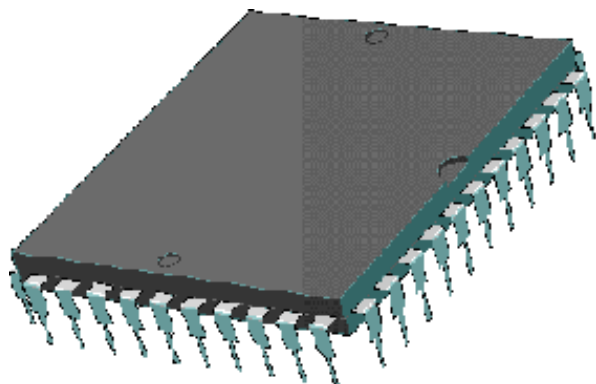
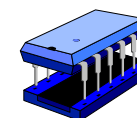


PROFIBUS Technology Products

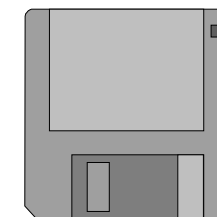
ASICs



Interface modules

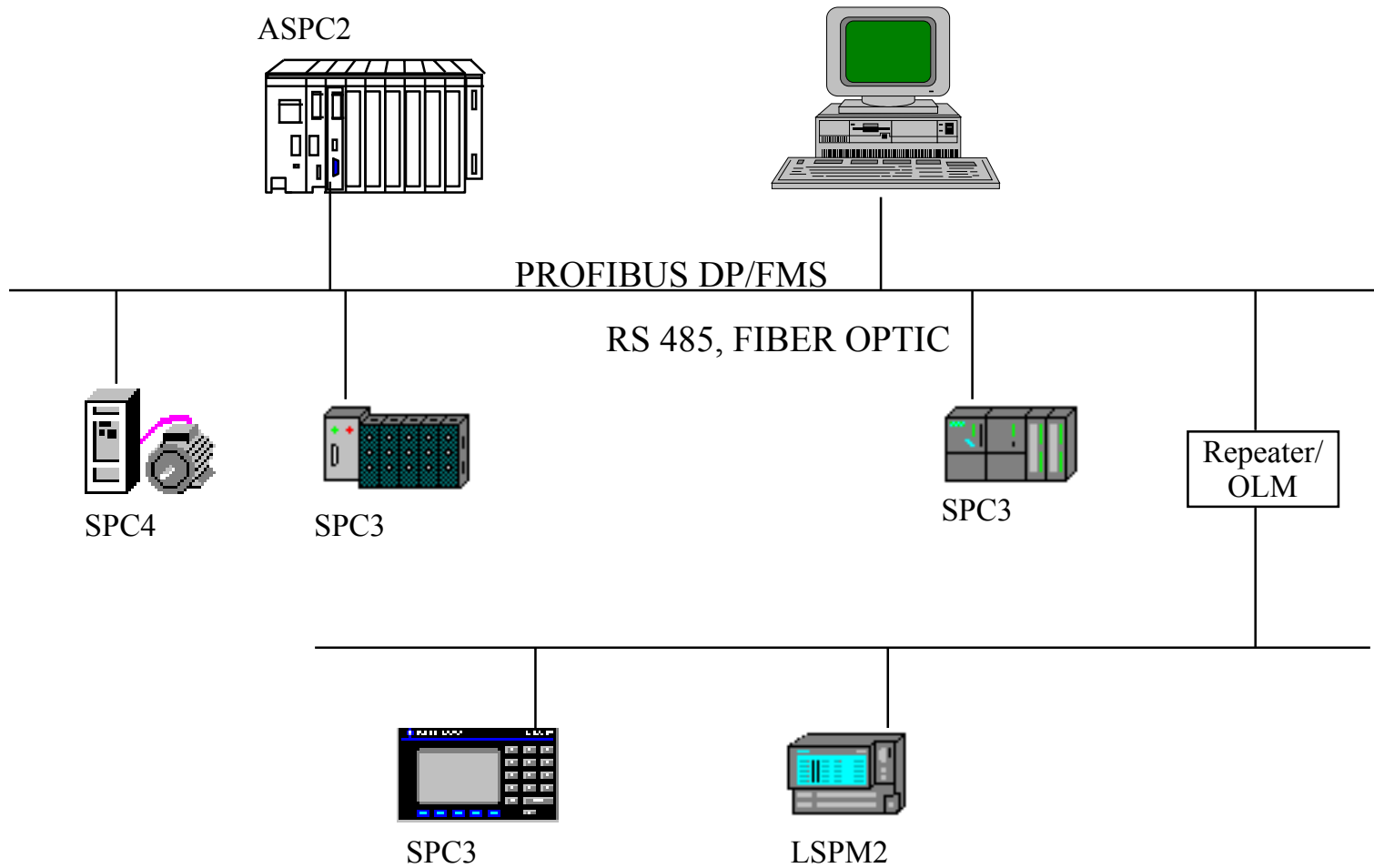
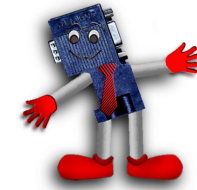


