EMBMEGA32

ROBUST EMBEDDED

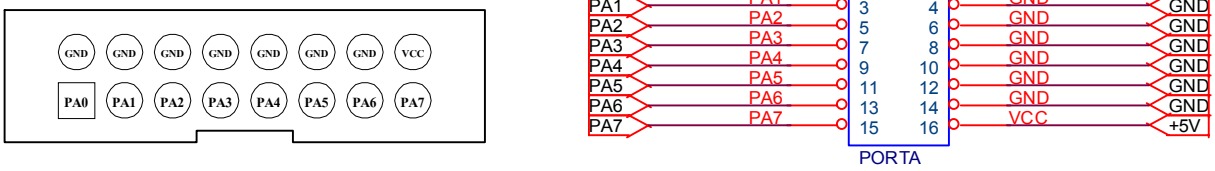
AVR Microcontroller Board

E2004.02.24

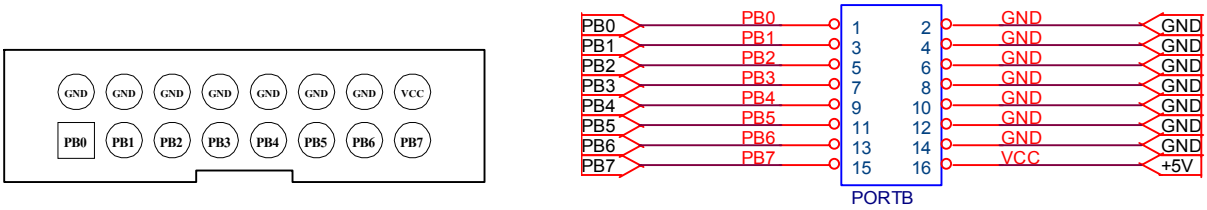
ERE CO., LTD.
www.ere.co.th

PORT CONNECTOR

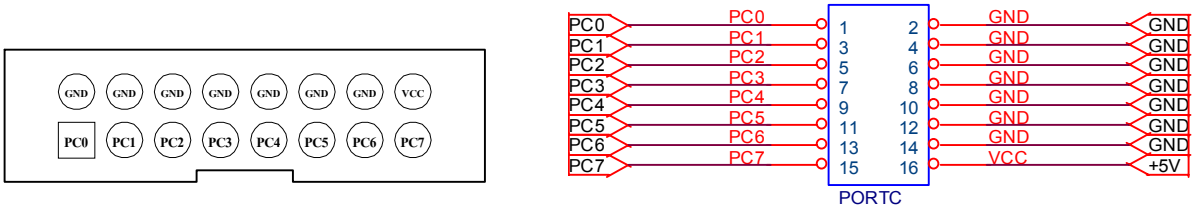
The control boards provide 4 IDC connectors for peripheral boards. Each connector is 16-pin IDC.The below show the pin connection of each connector.



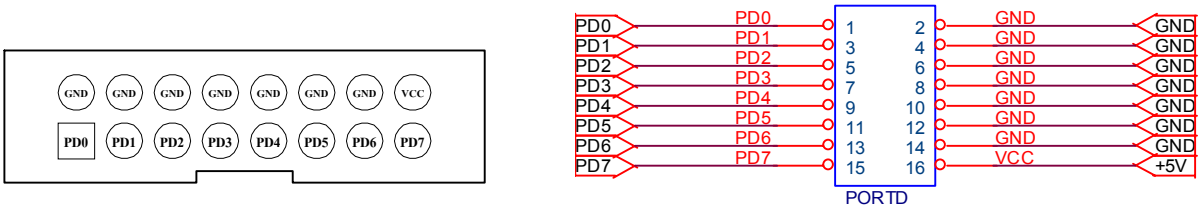
PORTA (TOP VIEW)



PORTB (TOP VIEW)



