

Form Factors ATCA-AMC-MTCA

**Pre-Workshop MTCA
Real Time Conference
June, 2018**

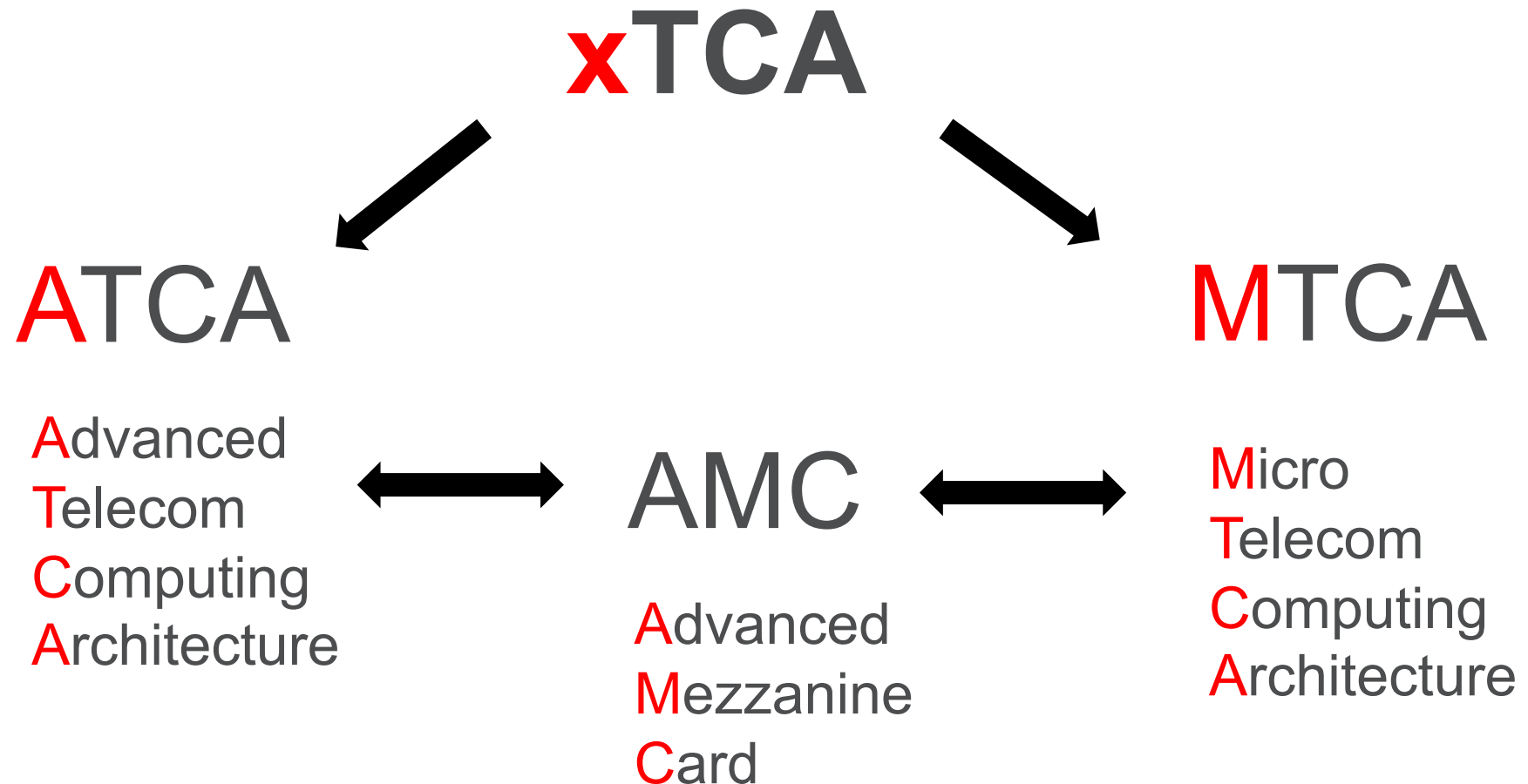
Ralf Waldt
June, 2018



Agenda

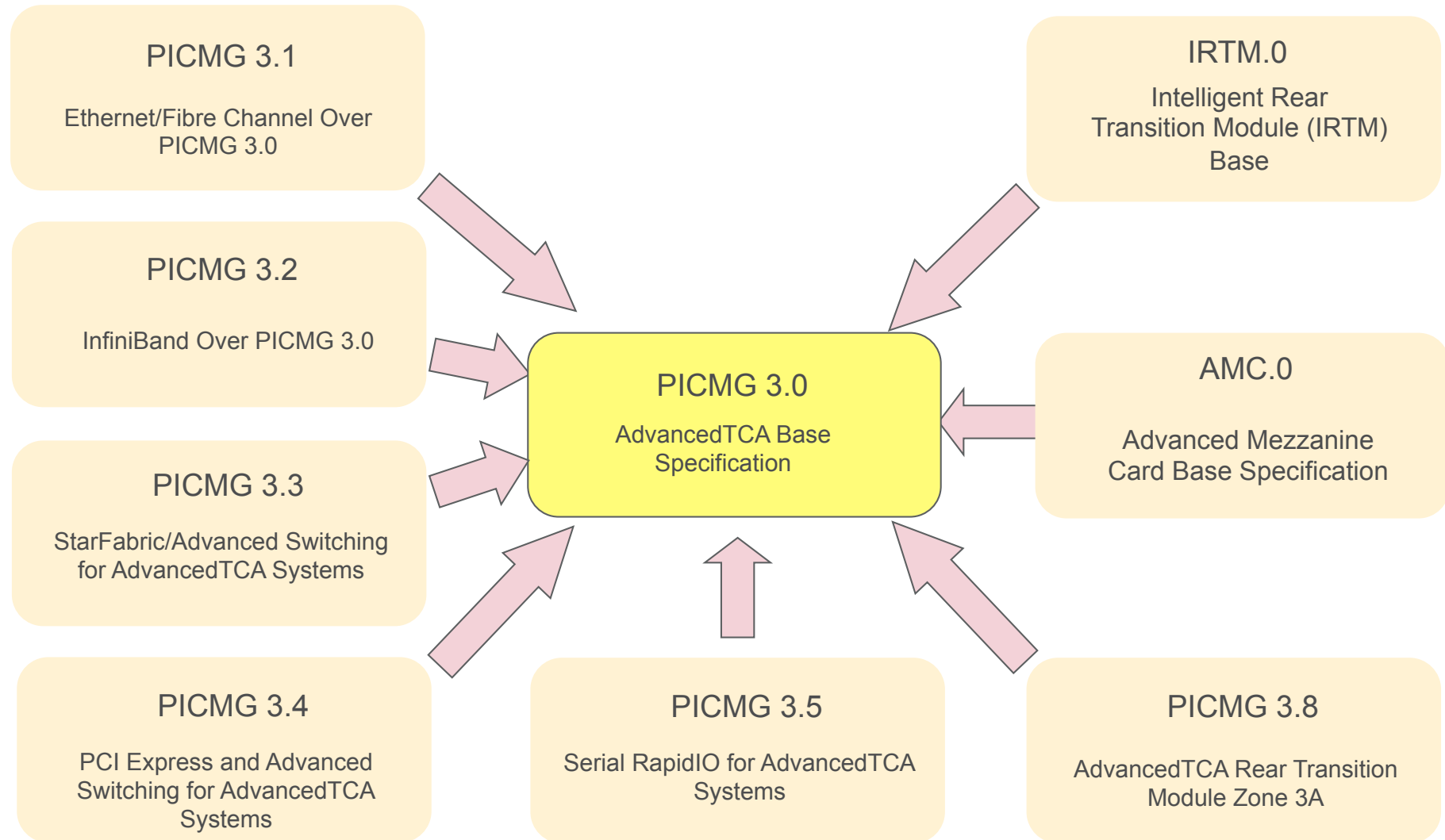
- **What is xTCA?**
- **Specifications Overview ATCA**
- **ATCA**
- **AMC**
- **MTCA.0**
- **MTCA.1**
- **MTCA.2**
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What is xTCA?



ATCA

