Extension Management for MTCA.4

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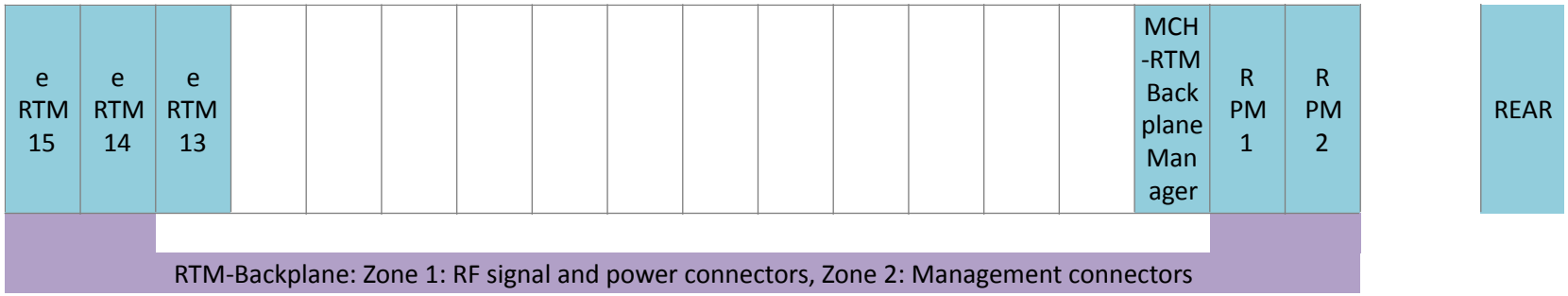
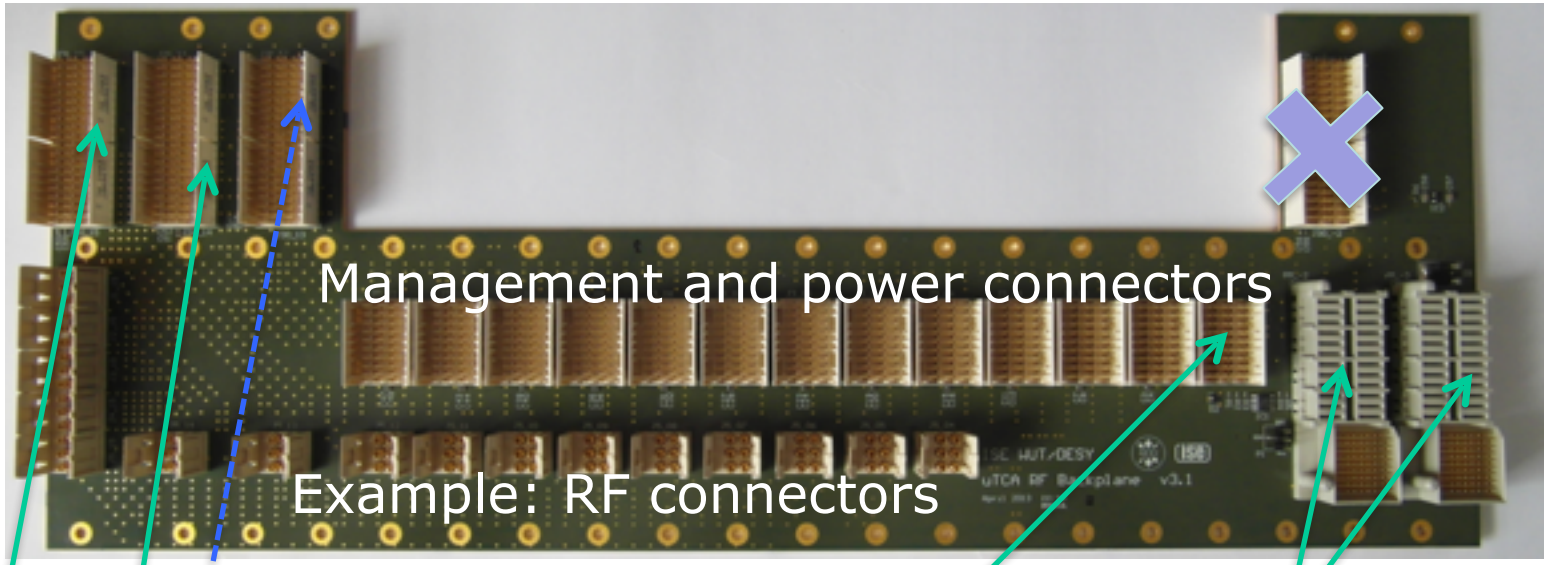
Agenda