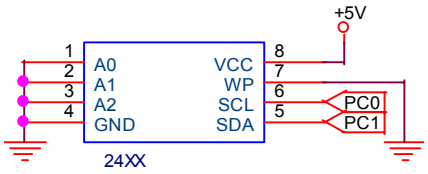
PORTC (TOP VIEW)



PORTD (TOP VIEW)

SERIAL EEPROM

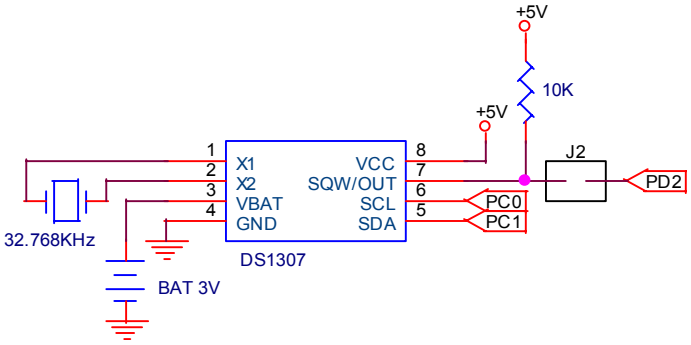
You can expand the serial eeprom memory (24xx family) in the control board by use the TWI port (PC0,PC1) of the ATmega32 for read and write the eeprom. The below is a circuit diagram of the serial eeprom on the EMBMEGA32 control board.



Circuit of 24XX

REAL TIME CLOCK (DS1307)

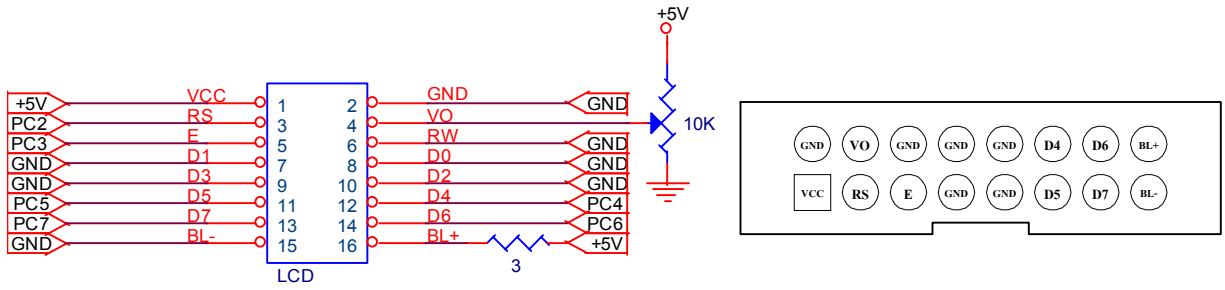
In the control board, the TWI port is the I2C bus that controls the real time clock (DS1307) and the serial eeprom.The DS1307 needs a 3-volt battery.The J2 jumper is used for SQW signal to interrupt pin of Atmega32. The below is a circuit diagram of the real time clock on the EMBMEGA32 control board.



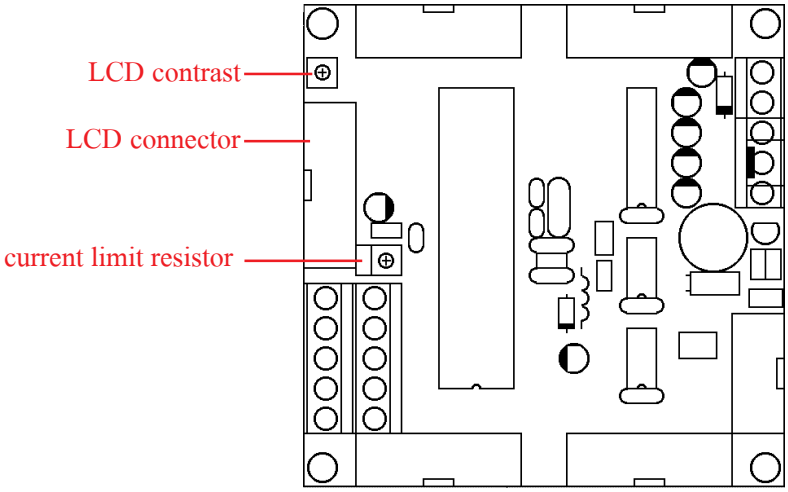
Circuit of real time clock (DS1307)

