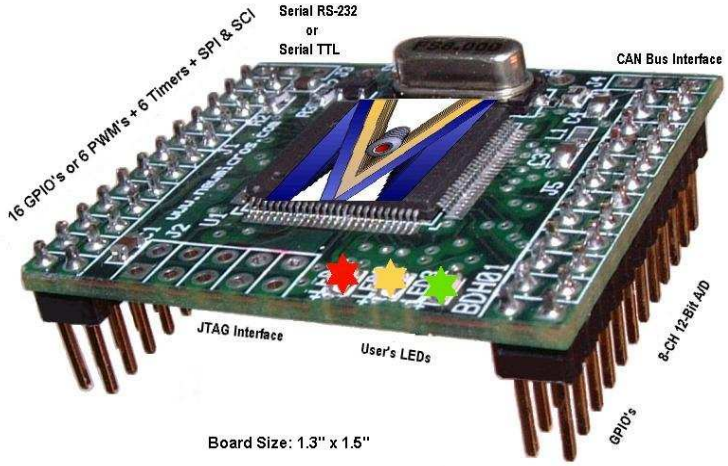
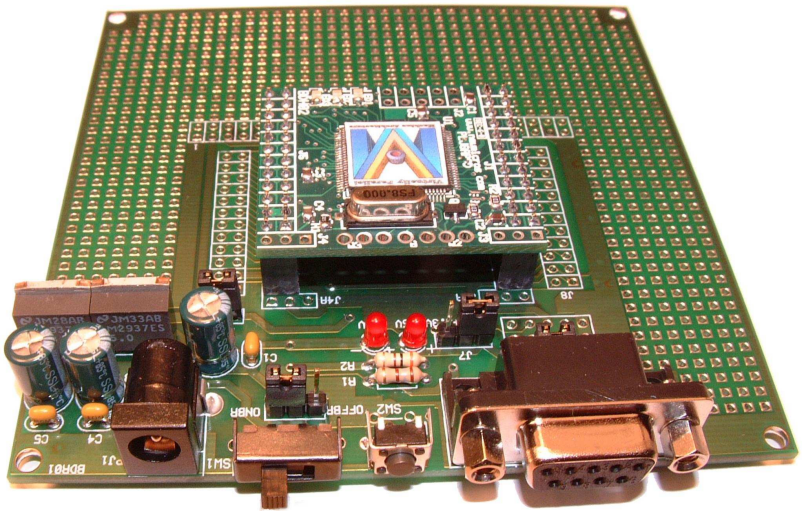
# GETTING STARTED

Thank you for buying the Plug-A-Pod. We hope you will find the Plug-A-Pod to be inexpensive, incredibly useful small controller board we intended it to be, and easy to use as possible.



