SpaceWire backplane

Osaka University
NOMACHI, Masaharu

Backplane is needed because …

Avoid mess of cables

Avoid mess on your desk.

    Compact package

Power supply

Cooling (on the ground)

SpaceWire backplane for ….

Flight modules

Space qualification is necessary

R&D with Mitsubishi electric

Prototype modules

Sensor test setup
Software development
Connectivity test setup

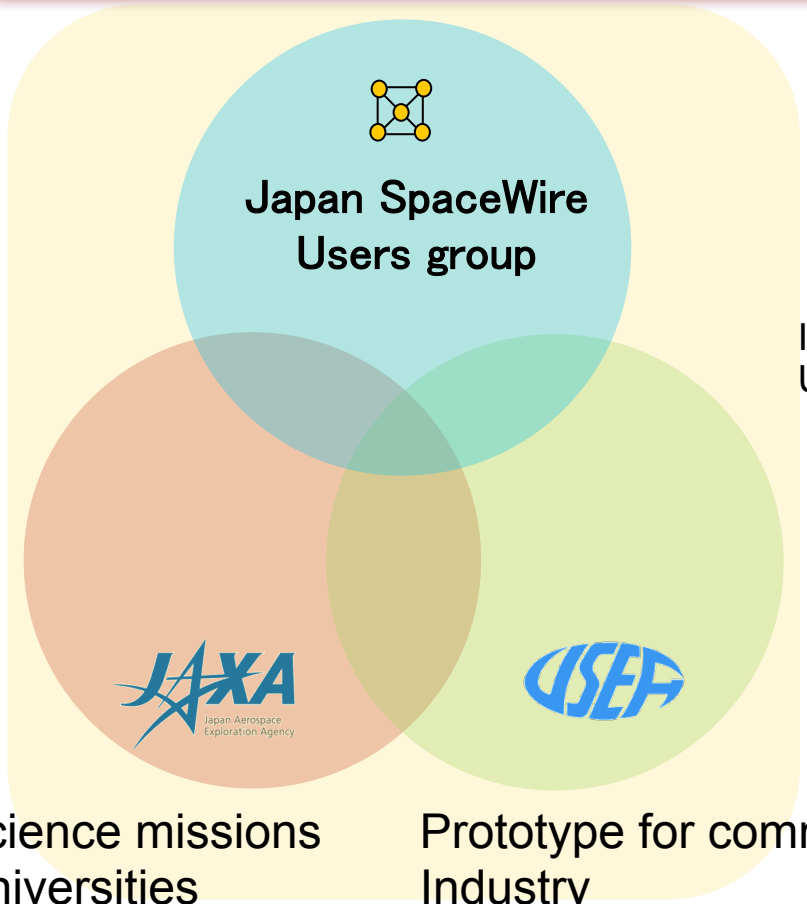
Test equipment