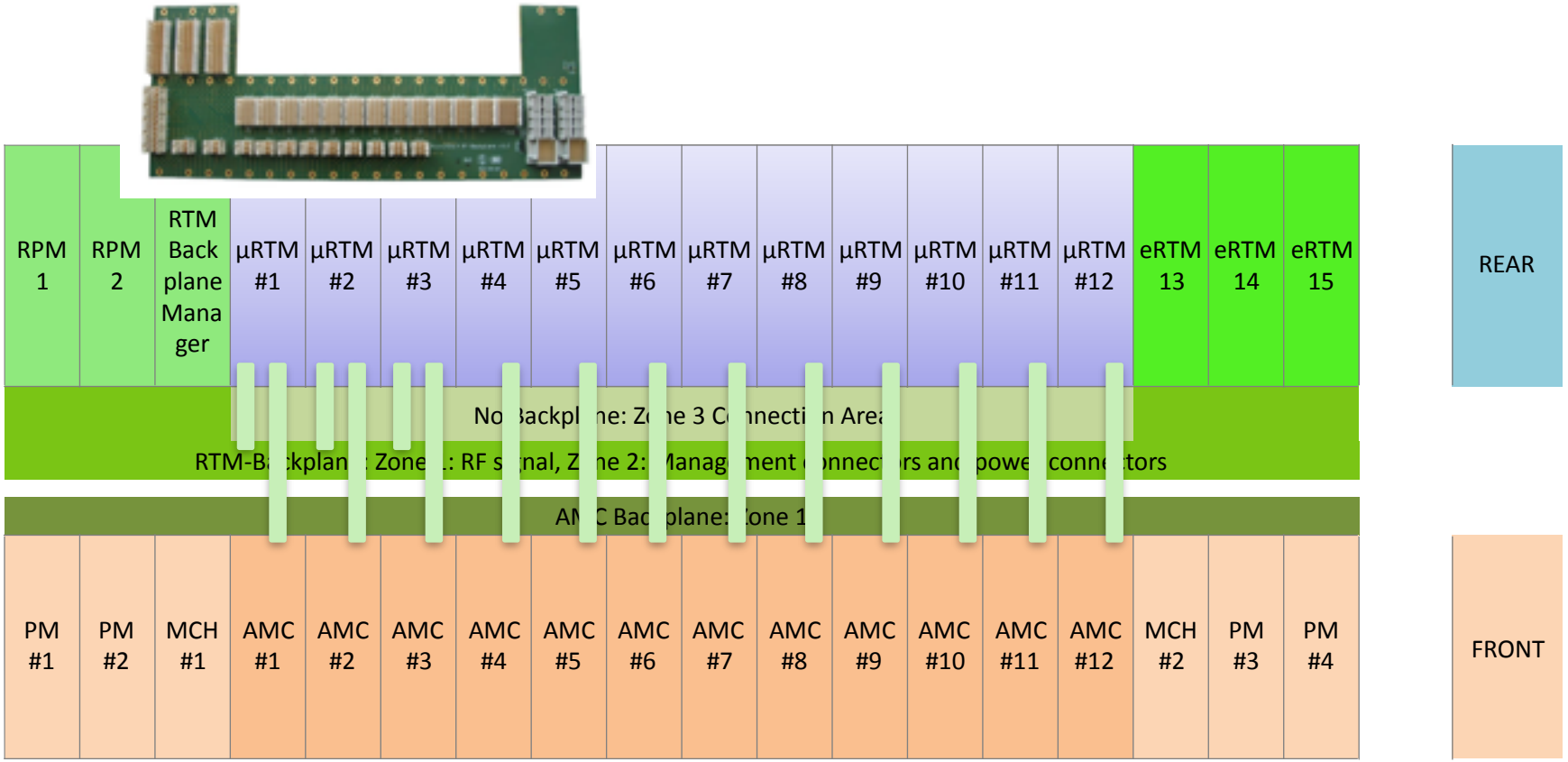
- Status of Key parts for the new RTM backplane
  - µRTM Backplane: LLRF backplane
  - eRTM and µRTM: covered in other talk in Session 2
  - MCH-RTM-BM: backplane management extension
  - RPM: Rear Power modules
- Extension Management Software
  - management of Rear Power Modules
  - management of eRTMs
- Standardization: Talk of Ray Larsen in Session 5

