Application note

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Subject	Replacing DIMM-VGA1 with DIMM-VGA2
Related Products	**Kontron** DIMM-PC/Combo1; DIMM-PC/VGA1; ADA7 (old design); ADA7 (new design)

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2. INTRODUCTION

Due to the obsolete graphic controller Cirrus Logic GD6235 the following products are no longer available:
- DIMM-PC/COMBO1
- DIMM-PC/VGA1

These boards can be replaced by using the new DIMM-PC/VGA2 (COMBO2). Both new boards are using the TOPRO TP6508 as graphic controller.

The ethernet and the serial interface part are not affected by the changes. These parts are identical for the VGA1 and the VGA2.

When using the DIMM-PC-System with CRT only, the graphic boards can be replaced without any special attention.

If the system is used with a flat panel (TFT or STN) the use of either graphic board is not possible.

The data mapping of the TOPRO TP6508 is completely different to the Cirrus Logic therefore it is *not* possible to use the existing KAB-M4... cables. A graphic controller with the same data mapping as the Cirrus Logic is not available on the market and so Kontron decided to use the JIPA (Jumptec´s Intelligent Panel Adaption) interface for the DIMM-PC/VGA2 instead of designing new KAB-M4..cables. For the JIPA-Interface there are many cables available for such products as the CoolMonster, LittleMonster, MOPSlcd or the PCI-Sprint 6x. Refer to the cable configurator available on our homepage.

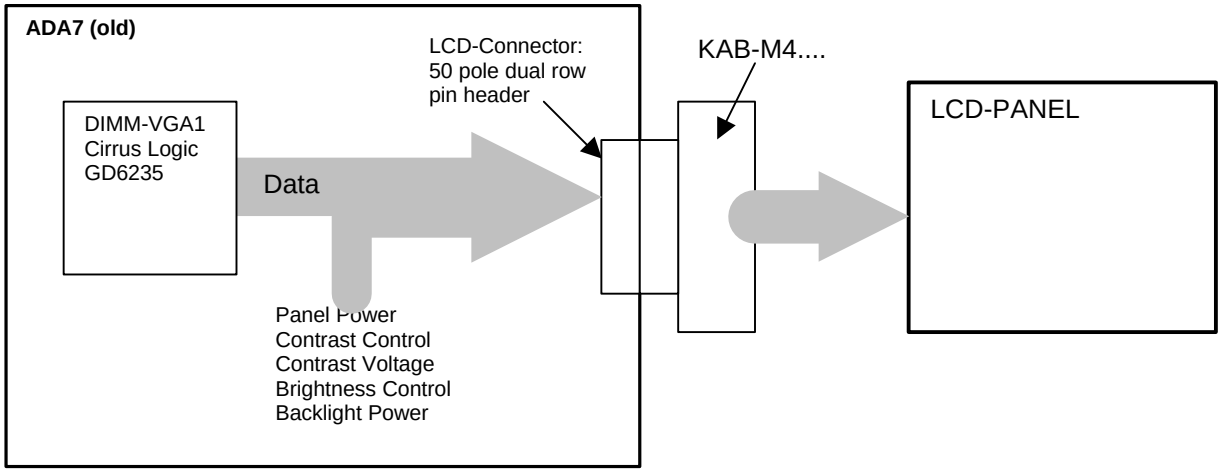
Note: Multi-4 cables which are connected to the DIMM-PC/VGA1 on ADA7 (old design) are not suitable for the new boards, DIMM-PC/VGA2 and ADA7 (new design).

This application note shows the differences between DIMM-PC/VGA1 and DIMM-PC/VGA2.

3. DIFFERENCES BETWEEN DIMM-PC/VGA1 + VGA2

3.1. Block Diagram of the panel signals DIMM-PC/VGA1

DIMM-PC/VGA1 → ADA7 (**old design**) → KAB-M4 → Panel



Note:

- **The components for features like panel power, contrast control, etc. are located on the eval-board ADA7.**
- **The data mapping is different to the TOPRO TP6508. Connecting LCD-Panels is possible by using KAB-M4... cables (adapters).**

