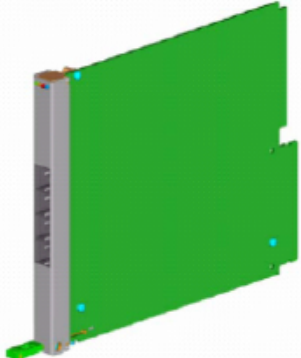
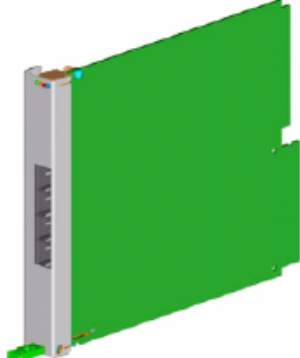
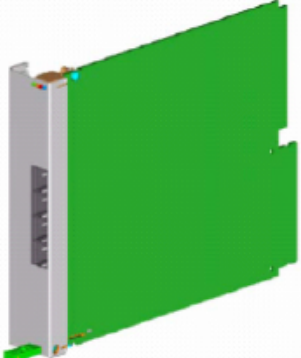
AMC Module Sizes



PICMG® AMC.0 Advanced Mezzanine Card Base Specification

AMC Modules

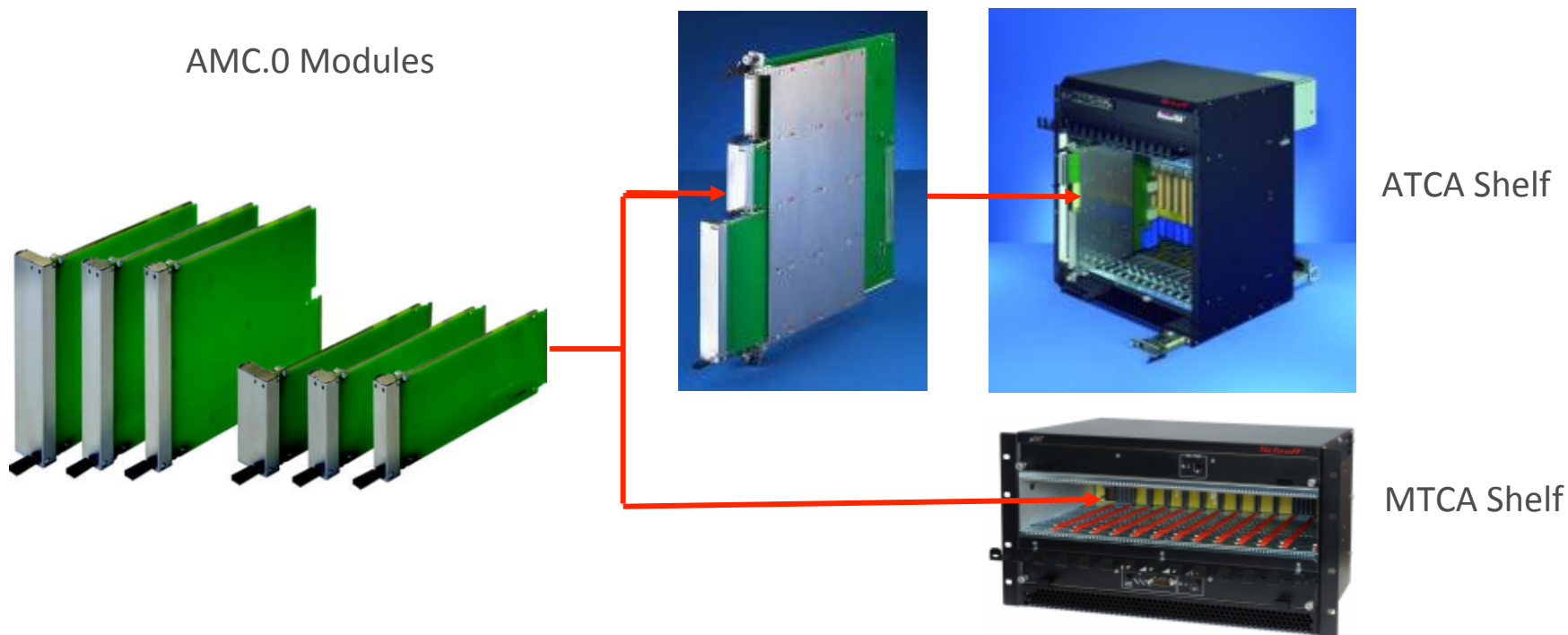
AMC Module Sizes

	Compact-Size (3HP)	Mid-Size (4HP)	Full-Size (6HP)
