



# port - Company Overview

port – We connect industrial worlds!

**port**

port provides software solutions for industrial communication.

- **Sophisticated protocol implementations** for various Industrial Ethernet protocols as well as CANopen.
- Not only a library – **a complete device solution!**
- Engineering services – from **design to certification.**
- We shorten massively shorten your **Time to Market.**
- **30 years of know-how** condensed in software.



**INDUSTRIAL 4.0**

# About us

Creating state of the art communication solutions with best in class resource efficiency – that is our mission!



**EtherNet/IP™**

**EtherCAT®**

**CC-Link IE TSN**

ETHERNET  
**POWERLINK**

**CANopen®**

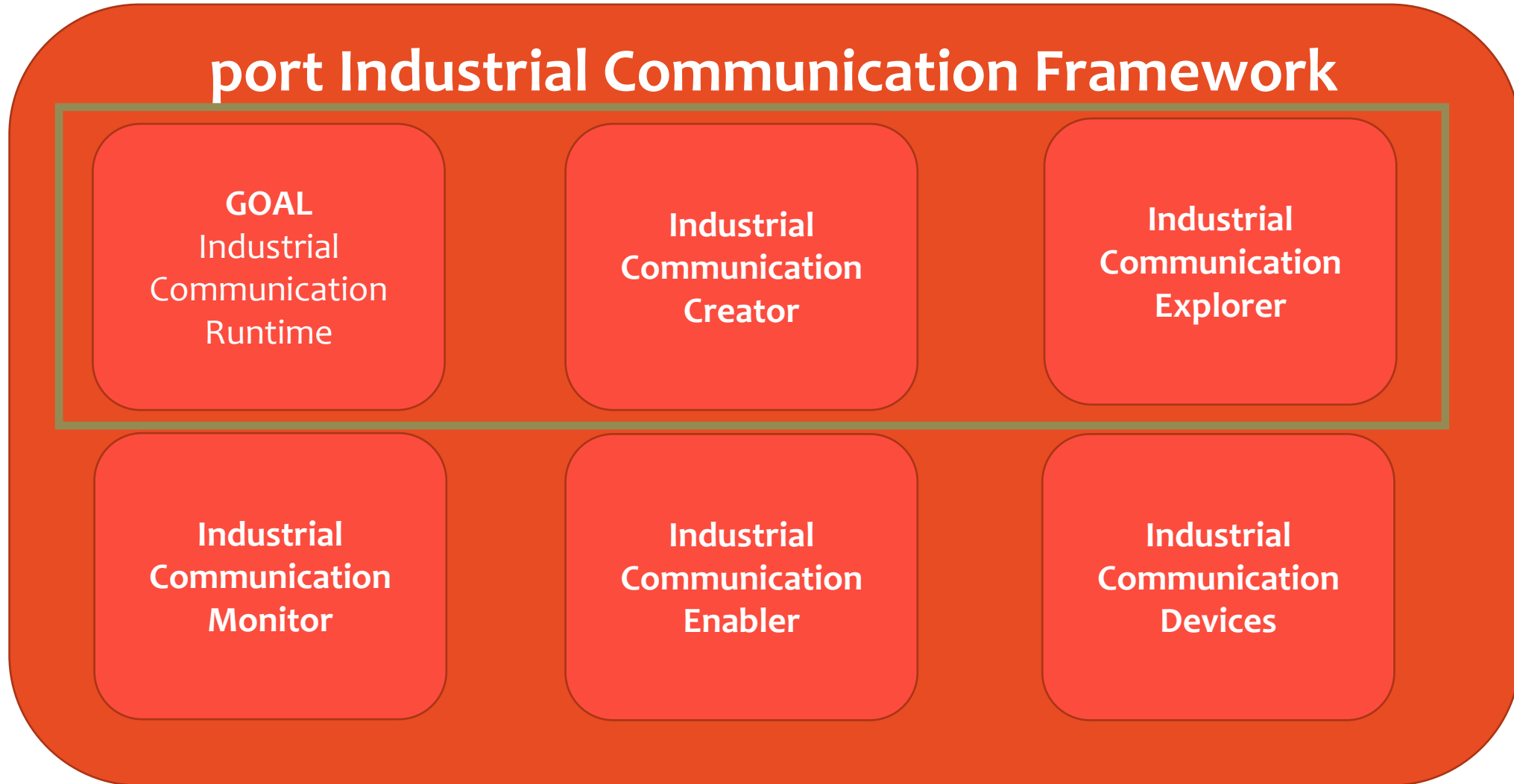
We support the “normal” 100MBit / 1GBit Ethernet  
We support Single Pair Ethernet  
We support TSN enabled Ethernet  
We support CAN/CANopen – and YES: POWERLINK