analyzer
Traffic generator

Space qualification is not needed

SpaceWire test office

SHIMAFUJI



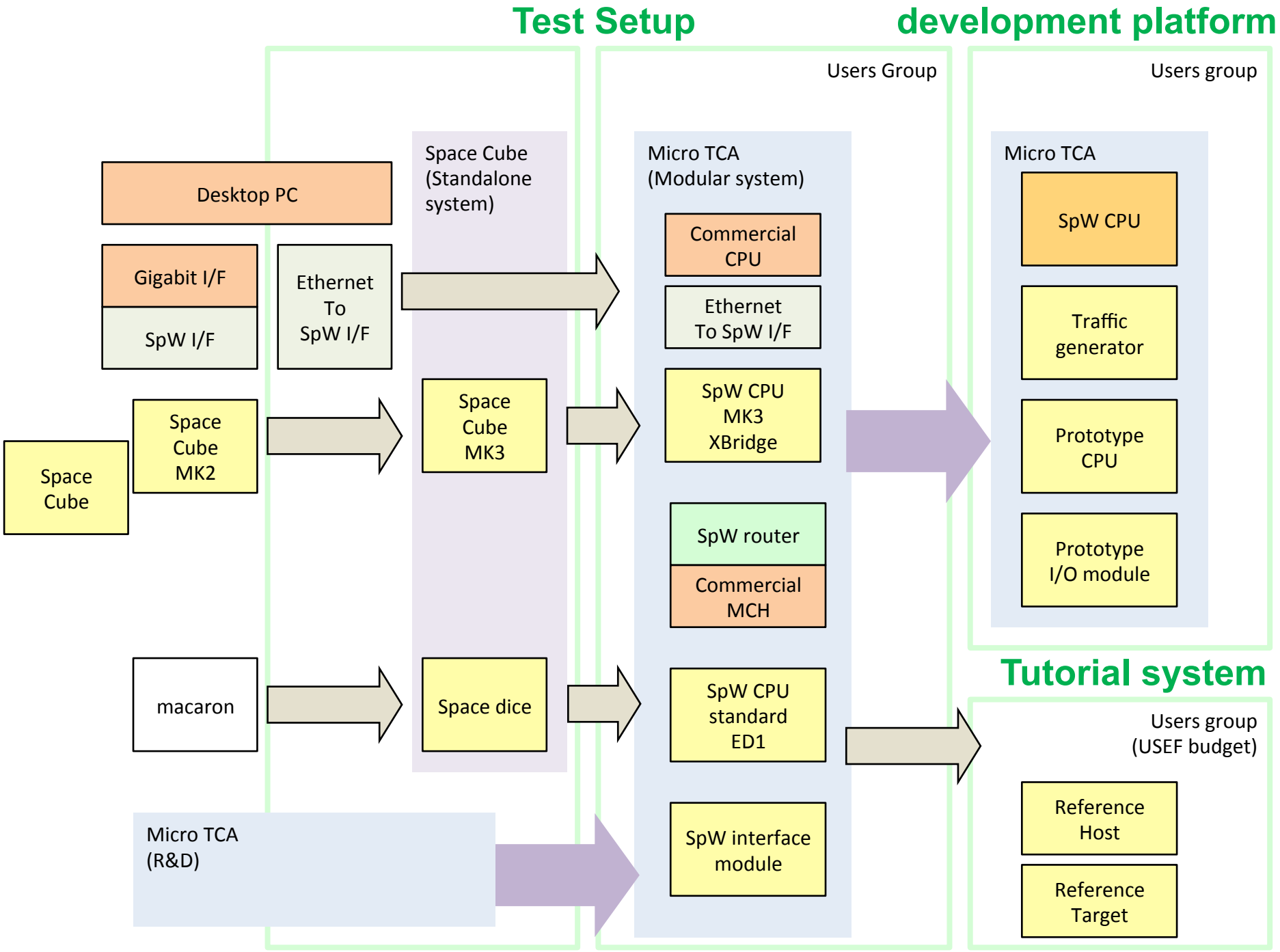
Not an official compliance test
Accumulate user's experience
Tutorials for new users

Institute for
Unmanned Space Experiment Free Flyer (USEF)

USEF is a government funded non-profit organization to promote research and development of unmanned space experiment systems, to perform experiments in the space.

