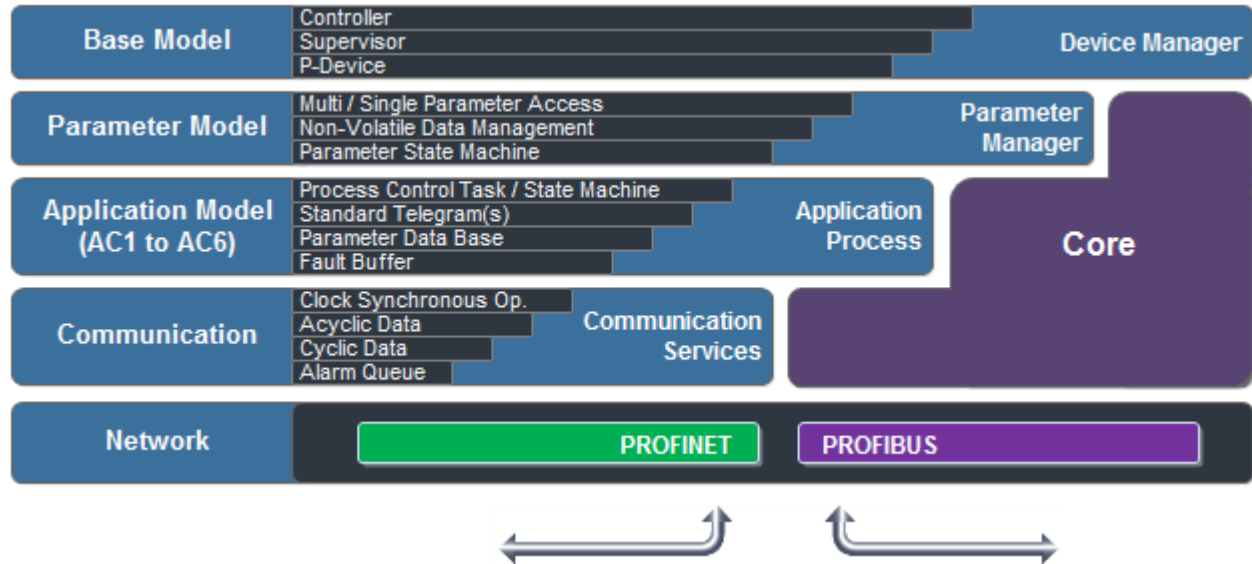


PROFdrive-SDK



PROFdrive Profile Implementation

ESYSE GmbH PROFdrive-SDK enables you to quickly integrate Drive technology based on PROFdrive profile into your products and systems. It includes implementation of IEC-61800-7-203 Profile type 3 (PROFdrive Profile) and IEC-61800-7-303 Mapping of profiles to network technologies (PROFIBUS and PROFINET) to provide a high-performance, flexible and scalable drive technology.

It is also a PROFIBUS and PROFINET ready application, this means apart from Drive application (which included), user could realize any PROFIBUS and PROFINET based application due to support of

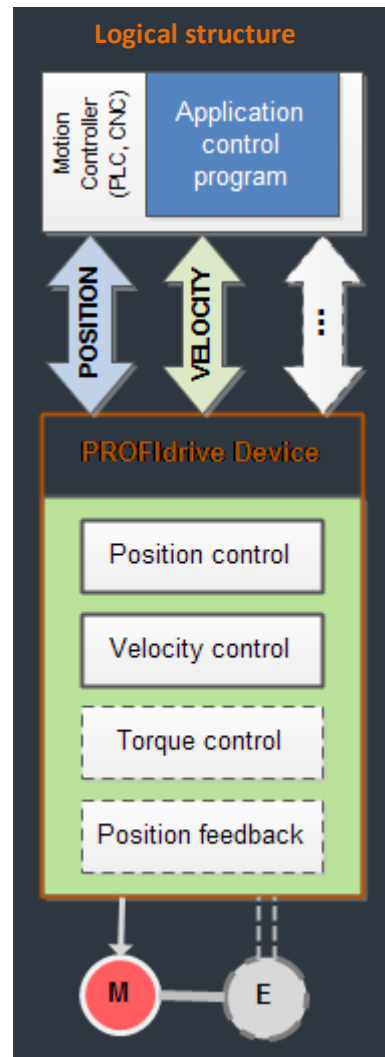
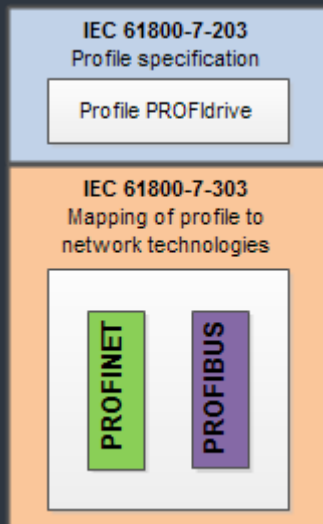
- IEC 61800-1 (Power Drive Systems profile) and
 - IEC TR 62390 (Common Device Profile),
- without concerning about communication interface (PN/DP).

