Schroff

# ATCA- MTCA- Crates

**Pre-Workshop MTCA**

**Real Time Conference**

**June, 2018**

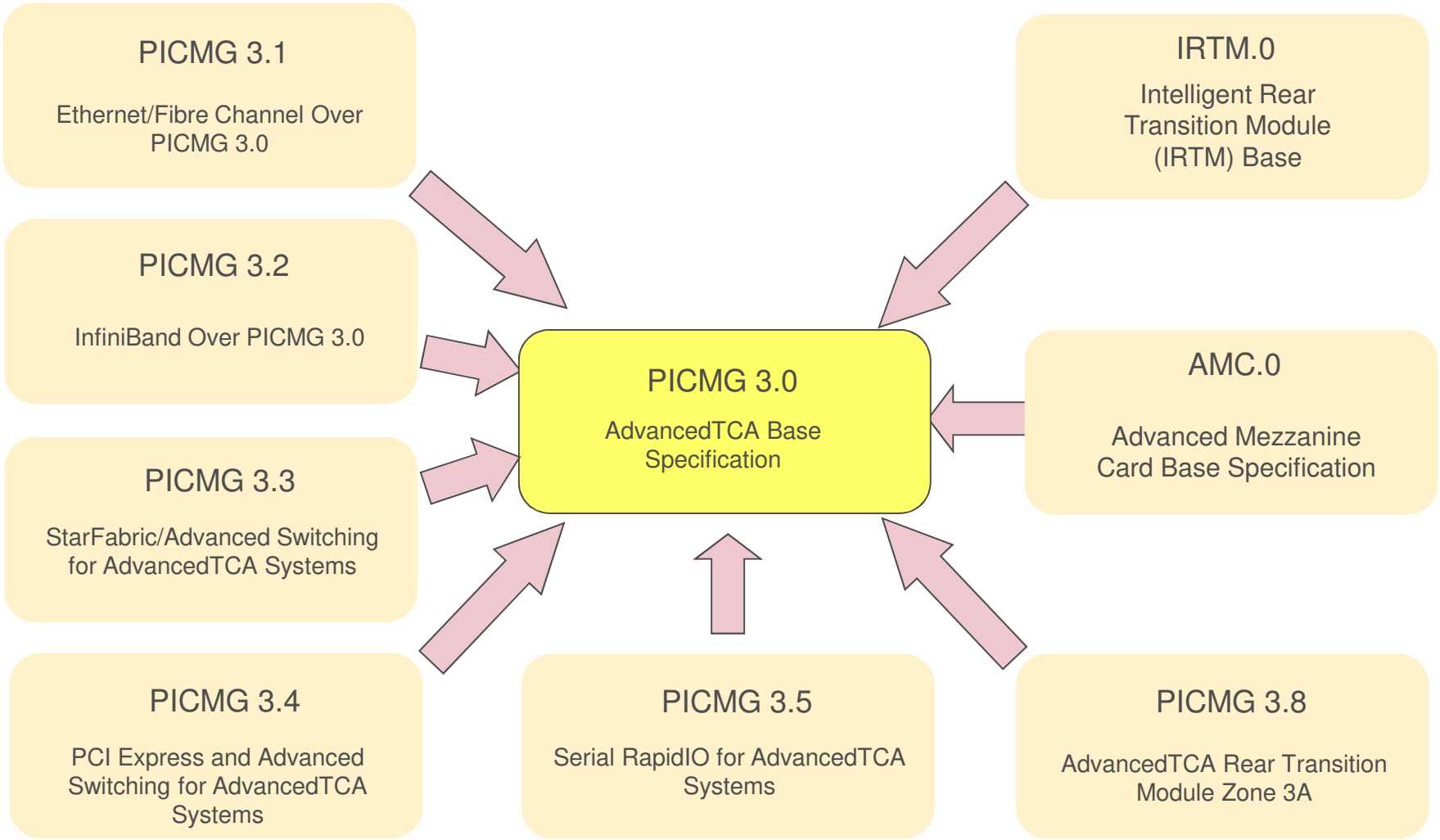
Ralf Waldt
June, 2018

# Agenda

- ATCA Crate
- MTCA.0/MTCA.1 Crate
- MTCA.2 Crate
- MTCA.3 Crate
- MTCA.4

# ATCA

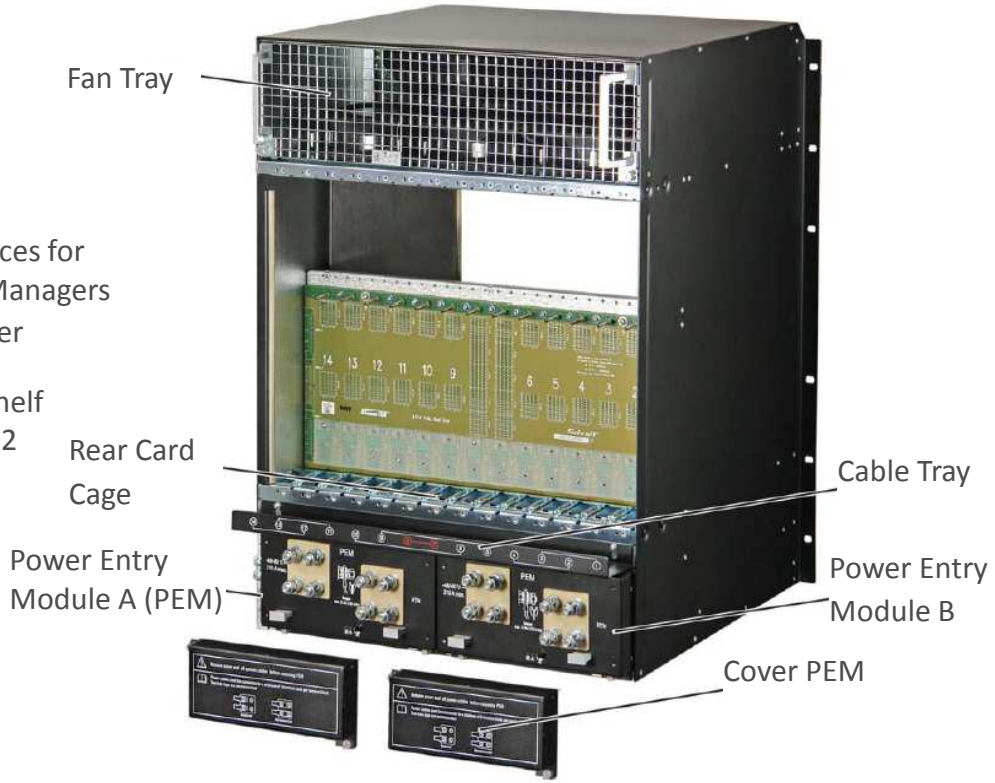
# ATCA Specification Family



# ATCA Crate Components

Front View


Rear View



# ATCA Crate

Variations of crates 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