Science missions
Universities

Prototype for commercial satellites
Industry

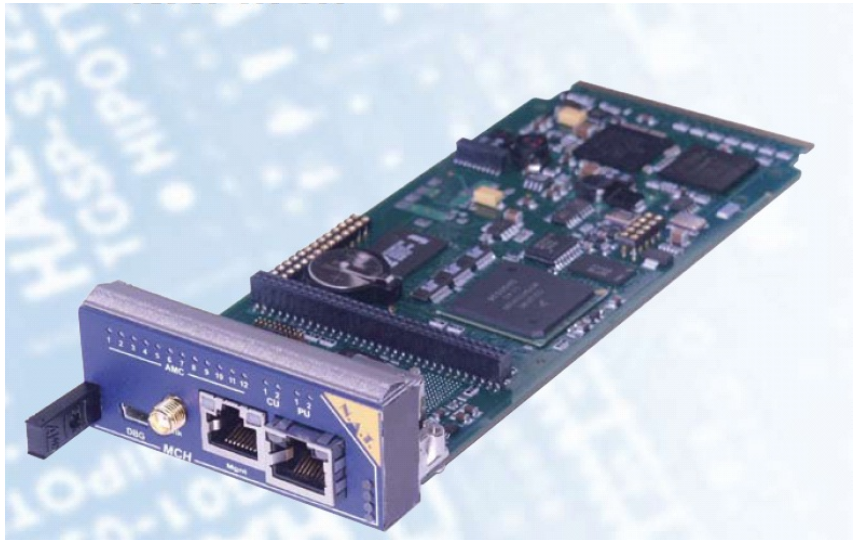

Test Setup
development platform
Users Group
Users group
Desktop PC
Gigabit I/F
SpW I/F
Ethernet
To
SpW I/F
Space Cube
(Standalone
system)
Micro TCA
(Modular system)
Commercial
CPU
Ethernet
To SpW I/F
Micro TCA
SpW CPU
Traffic
generator
Space
Cube
Space
Cube
MK2
Space
Cube
MK3
SpW CPU
MK3
XBridge
Prototype
CPU
SpW router
Commercial
MCH
Prototype
I/O module
Tutorial system
macaron
Space dice
SpW CPU
standard
ED1
Users group
(USEF budget)
Reference
Host
Micro TCA
(R&D)
SpW interface
module
Reference
Target

