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AGP-Sprint-7

Technical Manual

Rev.1.1

PCB revision AGP1L113

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User Information

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General

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The information in the Technical Descriptions describes the type of the boards and shall not be considered as assured characteristics.

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Warranty

Each board is carefully and thoroughly tested before being shipped. If, however, problems should occur during the operation, please check your user specific settings of all boards included in your system. This is often the source of the fault. If a board is defective, it can be sent to your supplier for repair. Please take care of the following steps:

1. The board returned should correspond to the factory default settings since a test is only possible under this settings.
2. In order to repair your board as fast as possible , we require some additional information from you. Please fill out the attached Repair Form and include it with the defective board.
3. If possible, the board will be upgraded to the latest version without additional cost.
4. Upon receipt of the board, please be aware that your user specific settings were changes during the test.

Within the guarantee, the repair is free as long as the guarantee conditions were kept. If no fault has been found, you will be charged with the test cost due to the high test expenditure. Repairs outside of the guarantee will be charged.

This Dr. Berghaus product is warranted against defects in material and workmanship for our guaranteed warranty period from the date of shipment. During the warranty period, Dr. Berghaus will, at its option, either repair or replace products which prove to be defective.

For warranty service or repair, the product must be returned to a service facility designated by Dr. Berghaus.

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance or handling by buyer, unauthorized modification or misuse, operation outside of the environmental specifications for the product, or improper installation or maintenance.

Dr. Berghaus will not be responsible for any defects or damages due to a faulty Dr. Berghaus product other than the products supplied by Dr. Berghaus.

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AGP-Sprint-7 Features

AGP-Sprint-7 incorporates following features:

- Comprehensive AGP support, including 1X and 2X mode, sideband adressing, and AGP texturing
- 2D/3D graphics accelerator
- Resolution up to 1600x1200 (CRT) and 1280x1024 (TFT) respectively
- Superior 3D acceleration through comprehensive support including a host of 3D special effects
- Dual-View in that it can output to LCD and CRT simultaneously
- Integrated dual channel 110MHz LVDS transmitter
- Inovative ratiometric expansion enables source images to fit any panel resolution up to 1280x1024
- Powerful drivers for Win95, WIN98, NT4.0,....
- Board size : 134x90 mm

