Quick Installation Guide

EBC-5613Series

All-in-One VIA Eden Single Board
with LCD, LVDS, AC97 Audio, IEEE-1394,
Dual 10/100Base-Tx Ethernet Interfaces, & 4COMs

3rd Ed – 07 March 2003

Part No.

FCC STATEMENT

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE

RECEIVED INCLUDING INTERFERENCE 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 AGAINTST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTATLLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

Notice:

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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1. Collect all the information about the problem encountered. (For example, CPU type and speed, BCM products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Packing List

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

- 1 EBC-5613 series All-in-One VIA Eden Computing Module
- 1 Quick Installation Guide
- 1 CD-ROM contains the followings:
  - User's Manual (this manual in PDF file)
  - Ethernet driver and utilities
  - VGA drivers and utilities
  - Audio drivers and utilities
  - Latest BIOS (as of the CD-ROM was made)

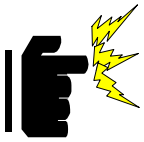
If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

1. Safety Precautions

1.1 Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

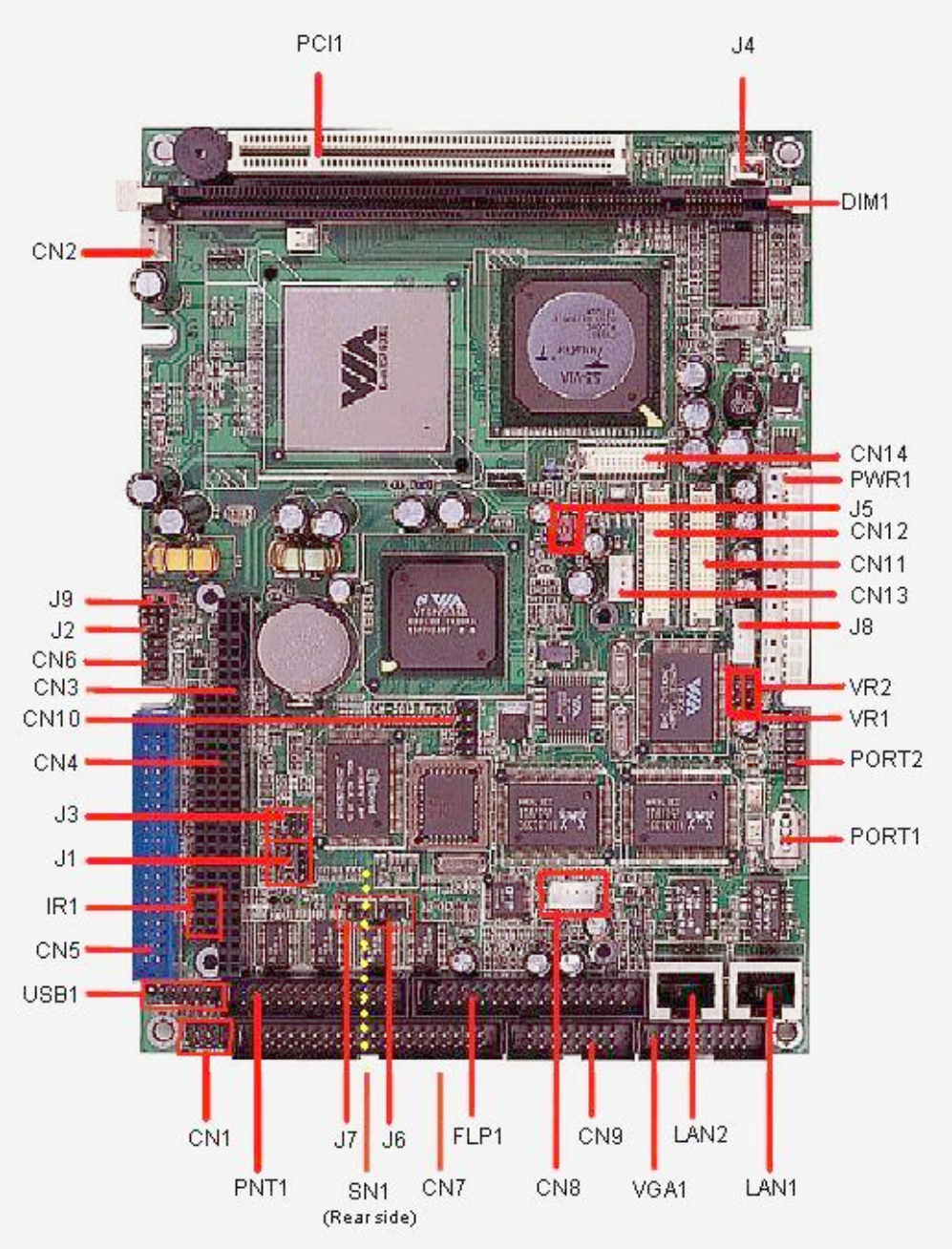
1.2 Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