AdvancedMC™

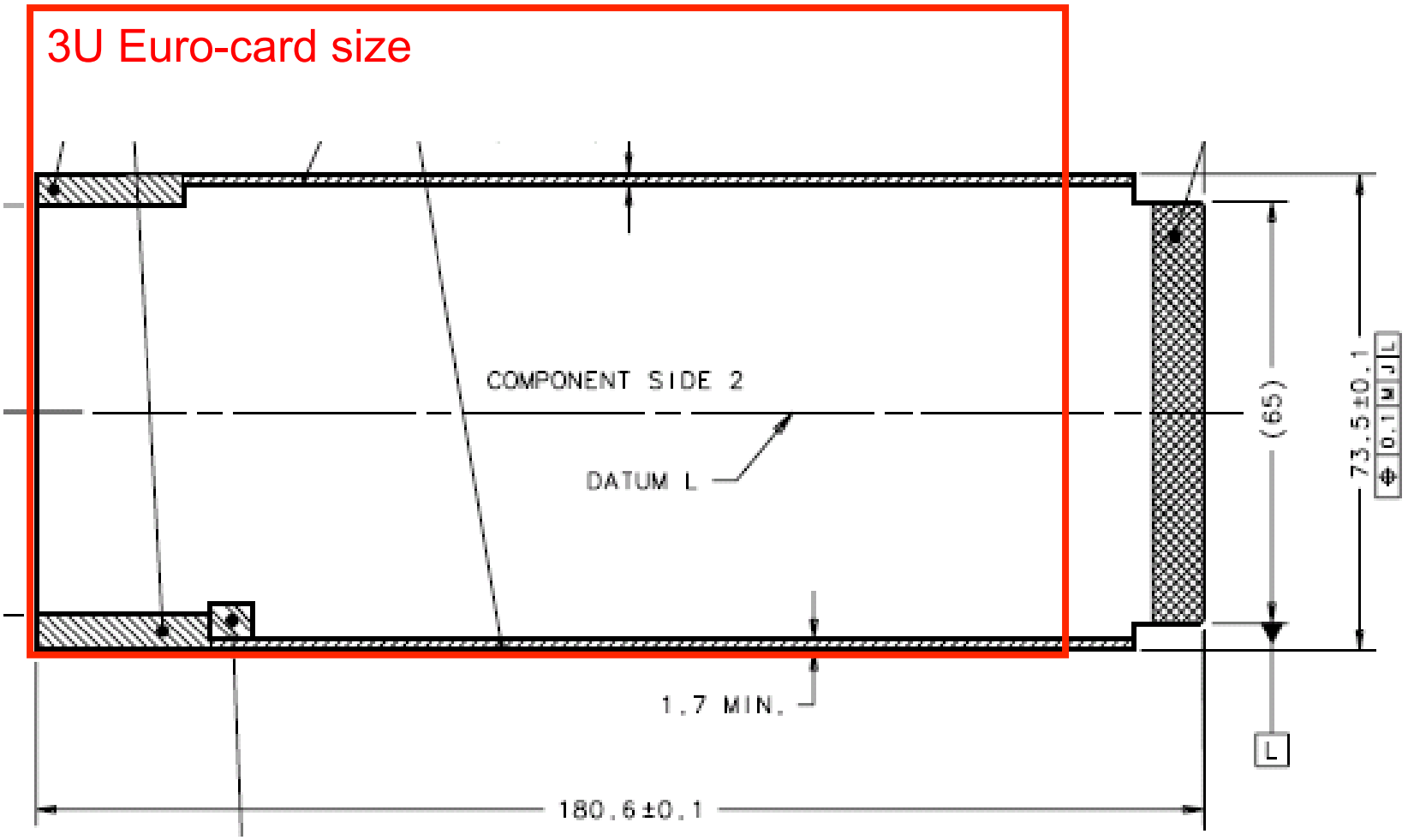
AMC Mezzanine card

CMC = common mezzanine card
PMC = PCI mezzanine card
AMC = Advanced mezzanine card