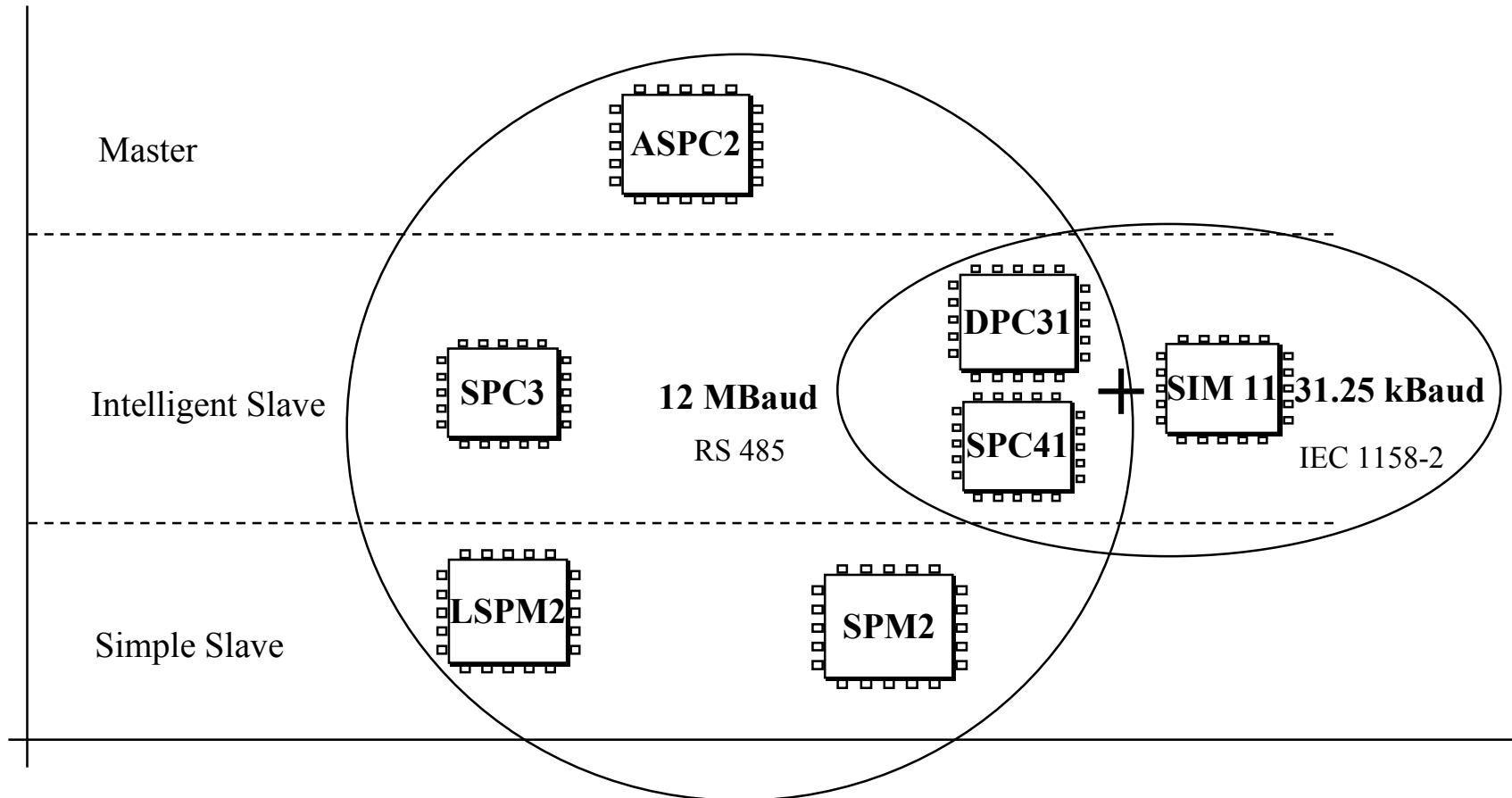
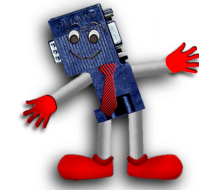
Development packages





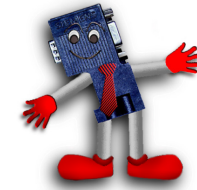
PROFIBUS concept



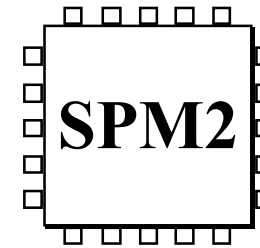




Single Chips

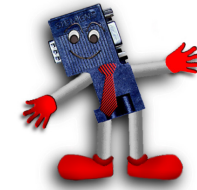


MQFB, 80 Pin, 2cm²

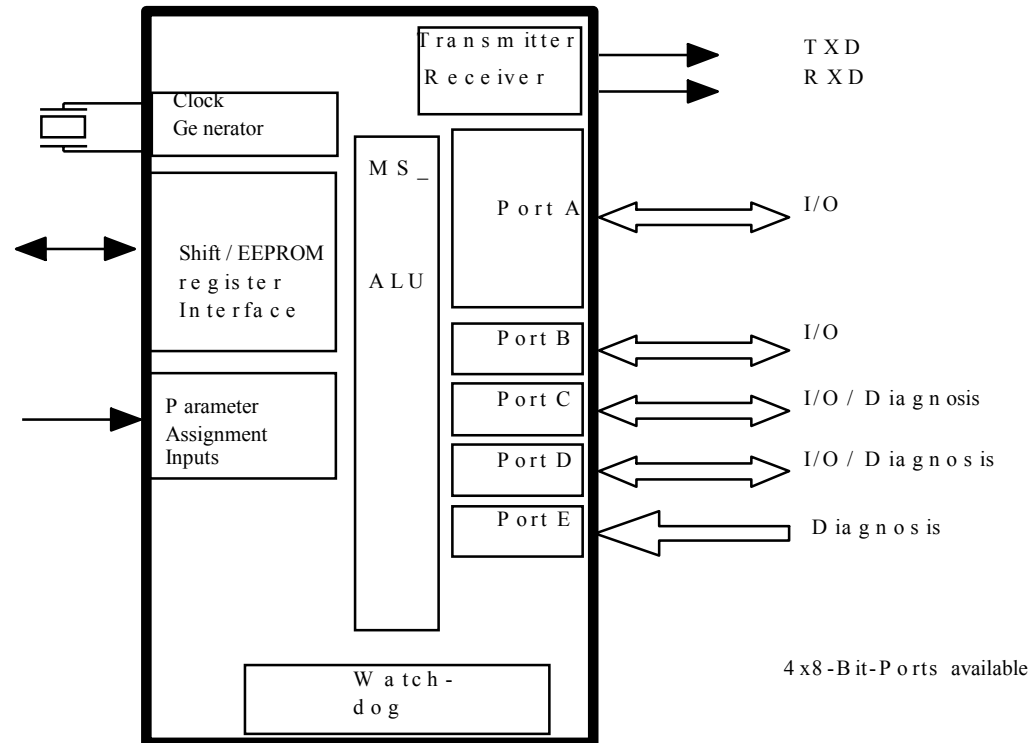


PQFB, 120 Pin, 10cm²

- ⇒ **Maximum Transmission Rate 12 MBaud**
- ⇒ **Complete Processing of DP Protocol**
- ⇒ **No processor required**
- ⇒ **Data Volume:**
 - ✓ **LSPM 2: 32 Bit I/O, 8 Bit Diagnosis**
 - ✓ **SPM 2: 64 Bit I/O, 16 Bit Diagnosis**