2. Jumper & Connector

2.1 Jumper & Connector Layout



2.2 Jumper and Connector List

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers		
Label	**Function**	**Note**
J1, J3	COM2 RS-232/422/485 select	4 x 3 header, pitch 2.0mm(J1) 3 x 2 header, pitch 2.0mm(J3)
J5	Clear CMOS	3 x 1 header, pitch 2.54mm
J6	COM3 pin 9 signal select	3 x 2 header, pitch 2.0mm
J7	COM4 pin 9 signal select	3 x 2 header, pitch 2.0mm
J9	AT / ATX power select	3 x 1 header, pitch 2.0mm

Connectors		
Label	**Function**	**Note**
CN1	Keyboard and PS/2 mouse connector	4 x 2 header, pitch 2.54mm
CN2	CPU fan connector	3 x 1 wafer, pitch 2.54mm
CN3, 4	PC/104 connector	
CN5	IDE device connector	20 x 2 header, pitch 2.54mm
CN6	Front panel connector	4 x 2 header, pitch 2.54mm
CN7	Serial port 1 / 2 / 3 / 4 connector	20 x 2 header, pitch 2.54mm
CN8	CD-ROM audio input connector	4 x 1 wafer, pitch 2.0mm
CN9	Audio / TV output connector	8 x 2 header, pitch 2.54mm
CN10	Ethernet 1 / 2 LED connector	5 x 2 header, pitch 2.54mm
CN11	Primary LCD panel connector	HIROSE DF13-40DP-1.25V
CN12	Secondary LCD panel connector	HIROSE DF13-40DP-1.25V
CN14	Zoom Video port connector	HIROSE DF13-20DP-1.25V
FLP1	Floppy connector	17 x 2 header, pitch 2.54mm
IR1	IrDA connector	3 x 2 header, pitch 2.0mm
J4	Power connector	3 x 1 wafer, pitch 2.54mm
J8	LCD inverter connector	5 x 1 wafer, pitch 2.0mm
LAN1	10/100Base-Tx Ethernet 1 connector	RJ-45
LAN2	10/100Base-Tx Ethernet 2 connector	RJ-45
PCI1	PCI connector	
PNT1	Printer port connector	13 x 2 header, pitch 2.54mm
PORT1	IEEE1394 port 1 connector	
PORT2	IEEE 1394 port 2/3 connector	6 x 2 header, pitch 2.54mm
PWR1	Power connector	AT power connector
SN1	Compact Flash connector	
USB1	USB connector	5 x 2 header, pitch 2.0mm
VGA1	CRT connector	8 x 2 header, pitch 2.54mm
VR1	STN LCD contrast adjustment connector	3 x 1 header, pitch 2.54mm
VR2	LCD Backlight brightness adjustment connector	3 x 1 header, pitch 2.54mm
DIM1	168-pin DIMM socket	

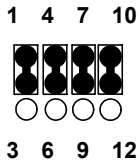
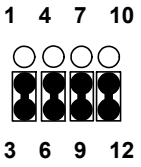
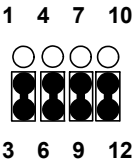
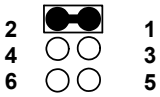
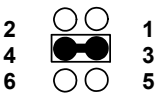
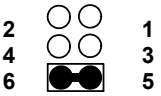
3. Hardware Configuration

3.1 Setting Jumpers

3.1.1 COM2 RS-232/422/485 Select (J1, J3)

The EBC-5613 series COM2 serial port can be selected as RS-232, RS-422, or RS-485 by setting J1 & J3.

COM2 Select (J1, J3)

	RS-232*	RS-422	RS-485
J1			
J3			

* default

3.1.2 Clear CMOS (J5)

You can use J5 to clear the CMOS data if necessary. To reset the CMOS data, set J5 to 2-3 closed for just a few seconds, and then move the jumper back to 1-2 closed.

