

PBus

Interface boards



The PBus provides the base for a product line of inexpensive and flexible interface boards. A system of 100x160mm euroboards featuring industrial I/O as well as communication and operating interfaces allows the modular configuration of computer systems for all tasks of measurement and control. Studies of feasibility, prototyping and even limited production lots can be done easily. The flexibility of a pluggable card system allows to research and design new software in parallel with the development of customized hardware based on proven designs. Transforming proven designs into cost-effective production systems lowers the risks of development and leads to a shorter time to market.

The PBus uses an 8 bit data- and an 8-bit address bus, 3 IRQ's and control signals. The asynchronous bus access eases the integration of slow peripherals. Reference designs are available.

PBus

Technology

Industrial I/O

Analog I/O

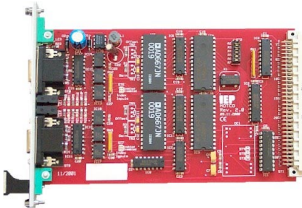


ADDA12/4

The **ADDA** is a combined input/output card for analog process signals. Careful design, anti-alias filters and rugged input and output protection are ensuring the quality of the data acquisition and the reliability of the **ADDA**, even in the rough everyday work.

- 4 independent voltage outputs ± 10 V; 12 bit resolution; 11 bit accuracy; Conversion time approx. 6 μ s
- Input ranges: ± 10 V or ± 20 mA, optionally
- Measuring ranges: programmable, for each channel:
 ± 10 V; ± 1 V; $\pm 0,1$; ± 20 mA; ± 2 mA
- Resolution: 16 (12) bits over measuring range
- Accuracy: 14 (11) bits over measuring range
- Conversion time: approx. 25 μ s
- Input channels: optionally 8 differential or 16 single ended

Motorcontroller

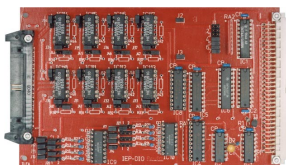


MOTCO

The **Motco** provides two independent channels for servo drive control. Both control of speed as well as control of position are supported.

- PID control, cycle time 341 μ s, operates local on board
- all inputs galvanically isolated
- single 5 V power supply possible
- incremental encoder inputs A+B+Index, 32 bit position counter; either 24 Volt or RS-422
- analog outputs ± 10 V with 12 bit resolution

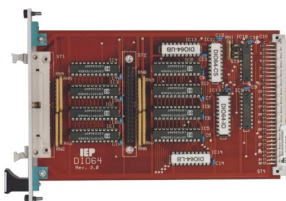
Digital I/O



DIO

The **DIO** is a versatile digital I/O board with 8 digital in- and 8 digital outputs. Each input and output can be configured individually and independently.

- Inputs are opto isolated individually.
- Output configuration field selectable, either optocouplers or Reed-relays SPST nc, SPST no or SPDT
- High-side or Low-side switching selectable by jumper
- output level well defined after power on / Reset



DIO64

The **DIO64** is a flexible I/O card with 64 digital ports, each of which can be configured by software individually as input or output.

- each channel individually configurable by software
- 24 mA output current for direct drive of Reed-relay
- galvanic isolation available as option
- TTL compatible

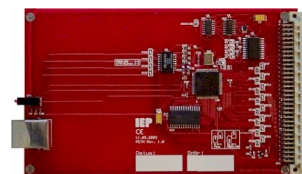
Communication and mass storage

The **PETH** provides a 10BaseT Ethernet interface with a RJ45 connector and 3 status LEDs:

- red Collision
- yellow Link
- green Transmit

The TCP/IP stack for RTOS-UH as well as an FTP- and a Telnet-server are in the standard scope of supply. Corresponding clients and a web server supporting dynamic contents are available. An optional OSI stack serves for the integration into control concepts based on e.g. SINEC-H1.