# port Industrial Communication Framework

The platform independent swiss army knife for industrial  
communication



# port Industrial Communication Framework Overview





# GOAL Runtime

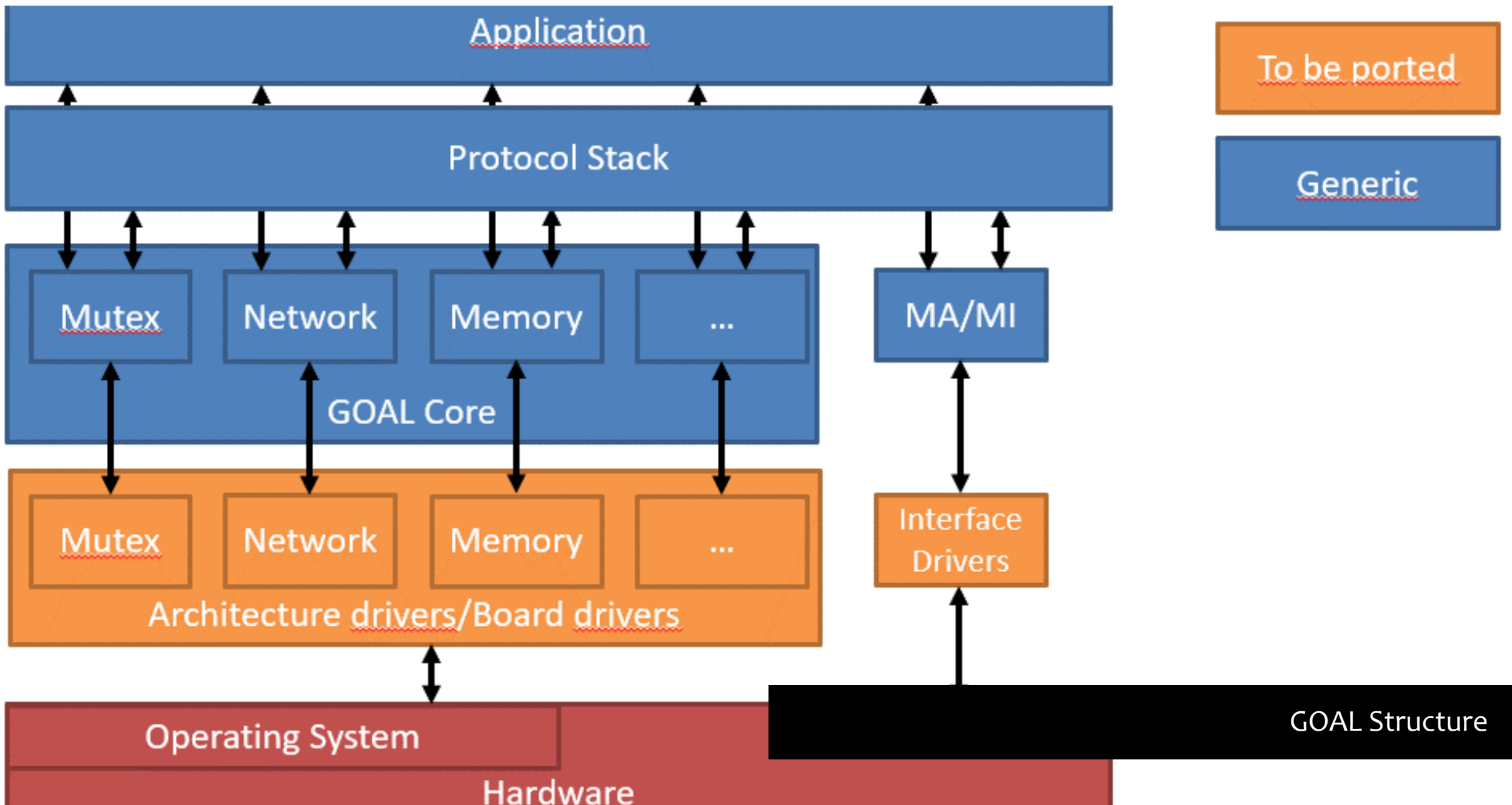
The modular platform for industrial communication

