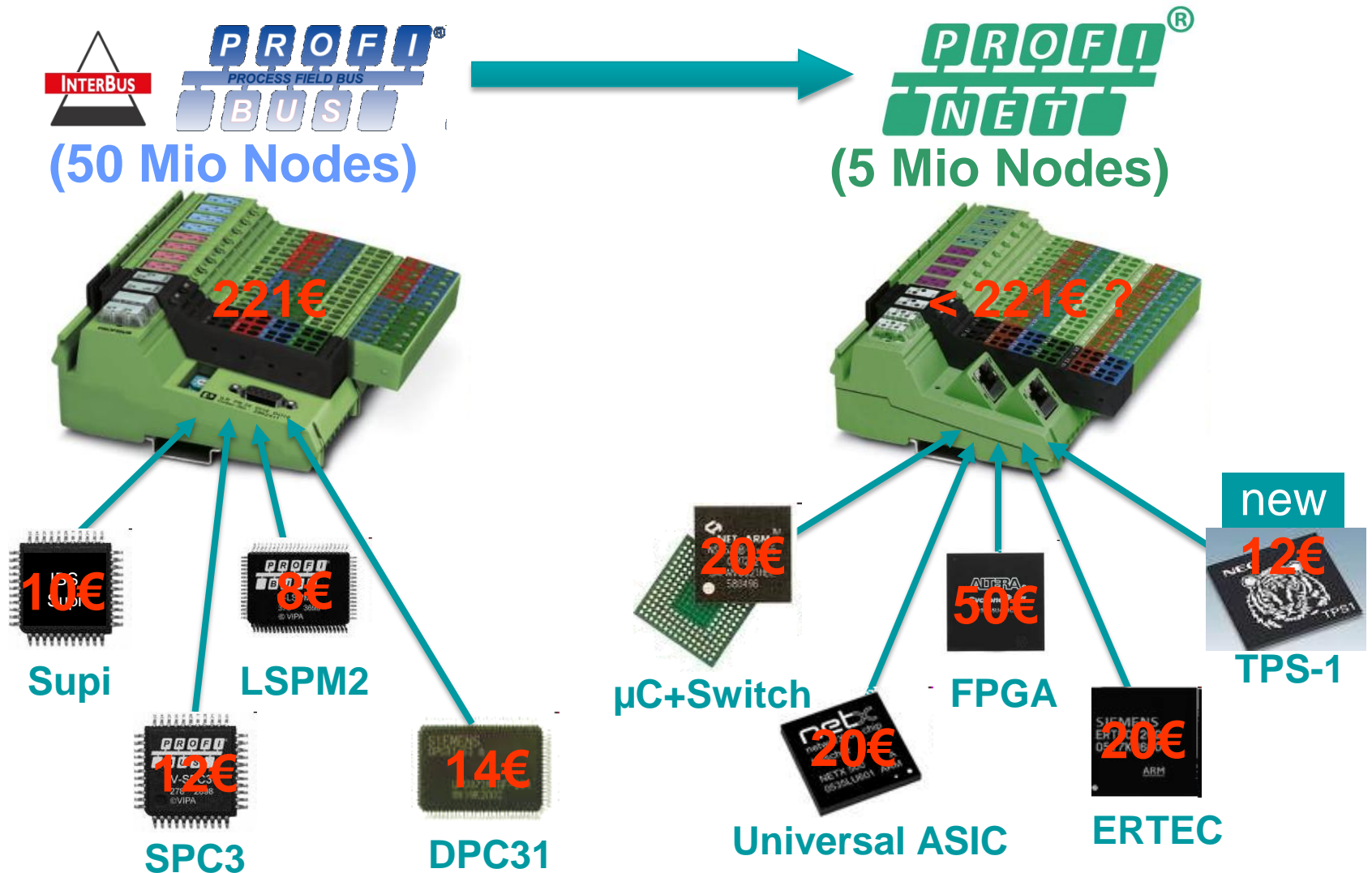


Profinet Interfaces in Automation Devices

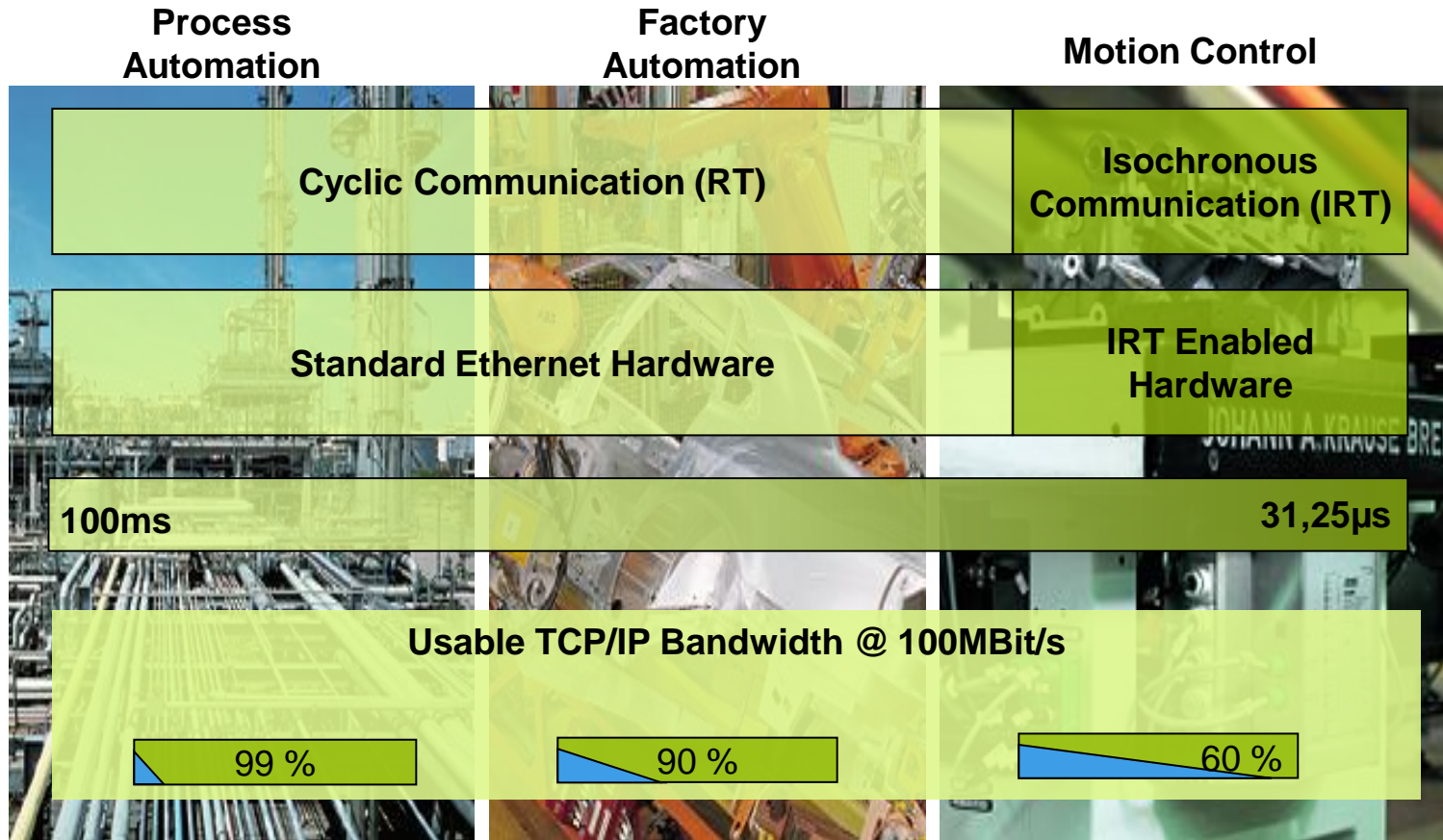


Gunnar Leßmann

The business case...



Profinet Basics



One communication standard for all industrial applications

Requirements of device vendors

Low...