Single modules	 73.8x13.88x181.5mm	 73.8x18.96x181.5mm	 73.8x28.95x181.5mm
Double modules	 148.8x13.88x181.5mm	 148.8x18.96x181.5mm	 148.8x28.95x181.5mm

MTCA.0

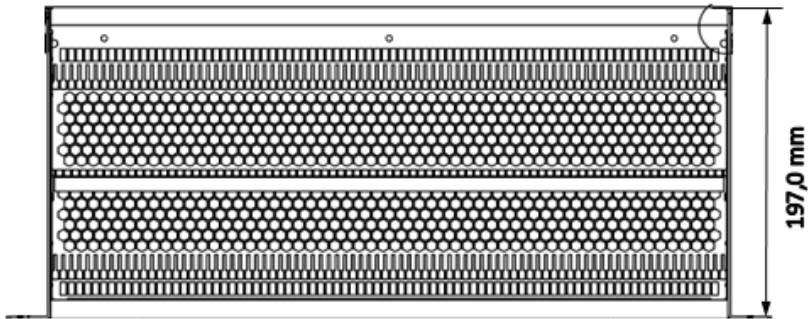
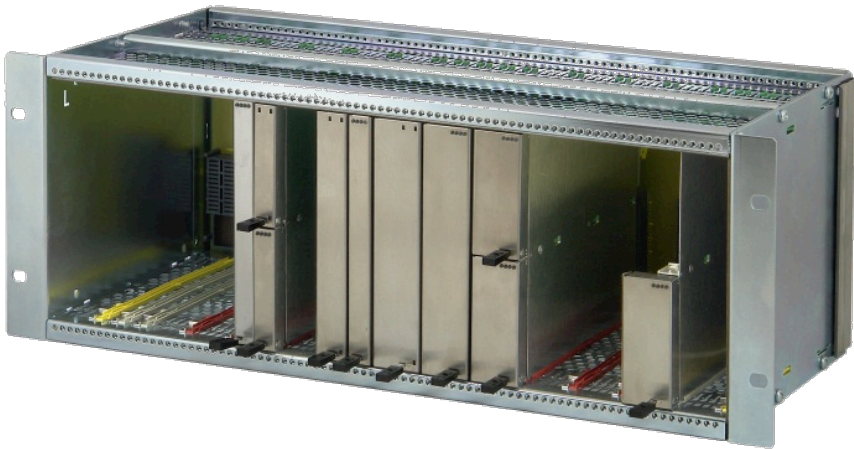
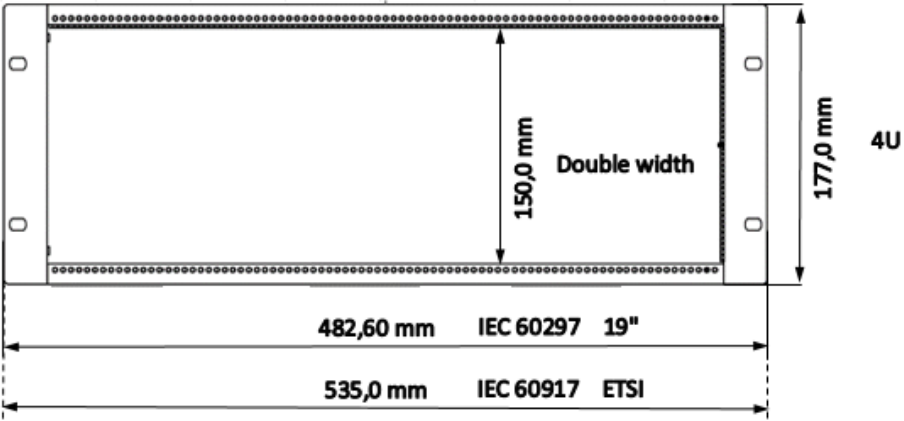
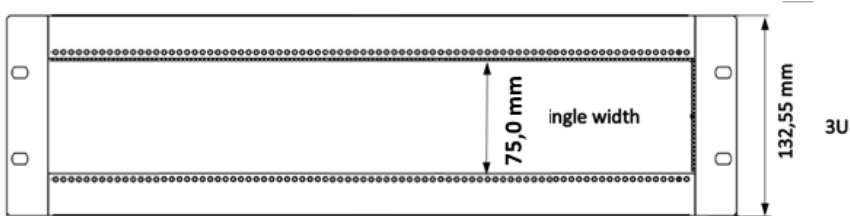
MTCA.0