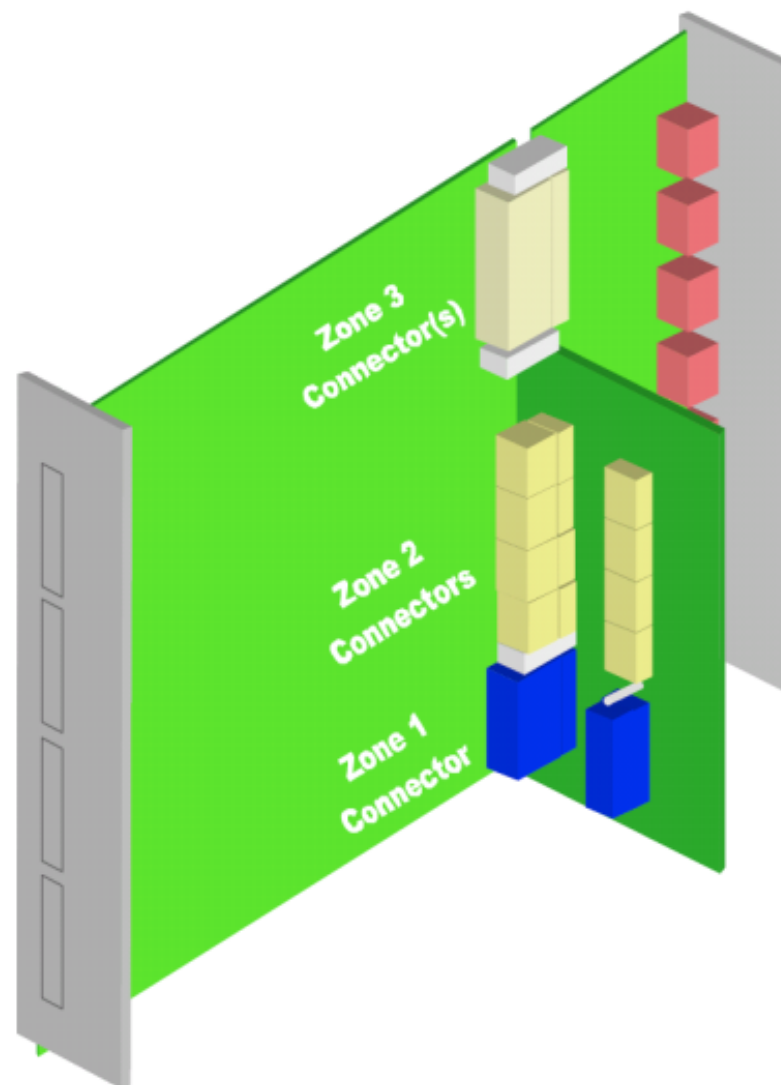
ATCA Specification Family



ATCA Boards

Board size and connectors

- Front board size 8U x 280
- Rear board (RTM) size 8U x 70 mm
 - Connects directly to front board
- Board width 6HP (1.2")
- Alignment/Key pins
- Zone 1: Management and Power
- Zone 2: Base Interface and Fabric Interface
- Zone 3: Interface to RTM



ATCA Crate

The dimensions of an ATCA crate is depending on:

- Numbers of slots
- Cooling concept
- Heat dissipation



14U 14 Slot
Front-to-rear cooling
300W/slot



6U 6 Slots
Right-to-left cooling
450W/slot



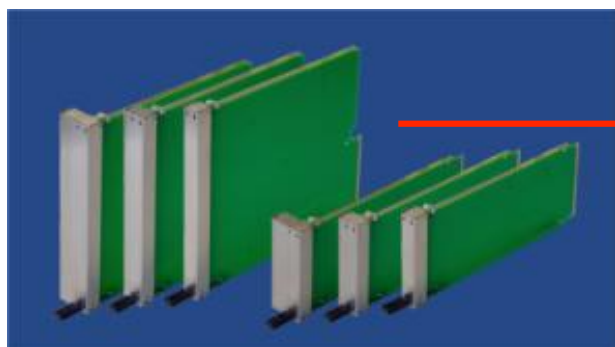
3U 2 Slots
Front-to-rear cooling
450W/slot

AMC

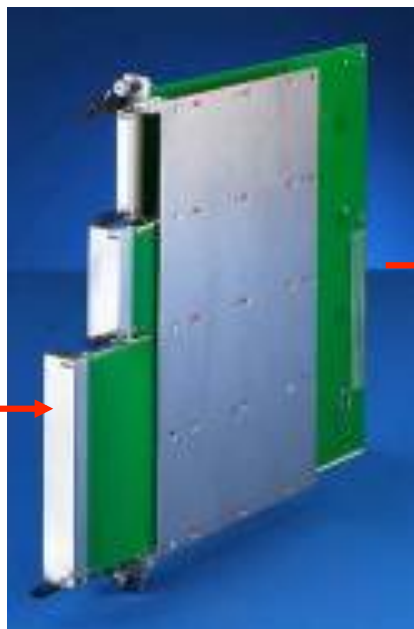
AMC Modules

- 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

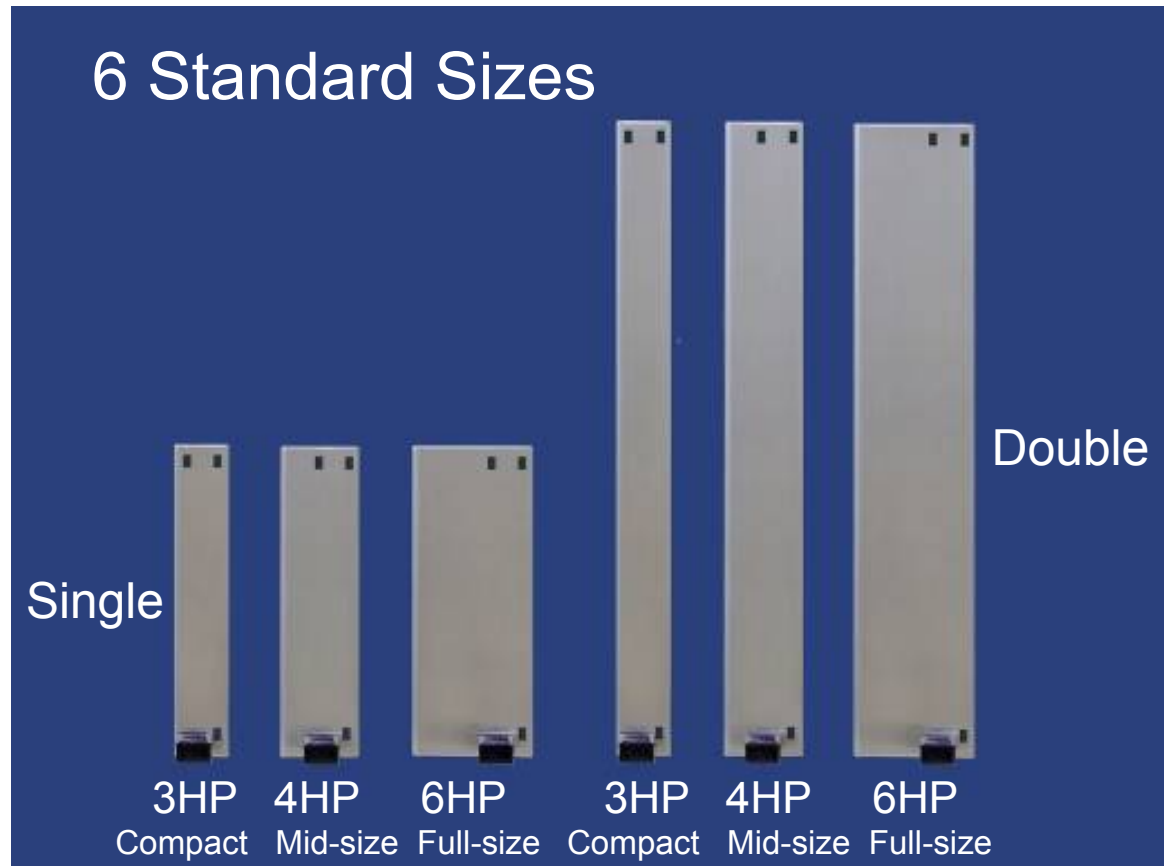
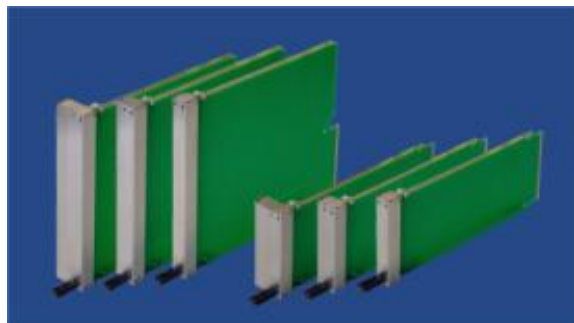
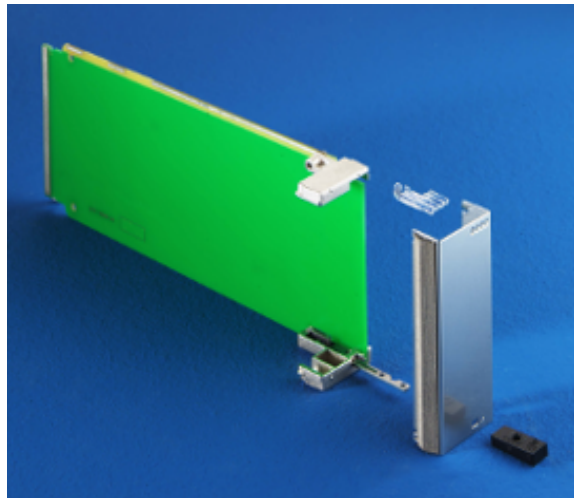