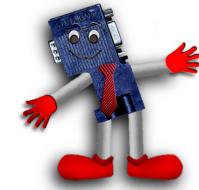


⇒ Complete DP Slave block





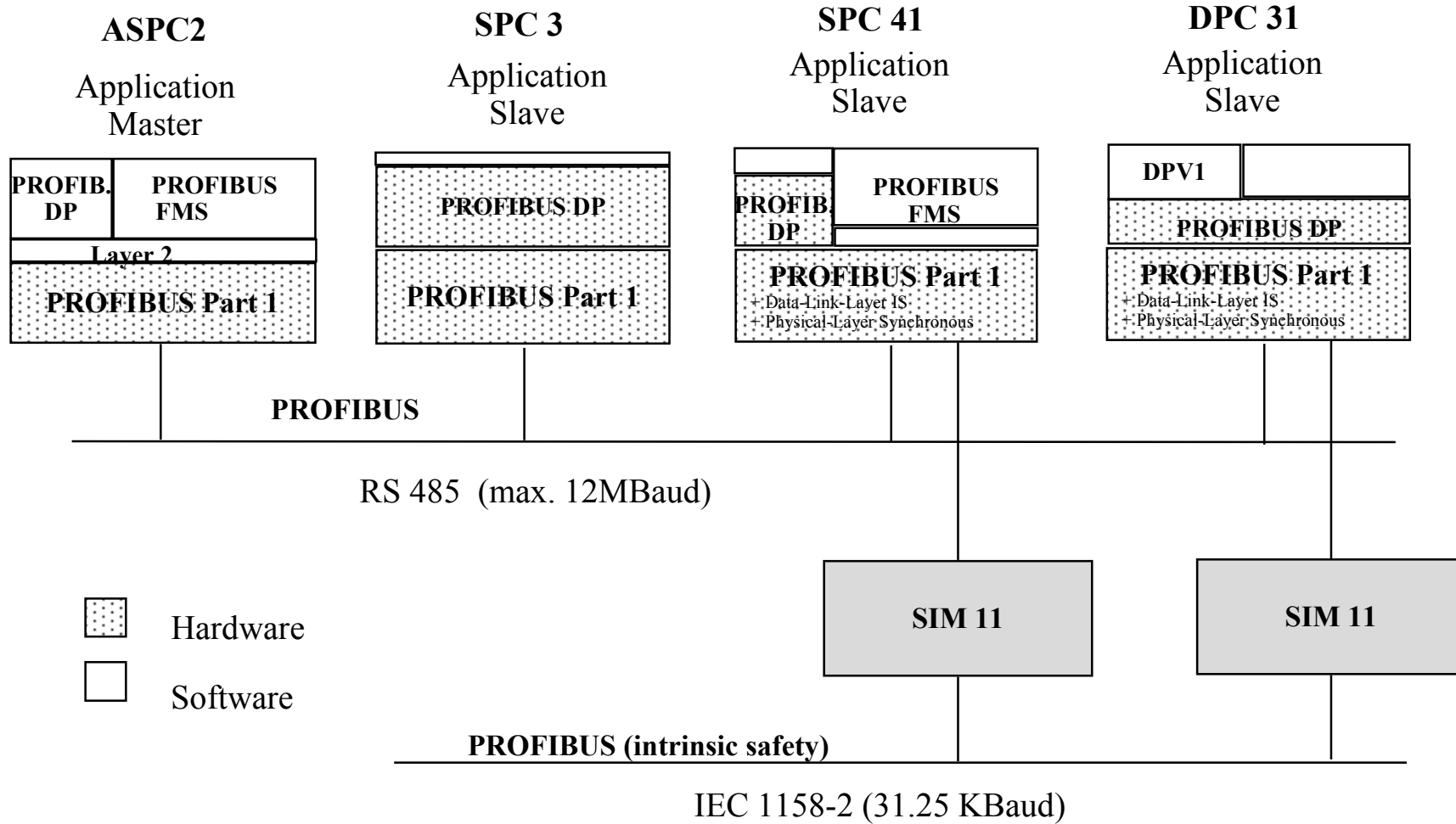
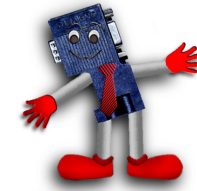
Function L-/SPM2



- ✓ **Watchdog Timer integrated**
- ✓ **Automatic baudrate generator**
- ✓ **EEPROM interface for station address, Ident number**
- ✓ **Shift register interface**
- ✓ **I / O Interface**
- ✓ **Parameterization ports**
- ✓ **Diagnostic data is specified**
- ✓ **LSPM2/ SPM2 supports all mandatory and optional services for slave solutions**

