

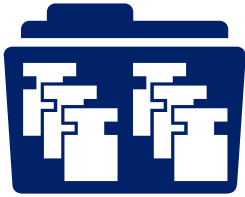


Project Introduction / Update

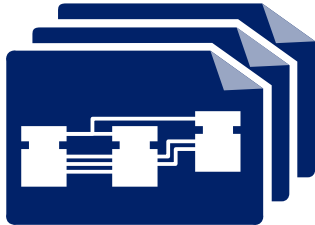
Eclipse Unconference
IoT Working Group
Alois Zoitl, fortiss GmbH

4diac Environment

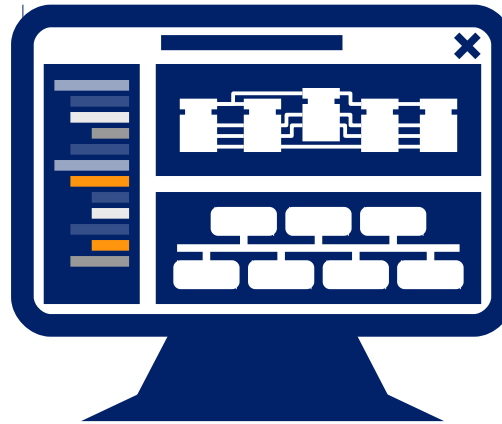
4diac-libraries



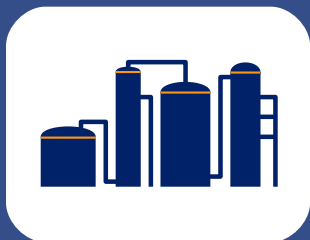
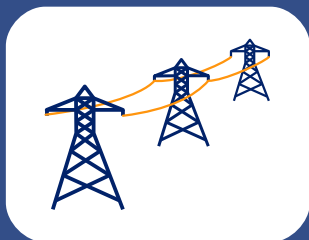
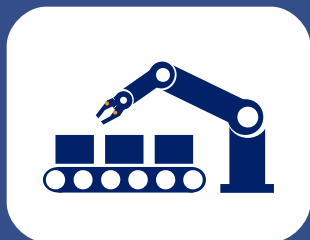
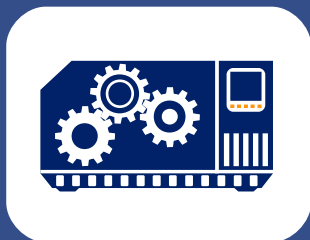
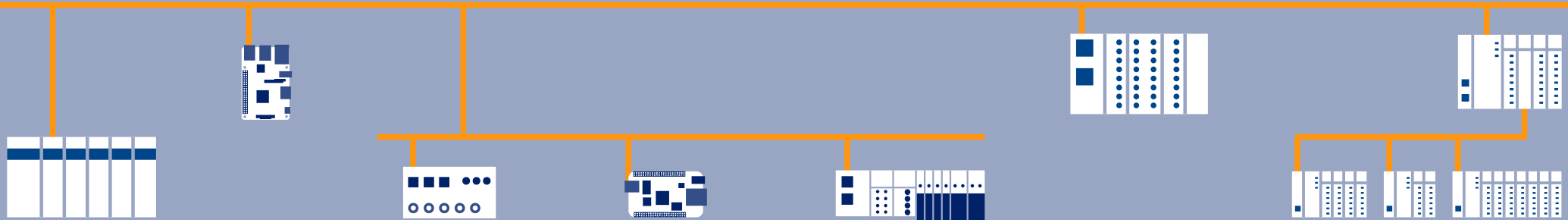
4diac-systems



4diac-ide



4diac-rte (FORTE)



