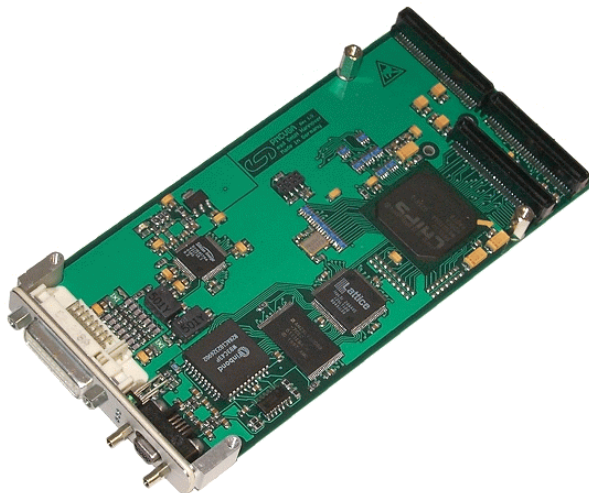


PMC-DVI

DVI-Graphics Card



Hardware Manual

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Changes in the chapters

The changes in the user's manual listed below affect changes in the **hardware**, as well as changes in the **description** of the facts only.

Chapter	Changes versus previous version
-	First version
-	

Further technical changes are subject to change without notice.

NOTE

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1. Overview

1.1 Description of the PMC-DVI Module

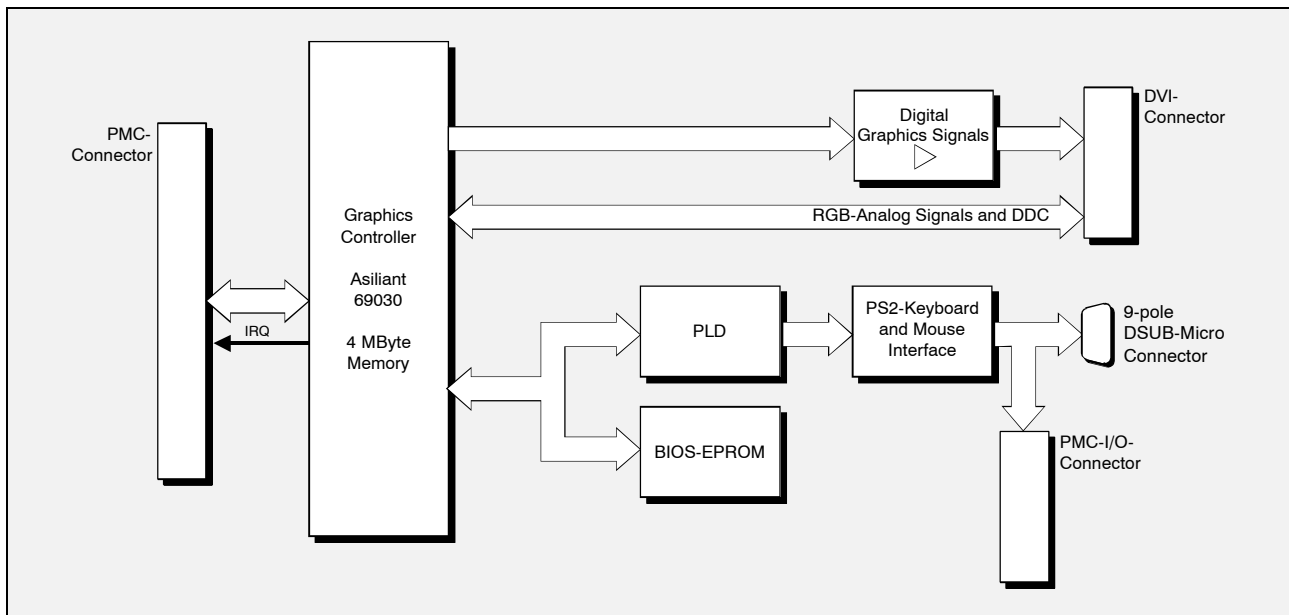


Fig. 1.1: Block-circuit diagram of PMC-DVI Module

The PMC-DVI is a graphics card in 'Single' PCI Mezzanine Card format. Keyboard and mouse can be connected via a PS2-port on a DSUB-Micro socket.