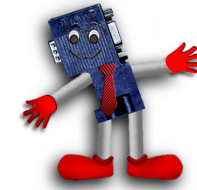


intelligent ASICs





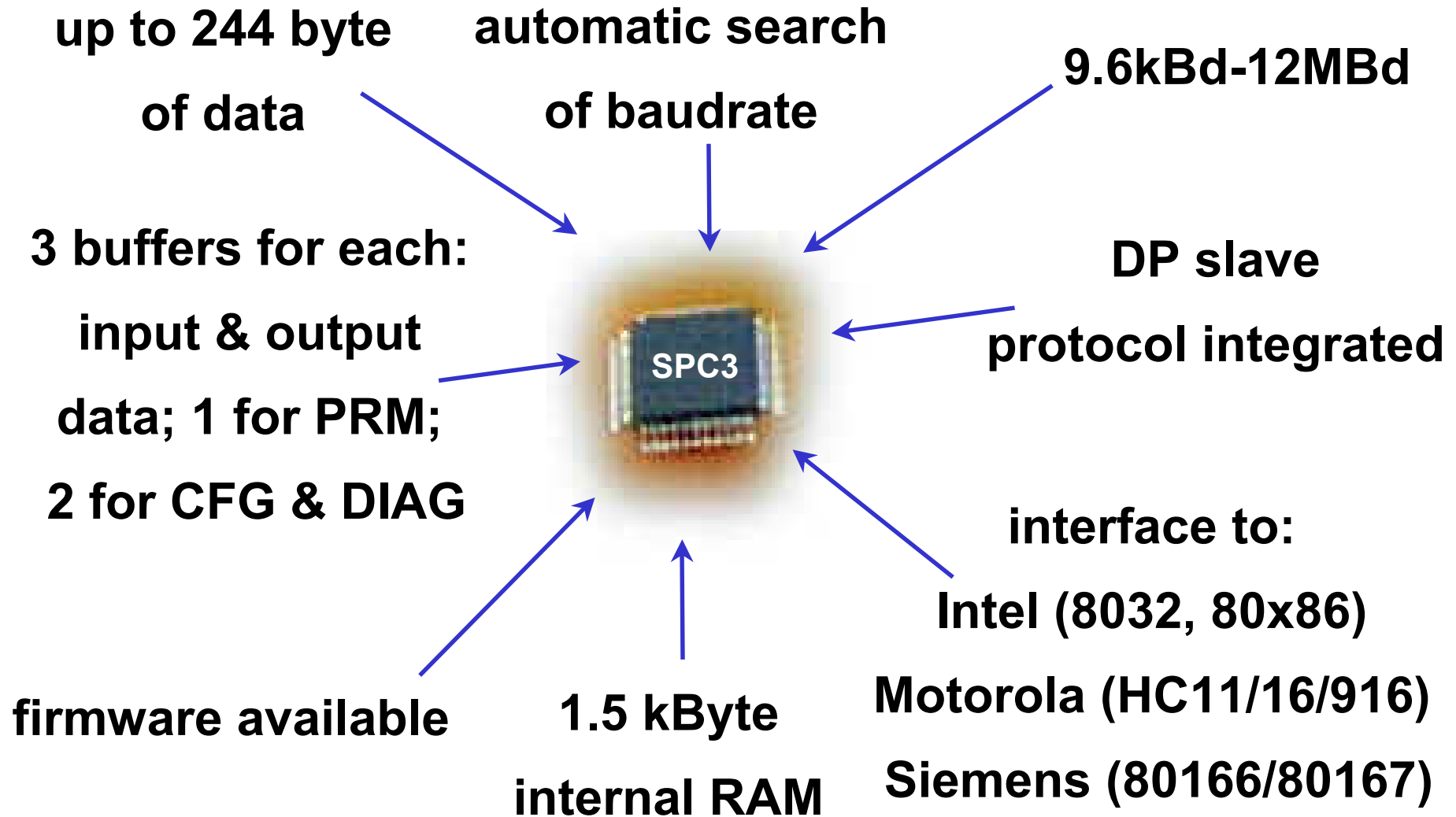
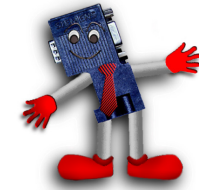
intelligent ASICs



Max. Transmission Rate [Mbaud]	12	12	12	12
Transm. Medium	RS 485	RS485 / IEC 1158-2 (with SIM 11)		RS 485
Protocol	DP (DPV1)	DP/FMS/PA	DP/DPV1	DP/DPV1/FMS
Message Buffer [kByte]	1.5	1.5	6	1,000 external
Housing	PQFP, 44 Pin	PQFP, 44 Pin	PQFP, 100 Pin	MQFP, 100 Pin