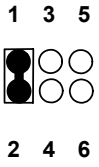
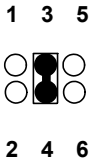
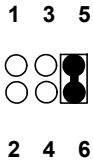
Clear CMOS (J5)

	Protect*	Clear CMOS
J5		

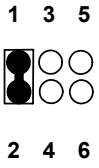
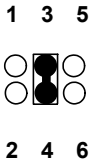
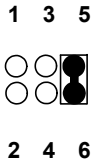
* default

3.1.3 COM3 / 4 Pin 9 Signal Select (J6, J7)

The EBC-5613 series COM3 / 4 pin 9 signal can be selected as +12V, +5V, or Ring by setting J6 / J7.

COM3 Select (J6)			
	+12V	+5V	Ring*
J6			

* default

COM4 Select (J7)			
	+12V	+5V	Ring*
J7			

* default

3.1.4 AT/ATX Power Select (J9)

You can use J9 to select the power supply type. To use with the AT power supply, set J9 to 1-2 closed. Set J9 to 2-3 closed, if ATX power supply is to be used.

AT/ATX Power Select (J9)

	AT P/S*	ATX P/S
J9		

* default

Note:

Set J4 to 2-3 closed. If AT power supply is to be used.

3.2 Connector Definitions

3.2.1 Keyboard and PS/2 Mouse Connector (CN1)

Signal	PIN		Signal
		4	NC
MCLK	7	3	MDAT
VCC	6	2	GND
KCLK	5	1	KDAT

3.2.2 Front Panel Connector (CN6)

Signal	PIN		Signal
RSTIN	4	8	GND
PWBTI	3	7	GND
GND	2	6	SPK
HD_LED	1	5	VCC

3.2.3 Pin Header Serial Port 1 / 2 / 3 / 4 Connector in RS-232 Mode (CN7)

Signal	PIN		Signal
NC	40	39	GND
RI4/5V/12V	38	37	DTR4
CTS4	36	35	TxD4
RTS4	34	33	RxD4
DSR4	32	31	DCD4
NC	30	29	GND
RI3/5V/12V	28	27	DTR3
CTS3	26	25	TxD3
RTS3	24	23	RxD3
DSR3	22	21	DCD3
NC	20	19	GND
RI2	18	17	DTR2
CTS2	16	15	TxD2
RTS2	14	13	RxD2
DSR2	12	11	DCD2
NC	10	9	GND
RI1	8	7	DTR1
CTS1	6	5	TxD1
RTS1	4	3	RxD1
DSR1	2	1	DCD1

3.2.4 Serial Port 1 / 2 / 3 / 4 with External DB9 Connector (CN7)

Signal	PIN		Signal
GND	5		
		9	RI
DTR	4		
		8	CTS
TxD	3		
		7	RTS
RxD	2		
		6	DSR
DCD	1		

3.2.5 Pin Header Serial Port 2 Connector in RS-422 Mode (CN7 / Pin 11~20)

Signal	PIN		Signal
NC	20	19	GND
NC	18	17	Rx-
NC	16	15	Tx+
NC	14	13	Rx+
NC	12	11	Tx-

3.2.6 Pin Header Serial Port 2 Connector in RS-485 Mode (CN7 / Pin 11~20)

Signal	PIN		Signal
NC	20	19	GND
NC	18	17	NC
NC	16	15	DATA+
NC	14	13	NC
NC	12	11	DATA-

3.2.7 CD-ROM Audio Input Connector (CN8)

Signal	PIN
CD_R	4
CD_GND	3
CD_L	2
CD_GND	1

3.2.8 Audio / TV Output Connector (CN9)

Signal	PIN		Signal
COMP	16	15	GND
Cout	14	13	GND
Yout	12	11	AGND
Line-In R	10	9	Line-In L
SPK R	8	7	SPK L
Line-Out R	6	5	Line-Out L
AGND	4	3	AGND
Mic Bias	2	1	Mic

3.2.9 Ethernet 1 / 2 LED Connector (CN10)

Signal	PIN		Signal
SPDLED1#	10	9	SPDLED2#
GND	8	7	VCC3SB
LINKLED1#	6	5	LINKLED2#
ACTLED1#	4	3	ACTLED2#
VCC3SB	2	1	GND

3.2.9.1 Primary LCD Panel Connector (CN11)

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

3.2.10 Secondary LCD Panel Connector (CN12)

Signal	PIN		Signal
5V	2	1	5V
GND	4	3	GND
3.3V	6	5	3.3V
GND	8	7	Vcon
P25	10	9	P24
P27	12	11	P26
P29	14	13	P28
P31	16	15	P30
P33	18	17	P32
P35	20	19	P34
GND	22	21	GND
Y2M	24	23	Y2P
Z1M	26	25	Z1P
ZCM	28	27	ZCP
Z0M	30	29	Z0P
YCM	32	31	YCP
GND	34	33	GND
Y0M	36	35	Y0P
Z2M	38	37	Z2P
Y1M	40	39	Y1P