Next Extension of MTCA.4:
Adding µRTM Backplane





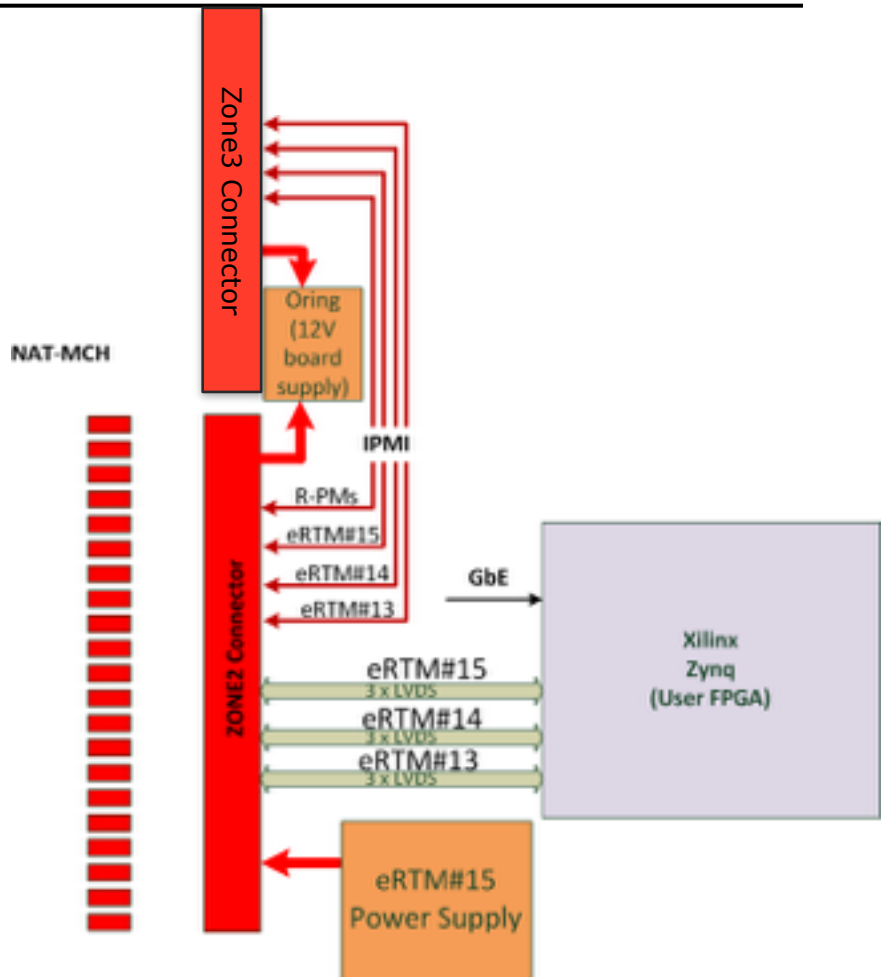
MTCA.4 µRTM Backplane:
Status: Commercial Available



Top-View of MTCA.4 System with additional RTM Backplane, Rear Power Modules, MCH-RTM and optional eRTMs

Zone-3 and Zone-2 Signals
Interconnection MCH + MCH-RTM + µRTM backplane

- Zone3 of MCH and RTM connector have to support
  - control of µRTM-Backplane for example RTM-RF
    - IPMB-L for eRTM13,14,15
    - IPMI-0 for Rear Power Module (RPM)
    - I2C for µRTM Backplane FRU device
  - Optional:
    - Power for eRTM15 if no RPM available
  - Standard µRTM pins: JTAG, MP, PP for MCH-RTM
  - Optional Pins: SPI, PCIe, GbE, SATA
- Zone2 connector
  - IPMB-L for eRTM13,14,15 and IPMI-0 for RPMs
  - I2C for µRTM-Backplane
  - power for eRTM15
  - Data bus