LCD MODULE

LCD module is controled in 4-bit mode. On the control board, use 10K VR for adjust contrast of lcd module. If the lcd module with back-light is connected .Back-light current is limit by a resister. You can change the resister for different back-light current.



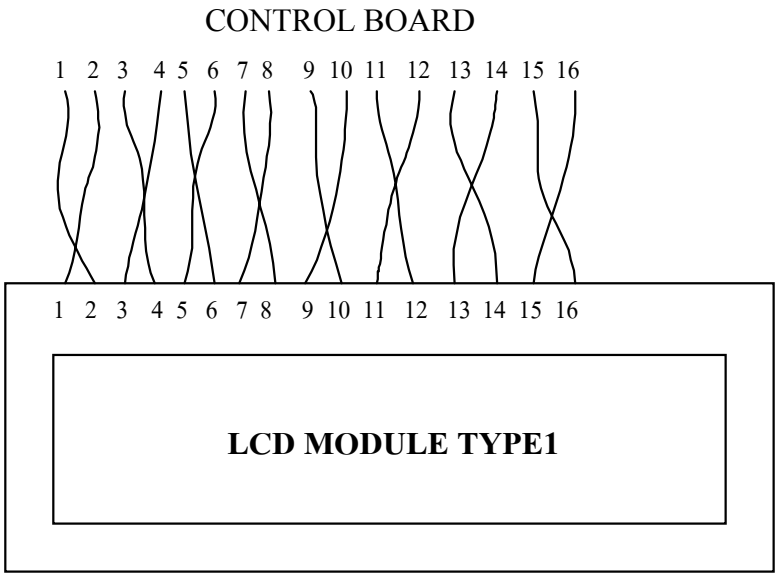
Circuit and Connector (TOP VIEW) of lcd



Resistor of lcd back-light

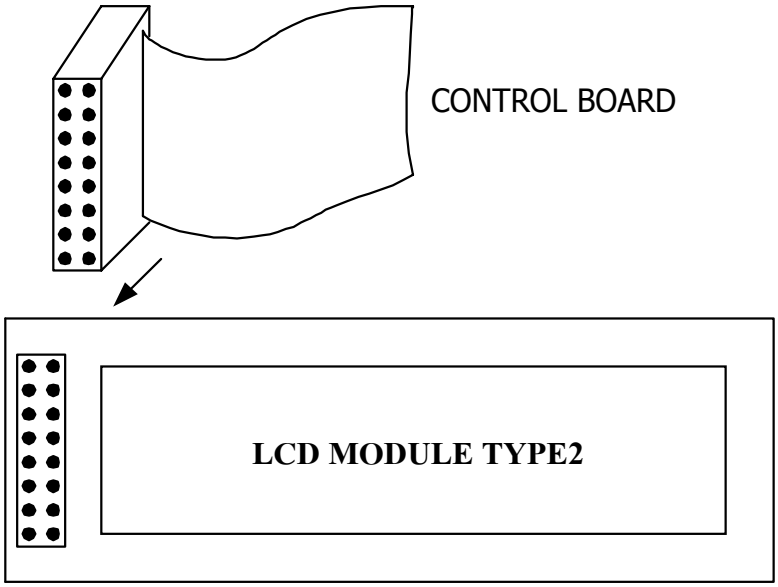
TYPE1 LCD MODULE

If you use type1 lcd module on control board. You must swap cable because the IDC connector of lcd on the control board is swaped row of pin.