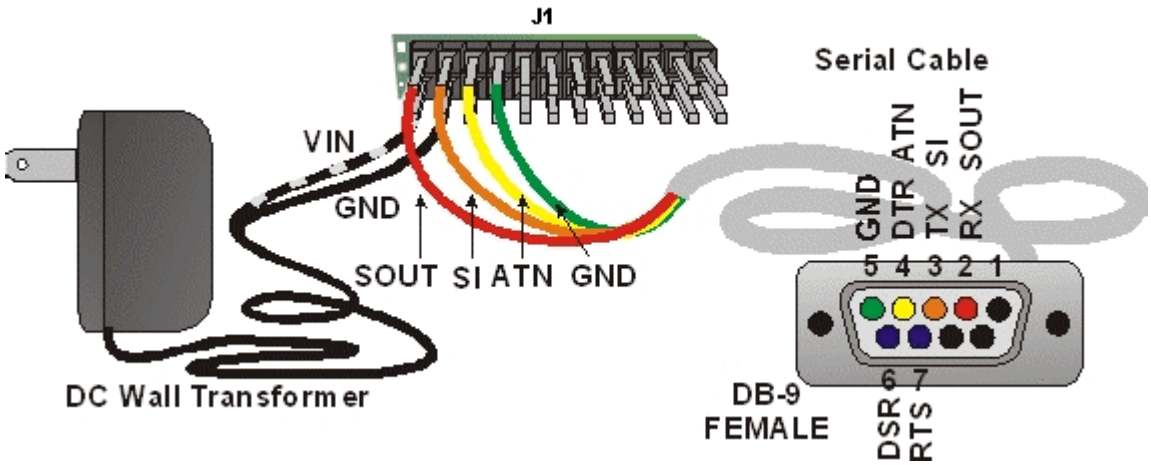

If you are new to the Plug-A-Pod, we know you will be in a hurry to see it working. Once we've got communications, then we can make some lights blink and know for sure we're in business.

If you have the Plug-A-Pod Development Kit, which comes with the Plug-A-Pod Controller and the Interfacing board then you are probably ahead, because the wiring to the power connector, serial connection are already done for you.

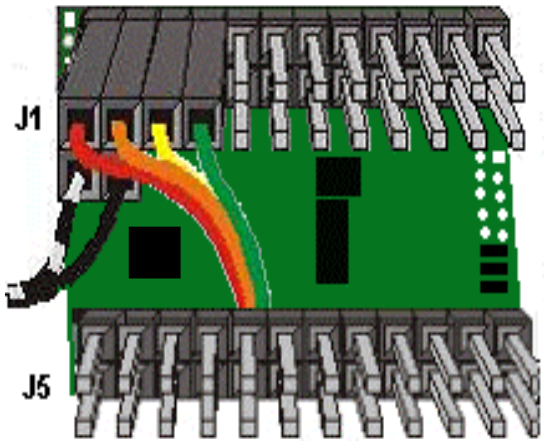


If you do not have a Development Kit, you can also order from us a custom made serial cable, and a wall transformer. This will save you lots of time. If not, you can make your own serial cable, and provide your own power supply, or transformer ranging from 6-12Vdc at 300mA or higher.

# WIRING DIAGRAM




These connections are all made on a few pins of J1, which is a male .1" dual row connector. Generally, an intermediate double male header strip will be used to mate from J1 to the Wall transformer single row female connector, and to the Serial Cable single row female connector.