Overview 4diac-ide

```

1 (* TODO consider this in the export filter *)
2 VAR
3   tx: DWORD;
4   tc: REAL;
5   p: REAL;
6 END_VAR
7
8
9 (* read last cycle time in Microseconds *)
10 tx := T_PLC_US();
11 tc := DWORD_TO_REAL(tx - T_LAST);
12 T_LAST := tx;
13
14 (* calculate proportional part *)
15 p := KP * IN;
16
17 (* run integrator *)
18 I := (IN + IN_LAST) * 5.0E-7 * KI * tc + I;
19 IN_LAST := IN;
20
21 (* calculate output Y *)
22 Y := p + I;
23
24 (* check output for limits *)
25 IF Y >= LIM_H THEN
26   Y := LIM_H;
27 IF KI <> 0.0 THEN
28   I := LIM_H - p;
29 ELSE
30   I := 0.0;
31 END_IF;
32 LIM := TRUE;

```

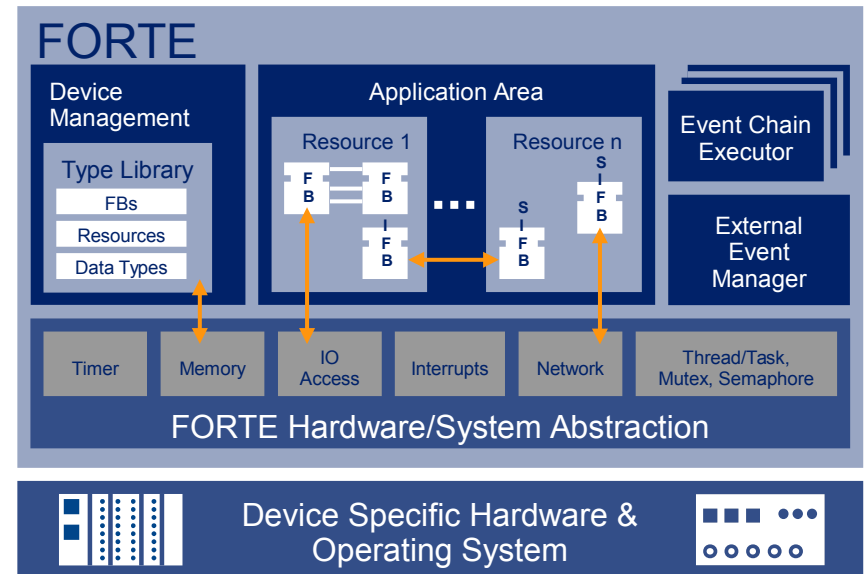
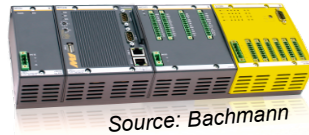
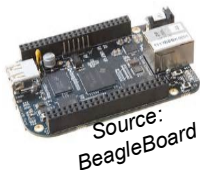
Overview 4diac-rte (FORTE)

Operating Systems

- Windows
- Posix: Cygwin, Linux (i386, PPC, ARM)
- NET+OS® 7
- eCos
- *Upcoming:* freeRTOS, vxWorks, rcX, InTime

Devices and Dev-Boards

- Lego Mindstorms EV3
- Digi Connect ME® (ARM7)
- CBC v2 robot controller
- Raspberry Pi
- BeagleBone
- Bachmann electronic M1 PLC
- Wago PFC 200



Communication Support

- EclipseSCADA SFP
- Ethernet (TCP/UDP)
- Ethernet PowerLink
- Modbus TCP Client
- MQTT
- OPC DA Client
- RS232
- *Upcoming:* OPC UA

Status

- FORTE code transferred to Eclipse Foundation
 - 10 years of development history (cvs, svn, hg)
 - 23 contributors
- 1.8 release
 - Last non Eclipse hosted release
 - 4diac-ide: mainly usability improvements
 - FORTE: Performance improvements and new hardware support
 - Long term maintenance version
 - **1.9 will introduce API break**

Plans

- Transfer 4diac-ide code to Eclipse
 - >350 kLoCs
 - Major Model and code clean-up
 - Identify contributors
- FORTE
 - New operating systems: freeRTOS, vxWorks, InTime, rcX
 - Dynamic loadable components utilizing an embedded LUA engine

→ 1.9 first Eclipse hosted release

- **Long Term**
 - Migrate to
 - E4
 - GEF 4
 - Utilize Eclipse Layout Kernel
 - Collaboration
 - EclipseNeoScada
 - hawkBit
 - MILO