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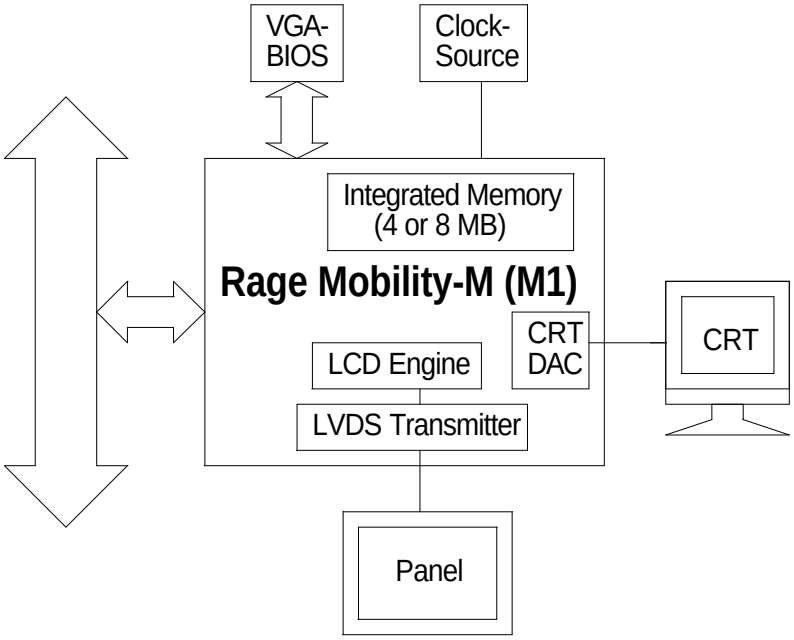
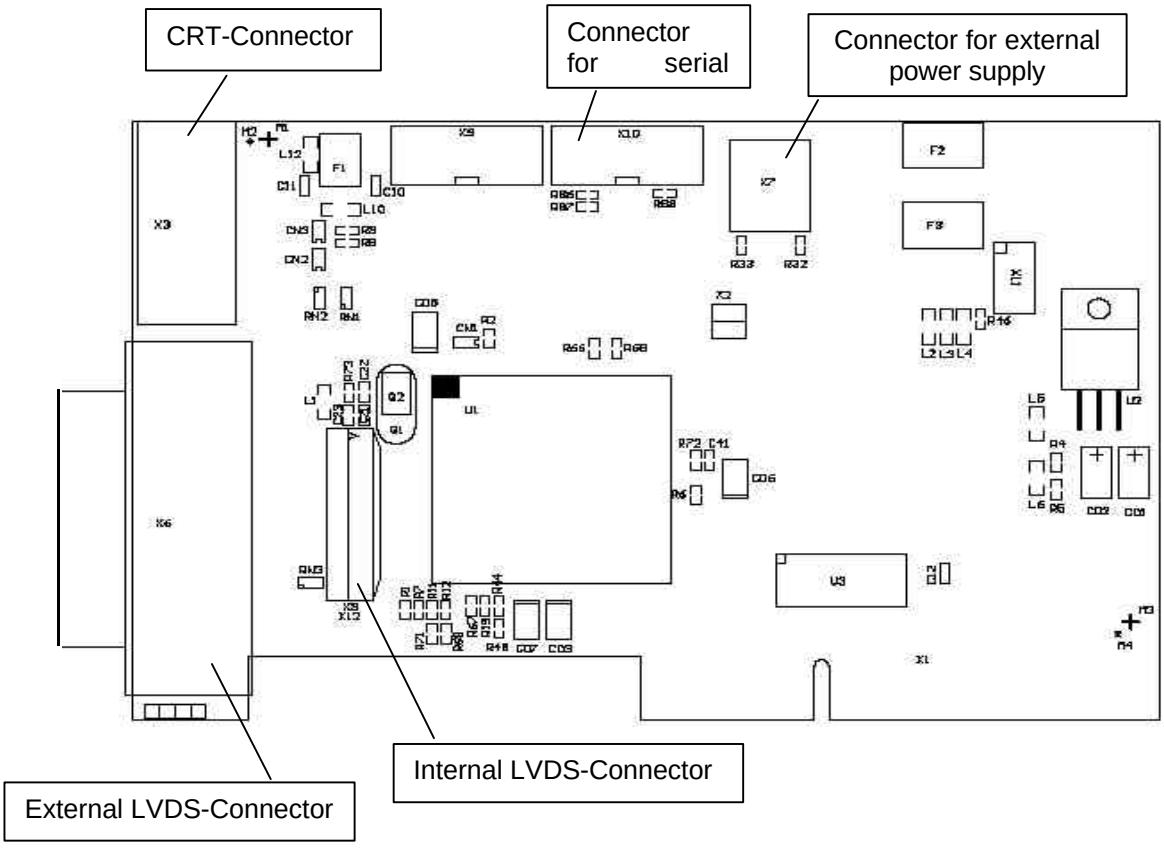
Overview

