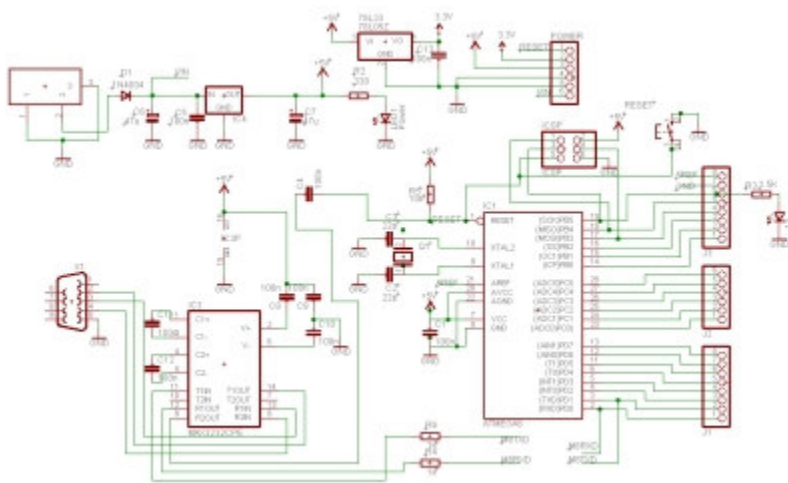
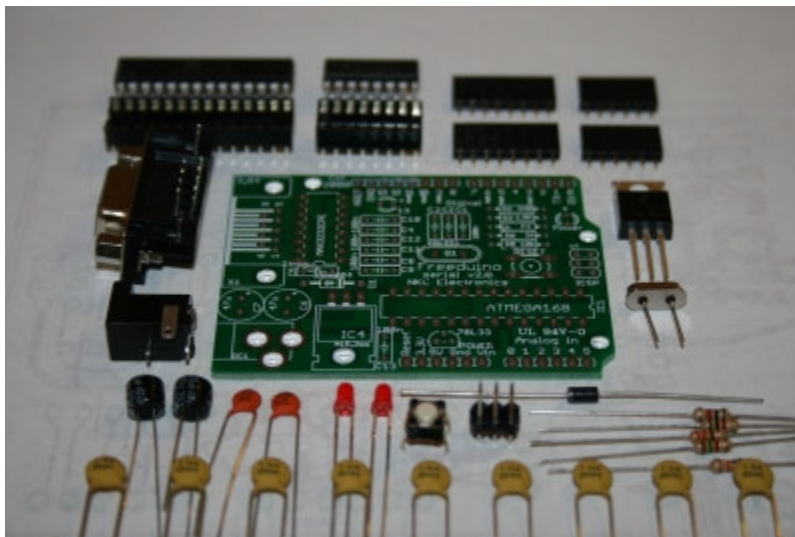


## Arduino Serial v2.0 Board Courtesy of MCUKits

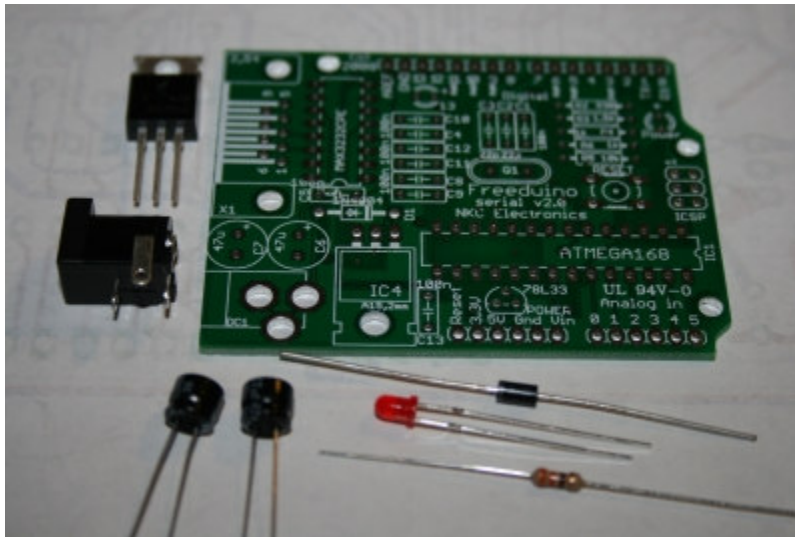


The Arduino diecimila compatible Freeduino serial board is a special version of the Arduino serial board designed by NKC Electronics. The board is diecimila compatible (autoreset) and includes the 13 digital pin LED for easy diagnostics and basic LED sketch execution. The v2.0 board uses a MAX232 compatible chip for interfacing with RS232. The older v1.0 board used two transistors, but had some reliability issues with auto-reset and sketch uploading. First, unpack the kit and start with the PCB.