Ethernet

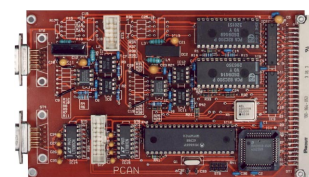


PETH

The **PCAN** provides up to two independent CAN interfaces as well as two serial interfaces RS-232 to systems based on the PBus. It serves for the integration of a PBus system into cell level.

- 2 CAN interfaces upto 1 MBaud
- CAN interfaces galvanically isolated individually
- Packet driver with library
- 2 x RS-232, 50 to 38400 Baud
- serial driver is part of operating system

CAN-Controller



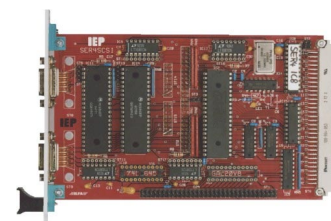
PCAN

The physical bus topology is a party line with up to 110 participants. The maximum data rate is 1 MBit/s and allows for a bus length of up to 40 m; using lower data rates allows for bus lengths up to 1 km.

The **SER4SCSI** adds upto 4 asynchronous serial interfaces as well as one SCSI interface to a system based on PBeth or MOCS.

- 4 x RS-232 interfaces
- 50 to 38400 Baud
- Hardwarehandshake RTS/CTS
- Converter available for RS-422, RS-485 and 20 mA current loop
- Supports 7 SCSI devices
- SCSI driver for Floppy and hard disc retains the realtime capabilities of the RTOS-UH operating system

Serial ports

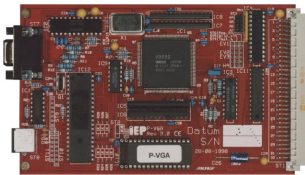


SER4SCSI

The serial interfaces are provided by 9-pin SubD connectors. With two interfaces, the board uses a front panel of 4 TE width, with 4 interfaces, 8 TE are used. For SCSI connection, a 50-pin header is available on the lower side of the board.

Operating

Monitor+ Keyboard



P-VGA



P-VGA is an economical solution for PBus systems to provide an operating interface. A VGA video output with a 640x480 pixel resolution and a PC/AT-keyboard interface are provided.

- **Graphical display**

Aside from basic drawing functions, the application programming interface supports extended graphic functions as well as direct image manipulations and blitter operations. In text mode, the **P-VGA** allows fast operation by an extensive character generator EPROM. Character sets are user-definable, even multiple character sets with different character sizes are supported.

- **Keyboard**

Any PC/AT keyboard as well as matrix keyboards upto 7x8 keys can be attached.

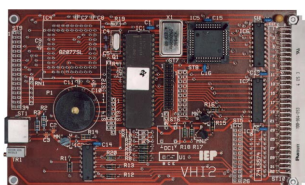
- **Terminal emulation**

A terminal emulation allows the definition of vertical and horizontal scrolling regions as well as extended color control even in text mode. With graphic oriented character sets, fast text mode display of windowed contents is achievable.

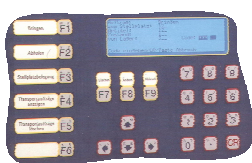
- **Operating terminal**

The **P-VGA** can be used instead of or in addition to a conventional serial console port to operate a PBus system.

Display+ Keyboard



VHI



The **VHI** allows the connection of simple operating elements as well as of an inexpensive floppy drive to PBus systems. All operating elements necessary for direct machine operating are supported, the floppy drive allows for data exchange.

- **PC keyboard**

To the **VHI**, any PC/AT keyboard can be attached. PC- and matrix keyboard can be operated at the same time.

- **Matrix keyboard**

Matrix keyboards upto 7x8 keys are supported. The connection of application specific keyboards is possible.

- **Textdisplays**

1x8 upto 2x40 or 4x16 (lines x characters)

- **Graphical displays**

120x32 pixels (correlating to 4x20 characters) up to 480x128 pixels (correlating 16x80 characters)