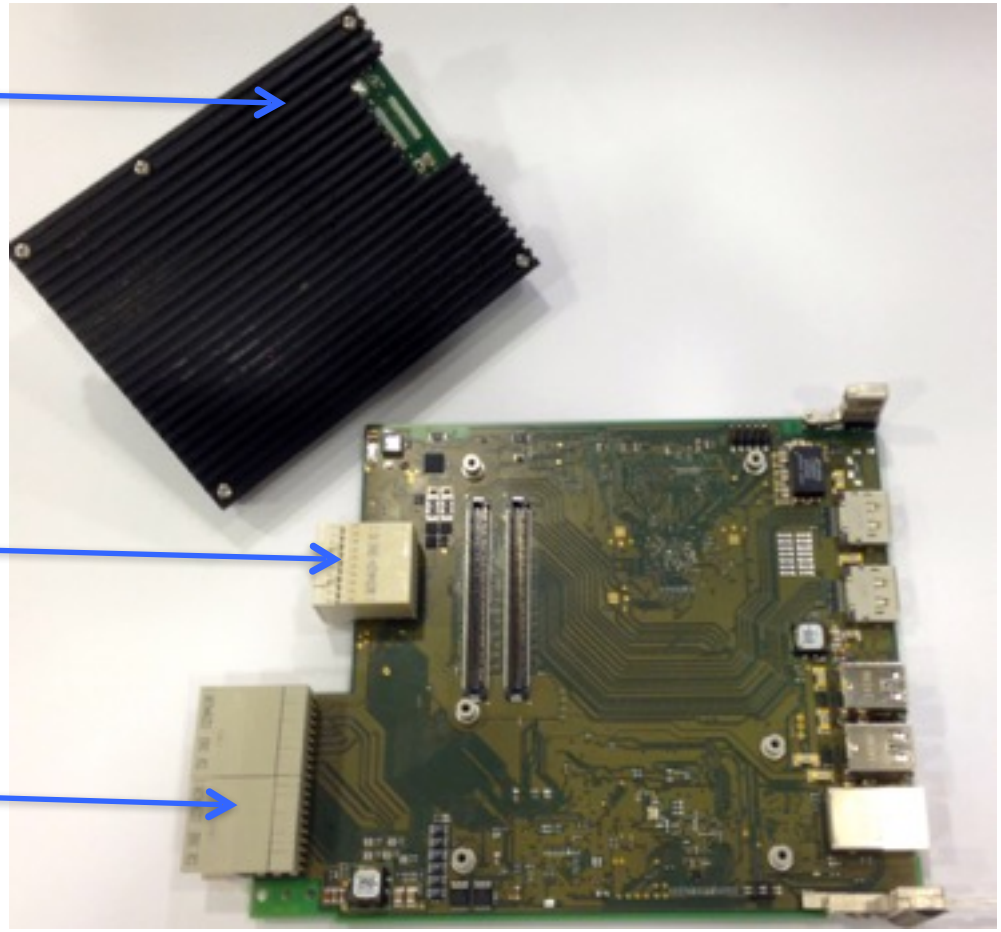


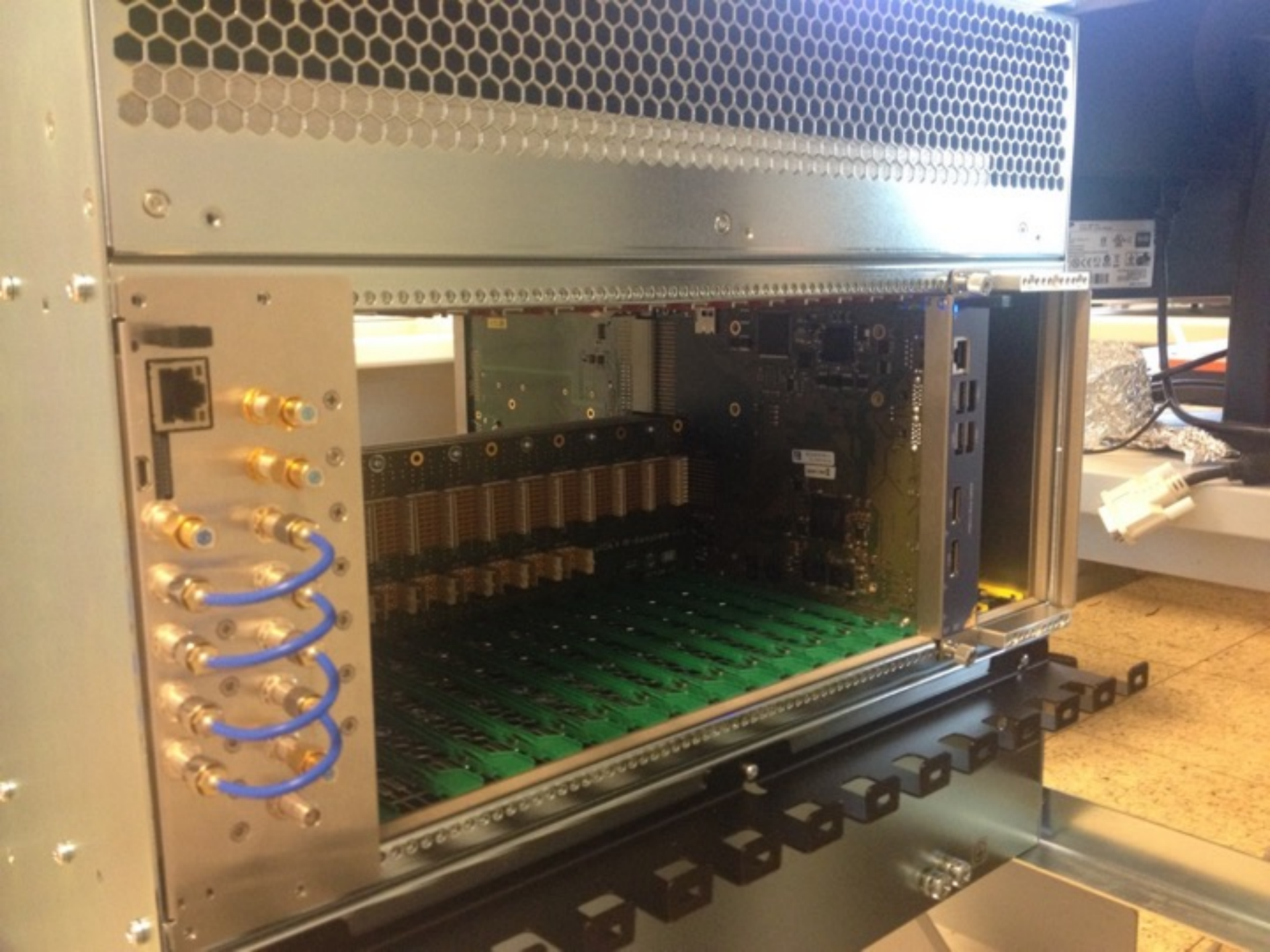
Example MCH-RTM:
NAT-MCH-RTM-BM: commercial available