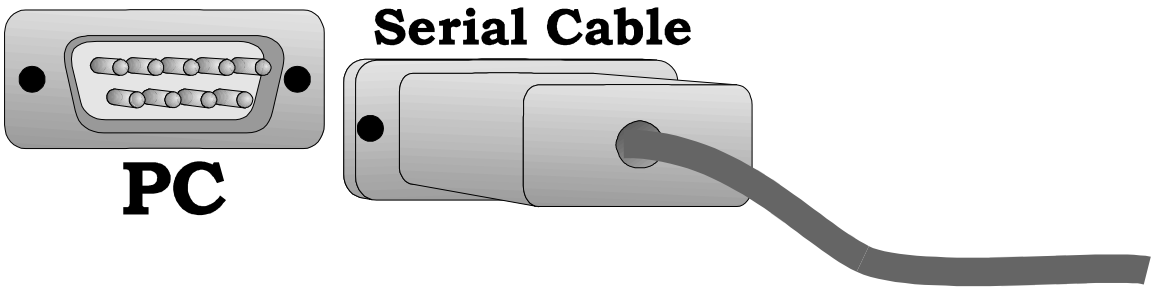



Bottom View

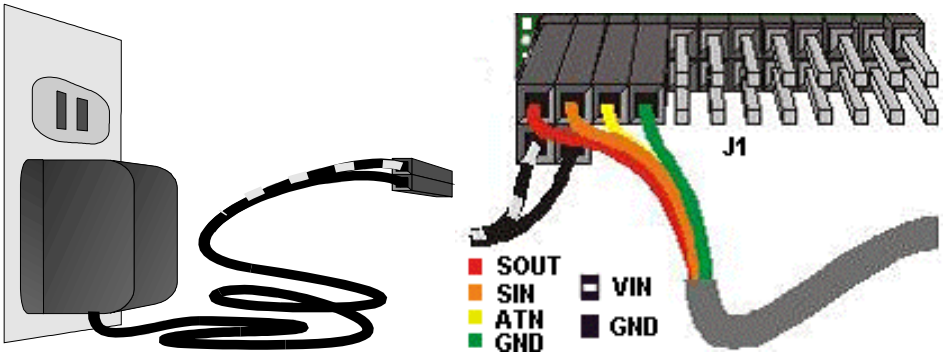
Your main concern now, is not hooking the serial cable or power cable up on the wrong connector; the wrong pins on the right connector; or backwards or rotated on the right connector. Pay close attention how the connectors go on. There is no protection to prevent plugging in on the .1" dual row headers the wrong way.

Once you have your serial cable and connectors, and wall transformer and connectors, ready, follow these steps.

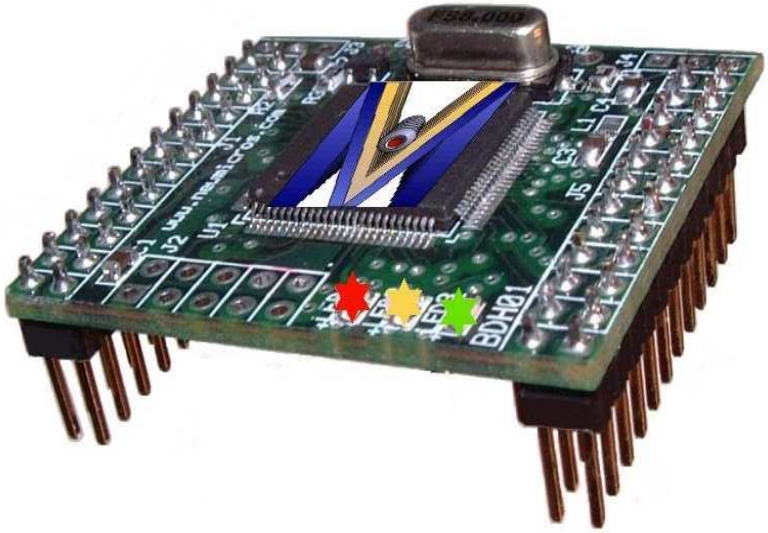
Now hook the computer end of the serial cable (usually a DB-9 connector, but may be a DB-25, or other, on older PC's) to the PC's.




While watching the LED's plug in the wall transformer connector to the power pins on the Plug-A-Pod board. For those who don't have the Development Kit, be *very* careful not to get a misalignment here, because it can kill the board. See the illustration below:

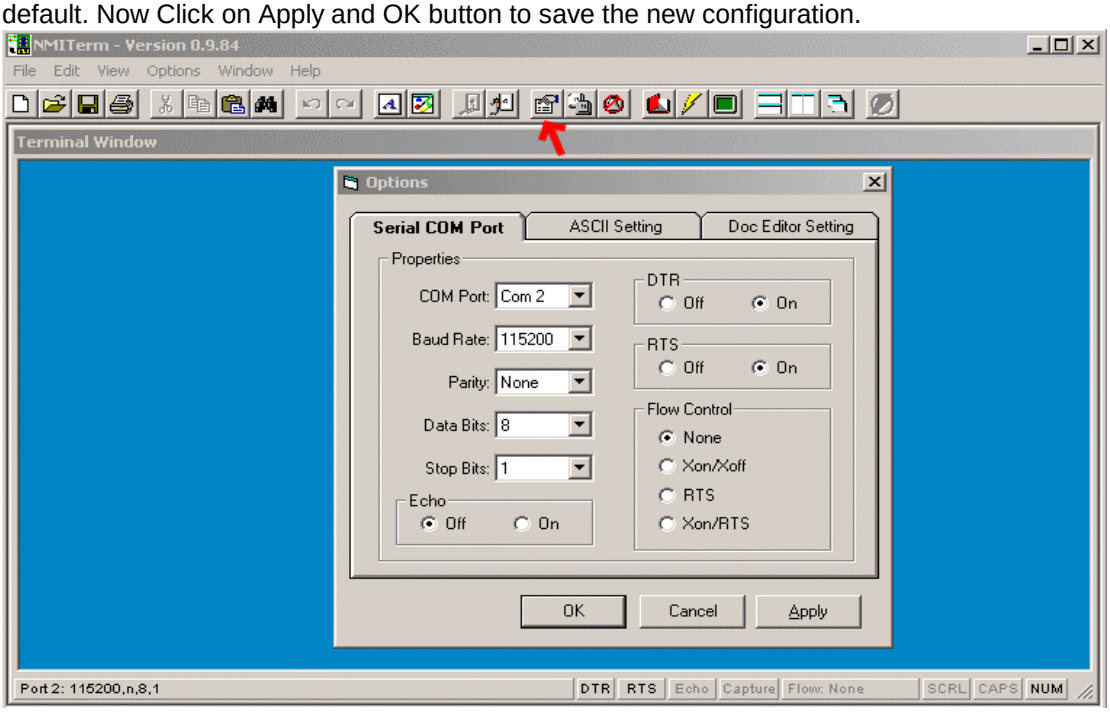



All three LED's should come on when the power is plugged in. If the LED's do not light, unplug the power to the Plug-A-Pod quickly and double check the power polarity, and make sure you are not misaligned the pins.

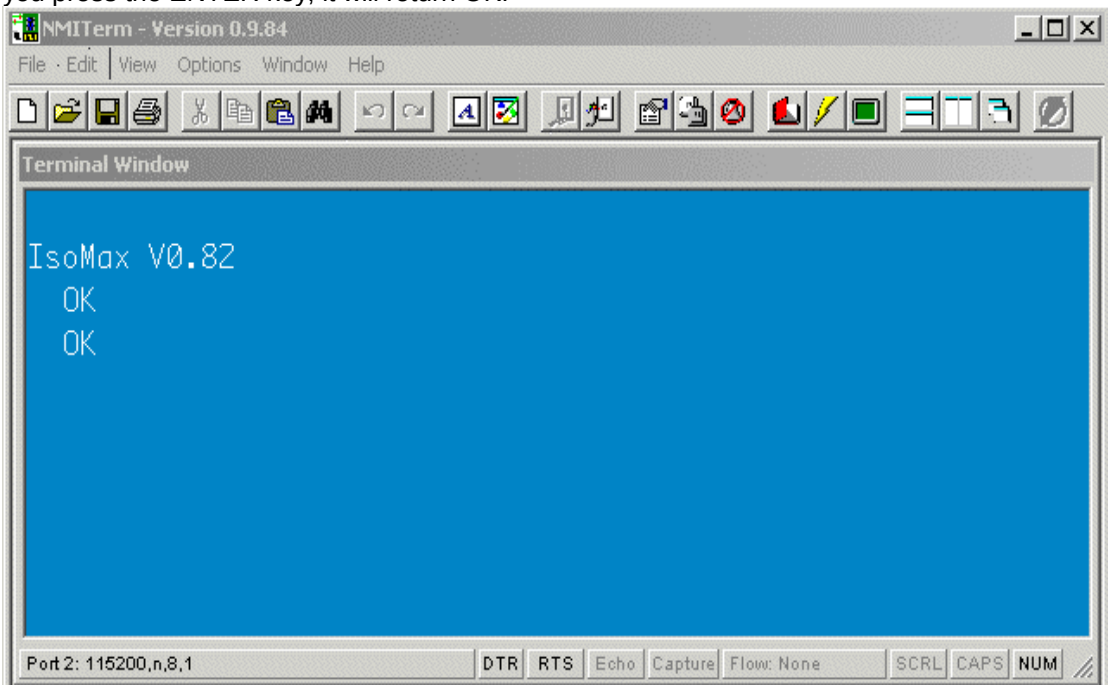


Download the NMITerm, terminal program from New Micros web site, and install it on your PC.
http://www.newmicros.com/download/software/NMI/NMITerm.zip

Run the NMITerm program and click on the Properties icon to change the baud rate from 9600 to 115200. Also select the available Com port on your system. Everything else should stay as default. Now Click on Apply and OK button to save the new configuration.