3.2.11 Signal Description – Primary & Secondary LCD Panel Connector (CN11, CN12)

P [35:0]	Flat Panel Data Bit 35 to Bit 0 for panel implementation.
SHFCLK	Shift Clock. Pixel clock for flat panel data
LP	Latch Pulse. Flat panel equivalent of HSYNC (horizontal synchronization)
FLM	First Line Marker. Flat panel equivalent of VSYNC (vertical synchronization)
M	Multipurpose signal, function depends on panel type. May be used as AC drive control signal or as BLANK# or Display Enable signal
ENBKL	Enable backlight signal. This signal is controlled as a part of the panel power sequencing
ENVEE	Enable VEE. Signal to control the panel power-on/off sequencing. A high level may turn on the VEE (LCD bias voltage) supply to the panel
Y[2:0]P, Z[2:0]P	1st & 2nd Channel Positive LVDS differential data output
Y[2:0]M, Z[2:0]M	1st & 2nd Channel Negative LVDS differential data output
YCP, ZCP	1st & 2nd Channel Positive LVDS differential clock output
YCM, ZCM	1st & 2nd Channel Negative LVDS differential clock output

3.2.12 Signal Configuration – DSTN Displays

	STN			DSTN				
Pin name	8-bit	16-bit	24-bit	8-bit	16-bit	24-bit	16-bit	24-bit
P35								
P34								
P33								
P32					UG2	UG2		
P31								
P30					UR2	UR2		
P29						UB3		
P28					UB1	UB1		
P27								
P26					UG1	UG1		
P25						UG3		
P24				UR1	UR1	UR1		
P23			B7				UR0	UR0
P22			G7	UB0	UB0	UB0	UR1	UR1
P21			R7				UR2	UR2
P20			B6	UG0	UG0	UG0		UR3
P19			G6			UR3	LR0	LR0
P18			R6	UR0	UR0	UR0	LR1	LR1
P17			B5				LR2	LR2
P16			G5					LR3
P15		R5	R5				UG0	UG0
P14		B4	B4		LG2	LG2	UG1	UG1
P13		G4	G4			LB3	UG2	UG2
P12		R4	R4		LR2	LR2		UG3
P11		B3	B3				LG0	LG0
P10		G3	G3		LB1	LB1	LG1	LG1
P9		R3	R3				LG2	LG2
P8		B2	B2		LG1	LG1		LG3
P7	G2	G2	G2			LG3	UB0	UB0
P6	R2	R2	R2	LR1	LR1	LR1	UB1	UB1
P5	B1	B1	B1					UB2
P4	G1	G1	G1	LB0	LB0	LB0		UB3
P3	R1	R1	R1				LB0	LB0
P2	B0	B0	B0	LG0	LG0	LG0	LB1	LB1
P1	G0	G0	G0			LR3		LB2
P0	R0	R0	R0	LR0	LR0	LR0		LB3

3.2.13 Signal Configuration – TFT Displays

	TFT								
Pin name	9-bit	9-bit x 2	12-bit	12-bit x 2	15-bit	15-bit x 2	18-bit	18-bit x 2	24-bit
P35		B12		B13		B14		B15	
P34	B2	B02	B3	B03	B4	B04		B14	
P33		B11		B12		B13		B13	
P32	B1	B01	B2	B02	B3	B03		B12	
P31		B10		B11		B12		B11	
P30	B0	B00	B1	B01	B2	B02		B10	
P29				B10		B11		G15	
P28			B0	B00	B1	B01		G14	
P27						B10		G13	
P26					B0	B00		G12	
P25								G11	
P24								G10	
P23		G12		G13		G14	R5	R05	R7
P22	G2	G02	G3	G03	G4	G04	R4	R04	R6
P21		G11		G12		G13	R3	R03	R5
P20	G1	G01	G2	G02	G3	G03	R2	R02	R4
P19		G10		G11		G12	R1	R01	R3
P18	G0	G00	G1	G01	G2	G02	R0	R00	R2
P17				G10		G11		R11	R1
P16			G0	G00	G1	G01		R10	R0
P15						G10	G5	G05	G7
P14					G0	G00	G4	G04	G6
P13							G3	G03	G5
P12							G2	G02	G4
P11		R12		R13		R14	G1	G01	G3
P10	R2	R02	R3	R03	R4	R04	G0	G00	G2
P9		R11		R12		R13		R13	G1
P8	R1	R01	R2	R02	R3	R03		R12	G0
P7		R10		R11		R12	B5	B05	B7
P6	R0	R00	R1	R01	R2	R02	B4	B04	B6
P5				R10		R11	B3	B03	B5
P4			R0	R00	R1	R01	B2	B02	B4
P3						R10	B1	B01	B3
P2					R0	R00	B0	B00	B2
P1								R15	B1
P0								R14	B0

Note:

The principle of attachment of TFT panels is that the bits for red, green, and blue use the most significant bits and skip the least significant bits if the display interface width of the TFT panel is insufficient.