AMC Carrier



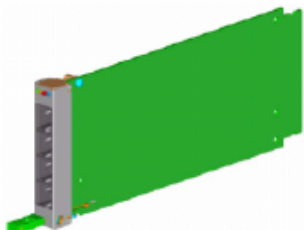
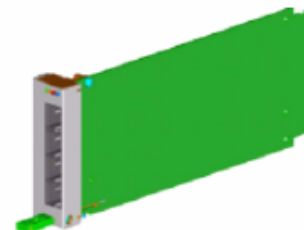
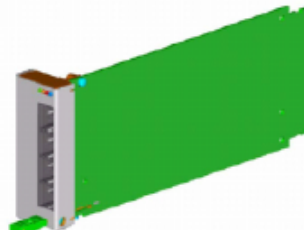
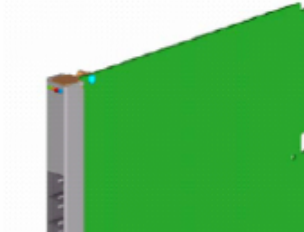
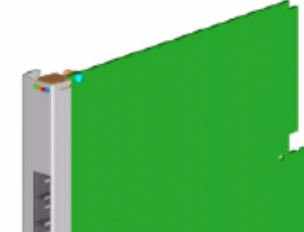
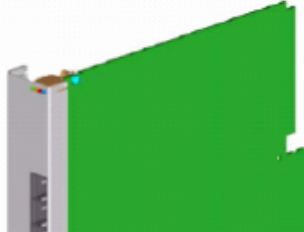
AMC Modules