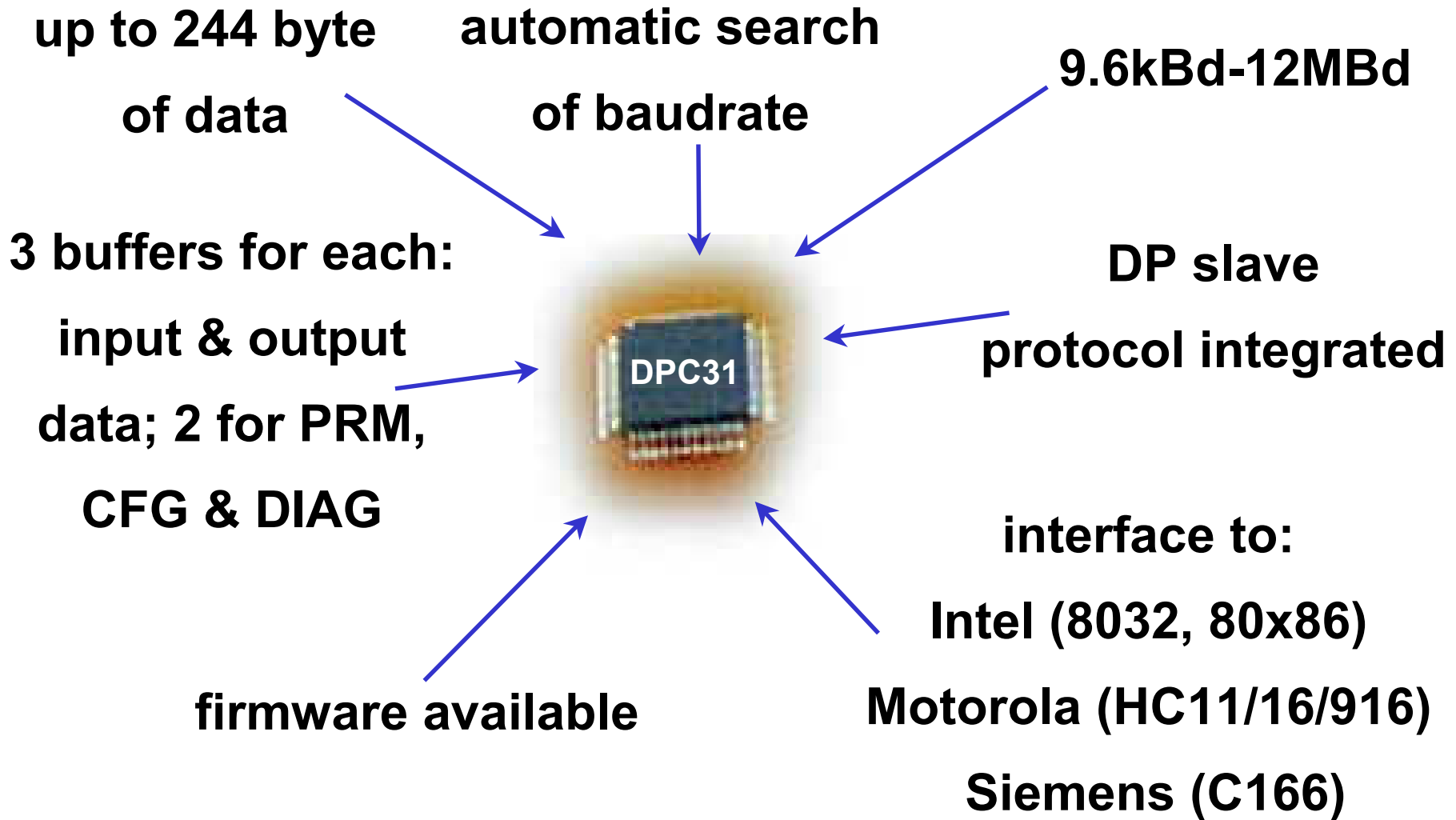
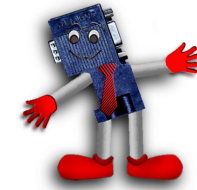


SPC3 ASIC



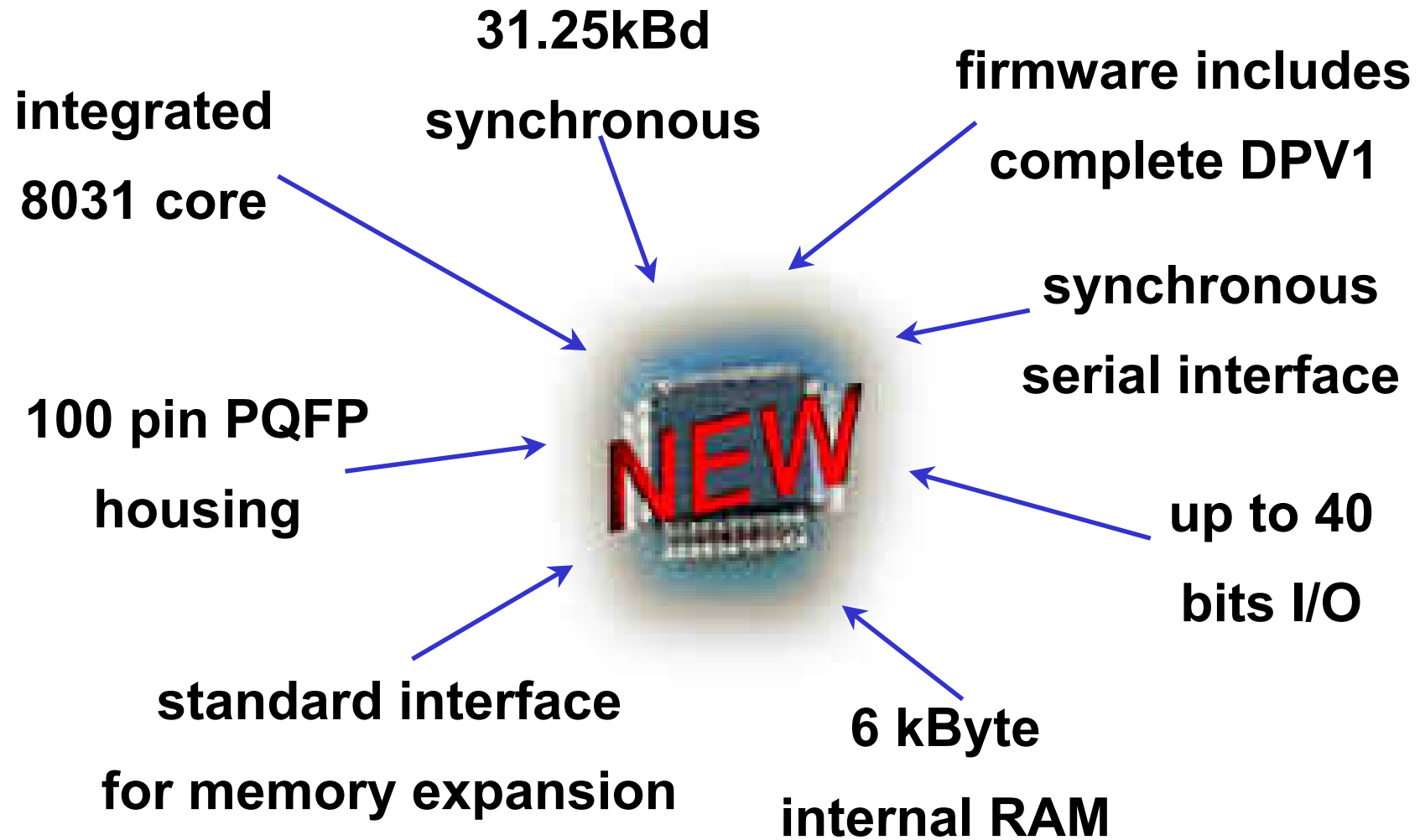
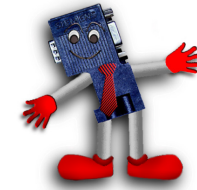