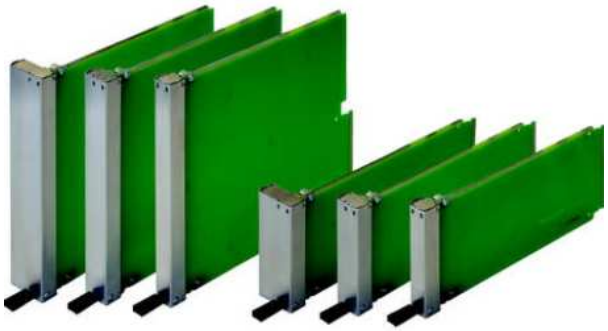
3U 2 Slots
Front-to-rear cooling
450W/slot

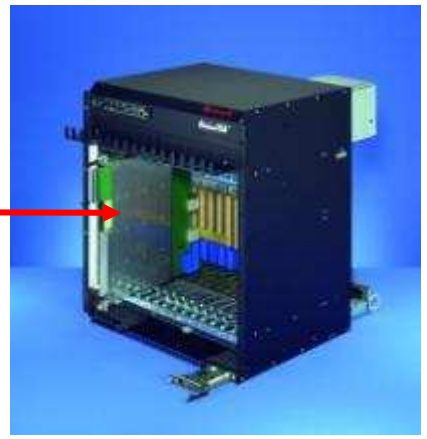
# MTCA.0

# 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

AMC.0 Modules





ATCA Shelf

MTCA Shelf

# MTCA.0

- As MicroTCA does not use a Carrier board, the power, management, clock distribution and switching functionality must be realized onto another device