AMC Module Sizes



AMC Modules

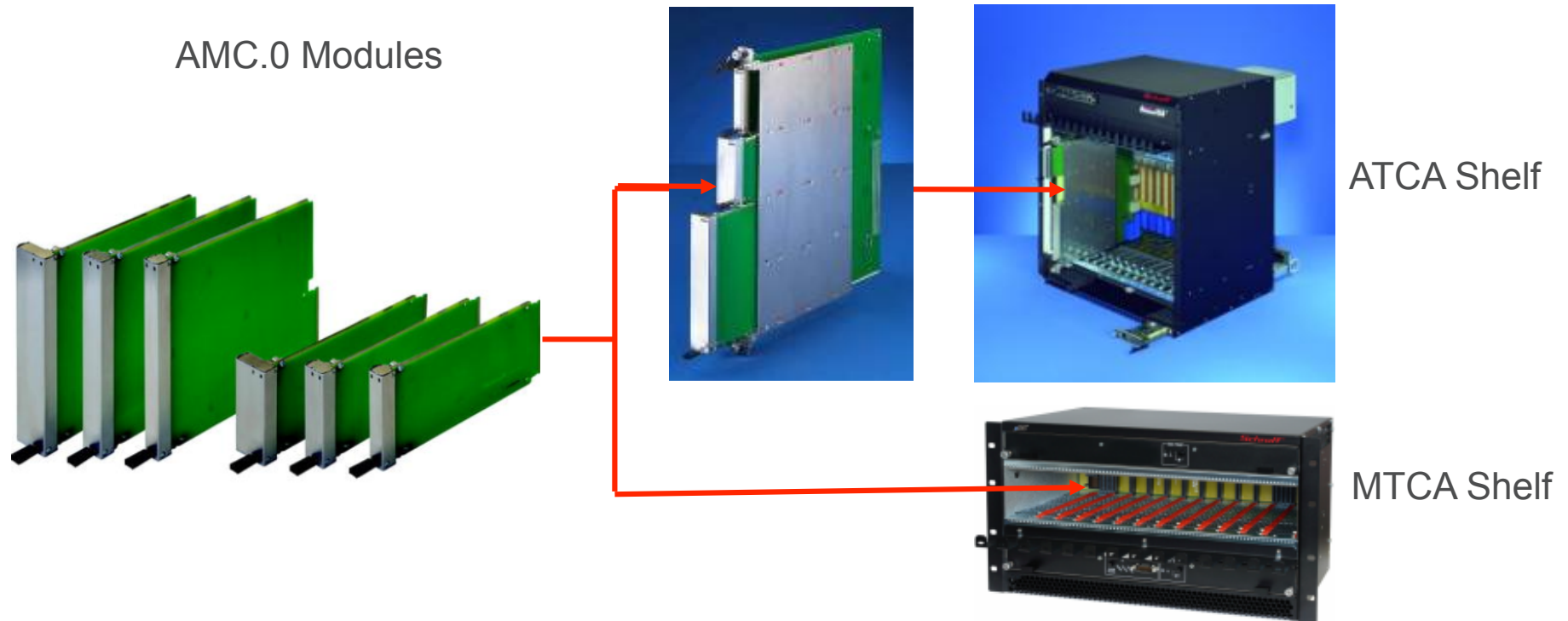
AMC Module Sizes

	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

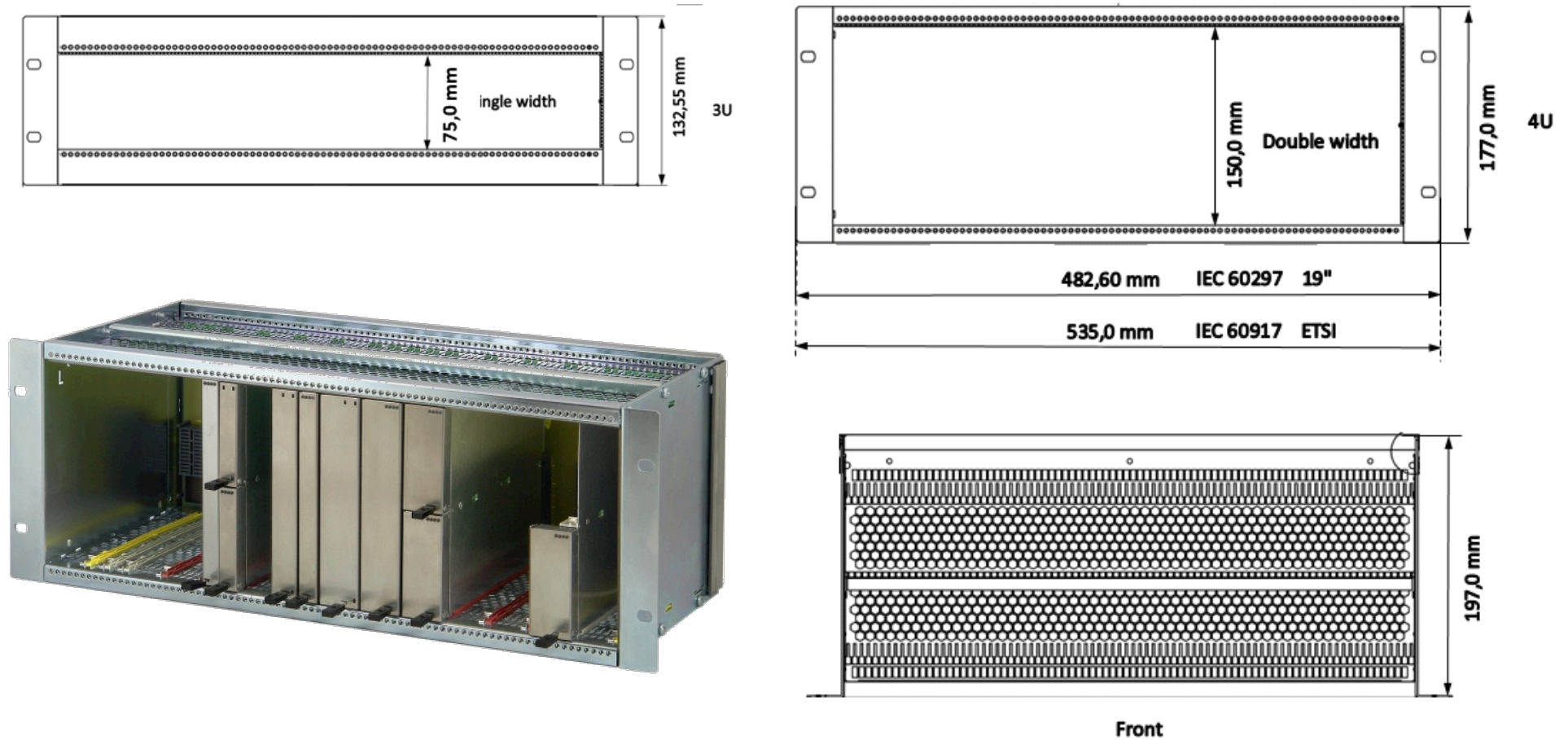
MTCA.0

- 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



MTCA.0 Crate

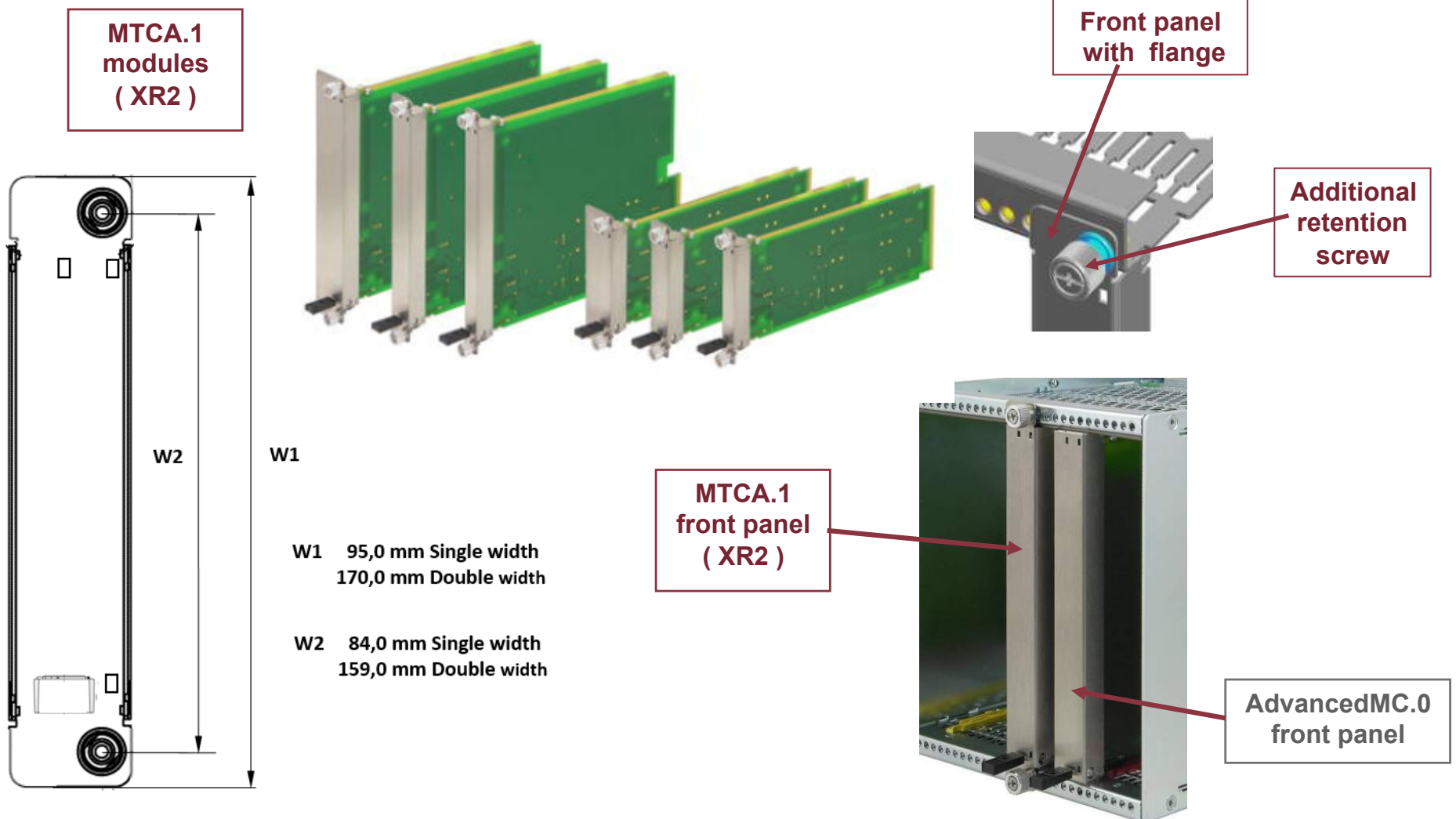
The dimension of a MTCA crate is depending on:

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



MTCA.1

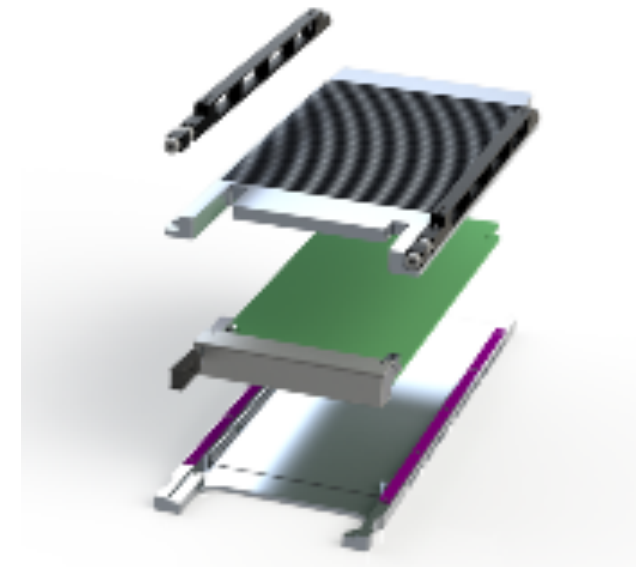
AdvancedMC front panel has to be fastened (screwed) to the subrack