- The basic idea of MTCA is to have a shelf that contains just AMC modules
- Backplane directly accepts AMC modules
- AMCs are interchangeable between ATCA and MTCA
- The infrastructure of a ATCA Carrier was adapted into the MTCA shelf (power, management, switching)
- No rear I/O, power input and all outputs to the front



MTCA.0 Subrack

Basic dimensions of a MTCA subrack



Front

MTCA.0 Crate

The dimension of a MTCA crate is depending on:

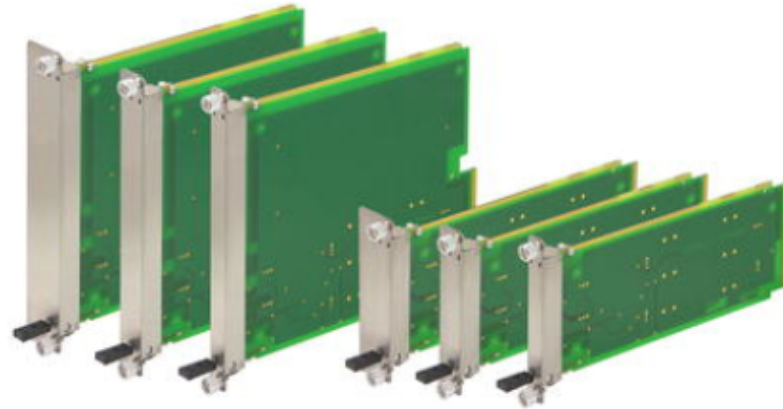
- Numbers and sizes of slots
- Cooling concept
- Heat dissipation
- Request for redundancy



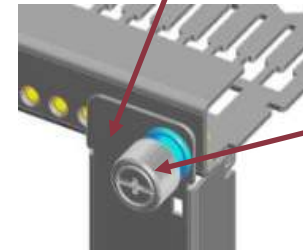
MTCA.1

AdvancedMC front panel has to be fastened (screwed) to the subrack

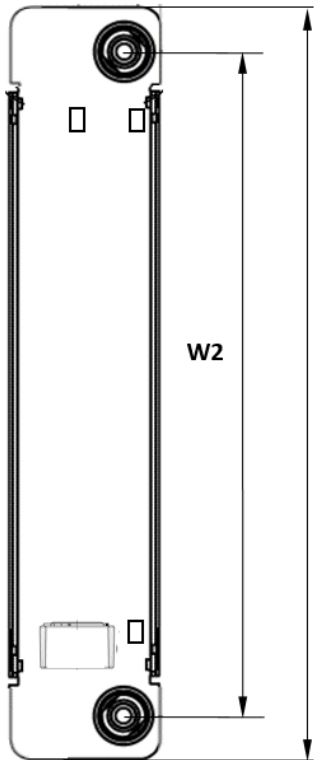
MTCA.1
modules
(XR2)



Front panel
with flange



Additional
retention
screw

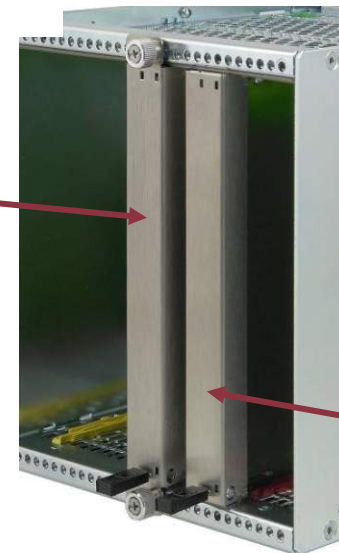


W1

W1 95,0 mm Single width
170,0 mm Double width

W2 84,0 mm Single width
159,0 mm Double width

MTCA.1
front panel
(XR2)