Point to point Serial data link
Hot Swap
Card Edge Connector

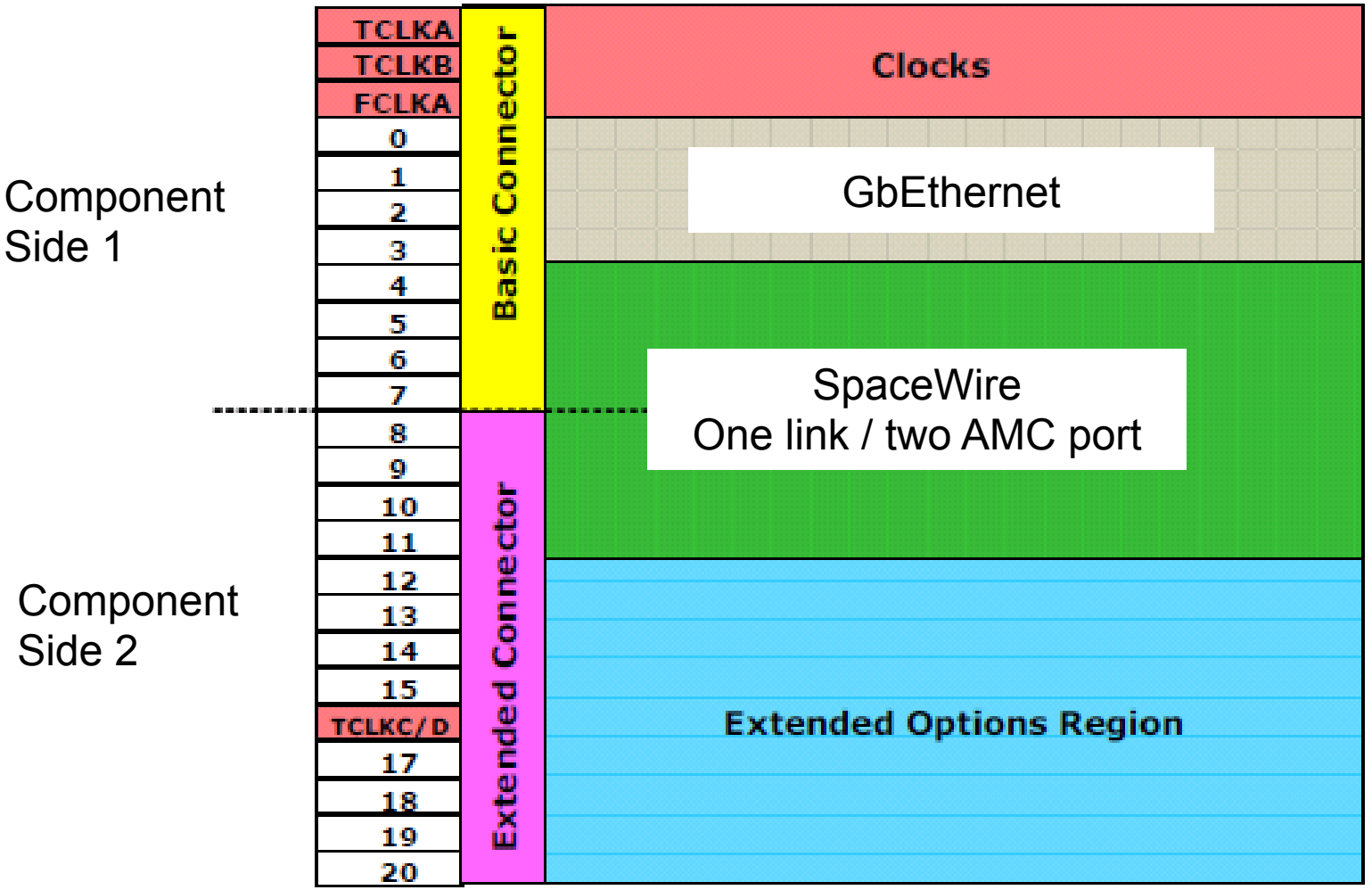


AMC board size