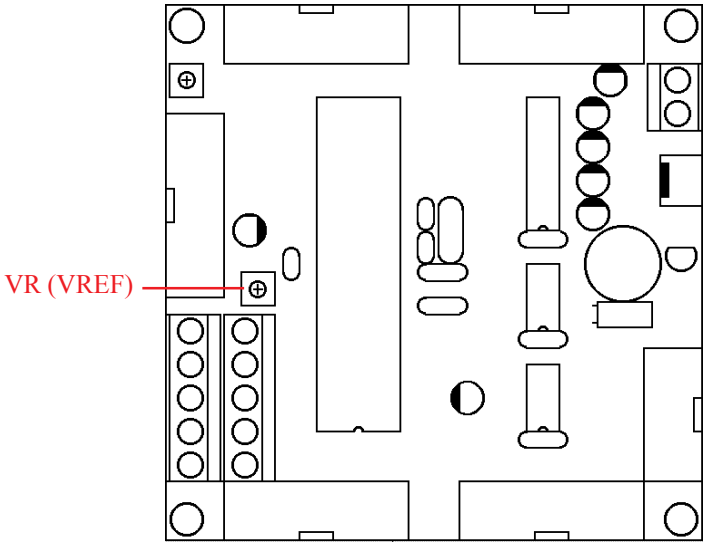
TYPE2 LCD MODULE

From above, The IDC connector of lcd on the control board is swaped the row. When you use type2 lcd module on control board. You can use IDC socket for connection by plug on back of lcd module.

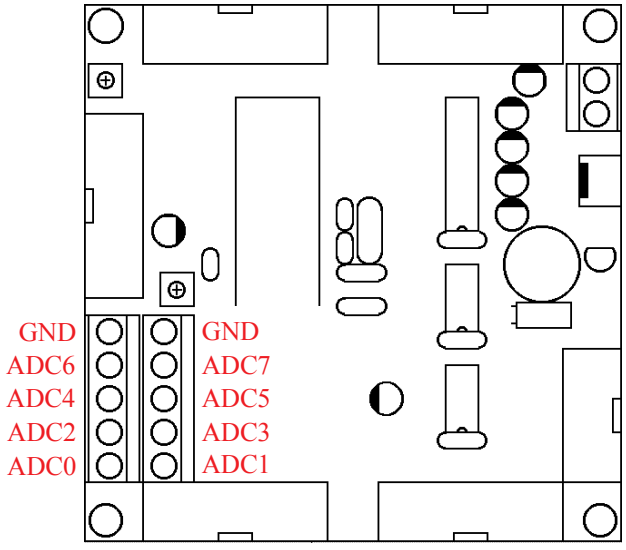


ANALOG TO DIGITAL

Analog to digital on Atmega32 is 10-bit 8 channels that you can use in singel-end or difference mode. The adc convert analog signal from input terminals to digital siganl.The digital signal is 1024 values for 10-bit adc. But analog signal is 0V to Vref in single-end mode. The Vref is selected between internal and external voltage. If you select the external Vref of adc, you can adjust the Vref by a VR on the control from 0V to 5V.