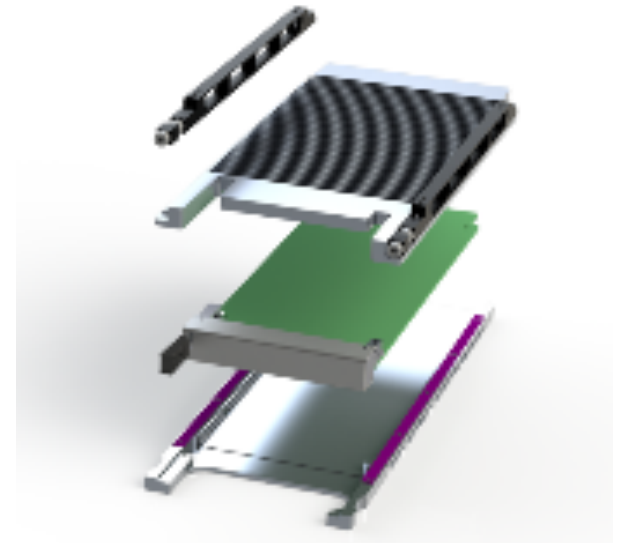
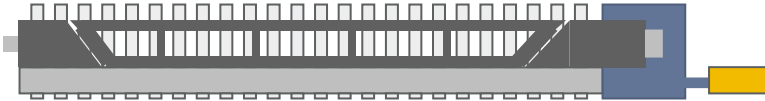


AdvancedMC.0
front panel

MTCA.2

MicroTCA.2 - Hardened Air Cooled MicroTCA

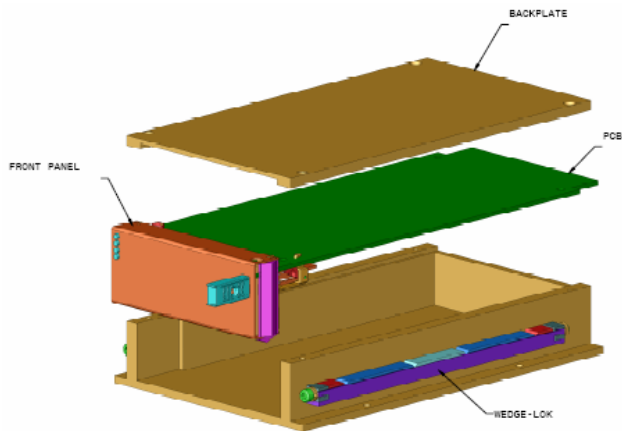
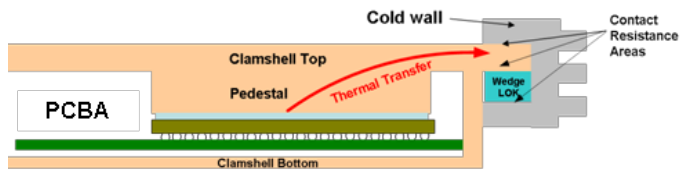
- For Telecommunication outdoor and military air, land and sea applications
 - Clamshell System for high shock & vibration requirements
 - Retainer solution allows forced air flow through heat sinks
-
- Dimensions
 - Clamshell for single wide module: width 98,0 mm, length 212,7 mm w/o handle
 - Clamshell for double wide module: width 173,0 mm, length 212,70 mm w/o handle