Block Diagram



Layout / Dimensions



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Connectors

Pin-No.	AGP-Bus (A)	AGP-Bus (B)	CRT-connector X3	External Power-Conn. X7	Seriel Connector X10	Pin-No.
1	+12V	SPARE	RED	Vcc_EXT (5.0V)	DCD	1
2	SPARE	Vcc (5.0V)	GREEN	GND	RXD	2
3	RESERVED	Vcc (5.0V)	BLUE	GND	TXD	3
4	USB-	USB+	(ID2)	+12_EXT	DTR	4
5	GND	GND	GND		GND	5
6	INTA#	INTB#	GND		DSR	6
7	RST#	CLK	GND		RTS	7
8	GNT#	REQ#	GND		CTS	8
9	VCC3.3	VCC3.3	Key		RI	9
10	ST1	ST0	GND		n.c.	10
11	RESERVED	ST2	(ID0)			11
12	PIPE#	RBF#	(ID1)			12
13	GND	GND	HSYNC			13
14	SPARE	SPARE	VSYNC			14
15	SBA1	SBA0	RSVD			15
16	VCC3.3	VCC3.3				16
17	SBA3	SBA2				17
18	RESERVED	SB_STB				18
19	GND	GND				19
20	SBA5	SBA4				20
21	SBA7	SBA6				21
22	KEY	KEY				22
23	KEY	KEY				23
24	KEY	KEY				24
25	KEY	KEY				25
26	AD30	AD31				26
27	AD28	AD29				27
28	VCC3.3	VCC3.3				28
29	AD26	AD27				29
30	AD24	AD25				30
31	GND	GND				31
32	RESERVED	AD_STB1				32
33	C/BE3#	AD23				33
34	VDDQ3.3	ADDQ3.3				34
35	AD22	AD21				35
36	AD20	AD19				36
37	GND	GND				37
38	AD18	AD17				38
39	AD16	C/BE2#				39
40	VDDQ3.3	VDDQ3.3				40
41	FRAME#	IRDY#				41
42	NC	NC				42
43	GND	GND				43
44	NC	NC				44
45	VCC3.3	VCC3.3				45
46	TRDY#	DEVSEL#				46
47	STOP#	VDDQ3.3				47
48	SPARE	PERR#				48
49	GND	GND				49
50	PAR	SERR#				50
51	AD15	C/BE1#				51
52	VDDQ3.3	VDDQ3.3				52
53	AD13	AD14				53
54	AD11	AD12				54
55	GND	GND				55
56	AD9	AD10				56
57	C/BE0#	AD8				57
58	VDDQ3.3	VDDQ3.3				58
59	RESERVED	AD_STB0				59
60	AD6	AD7				60
61	GND	GND				61
62	AD4	AD5				62
63	AD2	AD3				63
64	VDDQ3.3	VDDQ3.3				64
65	AD0	AD1				65
66	SMB1	SMB0				66