MTCA.2

MicroTCA.2 - Hardened Air Cooled MicroTCA

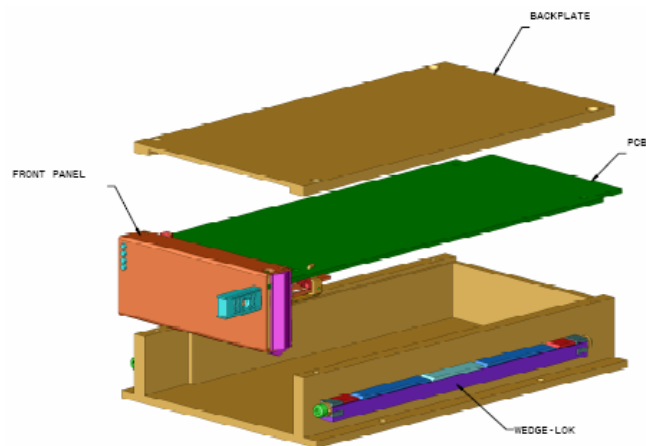
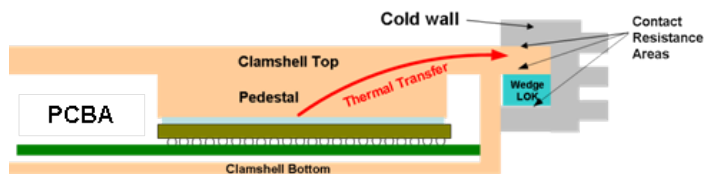
- For Telecommunication outdoor and military air, land and sea applications
 - Clamshell System for high shock & vibration requirements
 - Retainer solution allows forced air flow through heat sinks
-
- Dimensions
 - Clamshell for single wide module: width 98,0 mm, length 212,7 mm w/o handle
 - Clamshell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