- **Generic Open Abstraction Layer**
- **Abstraction of common functions** from underlying hardware and operating system
- **Unifies access** to a variety of systems and **reduces porting effort** for all applications
- Replaces individual drivers
- GOAL is the **basis for all IE stack libraries**



# GOAL Runtime

Introduction



To be ported

Generic

GOAL Structure



EtherNet/IP™



EtherCAT®

CC-Link IE TSN

- Best in class **resource efficiency**
- **No dynamic memory** allocation at runtime
- **Not a stack, it's a solution:**
  - Comes with all additional protocols
  - Or tightly connects to existing protocols
  - Including Switch Management
- Passes **Conformance Tests**

***GOAL scales perfectly with the available resources ranging from bare metal systems over RTOS like FreeRTOS up to Linux.***



# Resource Consumptions Examples (STM32)

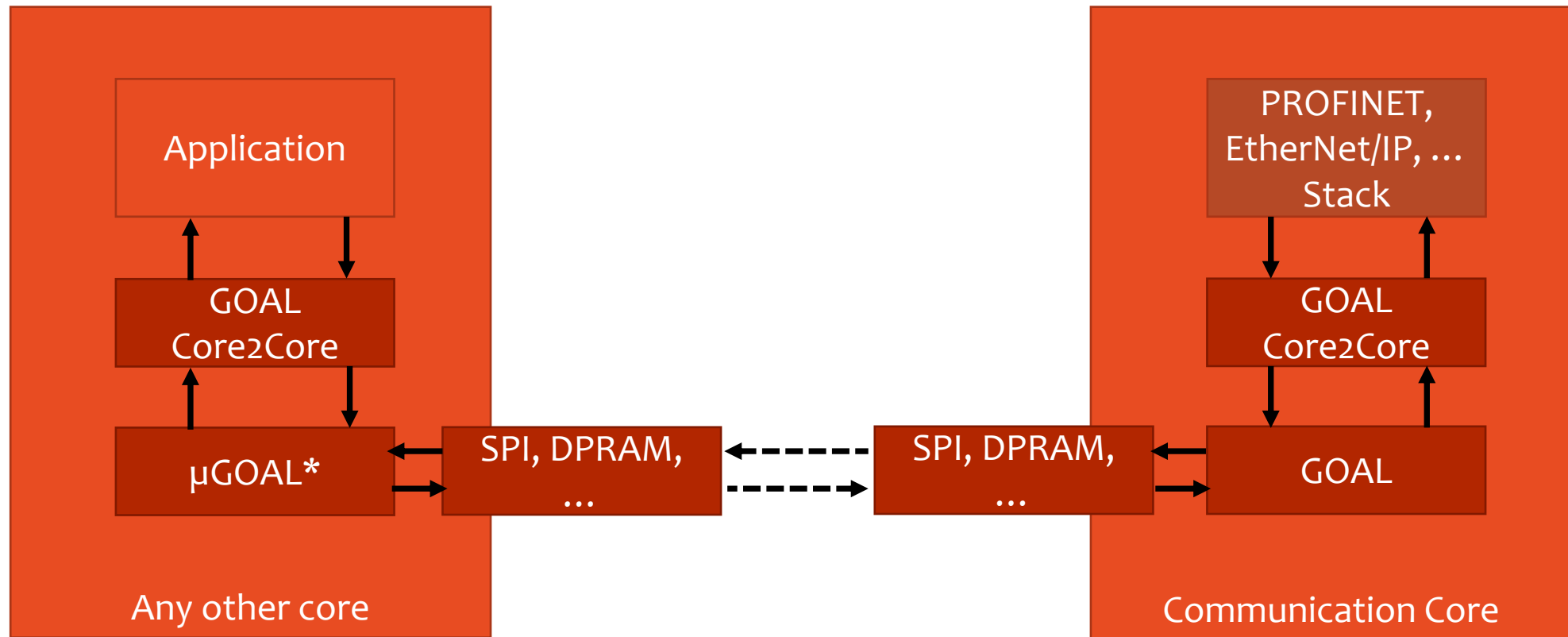
## PROFINET CC-B with TCP/IP, LLDP and SNMP