MTCA.3

MicroTCA.3 – Conduction Cooled MicroTCA

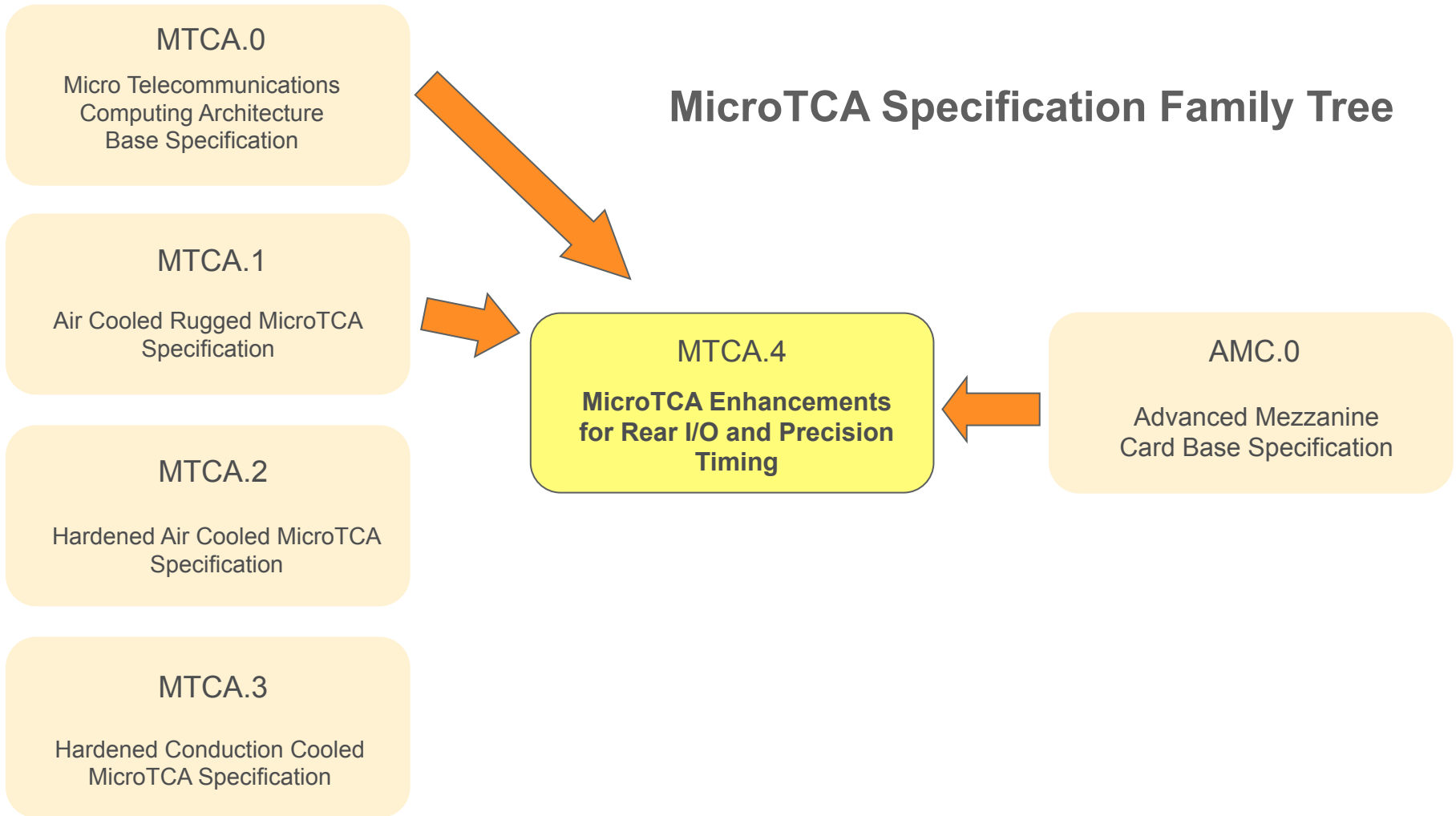
- For Telecommunication outdoor and military air, land and sea applications
- Standard AMC board in a clamshell provides a thermal conduction path to the Thermal Interface Surfaces of the Chassis Sidewall
- Dimensions
 - Clamshell for single wide module: width 98,0 mm, length 212,7 mm w/o handle
 - Clamshell for double wide module: width 173,0 mm, length 212,7, 0 mm w/o handle