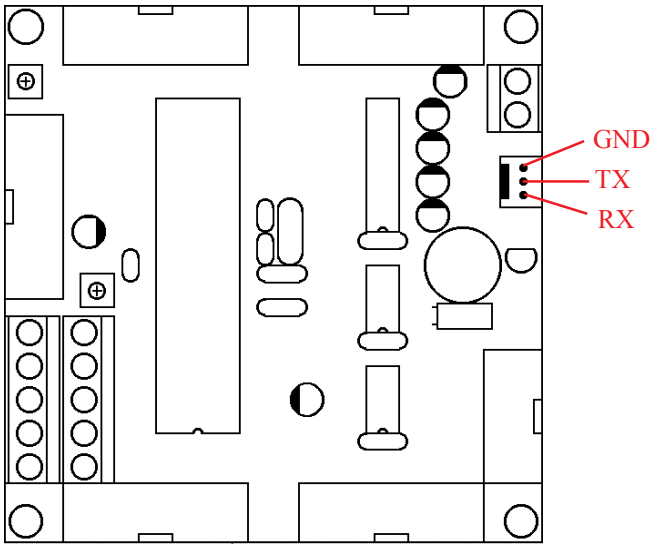
Position of VR



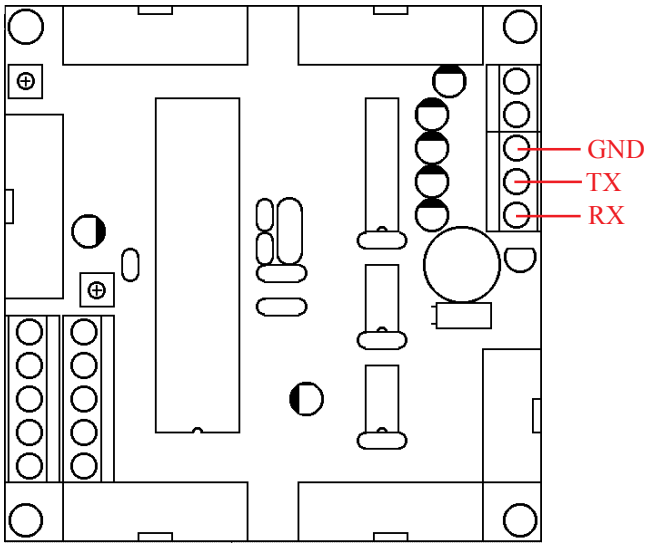
Terminal of ADC

RS232

The control boards provide rs232 line driver and connector for serial communication.MAX232CPE is selected for line driver. For the connector, you can choose neither plug connector or screw terminal that PCBs provide holds.

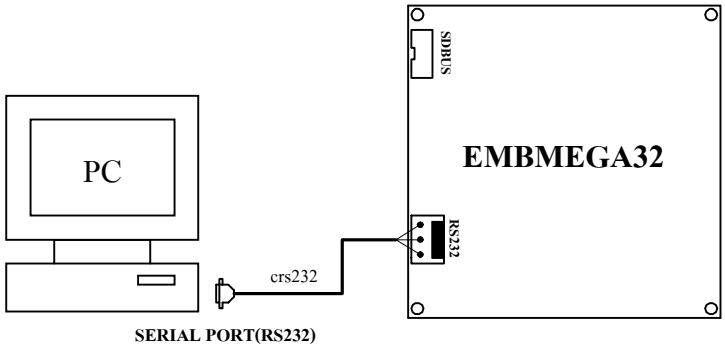


Plug connector for RS232

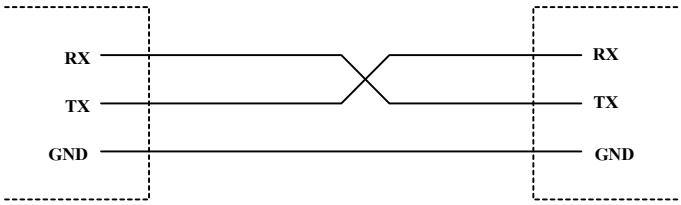


Screw terminal for RS232

In the development, you can use a crs232 cable link between control board and your conputer.



