



LCD Display Controller Board

Engineer Specification V1.3

Model Name	KEC-IDB05-C
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Revision History

Revision	Date	Page	Description Of Updated	Author
1.3	2020.5.24	All	First issued.	Tim Zhang

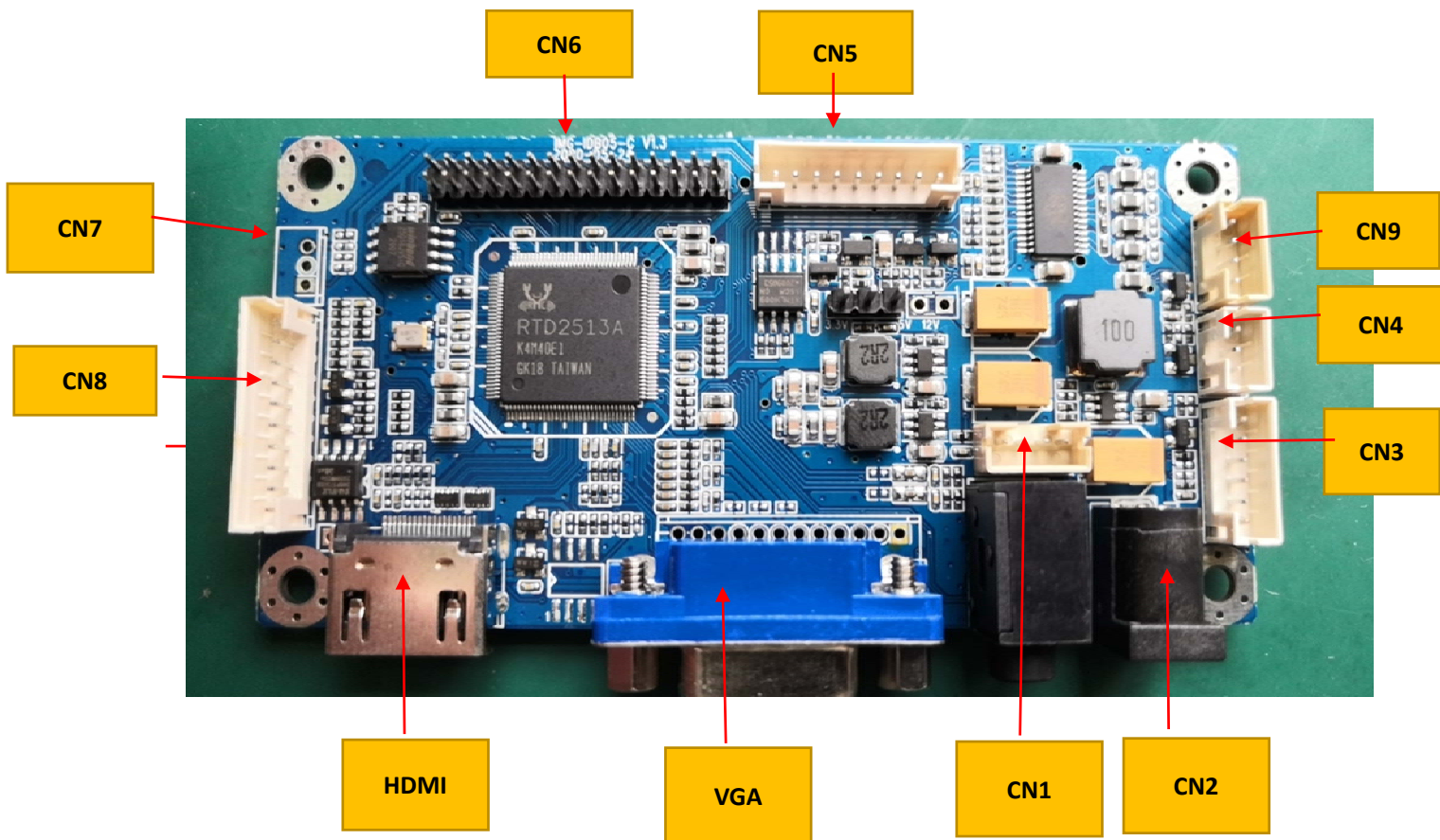
1. Features

- ✚ Resolution up to 1920x1200/60Hz
- ✚ Support 1-ch/2-ch 6-bit/8-bit LVDS panel
- ✚ Support 3.3V/5V/12V panel voltage
- ✚ 1*VGA input
- ✚ 1*HDMI1.4a input
- ✚ Reserve 2x8W Class-D AMP at 8ohm
- ✚ Reserve PC audio input or Headphones output
- ✚ Keypad & IR receiver(option)
- ✚ 12V DC power input
- ✚ Standby mode power consumption less than 0.5W
- ✚ Support DDC/CI/2B protocol