Backplane serial link

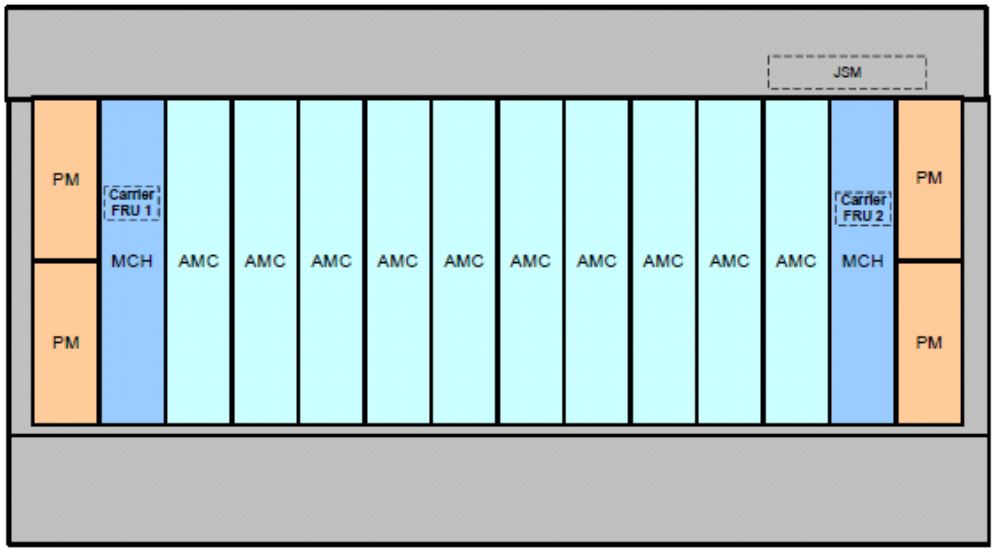
Figure 6-3 AMC Port mapping regions



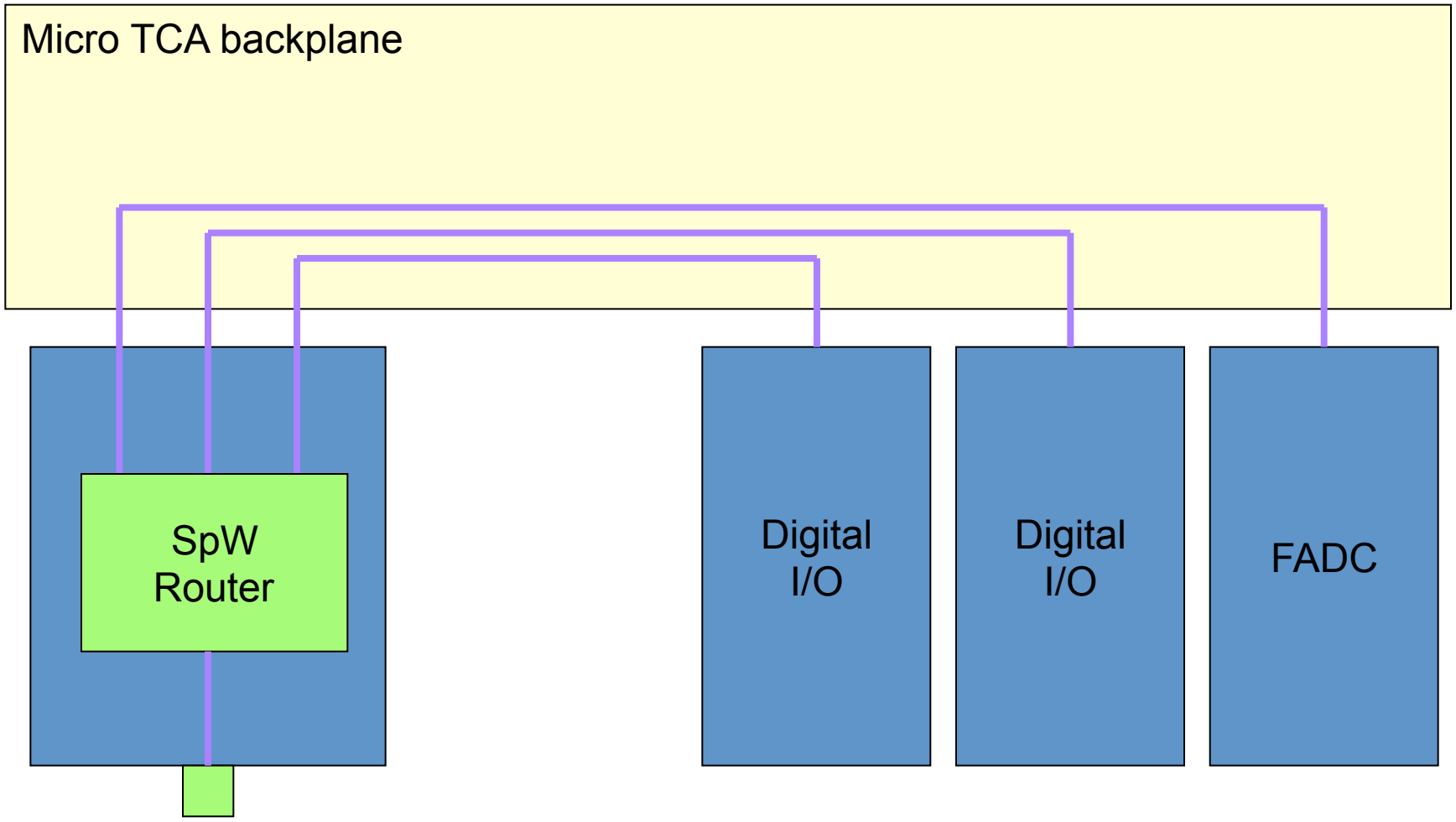