Optional:
COMexpress-CPU-Module

µRTM Power connector
µRTM Control&Data connector

Second Zone3 connector

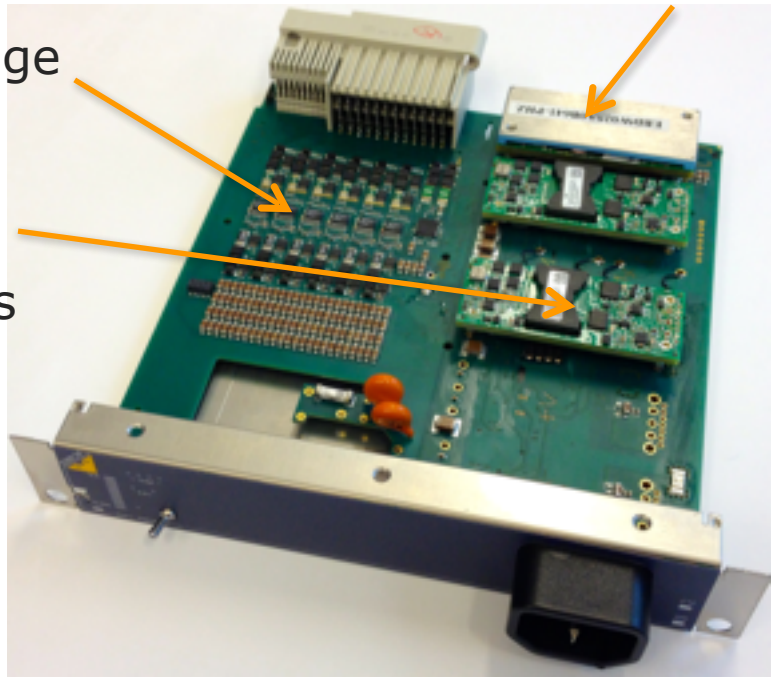




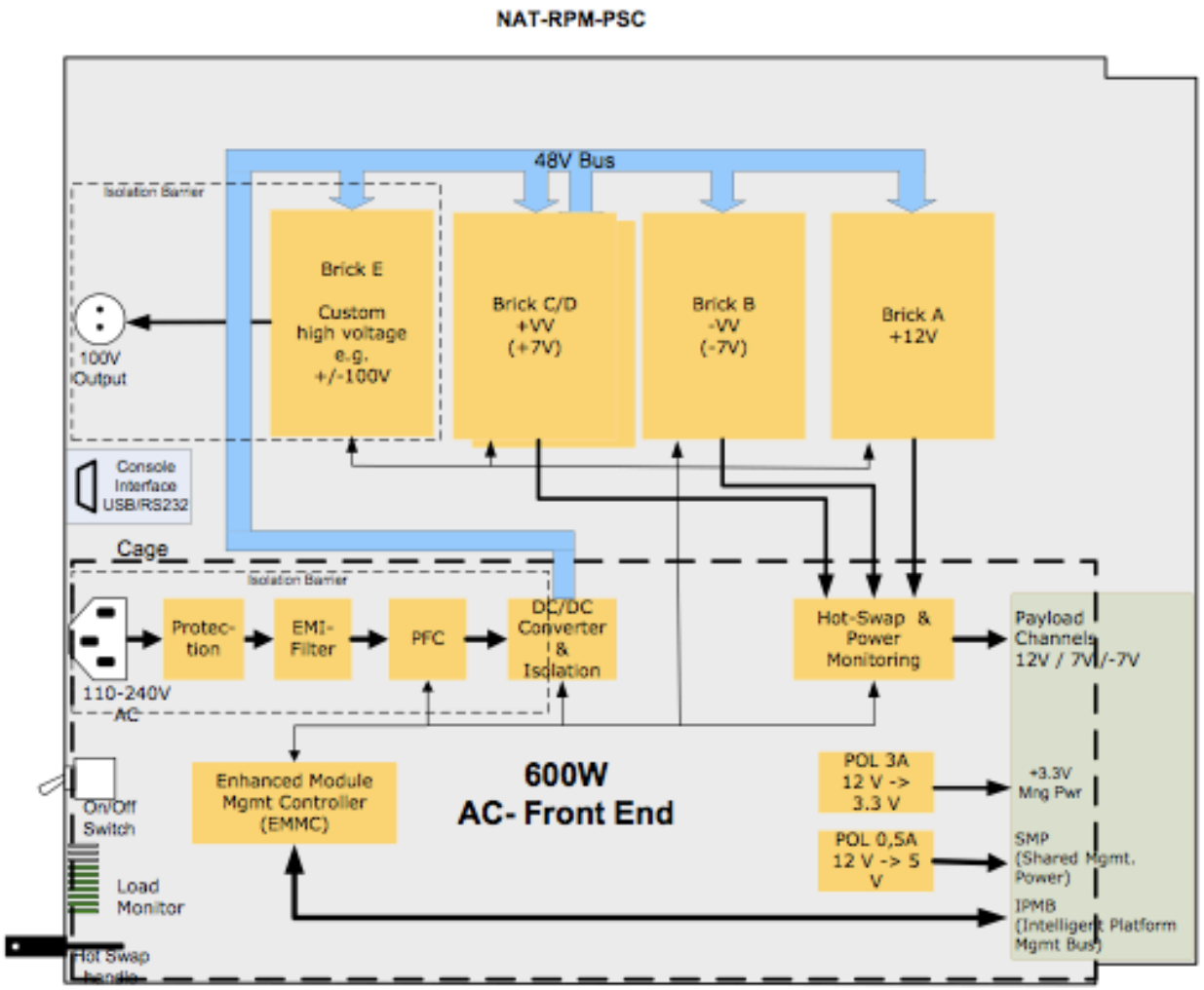

12 11 10 9 8 7 6 5 4 3 2 1

Rear Power Module Example