3.2. Pin description for the LCD-Connector DIMM-VGA1

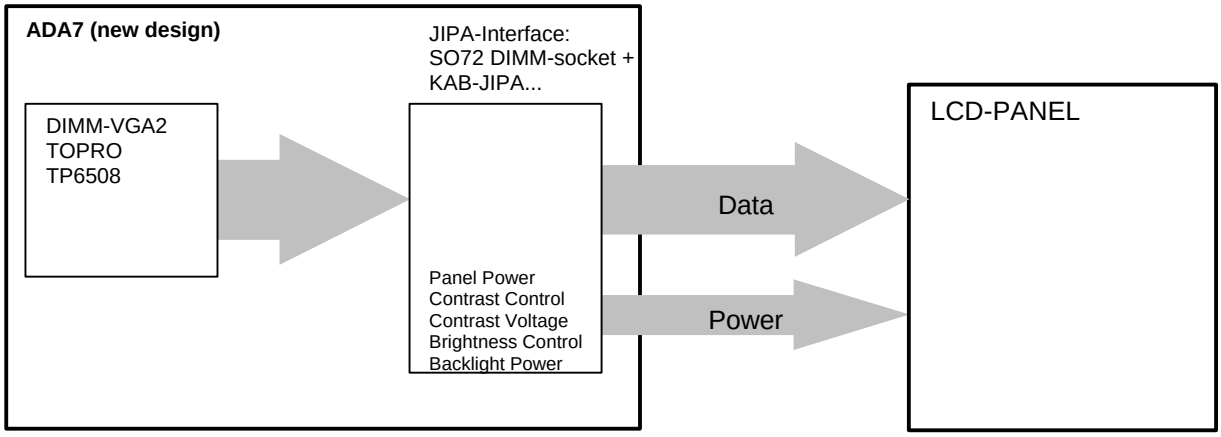
Various types of flat panel displays may be connected to the 50pin plug X17 (pitch 2,54mm). The pinout is shown in this table:

Data	PIN				Data
	LCD-CONNECTOR	DIMM-PC/ COMBO	DIMM-PC/ COMBO	LCD-CONNECTOR	
LFS	1	142	138	2	LLCLK
VDCLK	3	136	134	4	FPVEE
SW_VDD	5	132		6	GND
VEE	7		130	8	UD0 SLD4 G1
UD1 SLD5	9	128	126	10	UD2 SLD6 R0
UD3 SLD7	11	124	122	12	LD0 SLD0 B0
LD1 SLD1	13	120	116	14	LD2 SLD2 B2
LD3 SLD3	15	114	112	16	SUD7 R3
SUD6 R2	17	110	108	18	SUD5 G5
SUD4 G4	19	106	104	20	SUD3 G3
SUD2 B5	21	102	100	22	SUD1 B4
SUD0 B3	23	98	96	24	R5
R4	25	94		26	GND
DE	27	92	90	28	FPVDD
MOD	29	84	82	30	FPBACK
+3,3V	31			32	VEE
GND	33			34	RFB
GND	35			36	GPI
VDD_SRC	37			38	VBB
+12V	39		80	40	HSYNC
+5V (VCC)	41			42	BACK_SRC
VSYNC	43	76		44	SW_BACK
EXT_CTRL	45			46	EXT_ADJ
GND	47		62	48	PS3
PS2	49	60	58	50	PS1

The columns “Data” are showing the pinout of the Cirrus Logic GD6235. The column “PIN” devided into columns, LCD-connector and DIMM-PC/Combo, are showing the pinout of the 50 pole dual row pin header and the corresponding pins on the DIMM-PC/Combo.

3.3. Block Diagram of the panel signals DIMM-PC/VGA2

DIMM-PC/VGA2 → ADA7 (**new design**) with SO72 DIMM socket for JIPA-adapter → KAB-JIPA → Panel



Note:

- **The components for features like panel power, contrast control, etc. are located on the KAB-JIPA-cable. *For further information about the JIPA-Interface refer to Design Guide JIPAD110.DOC.***
- **The data mapping of the TOPRO is different to the Cirrus Logic GD6235. Connecting LCD-Panels to the TOPRO is only possible by using KAB-JIPA... cables (adapters).**

3.4. Pin description for the LCD-Connector DIMM-VGA2

Various types of flat panel displays may be connected to the 72pin plug (pitch 2,54mm) X29 on the ADA7 (**new design**). The pinout is shown in this table:

Data	PIN				Data
	JIPA-interface	DIMM-PC/ COMBO	DIMM-PC/ COMBO	JIPA-interface	
LFS, FLM/VS	1	142	138	2	LP/HS, LLCLK
GND	3	144, 118, 88, 78, 56, 2	144, 118, 88, 78, 56, 2	4	GND
SCLKY	5*		144,118, 88,78,56,2	6	GND
GND	7	144, 118, 88, 78, 56, 2	92	8	/BLANK (DE)
N.C.	9			10	N.C.
SUD3 P8	11	130	128	12	P9 SUD2
UD3 SUD7 P0	13	126	124	14	P1 SUD6 UD2
UD1 SUD5 B2 P2	15	122	120	16	P3 B3 SUD4 UD0
SUD1 G2 P10	17	116	114	18	P11 G3 SUD0
R2 P18	19	112	110	20	P19 R3
LD3 SLD7 B4 P4	21	108	106	22	P5 B5 SLD6 LD2
LD1 SLD5 B6 P6	23	104	102	24	P7 B7 SLD4 LD0
SLD3 G4 P12	25	100	98	26	P13 G5 SLD2
SLD1 G6 P14	27	96	94	28	P15 G7 SLD0
R4 P20	29	84	66	30	P21 R5
R6 P22	31	42	40	32	P23 R7
GND	33	144, 118, 88, 78, 56, 2		34	N.C.
N.C.	35			36	N.C.
MADD12	37	64	62	38	MADD13
MADD14	39	60	58	40	MADD15
N.C.	41		144, 118, 88, 78, 56, 2	42	GND
I2DAT	43	71	75	44	I2CLK
N.C.	45			46	N.C.
N.C.	47			48	N.C.
N.C.	49		144, 118, 88, 78, 56, 2	50	GND
VCC	51	140, 74, 6		52	DA_O0
N.C.	53			54	N.C.
VDCLK	55	136	76	56	VSYNC
HSYNC	57	80	68	58	BLUE
GREEN	59	70	72	60	RED
SW_BACK	61			62	VDD_SRC
BACK_SRC	63			64	N.C.
+12 V	65			66	+ 12 V
VCC	67	140, 74, 6		68	N.C.
N.C.	69			70	N.C.
FPVEE	71		132	72	VPANEL

The columns “data” are showing the pinout of the TOPRO TP6508. The column “PIN” is devided into two columns, JIPA-interface and DIMM-PC/Combo, which show the pinouts of the 72 pole SO72 DIMM socket and the corresponding pins on the DIMM-PC/Combo.

*The signal SCLKY is the videoclock and comes from a driver circuit on the ADA7. This driver circuit gets the input signal (videoclock) from the PIN #55 (VDCLK).

3.5. Data Mapping of the TOPRO TP6508

type no.:		1**	2	3	4**	5	6**	
Paneltype: SPAZ		Mono DS 8bit	Color SS 16bit	Color SS 8bit	Color DS 16bit	Color TFT 9/12/16 bit	Color TFT 18bit	
X2	Data:							Data:
35	SHFCLK	SCLK	CL2	CL2	CL2	DCLK	DCLK	SHFCLK
37	LP	LCLK	CL1	CL1	CL1	LP/HS	LP/HS	LP
40	FLM	FLM	FLM	FLM	FLM	FLM/VS	FLM/VS	FLM
7	M	MDL	M	M	M	DE	DE	M
26	P0	UD3	SUD7	SUD7	SUD7	B0	B0	P0
27	P1	UD2	SUD6	SUD6	SUD6	B1	B1	P1
28	P2	UD1	SUD5	SUD5	SUD5	B2	B2	P2
29	P3	UD0	SUD4	SUD4	SUD4	B3	B3	P3
18	P4	LD3	SUD3	SUD3	SLD7	B4	B4	P4
19	P5	LD2	SUD2	SUD2	SLD6	G0	B5	P5
20	P6	LD1	SUD1	SUD1	SLD5	G1	B6	P6
21	P7	LD0	SUD0	SUD0	SLD4	G2	B7	P7
30	P8		SLD7		SUD3	G3	G0	P8
31	P9		SLD6		SUD2	G4	G1	P9
32	P10		SLD5		SUD1	G5	G2	P10
33	P11		SLD4		SUD0	R0	G3	P11
22	P12		SLD3		SLD3	R1	G4	P12
23	P13		SLD2		SLD2	R2	G5	P13
24	P14		SLD1		SLD1	R3	G6	P14
25	P15		SLD0		SLD0	R4	G7	P15
39	P16	not used	not used	not used	not used	not used	not used	P16
15	P17	not used	not used	not used	not used	not used	not used	P17
14	P18	–					R2	P18
13	P19	–					R3	P19
11	P20	–					R4	P20
10	P21	–					R5	P21
9	P22	–					R6	P22
8	P23	–					R7	P23

** Type 1, 4, 6 are supported by the latest BIOS version 1.03