Memory region	Used Size	Region Size	%age Used
FLASH_BANK1:	423916 B	1 MB	40.43%
FLASH_BANK2:	0 GB	1008 KB	0.00%
RAM:	157560 B	192 KB	80.14%
CCMRAM:	45268 B	64 KB	69.07%

## EtherNet/IP with ACD, TCP/IP and DHCP

[LD]	Memory region	Used Size	Region Size	%age Used
[LD]	FLASH_BANK1:	258672 B	1 MB	24.67%
[LD]	FLASH_BANK2:	0 GB	1008 KB	0.00%
[LD]	RAM:	188900 B	192 KB	96.08%
[LD]	CCMRAM:	37800 B	64 KB	57.68%

# Integrated Inter-Core Communication



*Integrated Core2Core communication for multi-core / multi MCU systems.  
μGOAL provides a low memory library handling stub functions and  
intercore communication.*

EtherNet/IP™



EtherCAT®

CC-Link I E TSN

- PROFINET I/O Remote (inkl. MRP)
- EtherNet/IP Adapter (inkl. DLR)
- EtherCAT Slave
- OPC-UA Micro/Nano
- POWERLINK Remote
- Modbus/TCP
- CC-LINK IE TSN Master/Remote



**GOAL Runtime**

Supported IE Protocols



# Industrial Communication Creator

Create and configure IE protocols

EtherNet/IP™



EtherCAT®

CC-Link IETSN

- Tool to **rapidly create new applications** for the different stacks based on the GOAL runtime
- Creates
  - **the basic application**
  - **the according object dictionary**
  - **device description file**
- One tool for all stacks

The title card for "Industrial Communication Creator" is a white rectangular box with rounded corners, centered on the right side of the slide. It contains the product name in a large, bold, black sans-serif font. The background of the slide is a blurred image of industrial machinery with various icons overlaid, including a cloud, a server rack, a globe, a person, a refresh symbol, and a Wi-Fi signal.

# Industrial Communication Creator

Introduction

# ICC – Keeping everything in sync



Documentation

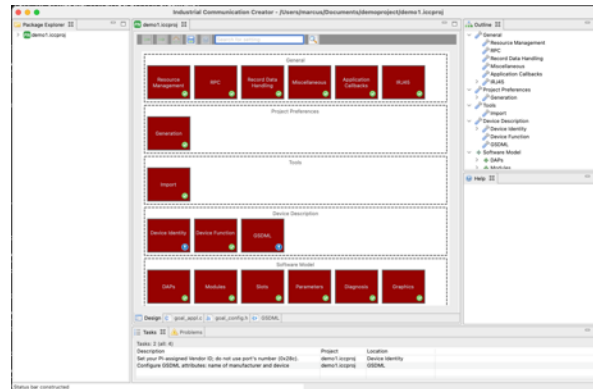
```
369 /*=====*/
370 /* GOAL_PROFNET Callback - Alarm notification ACK received
371 *
372 * Indicates that an alarm notification ACK was received.
373 *
374 * Callback id: GOAL_PNI0_CB_ID_ALARM_NOTIFY_ACK
375 *
376 * @retval GOAL_OK - successful
377 */
378 static GOAL_STATUS_T app1_pni0CbAlarmNotifyAck(
379     GOAL_PNI0_T *pPni0, /* PNI0 handle */
380     GOAL_PNI0_CB_ID_T cbId, /* Callback parameters */
381     void *pCbData /* Callback data */
382 )
383 {
384     /* Callback data:
385     *
386     * cb->data[0].idAr      application relation id
387     * cb->data[1].u16      alarm priority (low, high)
388     * cb->data[2].pAlarmNotifyAck GOAL_PNI0_ALARM_NOTIFY_ACK_T
389     *
390     */
391     return GOAL_OK;
392 }
```