4 SpW link / module @ backplane

μTCA™

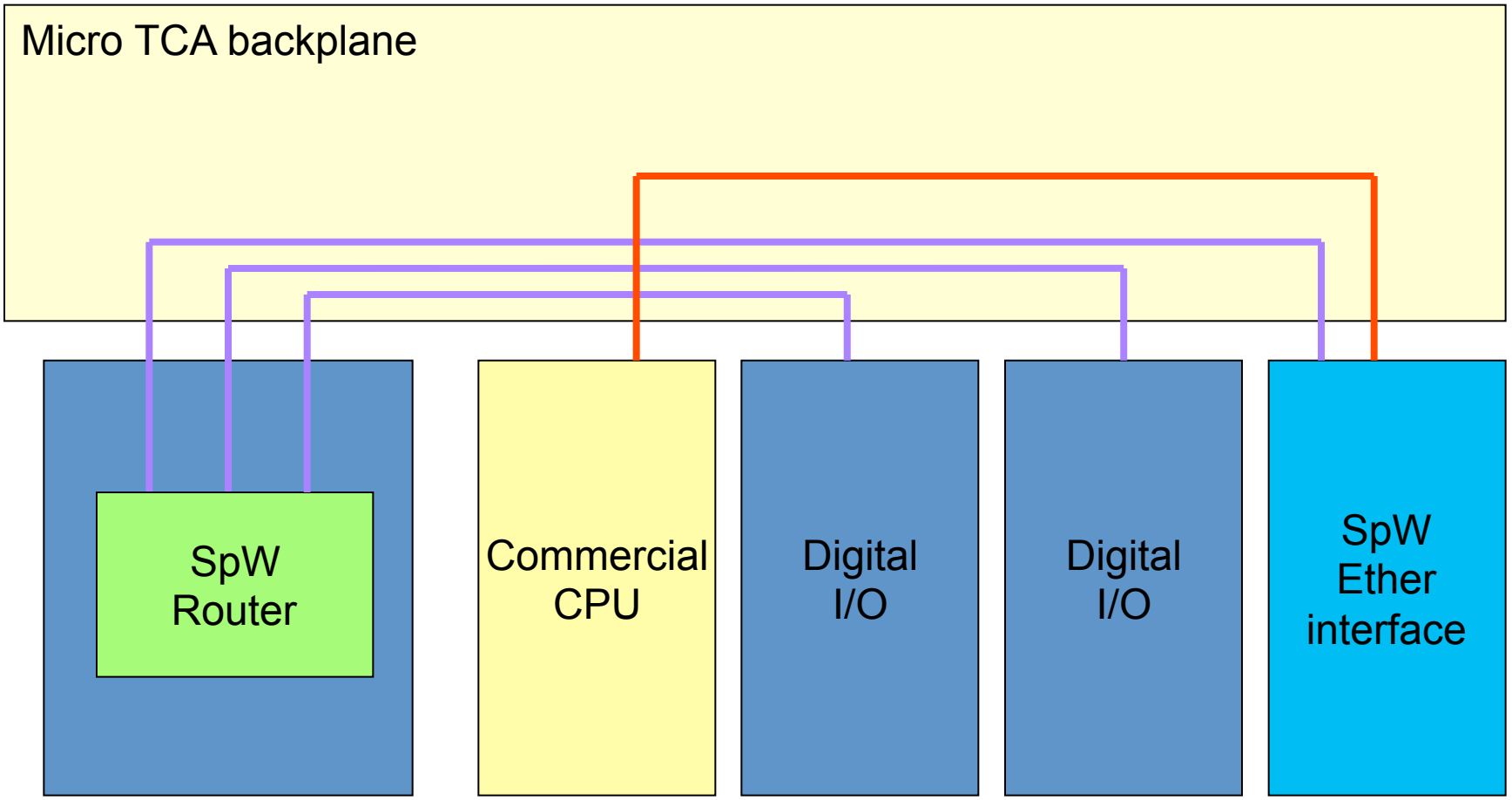
Figure 6-15 Redundant MicroTCA Shelf example