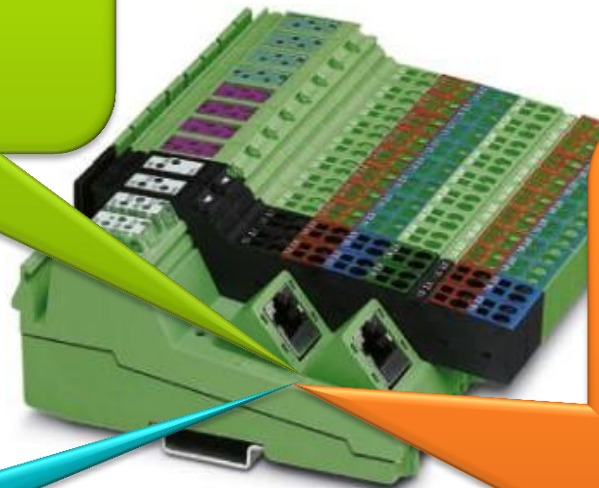
- ...Interface costs
- ...Design-In effort
- ...Power consumption
- ...PCB space
- ...PCB complexity

High...

- ...Functionality (RT&IRT)
- ...Performance
- ...Interoperability
- ...Application independence
- ...Fieldbus migration
- ...Universality
- ...Flexibility

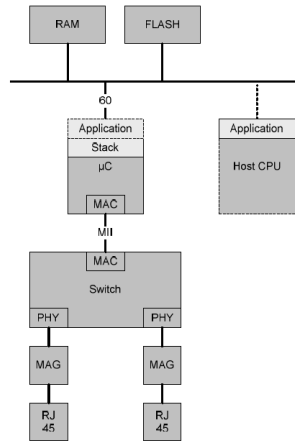
No...

- ...License costs
- ...Additional tool-chain



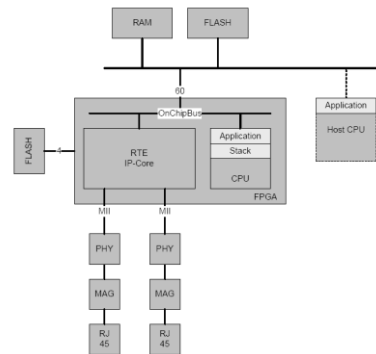
Solutions so far...

µC + Switch



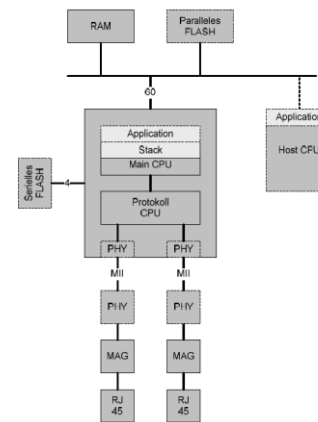
- 4-Chips
- External RAM
- Components > 20€
- Only RT
- Pitch <= 0,8mm
- P > 1,5 W
- Toolchain for µC

FPGA



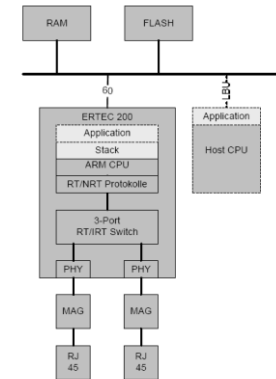
- 6-Chips
- External RAM
- Components > 50€
- RT&IRT
- Pitch <= 0,8mm
- P > 1,5 W
- Toolchain for FPGA und µC

Universal ASIC



- 3/5-Chips
- External RAM
- Components > 20€
- RT&IRT
- Pitch <= 1mm
- P > 1,5W
- Toolchain for ASIC und µC

ERTEC 200



- 3-Chips
- External RAM
- Components > 20€
- RT&IRT
- Pitch <= 0,8mm
- P > 1,5W
- Toolchain für ASIC und µC

Why a new Profinet ASIC?

Strategic decision:

- Phoenix Contact supports Profinet on system and device level

Mission:

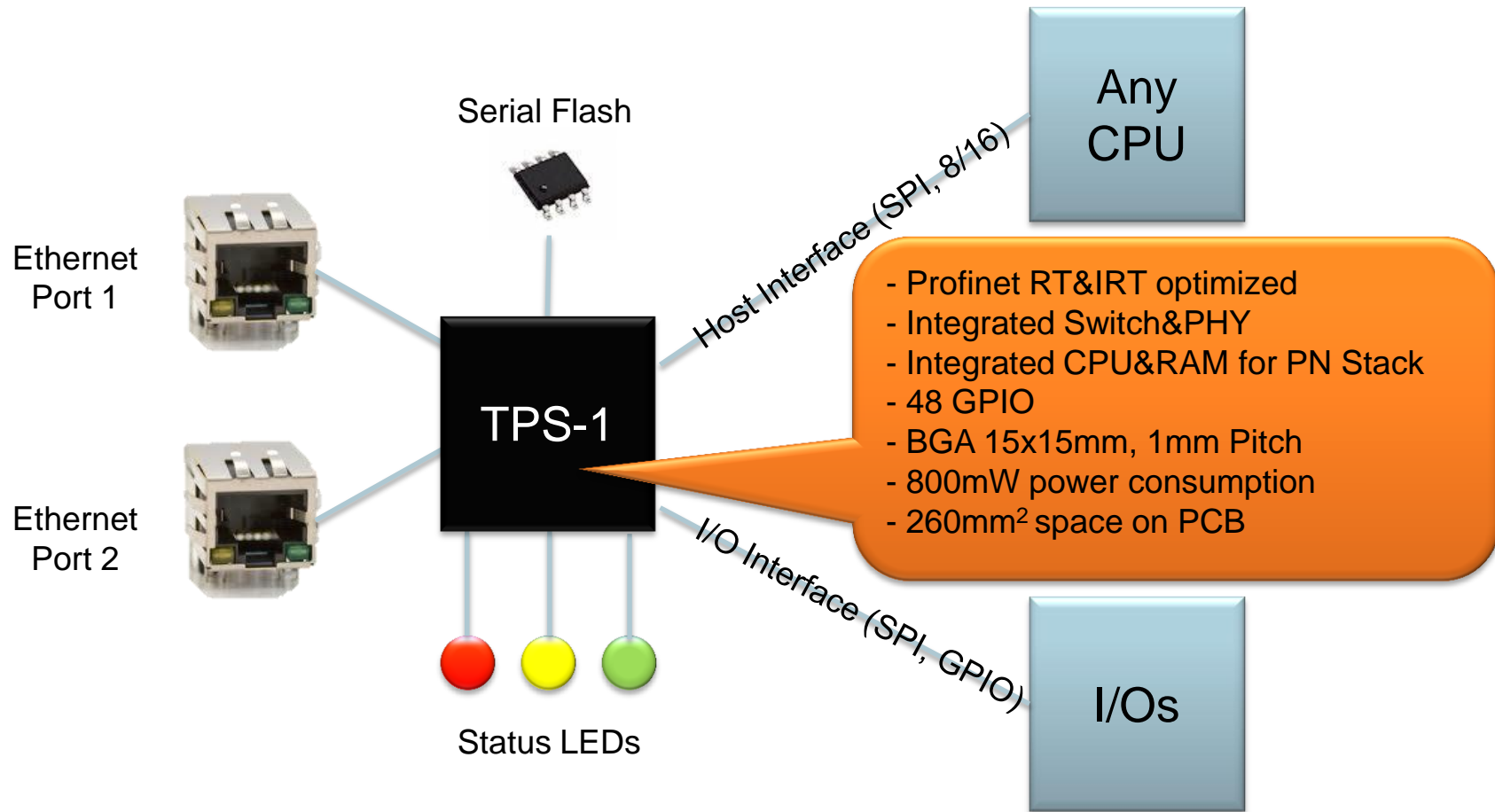
- As simple and cheap as Fieldbus
- In each device on the market (20 Mio. in 2020)

Consequence:

- Solutions so far not optimal
 - Own capacity to act
 - Cooperation with Siemens
- **NewASIC. Codename “Tiger”**



TPS-1 (Tiger Profinet Singlechip)



**Development in cooperation with inIT, FHG IOSB-INA and Siemens
Worldwide sales, logistics and design-in support through Renesas**

Benchmark

Requirement	μC+Sw	FPGA	Uni	ERTEC	TPS-1
Interface costs	○	—	○	○	+
Design-In effort	—	○	○	○	+
PCB space	○	—	○	○	+
PCB complexity	○	—	○	—	+
Power consumption	○	—	—	—	+
Universality	○	+	+	—	—
Flexibility	○	+	+	—	○
Licenses	+	○	○	+	+
Toolchain	○	—	○	○	+
Applikation independence	—	○	○	—	+
Fieldbus migration	—	—	○	—	+
PROFINET Functionality	○	+	○	+	+
PROFINET IRT	—	+	○	+	+

Thank you for your attention

Questions ?

Profinet Interfaces in Automation Devices