2. Specification

Chipset	Realtek	
Target Market	Industrial Display	
Language	English、 Simplified Chinese	
Panel	Voltage	3.3V/5V/12V
	Interface	1-ch/2-ch 6-bit/8-bit LVDS
	Resolution	1920x1200/60Hz
Video Input	VGA	15P D-Sub, Max. resolution is 1920x1080/60Hz
	HDMI 1.4a	19P Type-A, Max. resolution is 1920x1080/60Hz
Power	Power Input	12V DC
	Normal Consumption	Max. 3W(not include panel consumption)
	Standby Consumption	< 0.5W
User Key Function	Power、 Menu、 Right、 Left、 Exit	

3. Function Layout



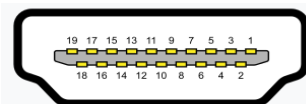
CN1	Internal Power Input	12V DC input
CN2	DC Jack Input	12V DC input
CN3	Backlight Control	Backlight power and control
CN4	Power Output	DC 5V/12V output
CN5	I/O Output	I2C/UART/ADC/PWM control for external device
CN6	LVDS Output	2 Port
CN7	IR Receiver	IR input
CN8	Keypad	OSD menu control
CN9	Speaker Output	speaker
HDMI	HDMI Signal Input	Support HDMI 1.4
VGA	VGA Signal Input	Support 210MHz ADC

4. Interface Definition

4.1 HDMI Signal Input

Location - HDMI1-IN/HDMI2-IN: 19P Type-A

Pin assignment and definition:

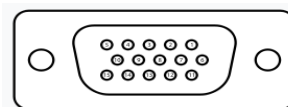


Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	Data2+	TMDS data2+	11	GND	Ground
2	GND	Ground	12	Clock-	TMDS clock-
3	Data2-	TMDS data2-	13	CEC	CEC
4	Data1+	TMDS data1+	14	NC	NC
5	GND	Ground	15	DDC SCL	IIC serial clock
6	Data1-	TMDS data1-	16	DDC SDA	IIC serial data
7	Data0+	TMDS data0+	17	GND	Ground
8	GND	Ground	18	+5V	+5V
9	Data0-	TMDS data0-	19	HPD	Hot plug detect
10	Clock+	TMDS clock+			

4.2 VGA Signal Input

Location - VGA: 15P Female D-Sub

Pin assignment and definition:

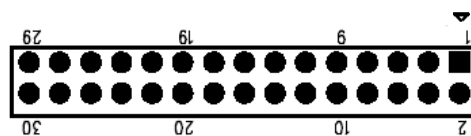


Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	VGA_R+	RED video	9	VGA5V	VGA 5V
2	VGA_G+	GREEN video	10	GND	Ground
3	VGA_B+	BLUE video	11	GND	Ground
4	GND	Ground	12	DDC SDA	IIC serial data
5	GND	Ground	13	HSIN	Horizontal sync
6	VGA_R-	RED return	14	VSIN	Vertical sync
7	VGA_G-	GREEN return	15	DDC SCL	IIC serial clock
8	VGA_B-	BLUE return			

4.3 LVDS Interface Connector

Location - JP11/JP12: 2x15P pitch = 2.0mm

Pin assignment and definition:



Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	VCC	Power supply for panel	16	TXOC+	LVDS odd clock channel+
2	VCC	Power supply for panel	17	TXO3-	LVDS odd channel 3-
3	VCC	Power supply for panel	18	TXO3+	LVDS odd channel 3+
4	GND	Ground	19	TXE0-	LVDS even channel 0-
5	GND	Ground	20	TXE0+	LVDS even channel 0+
6	GND	Ground	21	TXE1-	LVDS even channel 1-
7	TXO0-	LVDS odd channel 0-	22	TXE1+	LVDS even channel 1+
8	TXO0+	LVDS odd channel 0+	23	TXE2-	LVDS even channel 2-
9	TXO1-	LVDS odd channel 1-	24	TXE2+	LVDS even channel 2+
10	TXO1+	LVDS odd channel 1+	25	GND	Ground
11	TXO2-	LVDS odd channel 2-	26	GND	Ground
12	TXO2+	LVDS odd channel 2+	27	TXEC-	LVDS even clock channel-
13	GND	Ground	28	TXEC+	LVDS even clock channel+
14	GND	Ground	29	TXE3-	LVDS even channel 3-
15	TXOC-	LVDS odd clock channel-	30	TXE3+	LVDS even channel 3+

4.4 Power Input(Internal) Connector

Location - JP9: 14P wafer pitch = 2.0mm



Pin assignment and definition:

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	GND	Ground	3	VIN	12V~24V DC input
2	GND	Ground	4	VIN	12V~24V DC input

4.5 IO Output Connector

Location - CN5: 9P wafer pitch = 2.0mm

Pin assignment and definition:

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	TX	UART Tx	6	3.3V	+3.3V power output
2	RX	UART Rx	7	ADC	ADC input
3	GND	Ground	8	PWM	PWM output
4	I2CSDA	IIC SDA	9	GND	Ground
5	I2CSCL	IIC SCL			