The PMC-DVI module is equipped with a powerful graphics controller 69030 which offers frame rates from 85 Hz at a resolution of 640x480 (True Colour) to 60 Hz at a resolution of 1600x1200 (16 bit colours).

The DVI-I-interface can access CRT-monitors via analog video signals as well as TFT-displays via digital video signals.

The connector of the DVI-I-interface and the connector for the keyboard and the mouse are easy to access via the front panel.

The LEDs in the front panel show the current status of the PMC-DVI module.



1.2 Summary of Technical Data

1.2.1 General Technical Data

Ambient temperature	0...50 °C
Humidity	max. 90 %, non-condensing
Power supply	via CompactPCI-Bus, nominal voltage: 3.3 V, 5 V
Connectors	P11 (64-pol. PMC-connector) - PCI-signals P12 (64-pol. PMC-connector) - PCI-signals P14 (64-pol. PMC-connector) - PS2-signals X300 (DVI24+1, DVI-socket) - CRT-Monitor and TFT-display X500 (9-pol. DSUB9-Micro socket) - PS2-mouse and -keyboard X200 (8-pole socket, e.g.: CLT-104-02-G-D-BE-A by Samtec) - only for programming and testing (ISP-programming)
Dimensions	148.33 mm x 74.04 mm
Fixing	four screws M2.5 x 6 mm and distance bolts
Weight	90 g

Table 1.1: General technical data



1.2.2 PCI-Bus

Host bus	PCI-bus according to PCI Local Bus Specification 2.2
PCI-data	32 bit
Controller	Asiliant B69030
Interrupt	Interrupt signal A

Table 1.2: PCI-bus interface

1.2.3 Graphics Card

Number	1
Outputs	The displays of the digital TFT-display and the analog CRT-monitor run concurrent and independent from each other
Controller	Assiliant B69030
Memory	4 Mbyte on-chip high performance SDRAM
Display Modes	VGA (640x480) with True Colour (24 bit) at 85 Hz SVGA (800x600) with True Colour at 85 Hz XGA (1024x768) with High Colour (16 bit) at 85 Hz SXGA (1280x1024) with 8-bit Colour at 75 Hz UXGA (1600x1200) with 16-bit Colour at 60 Hz

Table 1.3: Graphics card

1.2.4 Software Support

Graphics drivers for VxWorks, RTOS/UH, Linux and QNX are available for the CPCI-DVI module. Windows98/NT/2000 is supported as well. Further drivers are available on request.



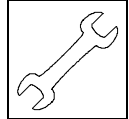
1.2.5 Order Information

Type	Properties	Order No.
PMC-DVI	Graphics card	V.2022.02
PMC-DVI-VxW	VxWorks driver	V.2022.31
PMC-DVI-ME	English manual 1*)	V.2022.20
PMC-DVI-ENG	Engineering manual in English 2*) Content: circuit layouts, positions of components and data sheets of important components	V.2022.25

1*) The manual is free, if it is ordered together with the product.

2*) This manual is liable for costs, please contact our support.

Table 1.4: Order information



2. Hardware Installation

Because the PMC-DVI module can be inserted to various circuit boards, the carrier system is described as 'computer' in the following.

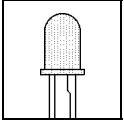
Attention!

Electro-static discharges may cause damage to electronic components. In order to avoid this please make sure to follow the steps below *before* touching the CAN-module:

- Switch off the power supply of your computer, but leave it connected to mains.
- Now touch the metal enclosure of the computer to discharge yourself.
- Even your clothes must not touch the CAN-module.