MTCA.4

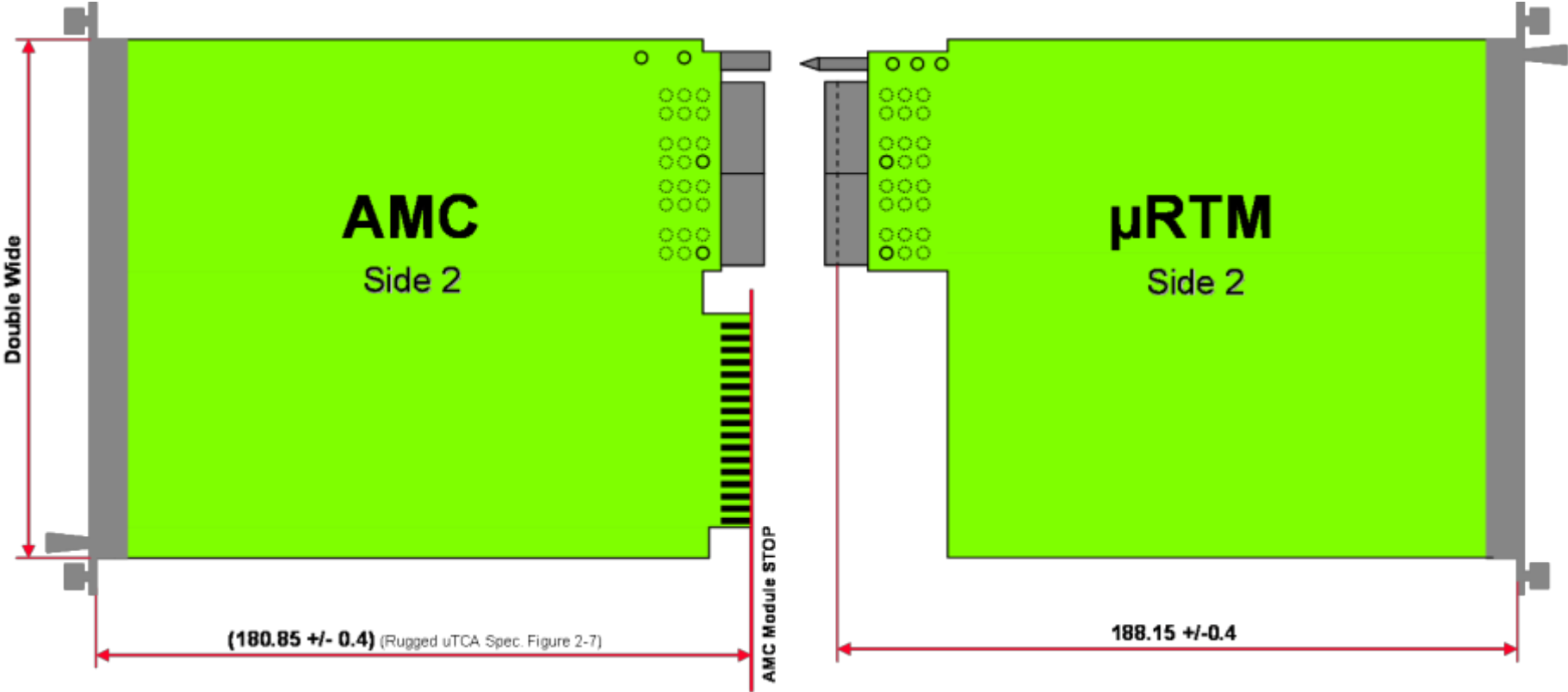
MTCA.4

MicroTCA Specification Family Tree



MTCA.4

Module Sizes



MTCA.4

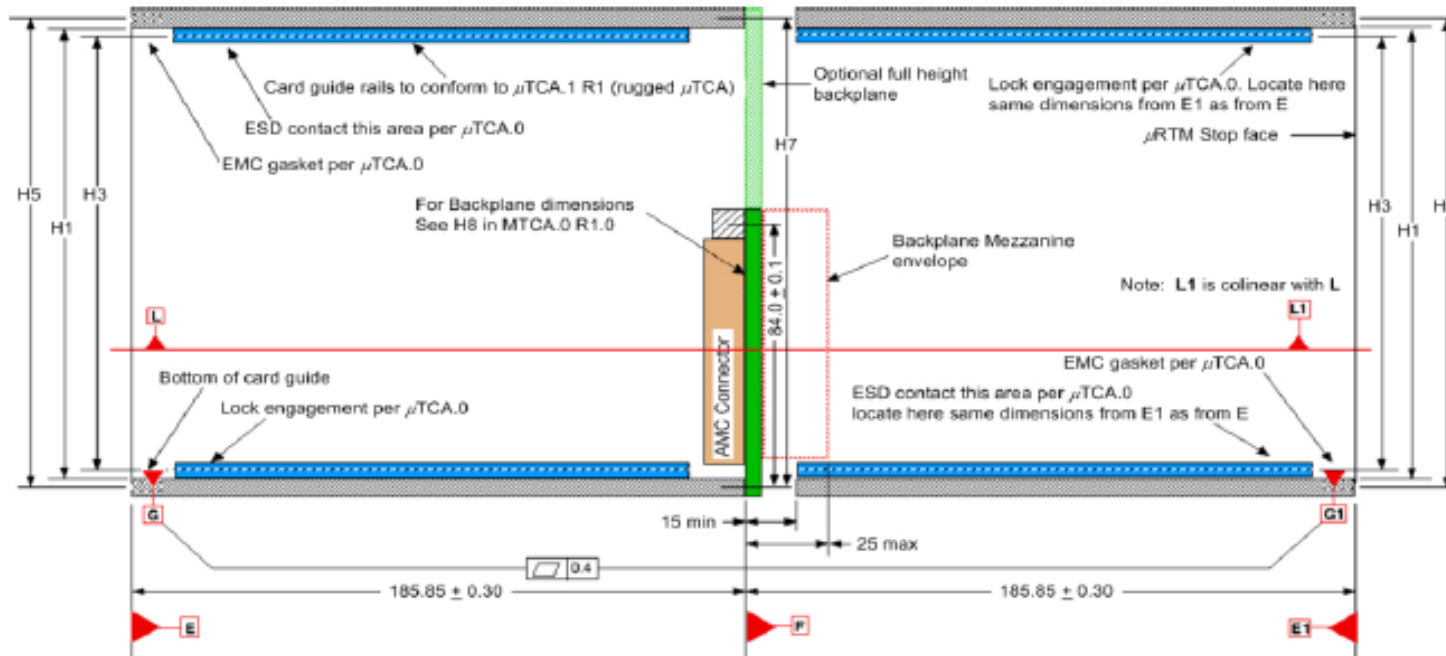
MTCA.4 Chassis dimension

The dimension of a MTCA crate is depending on:

- Numbers and sizes of slots
- Cooling concept
- Heat dissipation
- Request for redundancy



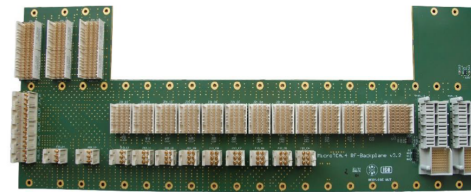
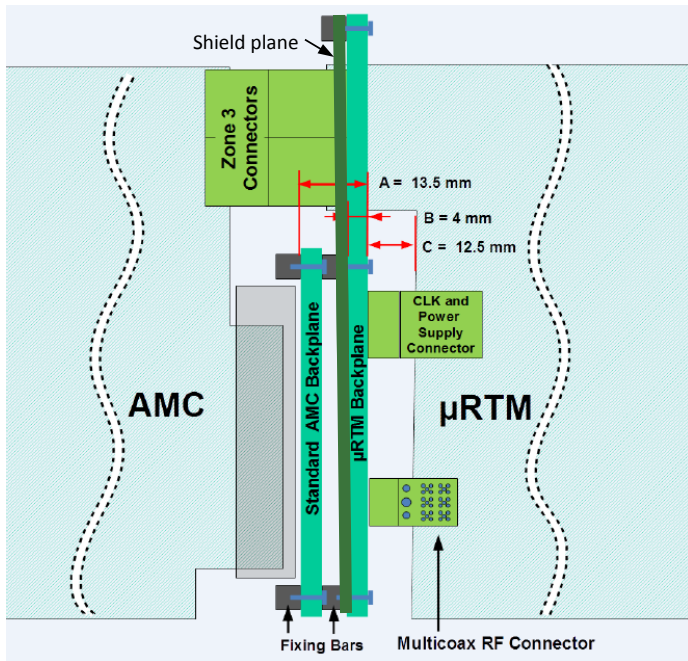
But: The depth of the chassis is defined by the combination of AMC- and RTM modules



