PCM-3525

VGA-to-LCD PC/104 Module

Users' Manual

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This manual is for the PCM-3525.

Part No. 2006352510

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Fcc

This device complies with the requirements in part 15 of the FCC rules: Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interfenrence that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this device in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his /her own expense. The user is advised that any equipment changes or modifications not expressly approved by the party responsible for complianc would void the compliance to FCC regulations and therefore, the user's authority to operate the equipment.

CAUTION!!

There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to rechange, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructons.

WARNING!!

Any changes or modifications made to the equipement which are not expressly approved by the relevant standards authority could void your authority to operate your authority.

Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- 1 PCM-3525 module
- 1 startup manual (p/n: 2006352500)

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Additional Information and Assistance

Step 1. Visit the Advantech web site at www.advantech.com where you can find the latest information about the product.

Step 2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:

- Product name and serial number
- Description of your peripheral attachments
- Description of your software (operating system, version, application software, etc.)
- A complete description of the problem
- The exact wording of any error messages

Safty Instructions

1. Read the instructions carefully.

2. Keep this User's Manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergent for cleaning.

4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.

5. Keep this equipment away from humdity.

6. Put this equipment on a reliable surface while installion. Droping it or letting it fall may cause damage.

7. The openings on the enclosure are for air convection. Protecting this equipment from overheating. DO NOT COVER THE OPENINGS.

8. Make sure the voltage of the power source is correct before connectiong the equipment to the power outlet.

9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.

10. All cautions and warnings on the equipment should be noted.

11. If the equipment is not used for a long time, disconnect it from power source to avoid damage by transient overvoltage.

12. Never pour liquid into an openings. This may cause fire or electrical shock.

13. Never open the equipment. For safty reasons, the equipment should be opened only by qualified personnel.

14. If one of the following situation arises, get the equipmnet checked by the service personnel:

a. The power cord or plug is damaged.

b. Liquid has penetrated into the equipment.

c. The equipment has been exposed to moisture.

d. The equipement does not work well, or you cannot get it work according to the user's manual.

e. The equipment has dropped or damaged.

f. The equipment has obvious signs of breakage.

15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20°C (-4°F) OR ABOVE 60°C(140°C). THIS COULD DAMAGE THE EQUIP-

MENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVRIONMENT.

16. CAUTION:DANGER OR EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at operator's position according to IEC 704-1:1982 is no more than 70dB(A).

DISCAILMER: This set of instruction is given according to IEC 704-1.

Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Contents

CHAPTER 1

General Information

This chapter gives background information on the PCM-3525. Sections include:

- Introduction
- Features
- Board layout and dimensions

Chapter 1 Introduction

1.1 Introduction

The PCM-3525 is integrated TFT panel interface controller. It converts RGB video and sync from a standard VGA source into TTL signal, which provide 4 or 8 wire touch screen controller and also support on screen display (OSD) funtion. The PCM-3525 is suitable for nearly any available TFT panel and could adapt to variety new LCD panels.

1.2 Features

- VGA to TFT panel transfer module
- Touch screen and OSD (cable optional) support
- Suitable for TFT LCD Panel Adapter

1.3 Specification:

- **Form factor:**PC/104 Form Factor
- **Chipset:** GENESIS gmZAN2, Winbond W78E65P, 8-bit micro-controller
- **TFT output :**48, 36, 24,18-bit TFT (default 36,18bit optional)
- **VGA input:** 15-pin D-SUB VGA,Resolution 1024 x 768, 800 x 600,640 x 480,Connector ESD Keypad connector for OSD control
- **LCD connector:** Hirose or pin header
- **Touch Screen Supported**
- **External Power:** +5 V , +12 V
- **Temperature:** 0 ~ 60° C (32 ~ 140° F),operation
- **Operating Humidity :**0% ~ 90% relative humidity,noncondensing
- **Size/Weight :**96 x 90 mm (3.8”x 3.5”)/0.81 kg (0.18 lb)
- **Power supply voltage :**5V or 12V