Installation:

1. Switch off your computer and all connected peripheral devices (monitor, printers, etc.).
2. Discharge yourself as described above.
3. Disconnect the computer from mains.
If the computer is tightly connected to mains and does not have any flexible mains power line, disconnect the mains via the fuse. Make sure that the fuse cannot be switched on unintentionally.
4. Open the enclosure.
5. Insert the PMC-DVI module to a suitable carrier board.
6. Install the carrier board in the system.
7. Close the enclosure again
8. Connect monitor, mouse and keyboard. An adapter for mouse and keyboard is available.
9. Switch on the power supply of the computer again (power plug or fuse).
10. Switch on the computer, the monitor and the peripheral devices.
8. End of hardware installation.
9. Now, you can configure the PS2-interface. For further information refer to the documentation of your operating system.



Front panel View with LED-Display

3. Front Panel View with LED-Display

The Module is equipped with three green LEDs in the front panel.

3.1 LEDs and Connectors in the Front Panel

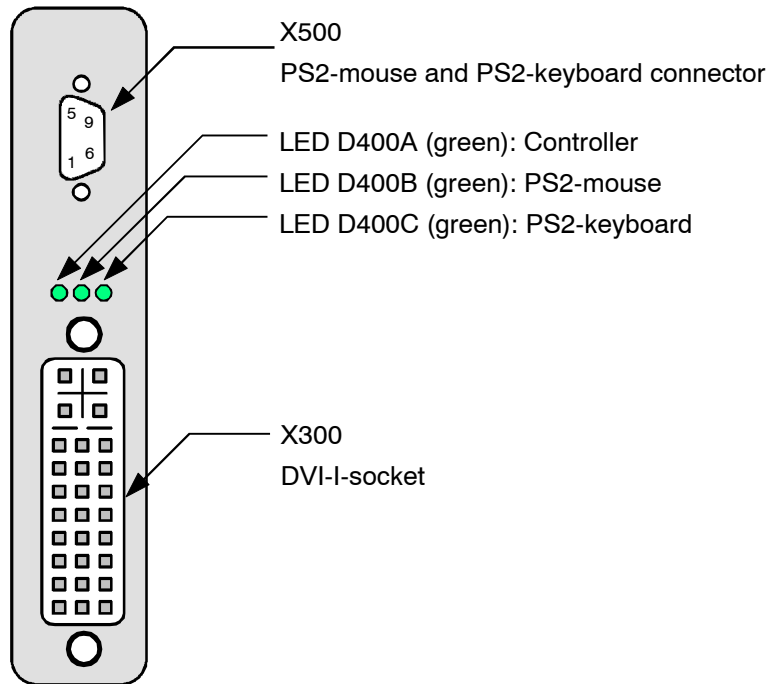
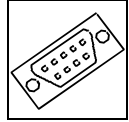


Fig. 3.1: Front panel view

LED	Colour	Name	Display function (LED on)
LEDD400A	green	ACT	Access to 69030 graphics controller
LEDD400B	green	MOU	Mouse, interrupt
LEDD400C	green	KEY	Keyboard, interrupt

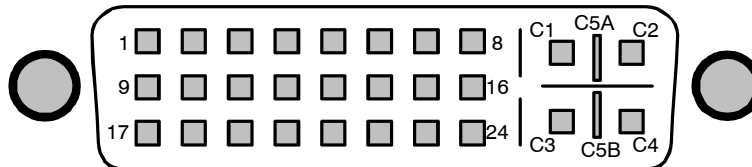
Table 3.1: Display functions of the LEDs



4. Connector Assignment

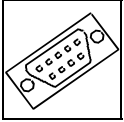
4.1 DVI-I-Connector (X300)

Pin Position:



Pin Assignment:

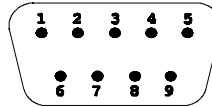
Digital Signals									Analog Signals			
Pin	1	2	3	4	5	6	7	8	Pin	C1	C5A	C2
Signal	DVI_ TX2-	DVI_ TX2+	DVI_ S2/4_ GND	n.c.	n.c.	XDDC_ CLK	XDDC_ DATA	A_ VSYNC	Signal	A_ RED	DAC GND	A_ GREEN
Pin	9	10	11	12	13	14	15	16	Pin	C3	C5B	C4
Signal	DVI_ TX1-	DVI_ TX1+	DVI_ S1/3_ GND	n.c.	n.c.	XVCC1	XGND1	n.c.	Signal	A_ BLUE	DAC GND	A_ HSYNC
Pin	17	18	19	20	21	22	23	24				
Signal	DVI_ TX0-	DVI_ TX0+	DVI_ S0/5_ GND	n.c.	n.c.	DVI_ CLK_ GND	DVI_ TXC+	DVI_ TXC-				



