Specification LCDMODARM

Adapter Board for Sharp/Kyocera LCD with MODARM9

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1. History

Date	Version	Responsible	Description
18.08.2004	0.1	J. Jaeger	Initial Version
04.04.2005	1.0	J. Jaeger	Redesigned board

2. Overview

The adapter board LCDMODARM is needed to connect the Sharp LCD LQ57Q3DC02 with touch screen interface to the developer boards of the ModARM9 modules.

From series number 0050 onwards LCDMODARM supports also the Kyocera LCD TCG057QV1ABG00 with mounted touch panel. This will be also the default display.

3. Details

3.1. Power Supply

Input voltage for the adapter board is 12VDC, from the same power supply (UMEC, 5V3A, 12V1A), as for the developer board. 12VDC are only used by the Backlight module, which is mounted onto the adapter board. Via the switching signal LCD_PWREN the Backlight module can be switched on and off. The switching input for the backlight module is high active and needs 5V ... 15V high level.

3.2. Configuration

Two resistors are provided to select between 16bpp or 18bpp. The display supports 18bpp, but for software development it is much easier to work with 16bpp. In case of 16bpp, the lower data lines of red and blue are connected to GND. Therefore, the LCD uses a 565 configuration. For red and blue we use only 5 of the LCD data lines and for green 6 LCD data lines.

There are also configuration resistors for horizontal display mode, vertical display mode and VGA/QVGA selection.

3.3. LCD Interface

To connect the LCD with the adapter board, a 33pin ZIF connector for FFC cable is provided. The connection between adapter board and developer board is done by a 40pin flat cable. Three capacitors, 22pF, are added to the signals PCLK, LCLK and FCLK to have a good signal integrity.

3.4. Touch Screen Interface

The 5,7” touch screen is connected to the adapter board by a 4pin FFC cable and its corresponding ZIF connector.

The signal lines from the adapter board to the developer board are connected by a 10pin flat ribbon cable.

There are two 4pin ZIF connectors provided per touch panel, to contact the touch panel. One is used for A9M9xxx modules, with the external touch controller, the other one for A9M24xx modules.

4. Mechanics

- board size 144x104mm
- PCB 2 layers, SMD only on TOP

5. General Connectors

5.1. Connector X1 External 12V Power

4pin

Pin	Function	Comment
1	+5V	Not used
2	GND	
3	GND	
4	+12V	

5.2. Connector X2 LCD FFC Cable

33pin ZIF connector, RM0.5, 90°

Pin	Function	Comment	Pin	Function	Comment
1	GND		2	PCLK	
3	LCLK		4	FCLK	
5	GND		6	R0	connected to GND via resistor
7	R1		8	R2	
9	R3		10	R4	
11	R5		12	GND	
13	G0		14	G1	
15	G2		16	G3	
17	G4		18	G5	
19	GND		20	B0	connected to GND via resistor
21	B1		22	B2	
23	B3		24	B4	
25	B5		26	GND	
27	ENAB	settles the horizontal display position	28	+3.3V	
29	+3.3V		30	Horizontal Display Mode	connected to GND (Normal Mode)
31	Vertical Display Mode	connected to +3.3V (Normal Mode)	32	VGA/QVGA Mode	connected to GND (QVGA Mode)
33	GND				

5.3. Connector X5 LCD Flat Ribbon Cable

40pin dual row connector, RM2.54

Pin	Function	Comment	Pin	Function	Comment
1	GND		2	CLK	
3	HSYNC		4	VSYNC	
5	GND		6	R0	
7	R1		8	R2	
9	R3		10	R4	
11	R5		12	GND	
13	G0		14	G1	
15	G2		16	G3	
17	G4		18	G5	
19	GND		20	B0	
21	B1		22	B2	
23	B3		24	B4	
25	B5		26	GND	
27	ENAB		28	+3.3V	
29	+3.3V		30	R/L	
31	U/D		32	V/Q	
33	GND		34	nc	
35	nc		36	nc	
37	nc		38	nc	
39	LCD_PWREN		40	GND	

5.4. Connector X3 Touch Screen FFC Cable with Sharp LCD for A9M24xx

4pin ZIF connector, RM1, 90°

Pin	Function for Sharp touch panel
1	Y+
2	X-
3	Y-
4	X+

5.5. Connector X8 Touch Screen FFC Cable with Kyocera LCD for A9M24xx

4pin ZIF connector, RM1.25, 90°

Pin	Function for Kyocera touch panel
1	X+
2	Y+
3	X-
4	Y-

5.6. Connector X6 Touch Screen FFC Cable with Sharp LCD for A9M9xxx

4pin ZIF connector, RM1, 90°

Pin	Function for Sharp touch panel
1	Y+
2	X-
3	Y-
4	X+

5.7. Connector X9 Touch Screen FFC Cable with Kyocera LCD for A9M9xxx

4pin ZIF connector, RM1.25, 90°

Pin	Function for Kyocera touch panel
1	X+
2	Y+
3	X-
4	Y-

5.8. Connector X4 Touch Screen Flat Ribbon Cable

10pin dual row connector, RM2.54

Pin	Function	Comment	Pin	Function	Comment
1	YP	A9M24xx only	2	SPI_SS0#	A9M9xxx
3	XM	A9M24xx only	4	SPI_CLK	A9M9xxx
5	YM	A9M24xx only	6	SPI_MOSI	A9M9xxx
7	XP	A9M24xx only	8	SPI_MISO	A9M9xxx
9	AGND		10	PENIRQ#	A9M9xxx