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Pin-No.	Internal LVDS-connector X8 (X12)		External LVDS-Connector X6		Pin-No.
	Name	Description	Description	Name	
1	LTGIO0	General Pupose I/O 0	Controls Panel Digital Power	DIGON	1
2	LCDDO0	Odd Receiver Signal(-) (R1IN 0-)	Even Receiver Signal(+) (R2IN 3+)	LCDDO19	2
3	LCDDO1	Odd Receiver Signal(+) (R1IN 0+)	Even Receiver Signal(-) (R2IN 3-)	LCDDO18	3
4	DIGON	Controls Panel Digital Power	Power Ground	GND	4
5	LCDDO2	Odd Receiver Signal(-) (R1IN 1-)	Even Clock Signal(+) (CK2IN +)	LCDDO17	5
6	LCDDO3	Odd Receiver Signal(+) (R1IN 1+)	Even Clock Signal(-) (CK2IN -)	LCDDO16	6
7	BIASON	Controls Panel Bias Voltage (for DSTN only)	General Pupose I/O 0	LTGIO0	7
8	LCDD04	Odd Receiver Signal(-) (R1IN 2-)	Odd Receiver Signal(+) (R1IN 3+)	LCDDO9	8
9	LCDDO5	Odd Receiver Signal(+) (R1IN 2+)	Odd Receiver Signal(-) (R1IN 3-)	LCDDO8	9
10	GND	Power Ground	Power Ground	GND	10
11	LCDDO6	Odd Clock Signal(-) (CK1IN -)	Odd Clock Signal(-) (CK1IN -)	LCDDO6	11
12	LCDDO7	Odd Clock Signal(+) (CK1IN +)	Odd Clock Signal(+) (CK1IN +)	LCDDO7	12
13	GND	Power Ground	Power Ground	GND	13
14	LCDDO8	Odd Receiver Signal(-) (R1IN 3-)	Odd Receiver Signal(-) (R1IN 1-)	LCDDO2	14
15	LCDDO9	Odd Receiver Signal(+) (R1IN 3+)	Odd Receiver Signal(+) (R1IN 1+)	LCDDO3	15
16	LTGIO2	General Pupose I/O 2	Cable Shield Contact	SHIELD	16
17	LCDDO10	Even Receiver Signal(-) (R2IN 0-)	Signal from external COM Port	DTR	17
18	LCDDO11	Even Receiver Signal(+) (R2IN 0+)	Signal from external COM Port	TXD	18
19	LTGIO1	General Pupose I/O 1	Signal from external COM Port	DCD	19
20	LCDDO12	Even Receiver Signal(-) (R2IN 1-)	Signal from external COM Port	RXD	20
21	LCDDO13	Even Receiver Signal(+) (R2IN 1+)	+5.0V (behind Fuse)	Vcc_Fused	21
22	GND	Power Ground	General Pupose I/O 1	LTGIO1	22
23	LCDDO14	Even Receiver Signal(-) (R2IN 2-)	General Pupose I/O 2	LTGIO2	23
24	LCDDO15	Even Receiver Signal(+) (R2IN 2+)	Positiv USB channel	USB+	24
25	GND	Power Ground	+5.0V (behind Fuse)	Vcc_Fused	25
26	LCDDO16	Even Clock Signal(-) (CK2IN -)	Signal from external COM Port	CTS	26
27	LCDDO17	Even Clock Signal(+) (CK2IN +)	Controls Panel Bias Voltage (for DSTN only)	BIASON	27
28	GND	Power Ground	Signal from external COM Port	RTS	28
29	LCDDO18	Even Receiver Signal(-) (R2IN 3-)	Signal from external COM Port	DSR	29
30	LCDDO19	Even Receiver Signal(+) (R2IN 3+)	Power Ground	GND	30
31	Vcc_Fused	+5.0V (behind Fuse)	Even Receiver Signal(-) (R2IN 2-)	LCDDO14	31
32	Vcc_Fused	+5.0V (behind Fuse)	Even Receiver Signal(+) (R2IN 2+)	LCDDO15	32
33	Vcc_Fused	+5.0V (behind Fuse)	Enables Backlight	BLON#	33
34	Vcc_Fused	+5.0V (behind Fuse)	Even Receiver Signal(+) (R2IN 1+)	LCDDO13	34
35	BLON#	Enables Backlight	Even Receiver Signal(-) (R2IN 1-)	LCDDO12	35
36	GND	Power Ground	+12V (behind Fuse)	+12V_Fused	36
37	GND	Power Ground	Even Receiver Signal(+) (R2IN 0+)	LCDDO11	37
38	+12V_Fused	+12V (behind Fuse)	Even Receiver Signal(-) (R2IN 0-)	LCDDO10	38
39	+12V_Fused	+12V (behind Fuse)	Negativ USB channel	USB-	39
40	+12V_Fused	+12V (behind Fuse)	Odd Receiver Signal(+) (R1IN 2+)	LCDDO5	40
41			Odd Receiver Signal(-) (R1IN 2-)	LCDDO4	41
42			+12V (behind Fuse)	+12V_Fused	42
43			Odd Receiver Signal(-) (R1IN 0-)	LCDDO0	43
44			Odd Receiver Signal(+) (R1IN 0+)	LCDDO1	44

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General Description

The AGP-SPRINT-7 card is a high-resolution, AGP VGA compatible 2D/3D graphics accelerator. The AGP-SPRINT-7 delivers superior acceleration through its integrated DVD and MPEG-2 hardware decoders.

The 3D engine provides up to 1.2 million triangles/s to improve the performance of 3D primitives dramatically. It also incorporates comprehensive support for Intel's Accelerated Graphics Port (AGP) – 1X or 2X mode with sidebands.

AGP-SPRINT-7 has an integrated dual channel 110 MHz LVDS transmitter. This integration not only saves space, cost and power (because no external LVDS transmitter is required), but also eliminates EMI up to 10,8 dB compared to external LVDS transmitter.

Resolutions up to 1280x1024 are supported on flat panels. The AGP-SPRINT-7 supports Dual-View, operating LCD and CRT simultaneously, even with different screen content. Inovative ratiometric expansion enables source images to fi t any panel resolution up to 1280x1024.