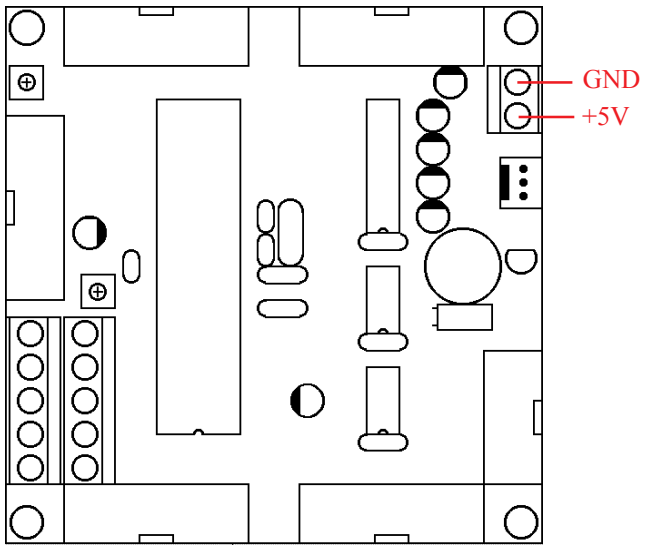
crs232 cable (option)



rs232 cable diagram

POWER SUPPLY

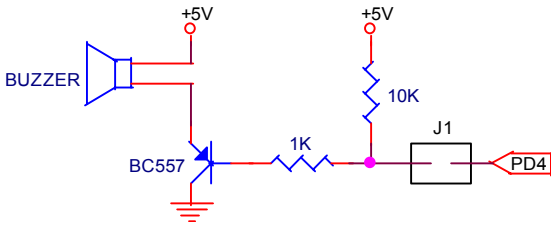
+5 volt power supply is connected to the terminal on the control board.



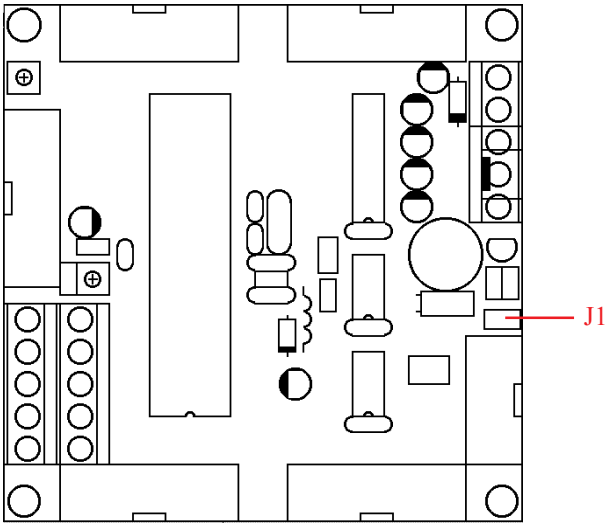
Supply +5V and GND

BUZZER

The buzzer is controled by PD4. The buzzer need J1 jumper.



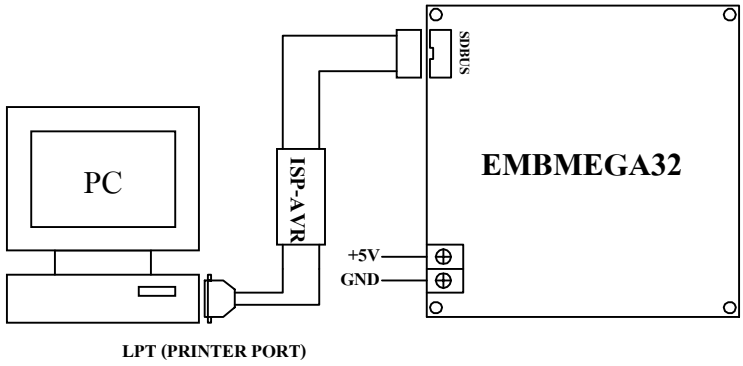
Circuit of buzzer



Position of J1

ISP LOADER(ISP-AVR)

1. Connect ISP-AVR downloader cable between LPT port on your computer and SDBUS conector on EMBMEGA32 control board.
2. Supply +5V and GND.
3. Run MEGA32ISP.EXE downloader program on your computer .



If you can't download program

1. Check RESET,PB5,PB6,PB7 of ATmega32.
2. Check +5V power supply.
3. Decreasing DOWNLOAD SPEED on the MEGA32ISP.EXE downloader program.

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