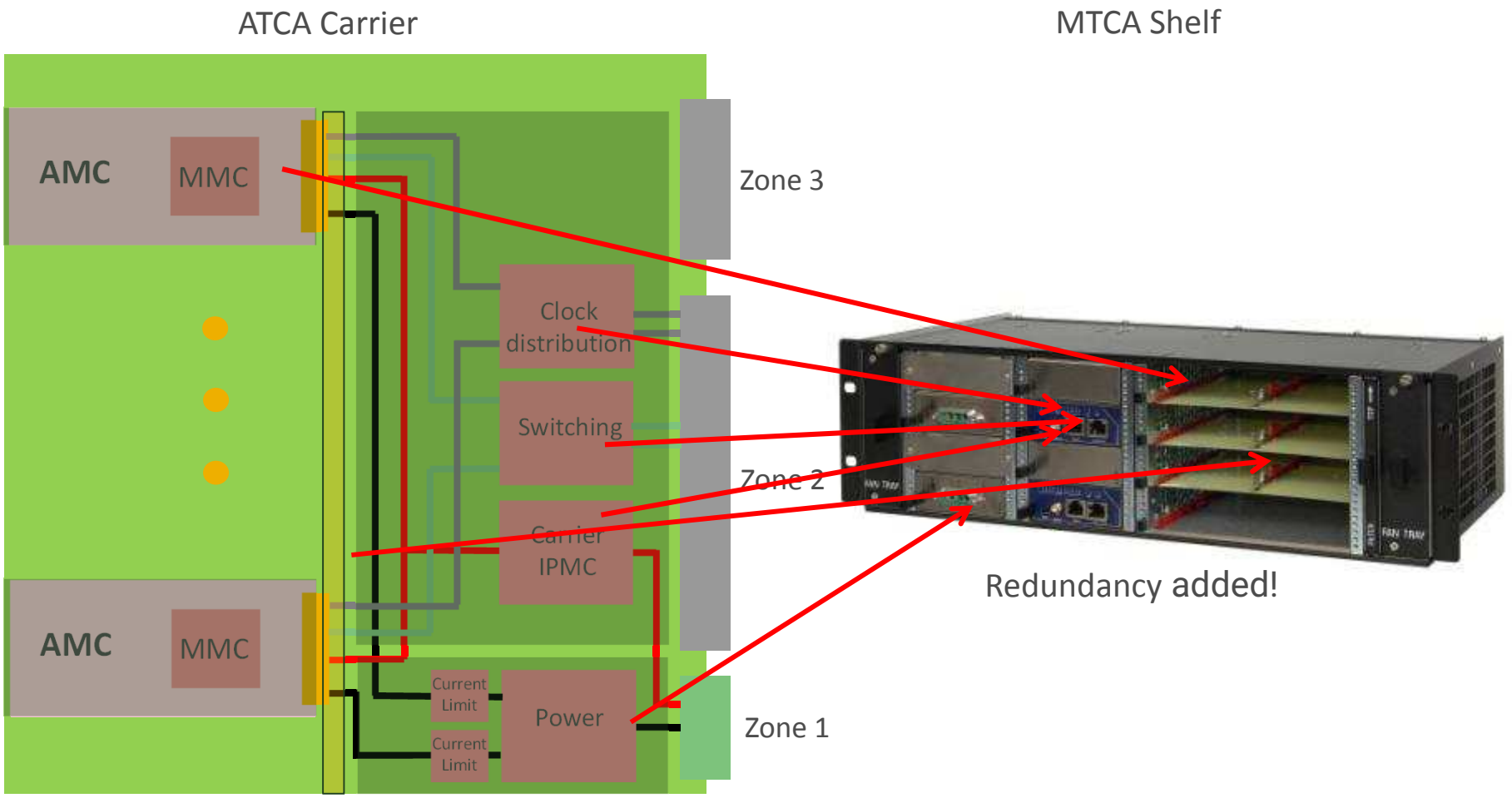
- Management Module: MCH (**M**TCA **C**arrier **H**ub)
  - IPMI management
  - clock distribution / generation
  - Switching functionality
  - JTAG slave / master
  - Redundant MCHs

- Power Module
  - 12V Payload Power
  - 3.3V Management Power
  - Redundant power modules