NAT-RPM-PSC: soon commercial available

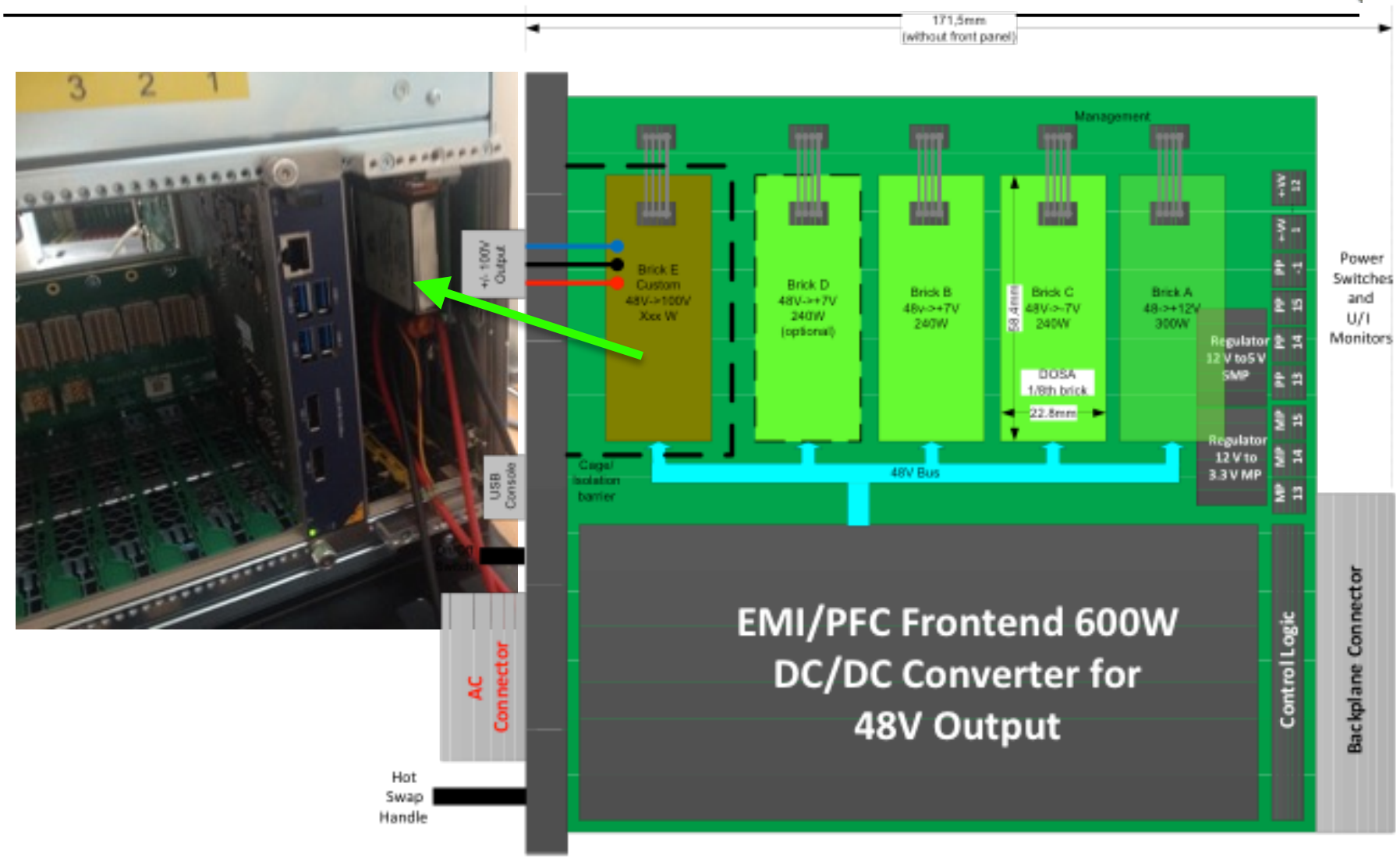
- Rear Power Module as Power Supply Carrier for
  - AC600 sub module with card cage
  - Up to 4 Sub modules for +V, -V
  - Submodules in different formats