1.4 Board layout: dimensions

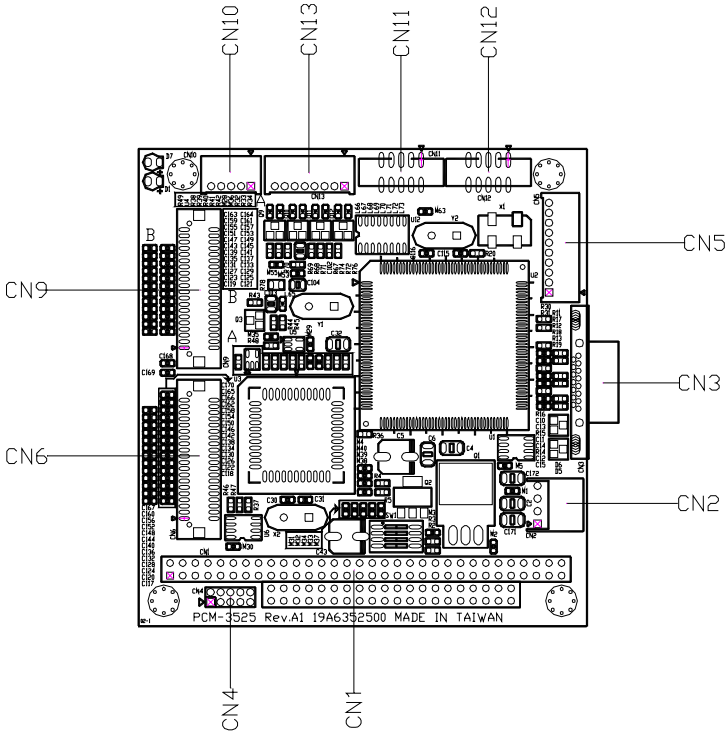


Figure 1.1: Component Placement

1.5 Module Dimensions

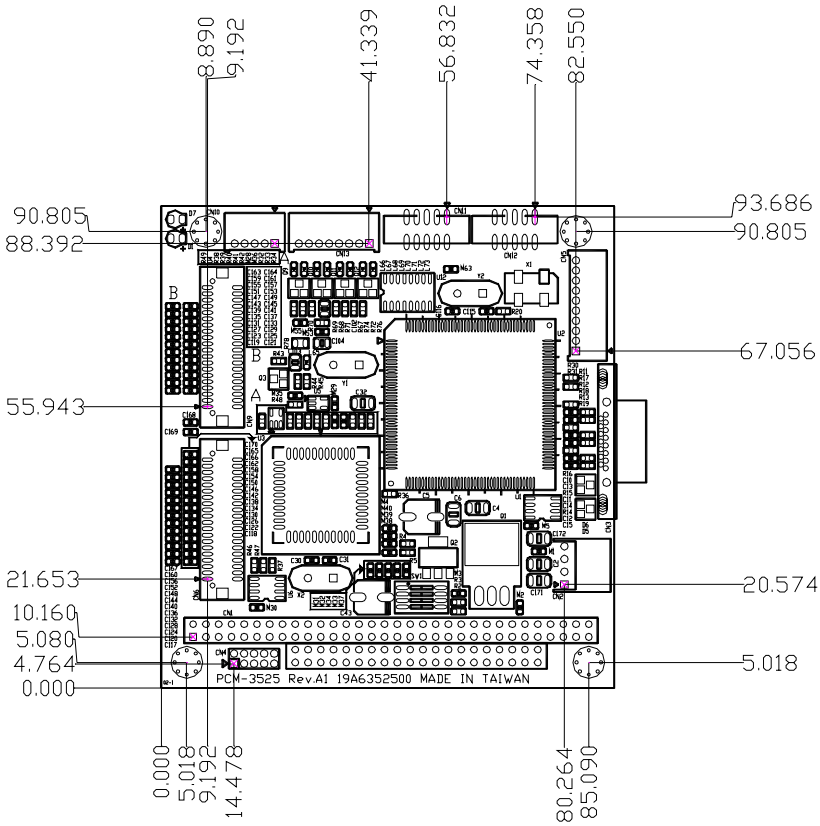


Figure 1.2: Dimensions

CHAPTER 2

Installation

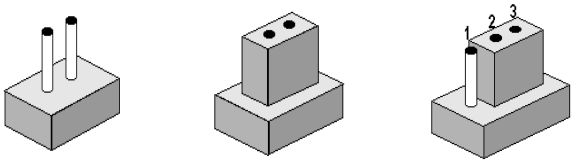
This chapter gives installation information on PCM-3525 VGA-to-LCD PC/104 Module. Sections includes:

- Jumper settings
- Connectors
- Switches
- Implementation

Chapter 2 Installation

2.1 Jumpers

You may configure your card to match the needs of your application by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper, you connect the pins with the clip. To “open” a jumper, you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2, or 2 and 3.



open closed closed 2-3

The jumper settings are schematically depicted in this manual as follows:.

open closed closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

Generally, you simply need a standard cable to make most connections.

2.2 Jumper Settings

The PCM-3525 has a number of jumpers that allow you to configure your system to suit your application. The table below lists the functions of the various jumpers.