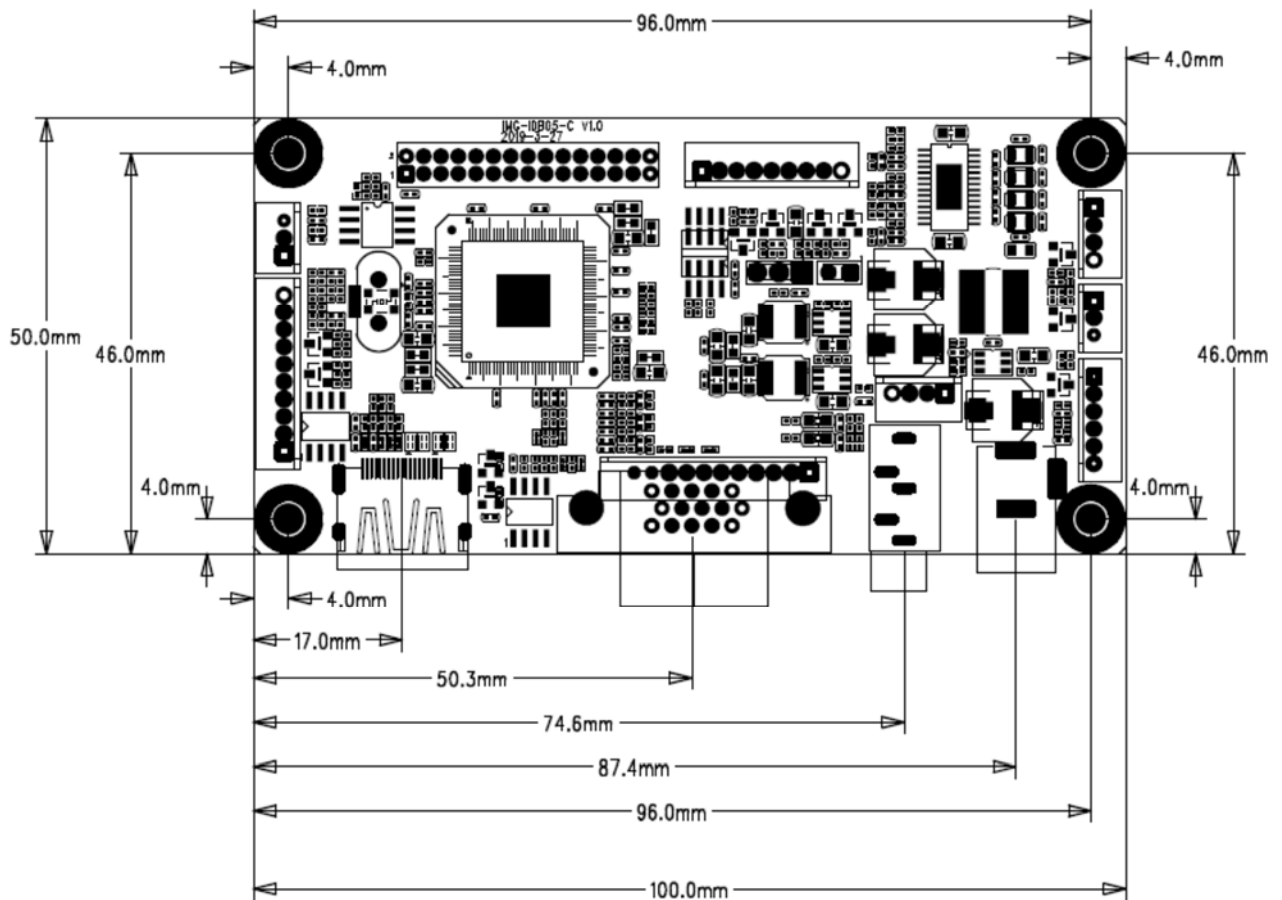
4.6 Keypad Connector

Location - CN8: 10P wafer pitch = 2.0mm






Pin assignment and definition:

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	K0	Key0 input	6	K2	Key2 input
2	LED_RED	Red LED control	7	K3	Key3 input
3	LED_GREEN	Green LED control	8	K4	Key4 input
4	GND	Ground	9	K5	Key5 input
5	K1	Key1 input	10	K6	Key6 input

5. Mechanical Dimension





PCB Dimension



-  PCB Length = 100.0mm
-  PCB Width = 50.0mm
-  PCB Thickness = 1.6mm
-  PCBA(PCB + Component) Thickness \leq 16.0mm
-  Screw Hole Diameter = 3.5mm

6. Configuration and Precautions



6.1 Temperature

-  Storage: -20°C~+80°C
-  Operation: -20°C~+80°C

6.2 Humidity

-  Storage: 5%~95%(non-condensing)
-  Operation: 10%~90%(non-condensing)

6.3 Altitude

-  Storage: 20000ft(Max.)
-  Operation: 10000ft(Max.)

7. Key Materials List

No.	Part Number	Function Description	Vendor
1	RTD25xx	Scaler	Realtek
2	SY8113B	DC-DC	Silergy
3	SY8009A	DC-DC	Silergy
4	W25Q16JVSSIQ	SPI flash	Winbond
5	CAT24C16WI-GT3	System EEPROM	ON
6	PCB	1.6mm FR-4 E=4.2 \pm 10% 2-Layers 1.0oz 100.0x50.0mm	