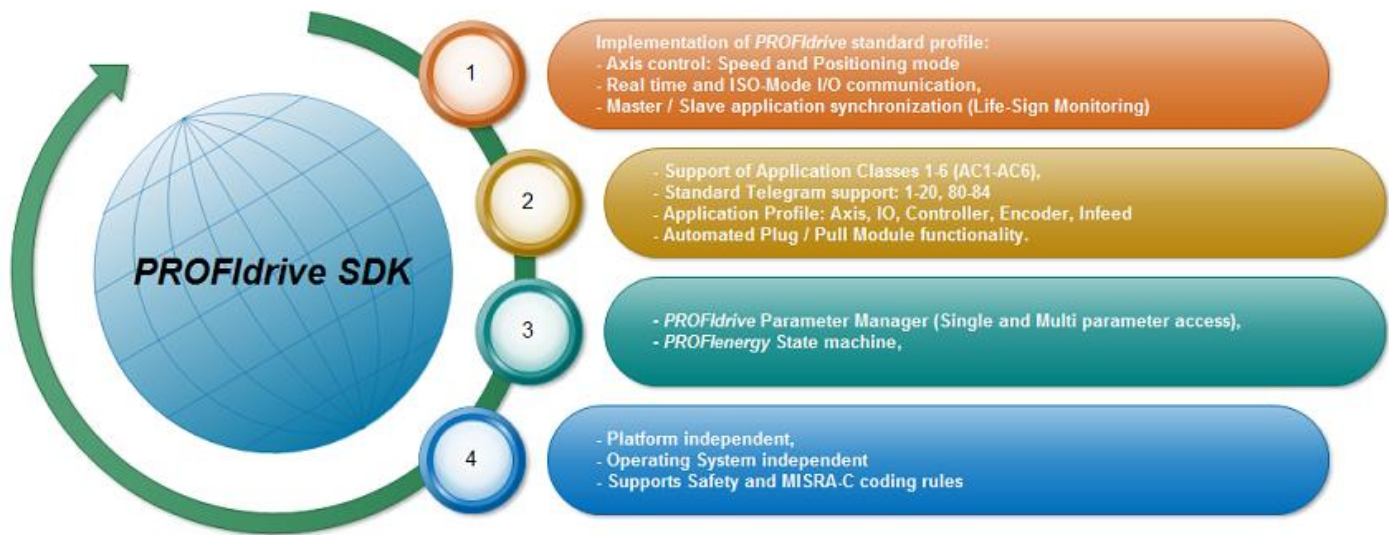
Features and Kit Description

Software quality

- Object Oriented Programming software model,
- Developed with high level structured programming language "C",
- Compiler and platform independent (portable on every platform),
- Operating system independent,
- Supports Safety software and MISRA-C coding rules.

Standardization of PROFdrive in IEC 61800-7





Device classes

PROFIdrive-SDK functionality depends on roles which a device can take in automation system and is independent of the communication system used as network platform (PROFIBUS, PROFINET). Both application and communication related device features are considered by development of PROFIdrive-SDK. Following device classes supported by PROFIdrive-SDK:

- Controller,
- P-Device,
- Supervisor

P-Device Functional overview

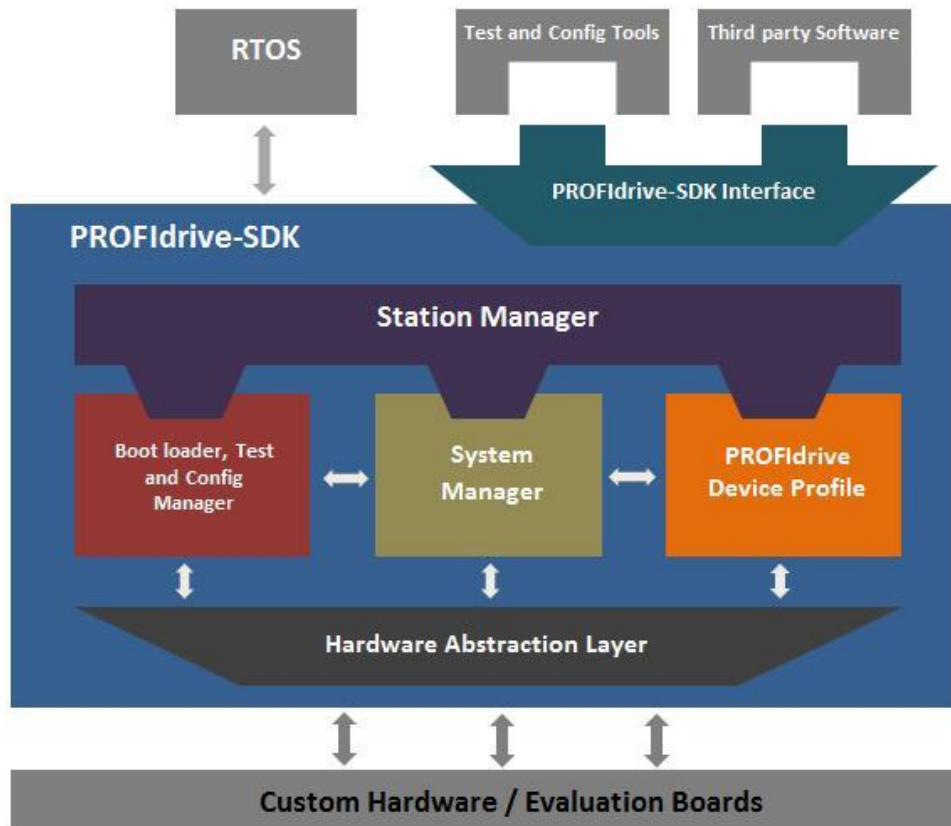
PROFIdrive-SDK as P-Device (IO-Device) implementation on PROFIBUS and PROFINET supports following functionalities (each Functional Object (FO) inside the SDK could be instantiated to create Single or Multi FOs (Axis, Encoder, IO ...) Device:

1. Physical Device Management (API = 0),
2. Drive profile (Axis control API=0x3A00):
 - a. General Axis state machine
 - b. Speed control (Real Motor control / Motor Simulation),
 - c. Positioning mode,
 - d. Application classes AC1 to AC6,
 - e. Standard telegrams 1 to 9 and 20,
3. Encoder Profile (API = 0x3D00):
 - a. Standalone Encoder state machine,
 - b. Standard telegrams 81 to 84 ,
 - c. Class 4 functionalities,
 - d. Encoder profile parameter,
4. Cyclic IO-Data communication:
 - a. PROFIBUS: DPV0, DPV1 and DPV2 (Isochronous Mode + Controller Life-Sign Monitoring),
 - b. PROFINET: RT and IRT (isochronous Mode + Controller Life-Sign Monitoring),
5. Acyclic data communication (Record-Read and Write),
6. Diagnostic, Warning and Fault handling,
7. Parameter manager (Single- and Multi parameter access),
8. Parameter Data Base (Parameter Value, Description and Text),
9. Device specific parameters 0 to 899 and 1000 to 59999
10. PROFIdrive profile specific parameters 900 to 999, 60000 to 60999 and 64000 to 65535
11. PROFINET IO specific parameters 61000 to 63999,
12. Non-Volatile Data management (Load / Store / Restore).

Advantages and Benefits

- State-of-the-art and easy to use,
- Low integration effort,
- Platform independent,
- Operating System independent,
- Supports Safety software and MISRA-C coding rules,
- Supports several network ASICs :
 - PROFIBUS: DPC31, VPC3+C, VPC3+S, TI AM335x (Sitara)
 - PROFINET: ERTEC400, ERTEC200, ERTEC200p, TPS-1, TI AM335x (Sitara)
- Provides interfaces to integrate:
 - other network protocols e.g. CANopen (Gateway),
 - production process (Configuration, Test, ...),
 - PROFInergy and PROFIsafe protocols,
- Boot-loader application (Client / Server) available,
- Automatically creation of GSDML-file,
- Integrated Non-Volatile Data Management,
- Multi axis Drive application supported (e.g. XYZ axis and more),
- Multi network interface (PROFINET and PROFIBUS) supported,
- Integrated Motor Simulation software module (Application classes AC1 to AC6),
- Approved and field-tested,
- Running on various already certified products from different manufacturer,
- Pre-Certification provided from ESYSE GmbH Embedded Systems:
 - Test system and tools: PNO (ComDec - SIEMENS)
 - DP-Master Class 1 (MC1) and Class2 (MC2),
 - PROFIdrive Profile Tester,
 - PROFINET IO tester
 - SIMOTION D445-1, D445-2, D410
- Chinese Recommendatory National Standard GB/T 25740-2013

Basic Software Architecture



Applications:

- Controller,
- Supervisor,
- IO-Device:
 - Motion Control (Speed and Positioning),
 - Encoder,
 - Inverter,
 - IO,
 - Infeed,
 - ...