Plug in the power, it will display message “IsoMax V0.82” on the NMITerm program. Each time you press the ENTER key, it will return OK.




Seeing this means the Plug-A-Pod is communicating properly. Now it is time to blink some leds.

On your keyboard, press the Caps Lock key to activate the uppercase letter. Now enter,
REDLED OFF ← ( Enter )
The red LED on the Plug-A-Pod will turn off

YELLED OFF ← ( yellow led off )
GRNLED OFF ← ( green led off )

REDLED ON ← ( red led on )
YELLED ON ← ( yellow led on )
GRNLED ON ← (green led on )

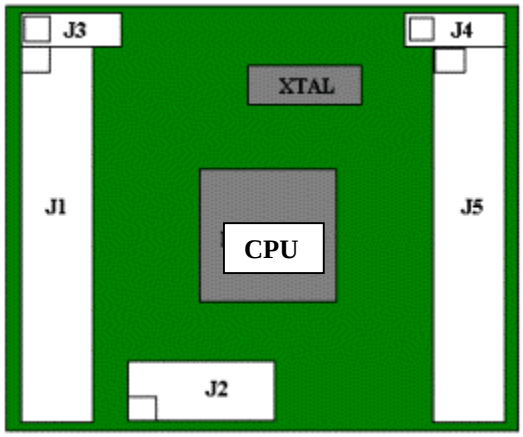
Seeing is believing! So, now you should have a good feeling because you can tell your Plug-A-Pod is working.

More example programs, documents, and appnotes are available to download from this link,
http://www.newmicros.com/store/product_details/download.html

# I/O Connectors

Most of the CPU I/O's are brought out on J1-J5 connectors for easily accessible. The power connection, serial I/O's, and LED controlled signals are described below.

Top View




**Square on each connector indicates pin # 1**

**J1**

| | | | |
|---|---|---|---|
| SOUT | 1 | 2 | VIN |
| SIN | 3 | 4 | GND |
| ATN' | 5 | 6 | RESET' |
| GND | 7 | 8 | +5V |
| PWMA0/ISA0 | 9 | 10 | PWMA1/ISA1 |
| PWMA2/ISA2 | 11 | 12 | PWMA3/FLT0 |
| PWMA4/FLT1 | 13 | 14 | PWMA5/FLT2 |
| TD1 | 15 | 16 | TD2 |
| TA0 | 17 | 18 | TA1 |
| TA2 | 19 | 20 | TA3 |
| PE4/SCLK | 21 | 22 | PE5/MOSI |
| PE6/MISO | 23 | 24 | PE7/SS |

**J5**

| | | | |
|---|---|---|---|
| +3.3V | 1 | 2 | CANH |
| GND | 3 | 4 | GND |
| VREF | 5 | 6 | CANL |
| VDDA | 7 | 8 | VSSA |
| AD1 | 9 | 10 | AD0 |
| AD3 | 11 | 12 | AD2 |
| AD5 | 13 | 14 | AD4 |
| AD7 | 15 | 16 | AD6 |
| PA1 | 17 | 18 | PA0 |
| PA3 | 19 | 20 | PA2 |
| PA5 | 21 | 22 | PA4 |
| PA7 | 23 | 24 | PA6 |

**Signal Descriptions:**

SOUT: Serial Output from Plug-A-Pod, RS-232 level
SIN: Serial Input to Plug-A-Pod, RS-232 level
ATN': Alternative reset signal connects to DTR signal from host
VIN: Power Input, 6-12Vdc
GND: Ground, power return signal
VREF: Tied to VDDA with an inductor in series for noise reduction
VDDA: Tied to VDD(+3.3V) with an inductor in series for noise reduction
VSSA: Analog Ground. Currently ties to GND
RESET': Target Reset signal
CANH, CANL: CAN transceiver I/O
PWMAx: PWM's, or Digital output only pins
ISAx/FLTx : Digital input only pins
TAx, TDx : Timers, PWM's, or GPIO pins