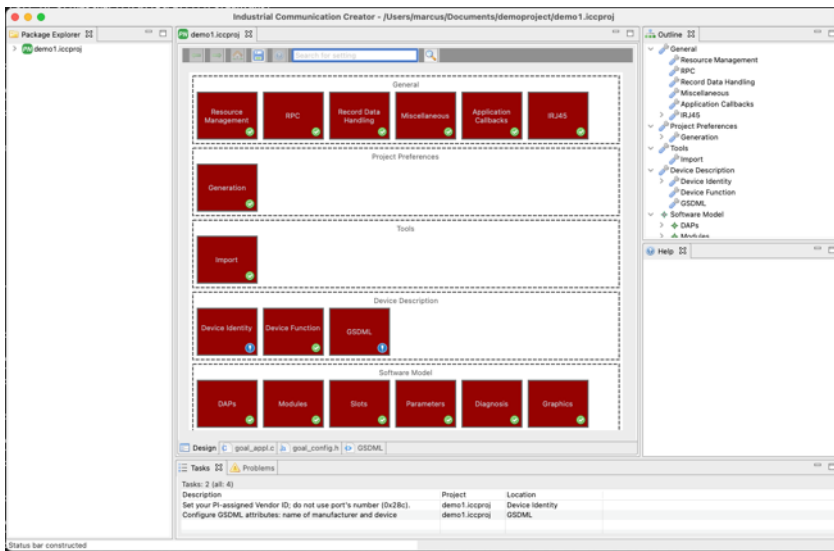
Source Code

## Device Access Points

Device Access Point ID=ID_DAP1: 1-port Device	
Module Ident Number	0x00000001
PNI0 Version	V2.35
Information	1-port Device
Vendor Name	port GmbH
Order Number	00210
Hardware Version	A1.0
Software Version	Z2.0
Category	GOAL_PROFNET_Device_Stack
Certification Info	
Conformance Class	B
Application Class	
Netload Class	I
Maximum Input Length	1440 Bytes
Maximum Output Length	1440 Bytes
Physical Slots	0 1 2
Minimum Device Interval	1 ms
Based on	GOAL_PROFNET_Device_Stack

Device Description





- **Eclipse-based** Application
- **Command Line Mode**
- Available for
  - **Windows**
  - **Linux**
  - **MacOS**

# Industrial Communication Creator

Key Facts





# Industrial Communication Explorer

Test your IE devices

EtherNet/IP™

OPC UA™

PROFINET®  
INDUSTRIAL ETHERNET

EtherCAT®

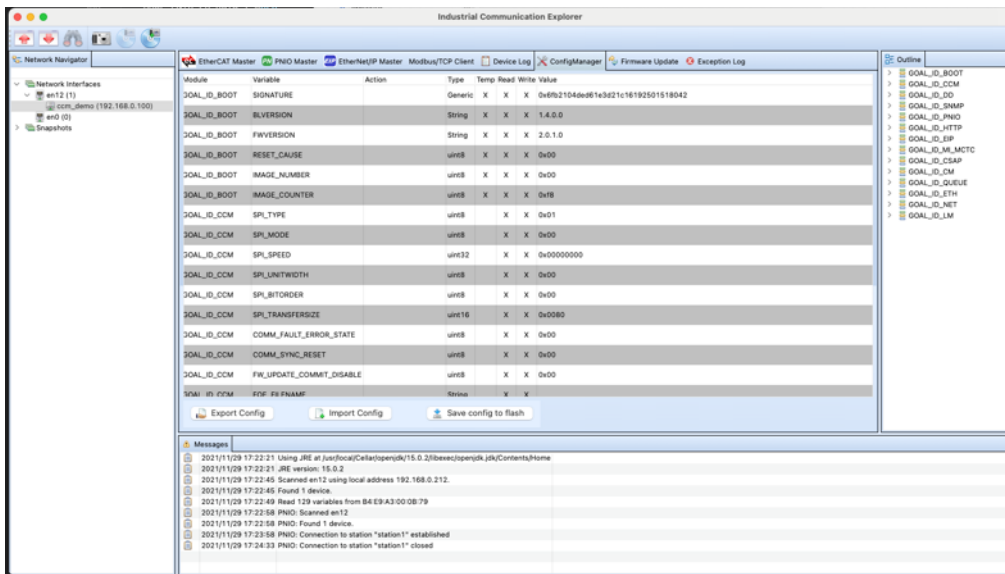
CC-Link IETSN

- **Accompanying tool** for developing Industrial Communication applications
- Rich feature set:
  - **Discover devices** in the network
  - **Read, manipulate, export configuration data**
  - Master emulators for **PROFINET, EtherNet/IP, EtherCAT and Modbus/TCP**



# Industrial Communication Explorer

Introduction



- **Eclipse-based** Application
- Available for
  - **Windows**
  - **Linux**
  - **MacOS**



# Industrial Communication Explorer

Key Facts



# Thank you

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