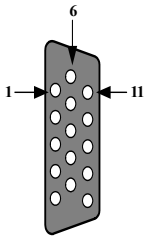
2.3 Connectors

Table 2.1: Connectors

Label	Funcation
CN1	PC 104 Connector
CN2	External Power Connector
CN3	VGA Connector
CN5	ESD Keypad Connector
CN6	LCD Connector (HIROSE)
CN9	LCD Connector (HIROSE)
CN10	Panel Back-light Power 5-pin Connector
CN11	Debug Port Interface
CN12	TouchScreen Interface
CN13	TouchScreen Sensor Connector

2.3.1 VGA Connector (CN3,15-pin)

Pin	Description	Pin	Description
1	red	2	green
3	blue	4	NC
5	GND	6	GND
7	GND	8	GND
9	+5V	10	GND
11	NC	12	DDC-Data
13	HSYNC	14	YSYNC
15	DDC-Clock		



2.3.2 External Power Connector(CN2, 4-pin)

Pin	Signal	Pin	Signal
1	+12V	2	GND
3	GND	4	+5V

2.3.3 ESD Keypad Connector(CN5,10-pin)

Pin	Description	Pin	Description
1	GND	2	Orange LED
3	Green LED	4	ON/OFF
5	Exit	6	Select
7	Left	8	Right
9	Auto	10	GND

2.3.4 LCD Connector(CN6, 40-pin)

Pin	Signal	Pin	Signal
1	LCD VDD(+5V)	2	LCD VDD(+5V)
3	GND	4	GND
5	LCD VDD(+3.3V)	6	LCD VDD(+3.3V)
7	Vcon(optional)	8	GND
9	P0	10	P1
11	P2	12	P3
13	P4	14	P5
15	P6	16	P7
17	P8	18	P9
19	P10	20	P11
21	P12	22	P13
23	P14	24	P15
25	P16	26	P17
27	P18	28	P19
29	P20	30	P21
31	P22	32	P23
33	GND	34	GND
35	SHFCLK	36	FLM(V-SYNC)
37	M/(DE)	38	LP(H-SYNC)
39	ENABKL	40	ENVEE

2.3.5 Panel Back-light Power Connector(CN10,5-pin)

Pin	Signal
1	+12V output
2	GND
3	Back-light enable signal output
4	Back-light VBR signal output
5	+5V output

2.3.6 LCD Connector(CN9, 40-pin)

Pin	Signal	Pin	Signal
1	LCD VDD(+5V)	2	LCD VDD(+5V)
3	GND	4	GND
5	LCD VDD(+3.3V)	6	LCD VDD(+3.3V)
7	Vcon(optional)	8	GND
9	P24	10	P25
11	P26	12	P27
13	P28	14	P29
15	P30	16	P31
17	P32	18	P33
19	P34	20	P35
21	P36	22	P37
23	P38	24	P39
25	P40	26	P41
27	P42	28	P43
29	P44	30	P45
31	P46	32	P47
33	GND	34	GND
35	SHFCLK2	36	NC
37	NC	38	NC
39	NC	40	NC

2.3.7 Debug Port Interface(CN11, 10-pin)

Pin	Signal	Pin	Signal
1	NC	2	NC
3	Tx	4	NC
5	Rx	6	NC
7	NC	8	NC
9	GND	10	NC

2.3.8 TouchScreen Interface(CN12, 10-pin)

Pin	Signal	Pin	Signal
1	NC	2	DSR
3	Tx	4	RTS
5	Rx	6	NC
7	DTR	8	NC
9	GND	10	NC

2.3.9 TouchScreen Sensor Connector(CN13, 8-pin)

Pin	Signal	Pin	Signal
1	Y-	2	YS-
3	YS+	4	Y+
5	X-	6	XS-
7	XS+	8	X+

2.4 Implementation of the PCM-3525

There are two basic ways to implement the PCM-3525 into your system:

2.4.1 Standalone

The user may adapt an AC-to-DC power supply, plug it into PCM-3525°Øs CN2, and connect the VGA input to CN3 and connect TTL cable into the CN6 and CN9, and then VGA RGB signal will convert into a TTL signal.

2.4.2 Plugged into Single Board Computer

The user can plug PCM-3525 into the PC/104 connector on the related SBC for the power supply, and connect the VGA input to CN3 and connect TTL cable into the CN6 and CN9, and then VGA RGB signal will convert into a TTL signal.

Notes: When attaching to a PC/104 connector, please make sure that you orient the PCM-3525 to the host board correctly. Don°Øt attach it 180 degrees off!