DPC31 ASIC



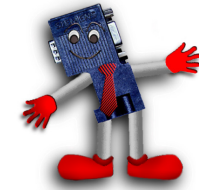


DPC31 ASIC





SPC41 ASIC

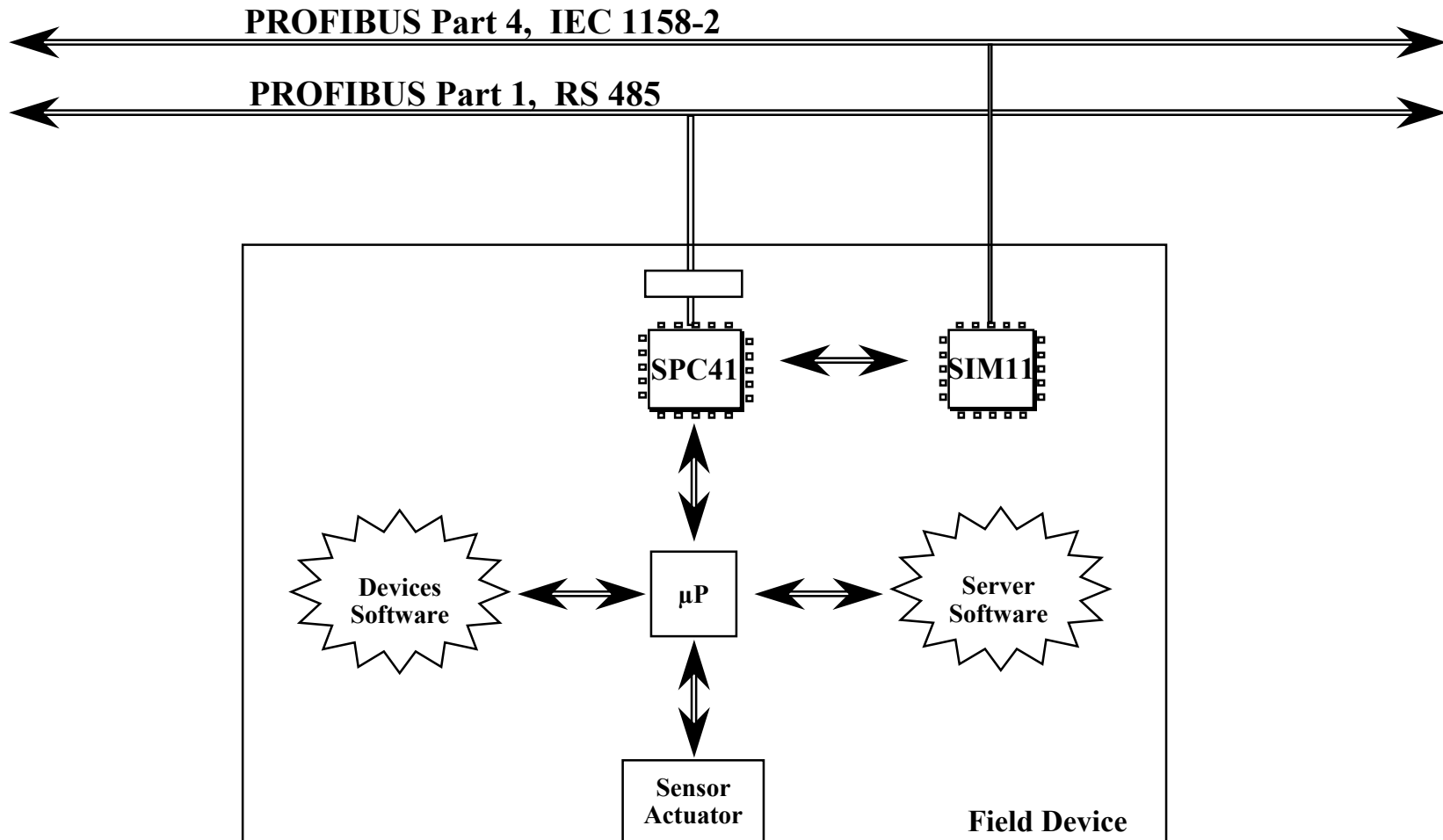
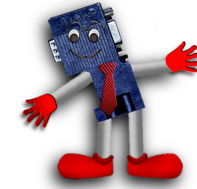


- ✓ **Maximum Transmission Rate 12 MBaud**
- ✓ **Large data volumes (up to 244 Byte)**
- ✓ **Fast, since time critical functions reside in hardware**
- ✓ **Integrated part of DP functions**
- ✓ **FMS support and PA support**
- ✓ **Simultaneously Slave to ISP 3.0 (Now Part IV of PROFIBUS)**
- ✓ **10 mW power loss (when used over IEC H1)**
- ✓ **8 bit fixed parallel interface**



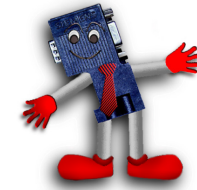


SPC41 ASIC





SPC41 ASIC



- ✓ Free FDL access is supported by (used for DP-V1):
 - × 5 System Management Service Access Points (SAPs)
 - × Default- SAP
 - × 64 SAPs (structure specified)

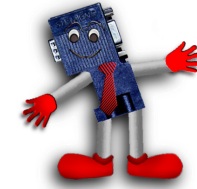
⇒ **Supported PROFIBUS DP services realized in HW :**

- ✓ Data-Exchange
- ✓ Read-Input-Data
- ✓ Read-Output- Data
- ✓ Global-Control (Sync, Freeze, Clear-Data)