Rear Power Module
NAT-RPM-PSC



100V Piezo-Switch



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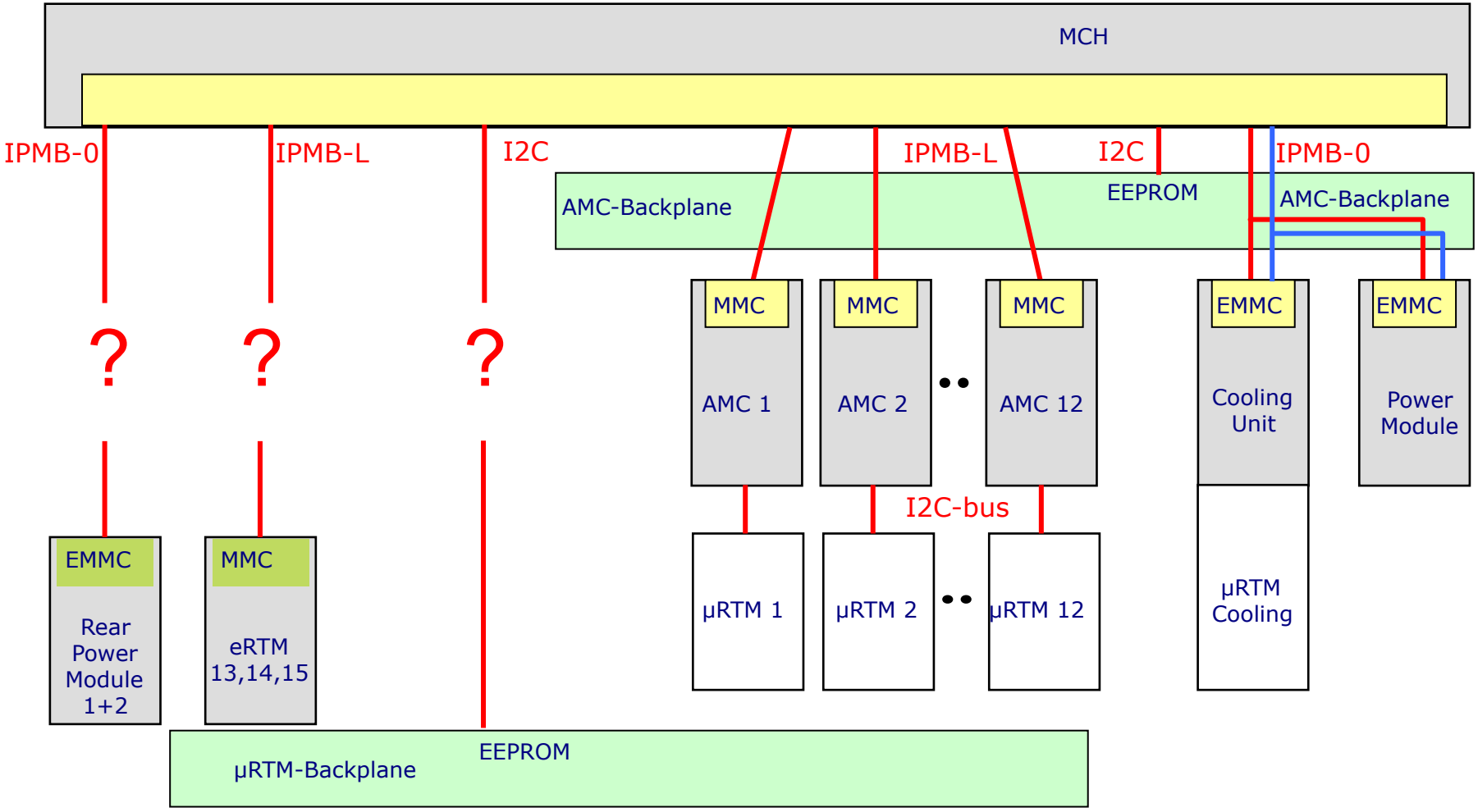
MCH Firmware Extension
RPM, eRTM, µRTM Backplane



PICMG Standardisation
Extension to MCH firmware

- New I2C addresses
- Extension of FRU-IDs for eRTMS
- New Power Records:
    - RF Carrier Activation Record (BP FRU)
    - Power Module Capability Record
    - Module Current Requirement Record
- E-Keying Support for RF high speed signals
- Sequencing of power up front and rear power modules ?

MCH Firmware Extension
Enhanced and new Commands

- show_fruinfo <FRU-ID>
  - shows power records of RPMs, µRTM
- show_pm
  - show_pm rear
    - shows rear power modules
  - show_pm <FRU-ID>
    - shows additional power records
  - -r_vv_on <FRU-ID><pC><rail><Volt>
    - enable variable voltage of RPM, power channel, rail-ID, voltage in 0.1V steps
  - -r_vv_off <FRU-ID><pC><rail>
    - disable variable voltage
- start_ertm15
  - payload power (12V) for eRTM15
- stop_ertm15

Thank you very much!
Questions?

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