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

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This presentation shows, how to optimize the space in MTCA.4 chassis by saving up to 6 AMC slots. This solution maximize the number of available IO slots up to 12 slots.

Even so rear transition modules are defined in MTCA.4 standard the number of AMC slots is limited to 12 AMC slots plus 12  $\mu$ RTM slots.

So far some AMC slots are used for CPU, SATA storage and graphic boards. In redundant system there are up to 6 AMC slots occupied leaving only 6 AMC slots free for IO.

But there is unused space around the MCH slots in MTCA.4 chassis. Standard MCHs are available as single, full-size boards. This leaves space above the MCH slots and in several MTCA.4 chassis also on the rear side of the MCH slot.

By the effective usage of this space around the MCH slots by using the NAT-MCH-PHYS and NAT-MCH-RTM-COMex-i7, all 12 AMC slots can be made available for IO. The CPU, storage (SSD) and graphic interfaces are all in the MCH slots together with the full blown functionality of a MCH.

The presentation also explains how the NAT-MCH-CLK-PHYS solves the specific Clock requirements like stability and jitter less than 5 ns.

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