Connector Assignment

4.2 DSUB-Micro Socket X500, PS2-Mouse and -Keyboard

Pin Position:



Pin Assignment:

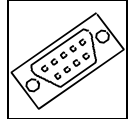
Signal	Pin		Signal
XGND2	6	1	XK_DATA
		2	XK_CLK
XVCC2	7	3	XGND2
XVCC2	8	4	XM_CLK
XGND2	9	5	XM_DATA

9-pole DSUB-Micro connector

Signal Description:

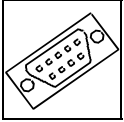
XK_DATA, XK_CLK...	keyboard signal lines
XM_DATA, XM_CLK...	mouse signal lines
XVCC2 ...	power supply
XGND2 ...	reference potential

An adapter for the connection of customary PS2-connectors of mouse and keyboard is available.



4.3 Assignment of the 64-pole PMC-Connector P11 (Pn1/Jn1 32 Bit PCI)

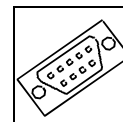
Signal	Pin	Pin	Signal
n.c.	1	2	-12V
GND	3	4	INTA#
INTB#	5	6	INTC#
GND	7	8	VCC
INTD#	9	10	n.c.
GND	11	12	n.c.
PCLK	13	14	GND
GND	15	16	n.c.
n.c.	17	18	VCC
V IO	19	20	AD31
AD28	21	22	AD27
AD25	23	24	GND
GND	25	26	C/BE3#
AD22	27	28	AD21
AD19	29	30	GND
VIO	31	32	AD17
FRAME#	33	34	GND
GND	35	36	IRDY#
DEVSEL#	37	38	VCC
GND	39	40	n.c.
n.c.	41	42	n.c.
PAR	43	44	GND
VIO	45	46	AD15
AD12	47	48	AD11
AD9	49	50	VCC
GND	51	52	C/BE0#
AD6	53	54	AD5
AD4	55	56	GND
VIO	57	58	AD3
AD2	59	60	AD1
AD0	61	62	VCC
GND	63	64	n.c.



Connector Assignment

4.4 Assignment of the 64-pole PMC-Connector P12 (Pn2/Jn2 32 Bit PCI)

Signal	Pin	Pin	Signal
+12 V	1	2	n.c.
n.c.	3	4	TDO
TDI	5	6	GND
GND	7	8	n.c.
n.c.	9	10	n.c.
n.c.	11	12	+3,3V
RST#	13	14	n.c.
+3,3V	15	16	n.c.
n.c.	17	18	GND
AD30	19	20	AD29
GND	21	22	AD26
AD24	23	24	+3,3V
IDSEL	25	26	AD23
+3,3V	27	28	AD20
AD18	29	30	GND
AD16	31	32	C/BE2#
GND	33	34	n.c.
TRDY#	35	36	+3,3V
GND	37	38	STOP#
PERR#	39	40	GND
+3,3V	41	42	SERR#
C/BE1#	43	44	GND
AD14	45	46	AD13
GND	47	48	AD10
AD8	49	50	+3,3V
AD7	51	52	n.c.
+3,3V	53	54	n.c.
n.c.	55	56	GND
n.c.	57	58	n.c.
GND	59	60	n.c.
n.c.	61	62	+3,3V
GND	63	64	n.c.



4.5 Assignment of the 64-pole PMC-I/O Connector P14 (Pn4/Jn4 32 Bit PCI)

Signal	Pin	Pin	Signal
M_CLK	1	2	M_DATA
GND	3	4	GND
K_CLK	5	6	K_DATA
n.c.	7 : 63	8 : 64	n.c.