3.2.14 Zoom Video Port Connector (CN14)

Signal	PIN		Signal
ZV1	2	1	ZV0
ZV3	4	3	ZV2
ZV5	6	5	ZV4
ZV7	8	7	ZV6
ZV9	10	9	ZV8
ZV11	12	11	ZV10
ZV13	14	13	ZV12
ZV15	16	15	ZV14
ZV-VS	18	17	ZV-HREF
GND	20	19	ZV-LCLK

3.2.15 Signal Description – Zoom Video Port Connector (CN14)

ZV [15:0]	ZV-port data bus. Video input
ZV-LCLK	ZV-port clock
ZV-HREF	ZV-Port Horizontal Sync.
ZV-VS	ZV-Port Vertical Sync.

3.2.16 IrDA Connector (IR1)

Signal	PIN		Signal
NC	2	1	VCC
GND	4	3	IRX
NC	6	5	ITX

3.2.17 Auxiliary Power Connector (J4)

Signal	PIN
VCCSB	3
VCC	2
PSON#	1

Note:

Set J4 to 2-3 closed. If AT power supply is to be used.

3.2.18 LCD Inverter Connector (J8)

Signal	PIN
VCC	5
VR	4
ENBKL	3
GND	2
+12V	1

Note: For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal (pin 4) controlled by **VR1**. Please see the VR1 section for detailed circuitry information.

3.2.19 IEEE1394 Port 2/3 Connector (PORT2)

Signal	PIN		Signal
+12V	1	2	XTPA2P
GND	3	4	XTPA2M
XTPB1M	5	6	XTPB2P
XTPB1P	7	8	XTPB2M
XTPA1M	9	10	GND
XTPA1P	11	12	+12V

3.2.20 Signal Description – IEEE1394 Port 2/3 Connector (PORT2)

XTPA1P	Port 2 Twisted Pair A Positive.
XTPA1M	Port 2 Twisted Pair A Negative.
XTPB1P	Port 2 Twisted Pair B Positive.
XTPB1M	Port 2 Twisted Pair B Negative.
XTPA2P	Port 3 Twisted Pair A Positive.
XTPA2M	Port 3 Twisted Pair A Negative.
XTPB2P	Port 3 Twisted Pair B Positive.
XTPB2M	Port 3 Twisted Pair B Negative.

3.2.21 Power Connector (PWR1)

Signal	PIN
NC	1
VCC	2
+12V	3
-12V	4
GND	5
GND	6
GND	7
GND	8
-5V	9
VCC	10
VCC	11
VCC	12

3.2.22 USB Connector (USB1)

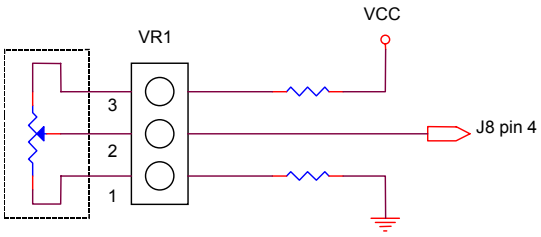
Signal	PIN CH2	PIN CH1	Signal
VCC2	10	9	GND
D2-	8	7	GND
D2+	6	5	D1+
GND	4	3	D1-
GND	2	1	VCC1

3.2.23 CRT Connector (VGA1)

Signal	PIN		Signal
NC	16	8	GND
DCLK	15	7	GND
VSYNC	14	6	GND
HSYNC	13	5	GND
DAT	12	4	NC
NC	11	3	BLUE
GND	10	2	GREEN
VCC	9	1	RED

3.2.24 LCD Backlight Brightness Adjustment Connector (VR1)

Signal	PIN
VCC	3
VBR	2
GND	1



Variation Resistor (Recommended: 4.7KΩ, >1/16W)

3.2.25 STN LCD Contrast Adjustment Connector (VR2)

Signal	PIN
VCC3	3
Vcon	2
GND	1