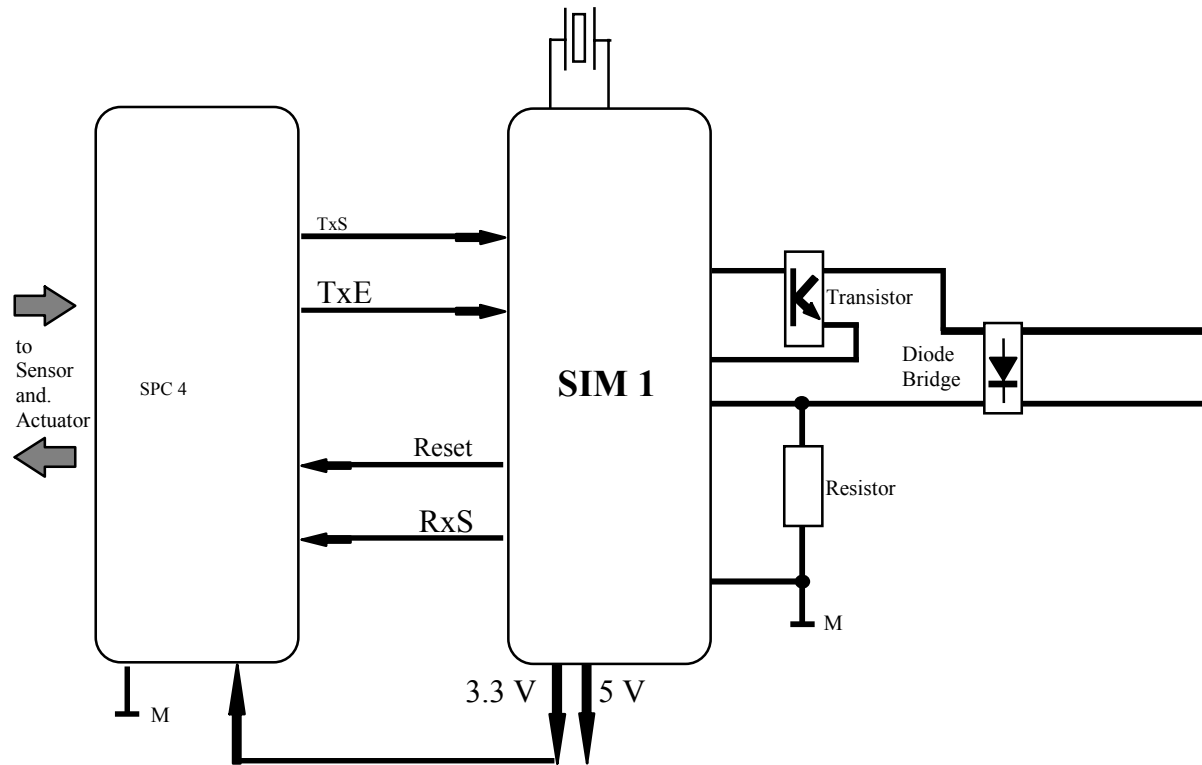
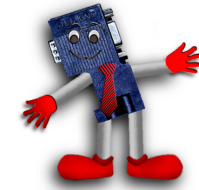
⇒ **Diagnosis, parameter assignment, configuration is realized through the FLC -Software (Server Software)**



DPC31/SPC41 - use for PA



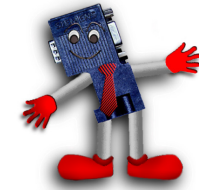
- ✓ The communication block SIM 11 is intended for use in fail-safe fieldbus systems with 31.25 kbit/s and there supplies the functions of a medium attachment unit for IEC H1 (identical PROFIBUS-PA) according to IEC 1158-2
- ✓ Except for the SIM 11, only few external components are needed to connect modules or field devices to a fail-safe network for PROFIBUS-PA according to the PNO Guideline



SIM 11 in Constant Current Mode with SPC 41 without isolation



Software



+

**Master SW
Protocol DP
for 80165**

(80 kByte)



+

**Slave SW
Protocol DP**

(6 kByte)



+

**Slave SW
Protocol DP/DPV1**

(depends on
implementation)



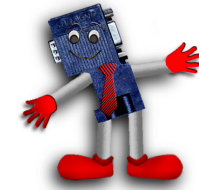
+

**Slave SW
Protocol DP,
FMS,PA**

(30 kByte)



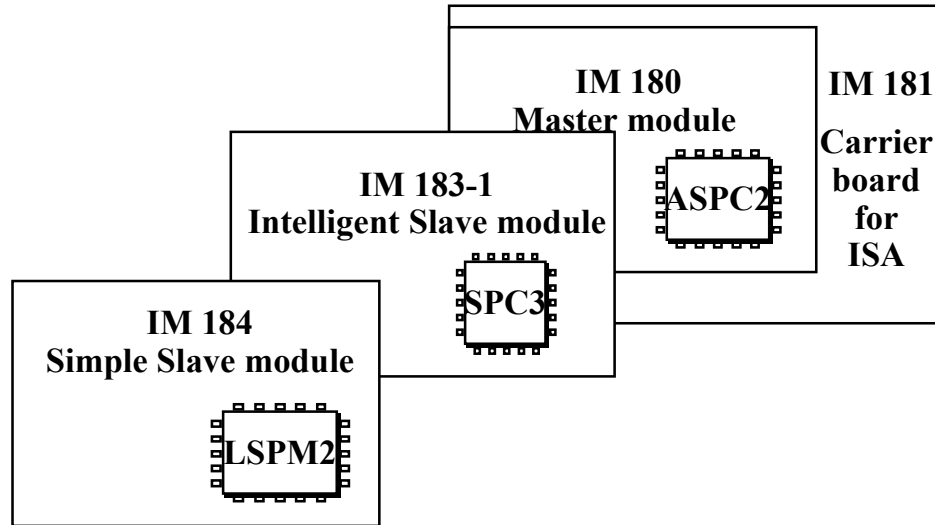
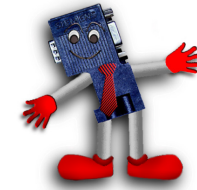
Modules