- Dedicated Slots for these modules are located in the MTCA Shelf

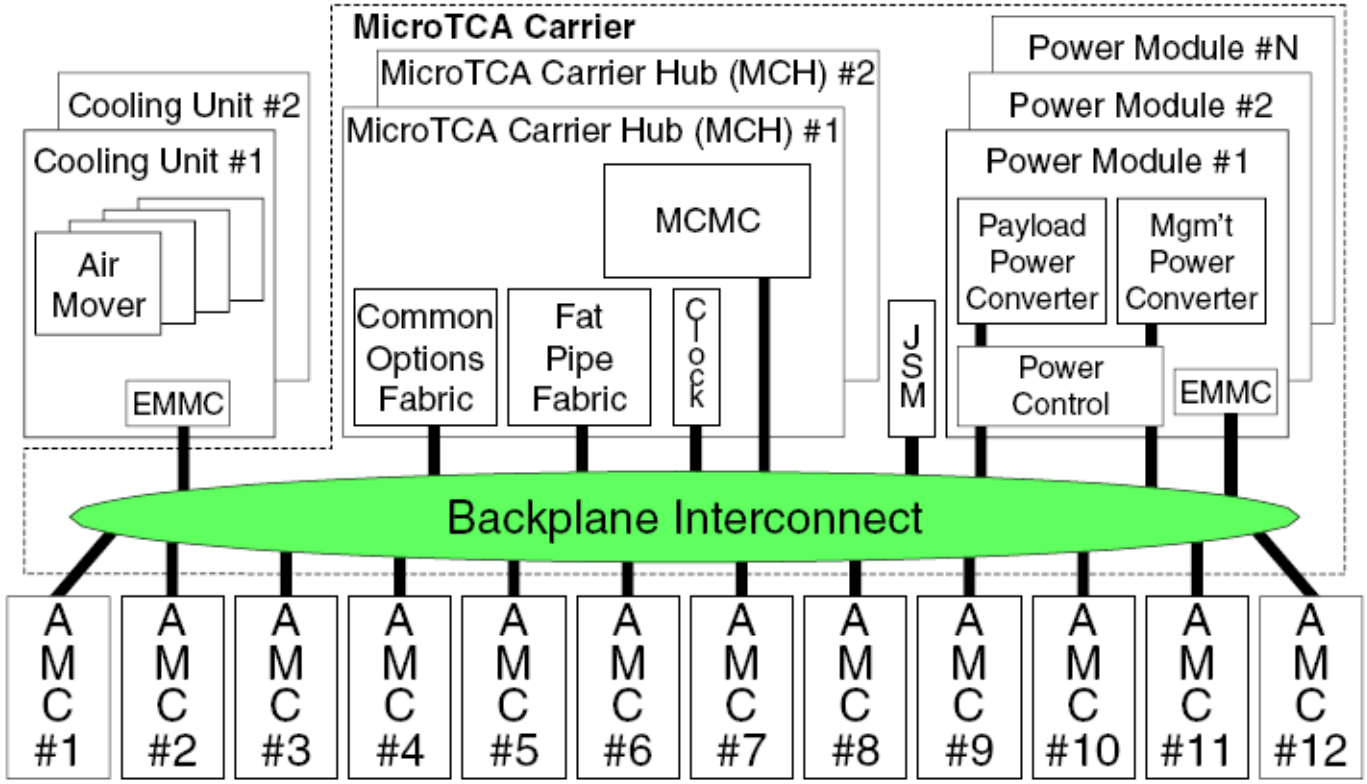
- The position and the form factor of the cooling unit is depending on the cooling concept.

# MTCA.0


ATCA Carrier
MTCA Shelf
AMC
MMC
AMC
MMC
Clock distribution
Switching
Carrier IPMC
Current Limit
Current Limit
Power
Zone 3
Zone 2
Zone 1
Redundancy added!

# MTCA.0

## MicroTCA block diagram



# MTCA.0/MTCA.1 Crate

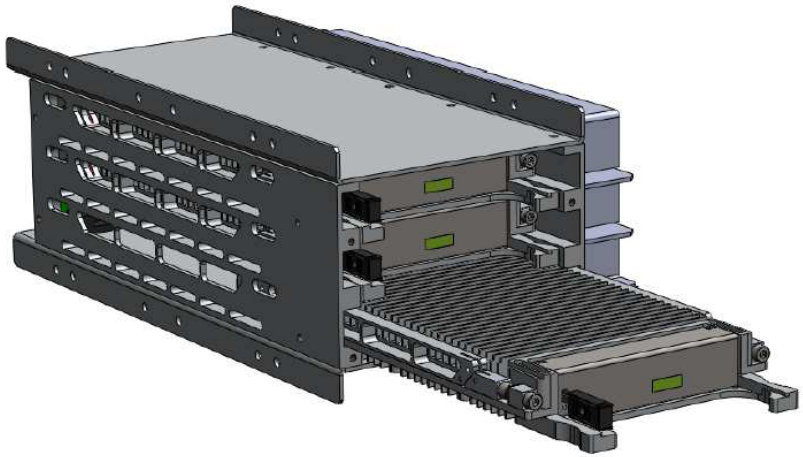
The variation of MTCA crate are depending on:

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


# 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**



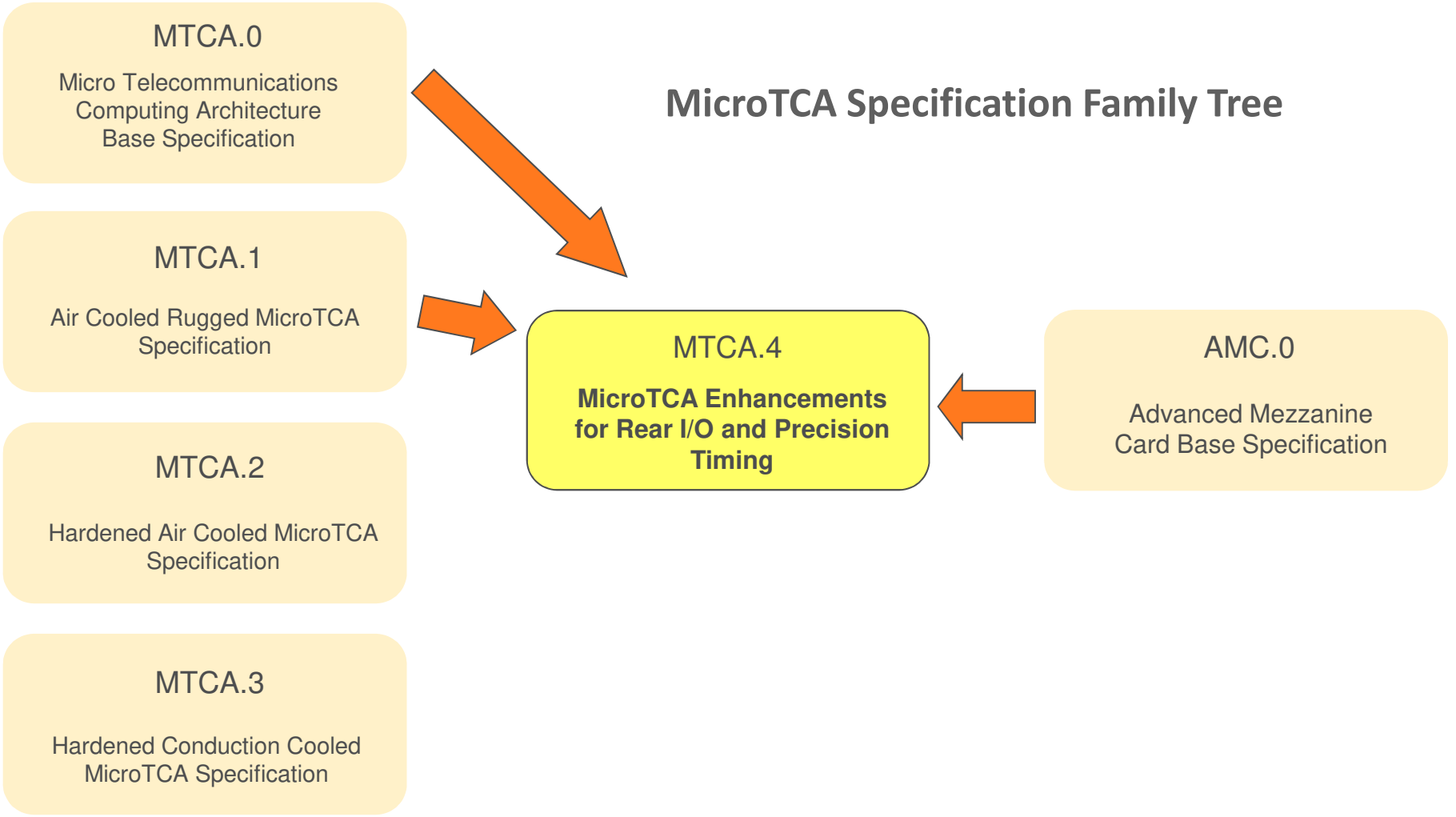
# MTCA.3

**MicroTCA.2 – 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**

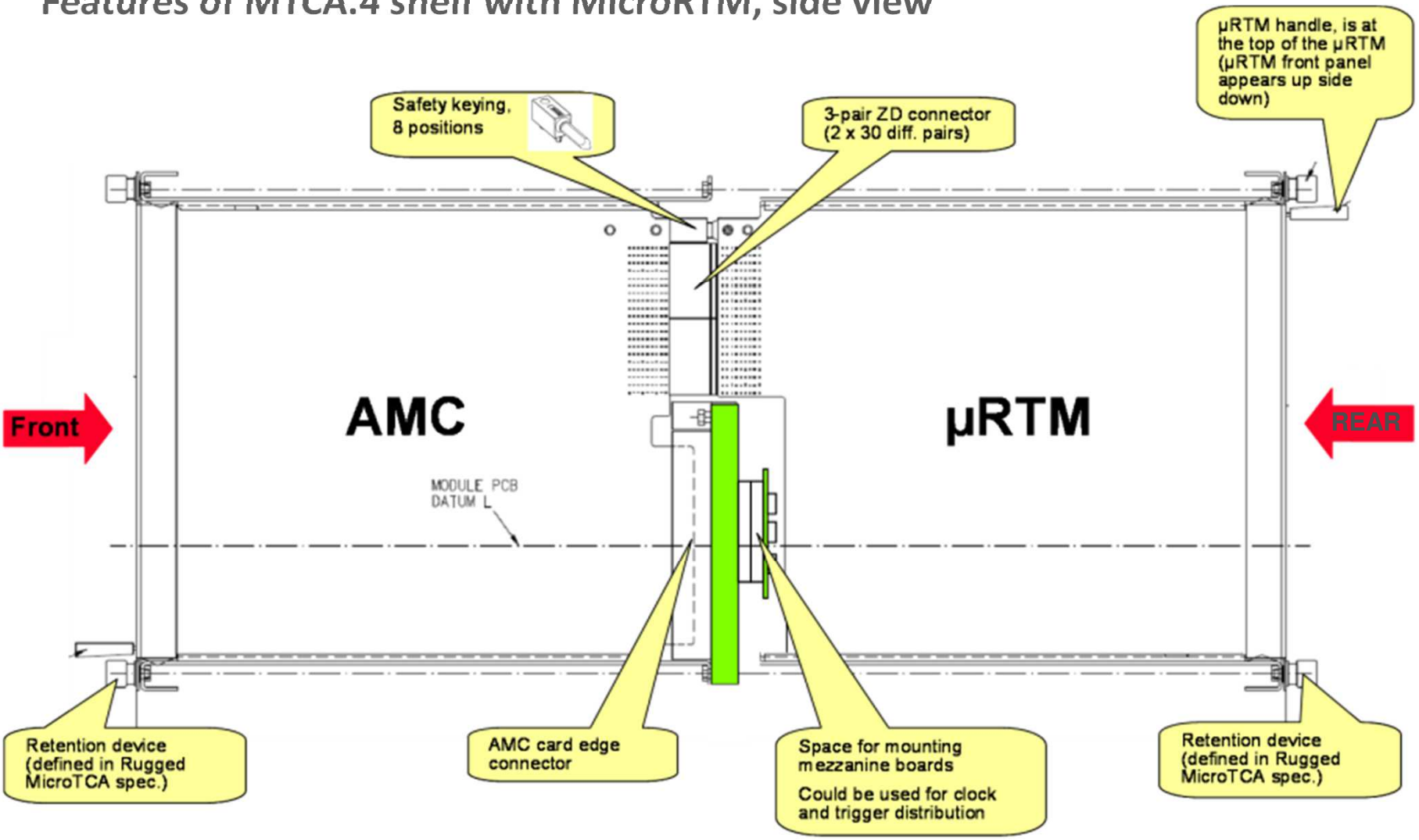
# MTCA.4

# MTCA.4


MTCA.0
Micro Telecommunications Computing Architecture Base Specification
MTCA.1
Air Cooled Rugged MicroTCA Specification
MTCA.2
Hardened Air Cooled MicroTCA Specification
MTCA.3
Hardened Conduction Cooled MicroTCA Specification
MicroTCA Specification Family Tree
MTCA.4
MicroTCA Enhancements for Rear I/O and Precision Timing
AMC.0
Advanced Mezzanine Card Base Specification

# MTCA.4

## Features of MTCA.4 shelf with MicroRTM, side view



# MTCA.4

## MTCA.4 Chassis types

**Various different MTCA.4 chassis available**

- Fully redundant
- Compact sizes
- Small form factors
- Different cooling concepts
- Different backplane topologies

# Thank You