MTCA.3

MicroTCA.3 – Conduction Cooled MicroTCA

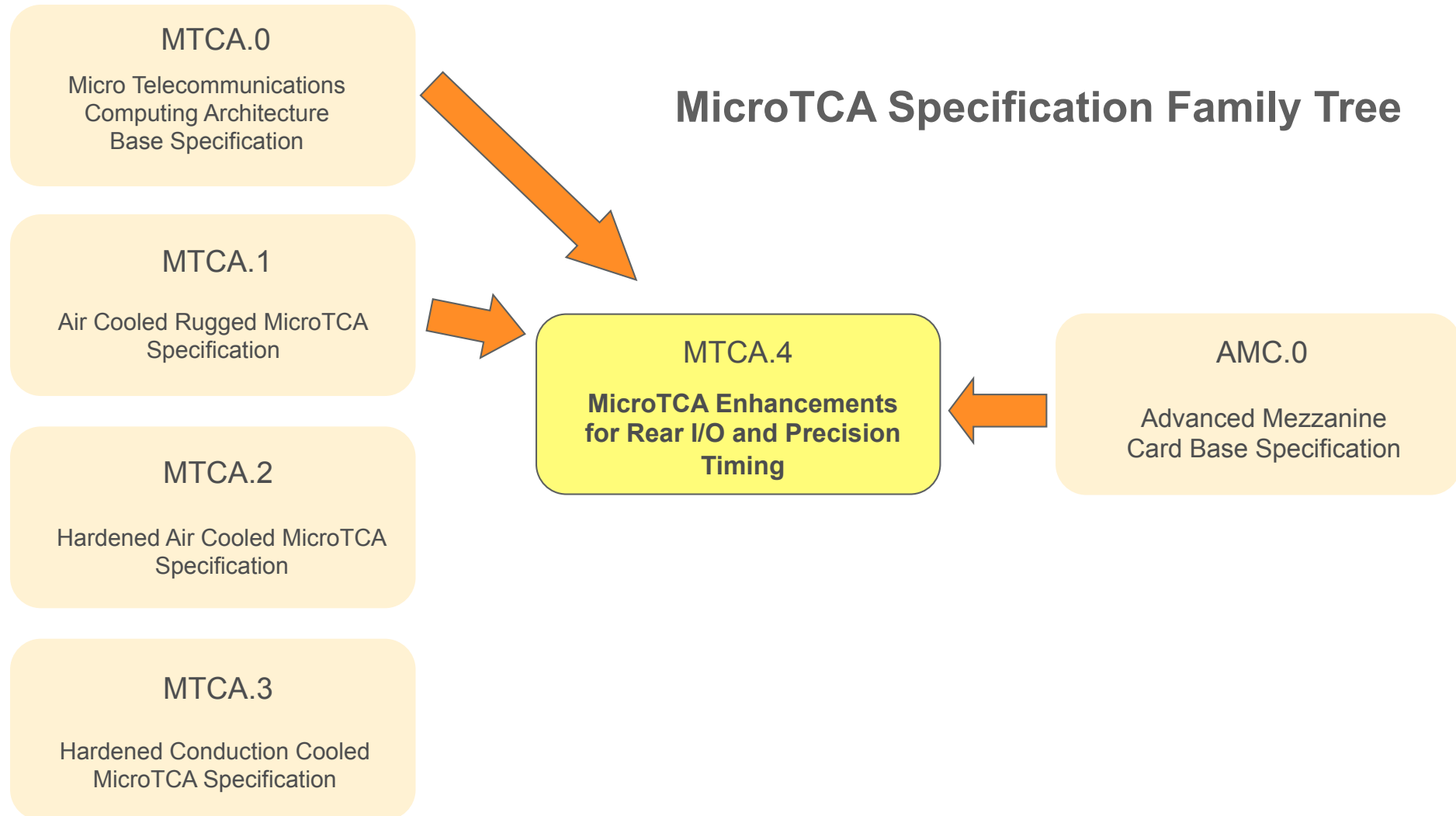
- For Telecommunication outdoor and military air, land and sea applications
- Standard AMC board in a clamshell provides a thermal conduction path to the Thermal Interface Surfaces of the Chassis Sidewall
- Dimensions
 - Clamshell for single wide module: width 98,0 mm, length 212,7 mm w/o handle
 - Clamshell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