- ⇒ **Make the fastest PROFIBUS implementation possible**
- ⇒ **Requires no SMD technology by the device manufacturer**
- ⇒ **Reduces development effort**
- ⇒ **Low cost solution for getting started, and low volume units**
- ⇒ **PROFIBUS part is already complete**
- ⇒ **Proven technique**



Modules

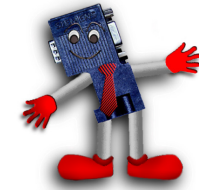


Common features:

- ⇒ **5V DC power supply**
- ⇒ **0 to 70 °C permissible ambient temperature**
- ⇒ **Transmission rate 12 Mbaud maximum**



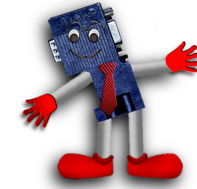
IM 184



- ✓ **PROFIBUS protocol handling by LSPM 2 ASIC**
- ✓ **32 configurable inputs/outputs**
- ✓ **8 separate diagnostics inputs**
- ✓ **connection: 2x34-pin connectors for connection to host network**
- ✓ **10-pin connector for RS-485**
- ✓ **floating RS-485 interface for PROFIBUS-DP**
- ✓ **power consumption typ. 100 mA**
- ✓ **dimensions (W x H): 85 x 64 mm / 3.3 x 2.5 in (modular design)**



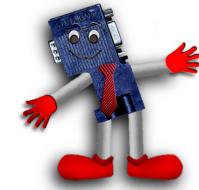
IM 183



- ✓ PROFIBUS protocol handling by SPC 3 ASIC
- ✓ CPU 80C32 microprocessor
- ✓ 20 MHz clock frequency
- ✓ 32 Kbytes SRAM user memory
- ✓ 32 kBytes (mirrored) or 64 kByte EPROM
- ✓ the host interface is the address and data bus on the interface module
- ✓ 50-pin connector for connection to host network
- ✓ 14-pin connector for RS-232
- ✓ 10-pin connector for RS-485
- ✓ dimensions (W x H): 86 x 76 mm / 3.3 x 2.7 in



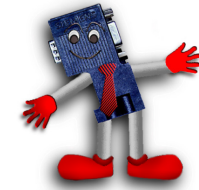
IM 180



- ✓ PROFIBUS protocol handling by ASPC 2 ASIC
- ✓ 80C165 microprocessor
- ✓ 40 MHz clock frequency
- ✓ 2 x 128K x 8-bit RAM user memory
- ✓ 128K x 16-bit flash EPROM program and parameter memory
- ✓ 48 MHz oscillator chip for ASPC 2
- ✓ 16/8-bit data bus can be connected; dual-port RAM (8K x 16 bit); 64-pin connector (4 rows); optional 8/16-bit data bus connectable
- ✓ high integrity data exchange via dual-port RAM
- ✓ dimensions (W x H): 100 x 100 mm



Development Package



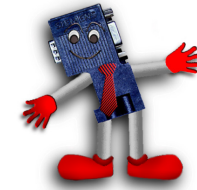
What is a development package?

- ⇒ **Complete package with Slaves and Master and Software**
- ⇒ **Only prerequisite for setup is a PC-AT**
- ⇒ **Easy start for newcomers**
- ⇒ **Easy to understand (Plug and Play)**
- ⇒ **Included test software can be used for each Slave**
- ⇒ **Information about the handling with EN 50170**



Development Package

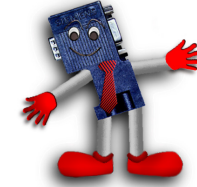
4



-
- ⇒ **Consists of** **+ SW**
 - ⇒ **Suitable for master- and slave developments in 12 Mbaud technology**
 - ⇒ **Permits setting up, configuring, running diagnostics of a complete PROFIBUS-DP network**
 - ⇒ **Includes examples for user diagnostic and parameterization**
 - ⇒ **Handling of sync and freeze mode**



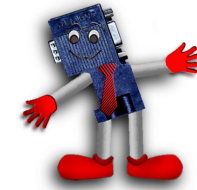
Services



- ✓ **ASICs, DP-Modules, DP-Slave Software for SPC 3/ DPC 31 and Development Package 4 can be ordered normally**
- ✓ **DP/FMS/PA-Slave SW for SPC 4 is offered by ITEC**
- ✓ **Master SW for ASPC2 available with license agreement (object code)**
 - × **\$19,500 Master SW (DP)**
- ✓ **Support via phone and PROFIBUS seminars at the are free of charge**



ASIC prices



⇒ List price for ASICs

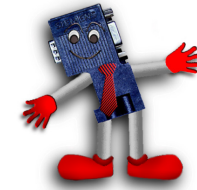
Type	list price per ASIC, US\$	list price per ASIC, US\$
LSPM2	20.58 (40 pcs.)	13.60 (9,900 pcs.)
SPM2	22.67 (24 pcs.)	19.34 (10,000 pcs.)
SPC3	17.93 (96 pcs.)	10.01 (9,792 pcs.)
DPC31	18.00 (60 pcs.)	10.29 (10,200 pcs.)
SPC41	15.59 (96 pcs.)	13.72 (960 pcs.)
SIM11	15.13 (160 pcs.)	11.74 (960 pcs.)
ASPC2	32.42 (66 pcs.)	25.27 (9,900 pcs.)

DP Slave-SW for SPC3 US\$1,575.00

DP Slave-SW for DPC31 US\$2,800.00



Module prices



⇒ **List price for modules, simple PC-boards and Development Package 4 for PROFIBUS-DP**

Type	List price, \$
IM 180 (Master module)	750
IM 181(Carrier board for ISA)	270
IM 183-1 (Intelligent Slave module)	260
IM 184 (Simple Slave module)	230
Development Package 4	3,000