AGP Bus

AGP-Sprint-7 fully supports the AGP bus as defined in INTEL's *AGP Interface Specification Rev 2.0*

Power Supply

AGP-Sprint-7 board needs +3.3V and +5V voltage that were supplied by the AGP Bus. The 2,5V voltage is generated onboard. +12V for Backlight can supplied also by the AGP Bus. Additional the voltages for Backlight and Panel can be subscribed from the external power connector X7. For this the resistors R32 and R33 must be removed.

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The LC-Display Interface

Available Video Modes Specifications

Single Display Mode Support (CRT/TFT, no DVD/Video Overlay and no 3D)

Display Width	Display Height	Refresh (Hz)	Colour Depth			
			8 bpp	16 bpp	24 bpp	32 bpp
640	480	60	ok	ok	ok	ok
		75	ok	ok	ok	ok
		85	ok	ok	ok	ok
		100	ok	ok	ok	ok
800	600	60	ok	ok	ok	ok
		75	ok	ok	ok	ok
		85	ok	ok	ok	ok
		100	ok	ok	ok	ok
1024	768	60	ok	ok	ok	ok
		75	ok	ok	ok	ok
		85	ok	ok	ok	ok
		100	ok	ok	ok	ok
1280	1024	60	ok	ok	ok	—
		75	ok	ok	ok	—
		85	ok	ok	ok	—
		100	ok	ok	—	—
1600	1200	60	ok	ok	—	—
		75	ok	ok	—	—
		85	ok	ok	—	—
		100	ok	ok	—	—

Dual Display Mode Support (CRT/TFT, no DVD/Video Overlay and no 3D, 75 Hz Refresh on Both Displays)

Disp1		Disp2		Maximum Secondary Display Colour Depth (bpp) vs Primary Display Colour Depth			
Width	Heigth	Width	Heigth	8bpp	16bpp	24bpp	32bpp
640	480	640	480	32	32	32	32
		800	600	32	32	32	32
		1024	768	32	32	32	24
		1280	1024	16	16	16	16
800	600	640	480	32	32	32	32
		800	600	32	32	32	32
		1024	768	32	32*	24	16
		1280	1024	16	16	16	8
1024	768	640	480	32	32	32	24
		800	600	32	32	24	16*
		1024	768	32	24	16	8
		1280	1024	16	8	8	—
1280	1024	640	480	32	24	—	—
		800	600	32	24	—	—
		1024	768	24	8	—	—
		1280	1024	16	8	—	—
1600	1200	640	480	32	8*	—	—
		800	600	24	—	—	—
		1024	768	16	—	—	—
		1280	1024	8	—	—	—

Note: * indicates memory requirements are within 100KB of memory capacity.

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Electrical Specifications

Supply voltage:	+3.3V DC +/- 5%
	+5.0V DC +/- 5%
	(+12V for Backlight if necessary)
Supply voltage ripple:	100 mV peak to peak 0 - 20 MHz
VGA connector signals:	
RGB output voltage:	0 - 0.755 V with 75 Ohm external termination
RGB output current:	0 – 20,14 mA

Environmental Specifications

Temperature

operating 0 °C to 60 °C see note (*1)

storage temperature -40 °C to 150 °C

Thermal gradient

operating 25 °C per hour

non-operating 40 °C per hour

Relative Humidity

operating 5 % - 90 % RH non-condensing

non-operating 0 % - 95 % RH non-condensing

Mechanical

Shock 50G/20ms square wave maximum

Vibration 1G/0-600Hz, dwell not to exceed

Altitude

operating 0 - 3000 m

non-operating 0 - 5000 m

(*1) The maximum operating temperature is the maximum measurable temperature on any spot on the modules surface. It is the users responsibility to keep this temperature within the above specification.

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AGP-Sprint-7 Driver Support

AGP-Sprint-7 Driver Support

Drivers are available for following operating systems:

Microsoft Windows 95

Microsoft Windows 98

Microsoft Windows NT4.0

Please use the Dr. Berghaus Webpage (www.dr-berghaus.de) to download the desired driver.

Available Accessories

Revision History

filename	last change	author	changes
AGP1M110.DOC	16.10.00	F. Krauss	initial version
AGP-SPRINT-7-M11.DOC	06.12.00	D.Finstel	Change to Dr.Berghaus layout