Generic Display Connector (GDC-0007)

Datasheet

Revision History

Date	Doc. Rev.	GDC Version	Changes
20-Nov-08	Rev. 1.2	V1.0	Correction to PWM0 SODIMM pin assignment
01-July-08	Rev. 1.1	V1.0	Added application notes section
05-June-08	Rev. 1.0	V1.0	Initial Release

Contents

1. Introduction

The Generic Display Connector range is a range of connector boards that allow different TFT LCDs to connect directly to the Generic Display Connector port on the MECS Tellurium carrier board. They provide an easy, cost effective way of connecting a wide range of displays with a robust, M2 secured mechanical interface.

Each Generic Display Connector part has been designed to support displays that are available from Toradex. However, they may be used to support other displays that are not directly supported by Toradex if the electrical pin out is 100% compatible.

1.1. Compatibility

This Generic Display connector is known to be 100% compatible with the following displays:

- Ampire VGA (640x480) LED backlit TFT LCD
    - AM-640480GTMQW-00H
    - AM-640480GTMQW-T00H (4 wire resistive touch screen)

2. Technical Specifications

2.1. Pin Description

The table below shows the pin out on the 40 pin FPC connector that can be connected to a compatible display via the attached 40 pin ribbon cable.

Pin	Net	Description
1	SEL1	+3.3V or GND via R9 and R10
2	SEL2	+3.3V or GND via R11 and R12
3	HSYNC/LCLK	Horizontal sync/Line clock
4	5V	5V Power supply
5	5V	5V Power supply
6	5V	5V Power supply
7	3.3V	3.3V Power supply
8	VSYNC/FCLK	Vertical sync/Frame clock
9	DE	Data Enable
10	GND	Power Ground
11	GND	Power Ground
12	PWM0	PWM (i.e. Adjust for LED Brightness)
13	LDD5	Blue Data 5 (MSB)
14	LDD4	Blue Data 4
15	LDD3	Blue Data 3
16	GND	Power Ground
17	LDD2	Blue Data 2
18	LDD1	Blue Data 1
19	LDD0	Blue Data 0 (LSB)
20	GND	Power Ground
21	LDD11	Green Data 5 (MSB)
22	LDD10	Green Data 4
23	LDD9	Green Data 3
24	GND	Power Ground
25	LDD8	Green Data 2
26	LDD7	Green Data 1
27	LDD6	Green Data 0 (LSB)
28	GND	Power Ground
29	LDD17	Red Data 5 (MSB)
30	LDD16	Red Data 4
31	LDD15	Red Data 3
32	GND	Power Ground
33	LDD14	Red Data 2
34	LDD13	Red Data 1
35	LDD12	Red Data 0 (LSB)
36	GND	Power Ground
37	GND	Power Ground
38	DOTCLK/PCLK	Pixel clock
39	GND	Power Ground
40	SEL3	+3.3V or GND via R13 and R14

Table 1: Display Connector electrical pin out

3. Display Connector Installation

The Generic Display Connector is easily fitted to the MECS Tellurium platform and associated display by following these instructions:

1. Align the display connector with the display connector port
2. Push down firmly to fix into play
3. Secure with M2 bolt into M2 SMT stand-off
4. Ensure 40 pin ribbon cable is securely fastened into the 40 pin FPC connector
5. Connect to the compatible display, ensuring pin 1 on the display connector (denoted by a white dot) is aligned with pin 1 on the display (WARNING: damage may occur to the display and/or MECS platform if this is not followed correctly)

Figure 1 shows the Generic Display Connector installed on the MECS Tellurium platform and secured with an M2 bolt.

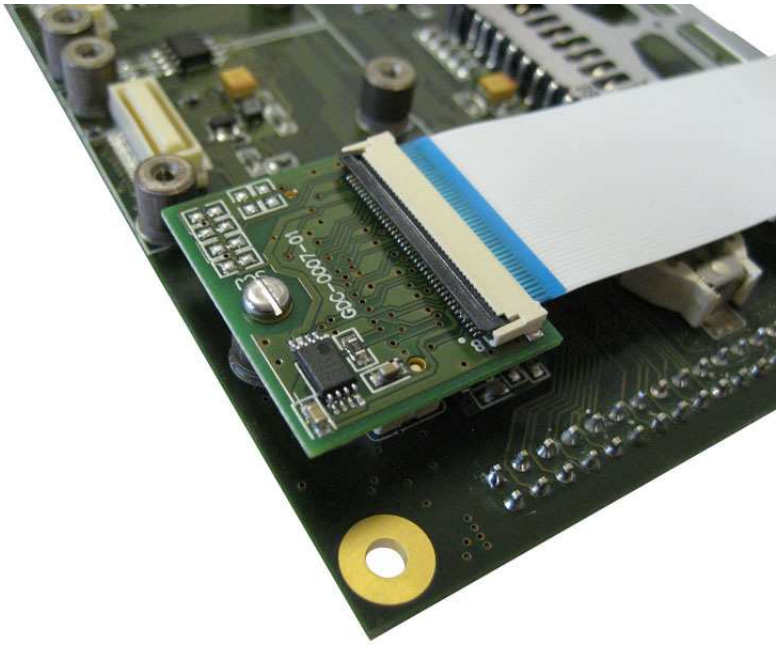

Figure 1: Generic Display Connector installed in MECS Tellurium platform

4. Application Notes

4.1. Backlight control

For the Ampire VGA (640x480) LED backlit TFT LCD, the backlight is controlled via PWM0, allowing backlight brightness to be controlled by varying the PWM duty cycle (please refer to the display datasheet for frequency settings and duty cycle ranges).

Brightness control via PWM is not currently supported in the default Colibri WinCE image, and therefore requires the user to implement if required.

Backlight on/off control is supported in the default Colibri WinCE image; the default control signal for backlight on/off control is BL_ON. To use configure the default image to use the PWM0 signal as the display control signal, the registry parameter BL_GPIO must be set to use the GPIO corresponding to the signal PWM0 on SODIMM pin 30 (which is dependent upon the Colibri module being used). Please see the Toradex Wiki (http://wiki.toradex.com) for further configuration information.

Note that the WinCE desktop can be accessed via the Remote Display tool which can be downloaded from the Toradex website in the event that changes need to be made to registry settings and the display is not visible at power on.

For more information on display settings and tools, please visit the Wiki at http://www.wiki.toradex.com/.

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