MTCA.4

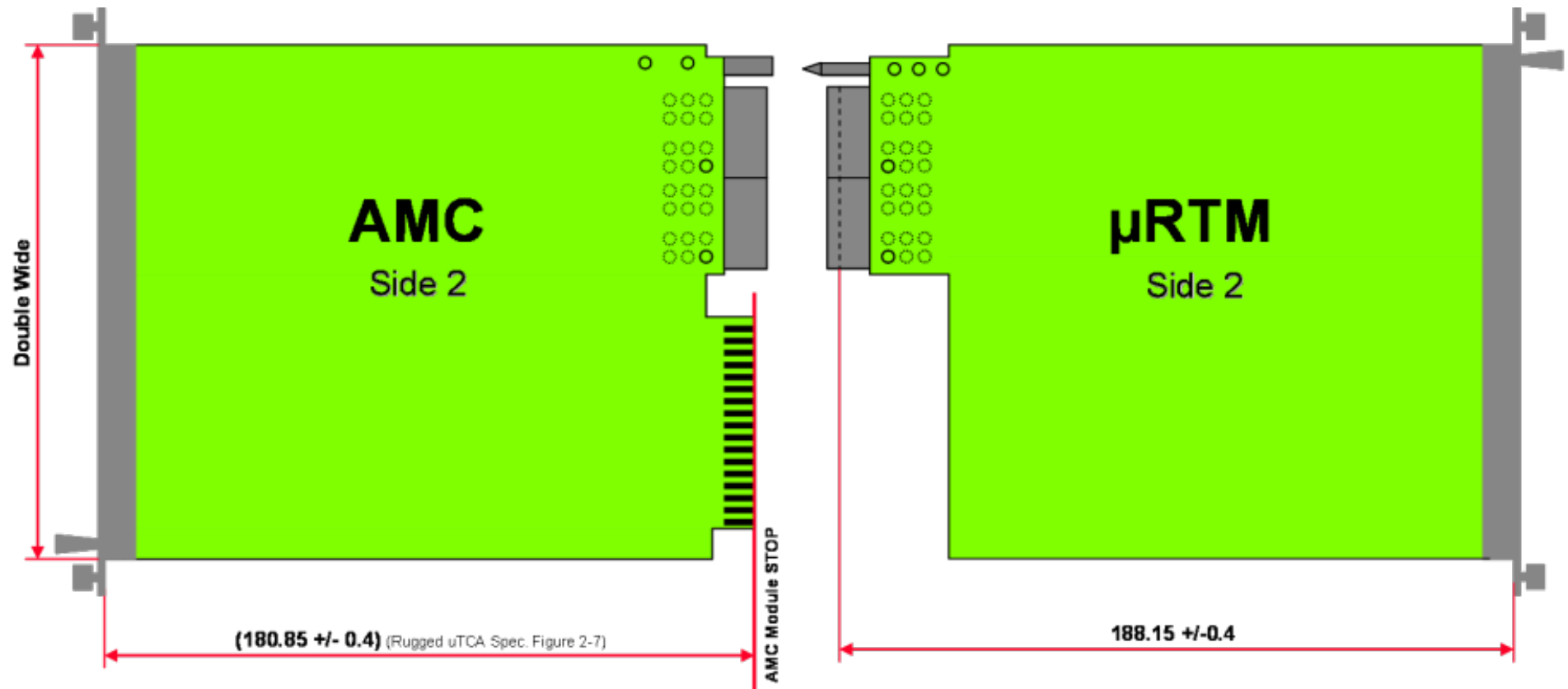
MTCA.4

MicroTCA Specification Family Tree



MTCA.4

Module Sizes



MTCA.4

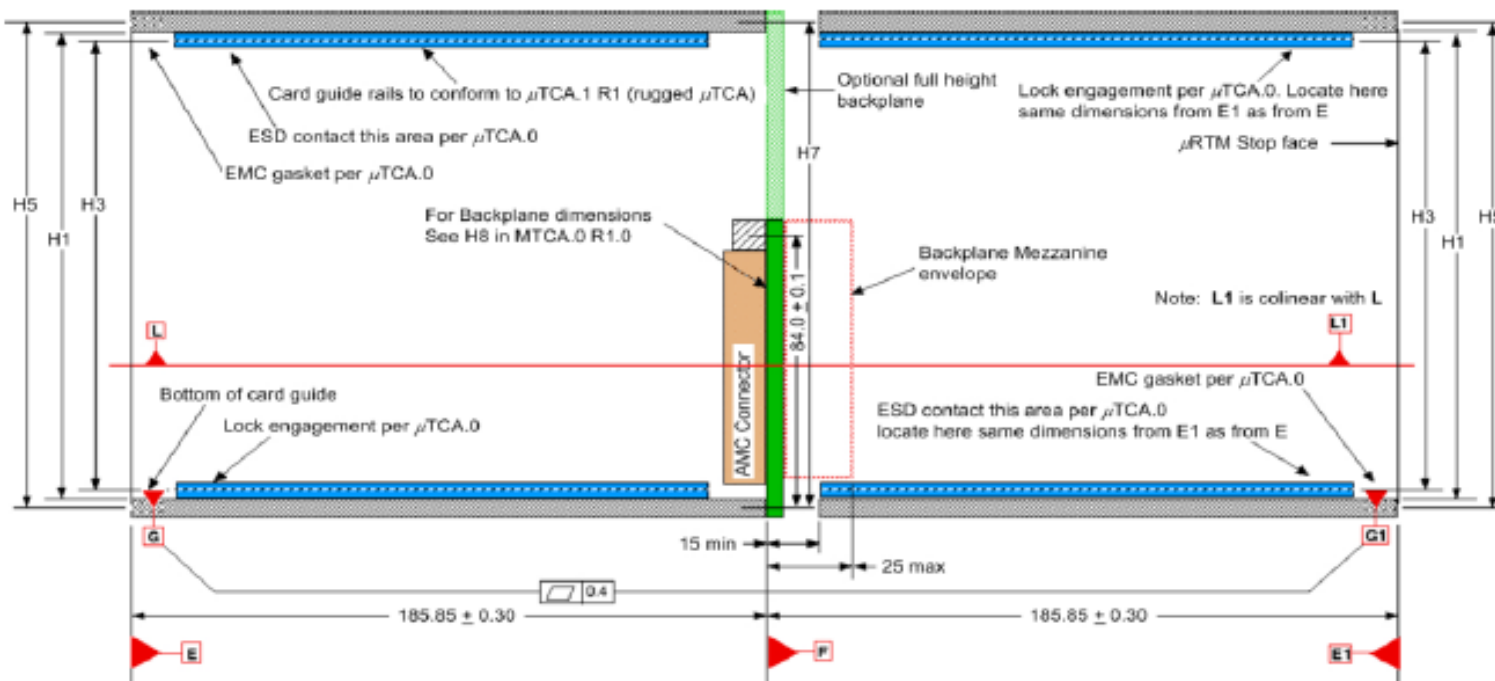
MTCA.4 Chassis dimension

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.



Thank You