MTCA.4.1

MTCA.4.1

- Auxiliary backplane for rear transition modules
- Rear power modules
- MCH Management Support & Extended Rear Transition Module (MCH-RTM)



RTM Backplane



Shield plane



Location for the RTM backplane in a MTCA.4 shelf

Dimension: Height: 159.5mm
Width: 424.5mm
Thickness: 2mm (backplane) + 2mm (shield extension)

MTCA.4.1

MTCA.4.1 Rear Power Module

The rear power module is connected with the RTM backplane and it provides additional power to the RTMs.

Output power: up to 600W

Dimensions: Double width, full-size but reduced depth due to the connector position on the RTM backplane

Depth: 185,85 mm – distance the AMC backplane to the RTM backplane

MTCA.4.1 MCH-RTM

The MCH-RTM can contain CPU, storage and peripherals which saves space in the AMC area.

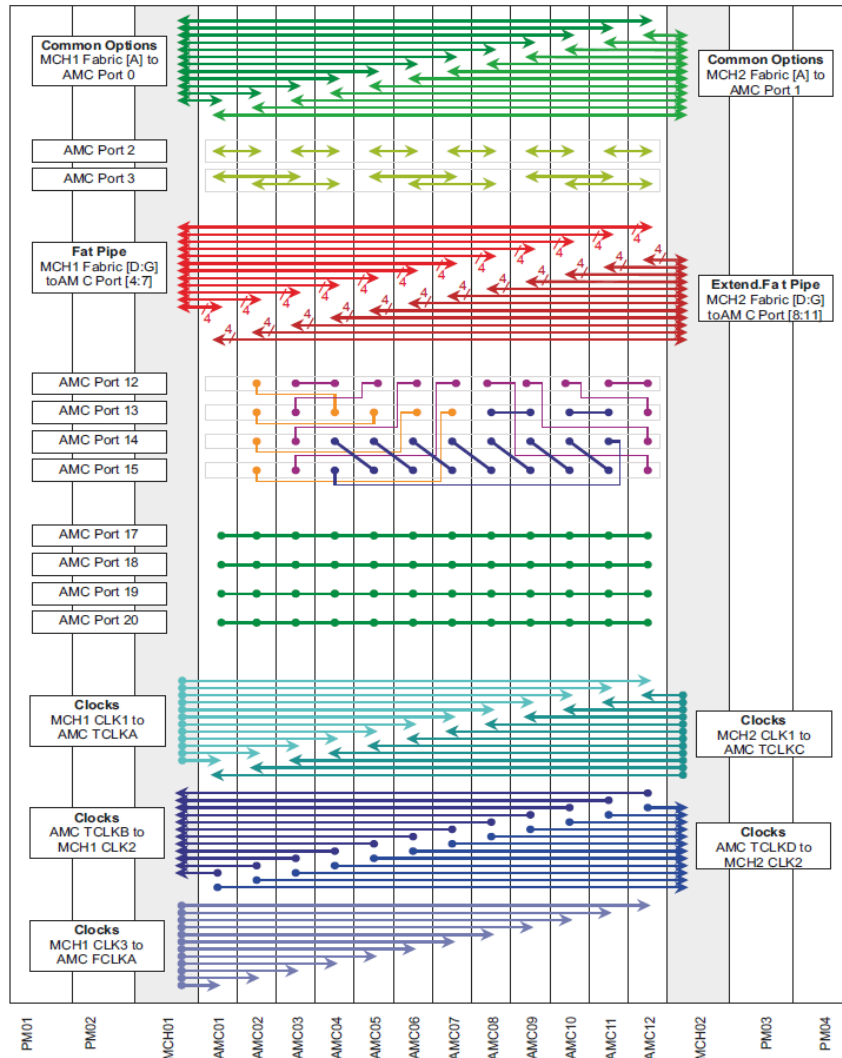
Dimensions: Double width, full-size, depth 185,85 mm

Backplane Topology

Backplane Topology

The backplane topology describes the port mapping and the type of connections between the slots

Standard MTCA.4 crate 12 slots



Thank You