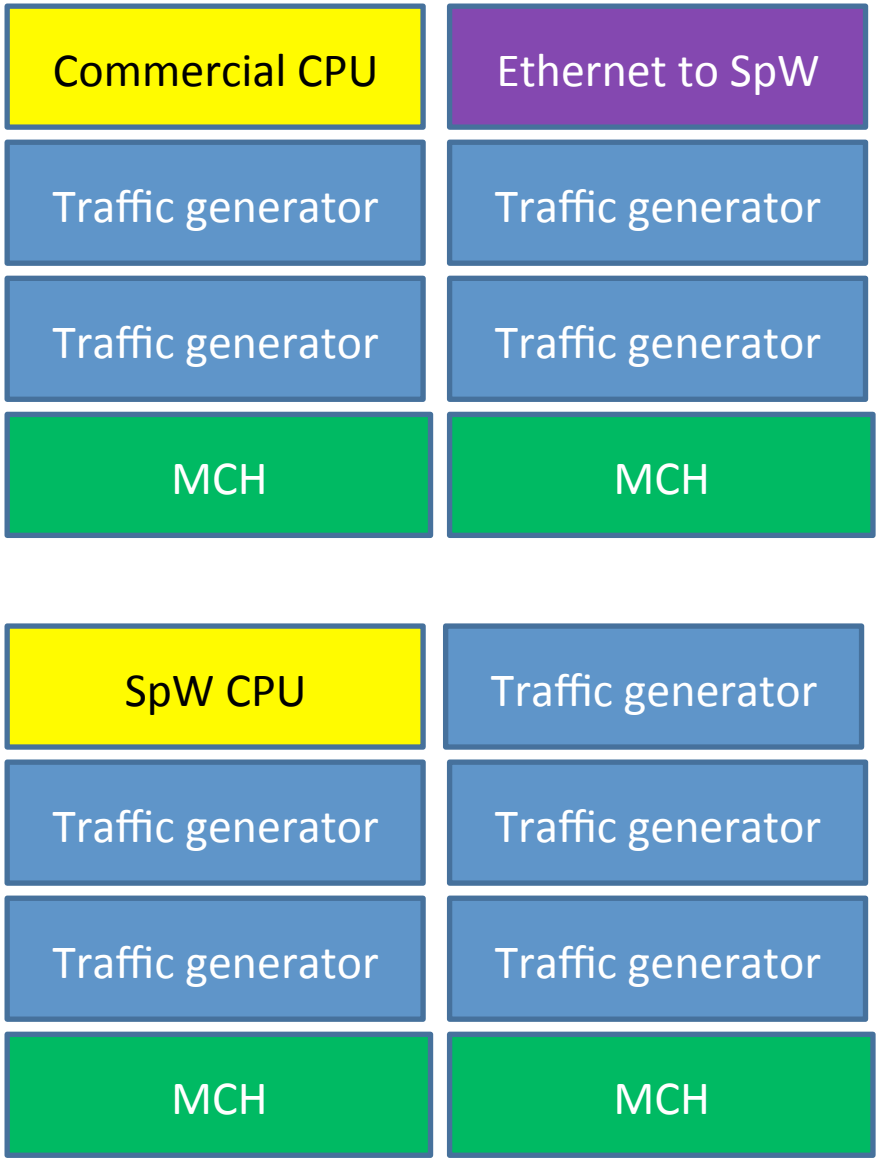
Dual star connections
Hub @ MCH



MCH
Router module



MCH
Router module

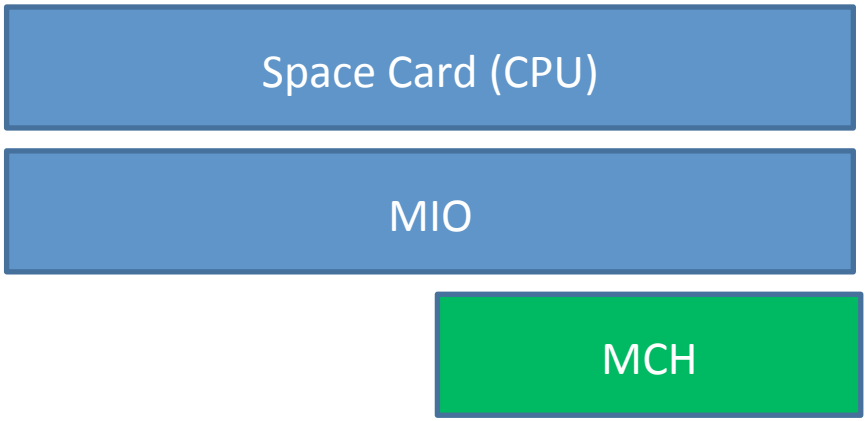


SpaceWire traffic generator

A setup to test congestion at router
- 4~32 SpW

Hardware transmission
- Max speed
- Controlled by CPU
- Latency measurement

Trigger broard cast
- simultaneous packet transmission



For software development

For sensor test setup.

SpaceWire backplane for ….

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