Let's start with the power portion of the schematic using the following parts:

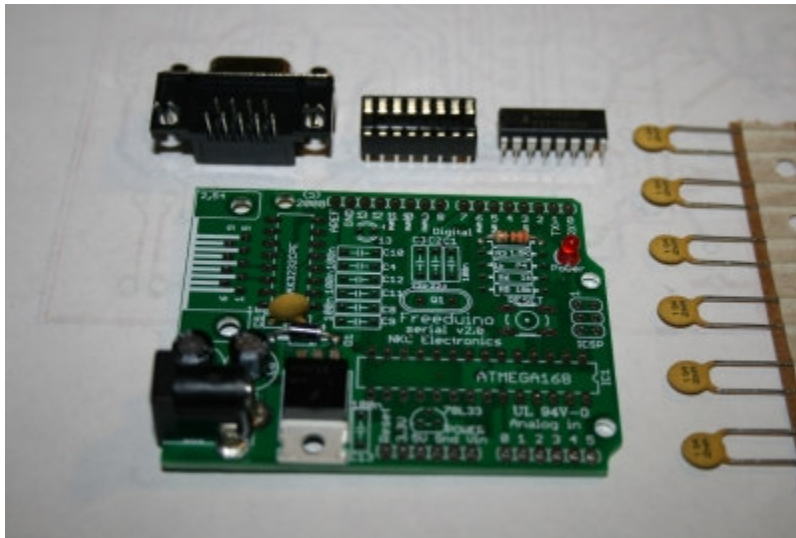
DC1	DC power jack
D1	1N4004 diode
C5	100nF ceramic capacitor
C6, C7	47uF electrolytic capacitor
IC2	7805 5V positive voltage regulator
Power LED	3mm LED
R2	330 ohm resistor



Plug a wall plug voltage regulator (+7V to +12V). The LED lights up, indicating that the Power supply is working.

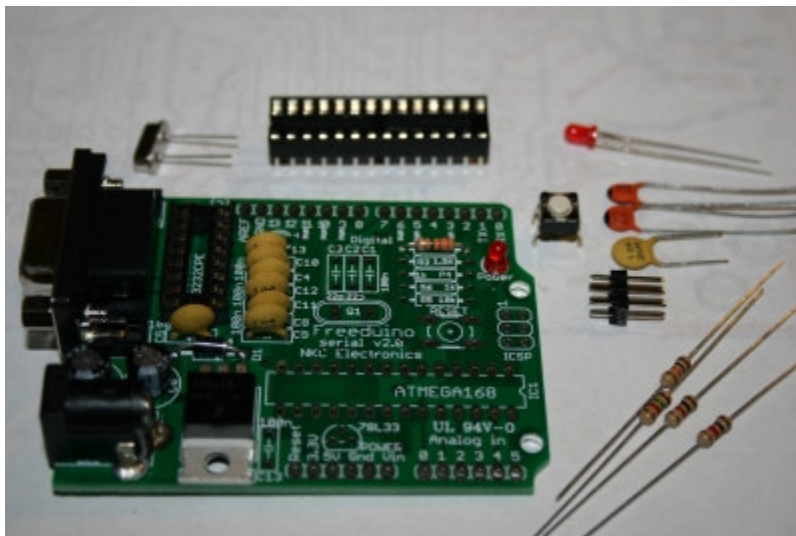
NOTE: This board is shields friendly as the 7805 voltage regulator is mounted horizontally.

Next continue with the soldering of the RS232 components:



X1	DB9 female PCB adapter
IC3	16-pin IC socket
C4, C8, C9, C10, C11, C12	0.1uF (100nF) ceramic capacitors

Solder the rest of the components:

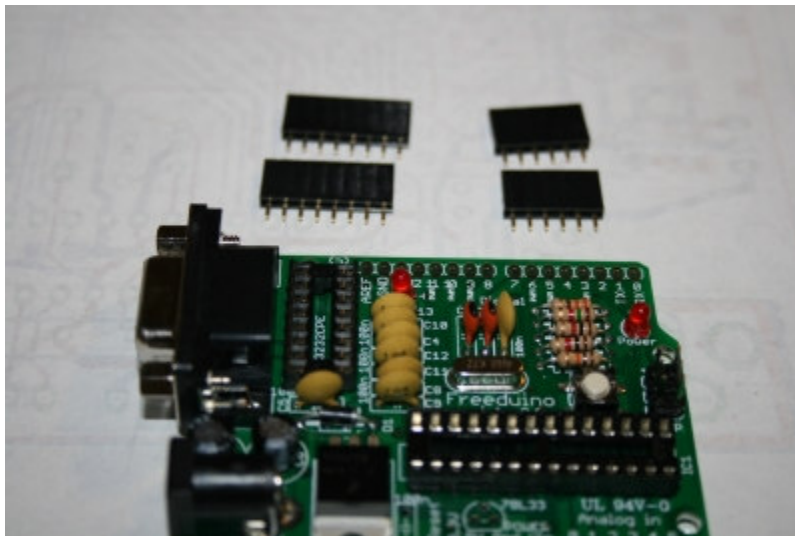


R3	1.5Kohm resistor
R4, R6	1 Kohm resistor
R5	10 Kohm resistor
C2, C3	22pF ceramic capacitor
C1	0.1uF (100nF) ceramic capacitor
13	3mm LED (Arduino pin 13 status LED)
Q1	16 MHz crystal

RESET	Reset switch
IC1	28-pin IC socket
ICSP	2x3 pin male header

Now solder the headers and sockets:

POWER & Analog In	6-pin female header
Digital	2 x 8-pin female header

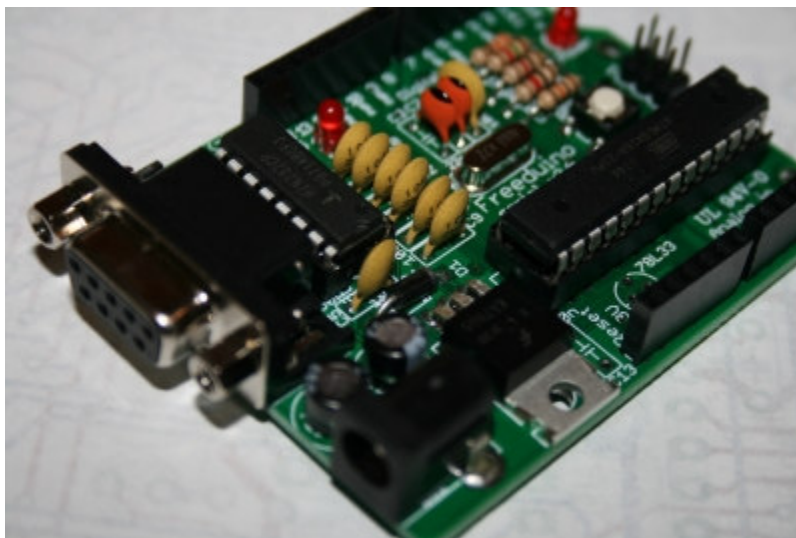
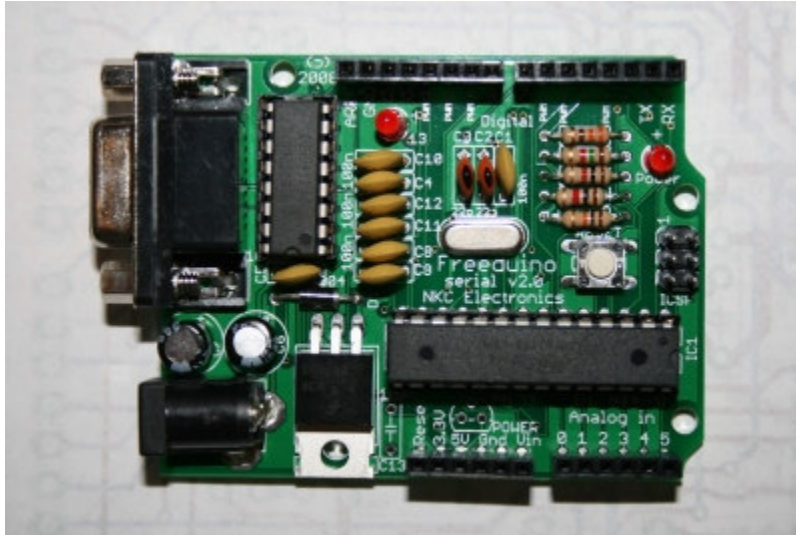


Pay special attention to the alignment of the female headers.



And finally install the ATMEGA168 MCU and the MAX232 (or HIN232 / ICL232) chips.





The board is ready to be used. Start the Arduino IDE and load the BLINK sketch from the examples directory. Verify that ATMEGA168 is selected in Tools → Microcontroller (MCU) and Arduino Diecimila in the Tools → board option. Select the COM port number corresponding to the serial interface where the Freeduino serial board is connected to. Press the “Upload to I/O board” button in Arduino and the board should autoreset and complete the programming. If you selected correctly the BLINK sketch, the LED “13” must start blinking once every 2 second (0.5Hz).

The board has space for an optional 3.3V regulator (78L33 TO-92 footprint) with it’s associated decoupling 0.1uF capacitor (C13).