PEx : SPI, or GPIO pins
ADx: Analog Input pins
PA0-2: LED controlled signals, also shared GPIO pins
PA3-7: General Purpose I/O pins

**J2**, JTAG interface, or GPIO's

| | | | |
|---|---|---|---|
| +3.3V | 1 | 2 | GND |
| TDI | 3 | 4 | GND |
| TDO | 5 | 6 | TMS |
| TCK | 7 | 8 | DE |
| RESET' | 9 | 10 | TRST |

**J3**, Serial TTL signals

| | |
|---|---|
| 1 | RxD0 |
| 2 | GND |
| 3 | TxD0 |

**J4**, I2C interface, or GPIO's

| | |
|---|---|
| 1 | CANH |
| 2 | GND |
| 3 | CANL |

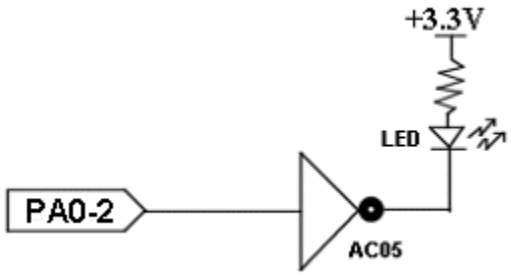
A detail I/O pin description is available on Freescale document. See the link below,

**http://www.freescale.com/files/dsp/doc/user_guide/DSP56F801-7UM.pdf**

# LED's Controlled Ports:

There are three I/O pins use to control the onboard LED's through an inverter chip, AC05 to drive the LED's. When a port pin is output high, the LED will turn on, and an output low will turn it off. The following I/O ports are being used for this purpose.

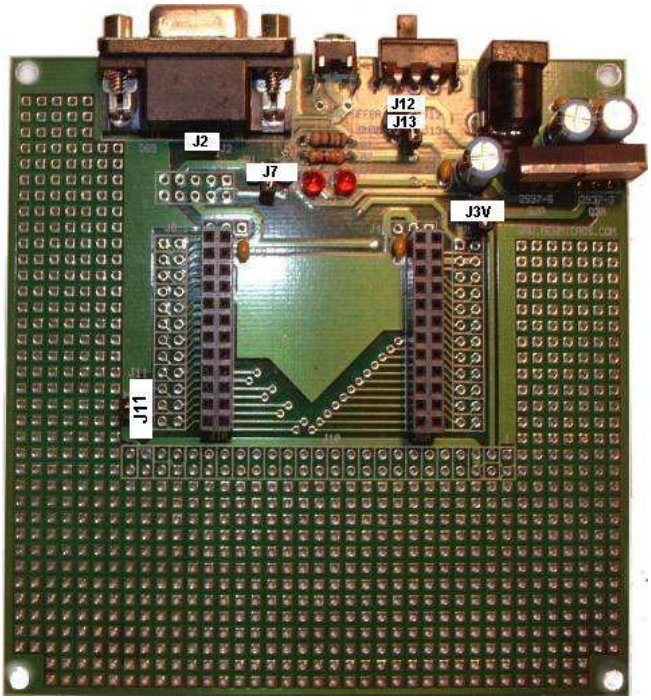
PA0 => Red Led
PA1 => Yellow Led
PA2 => Green Led




Note: PA0-2 are also brought out to J5 connector as shared GPIO's.

# Interface Board

The Interface Board, BDR03 is  the current production of the Carrier Board for the Tini's or Pluga's controller module.  All the jumpers and connectors are described below.




## Jumper descriptions:

J2:  DTR  Enable/Disable jumper.

J3V:  An optional jumper to provide 3.3V power to the Controller module, or add on circuitry from the Carrier board if necessary.

J7:  An optional jumper to provide  5.0V or 3.3V power to the Controller module, or add on circuitry from the Carrier board if necessary.

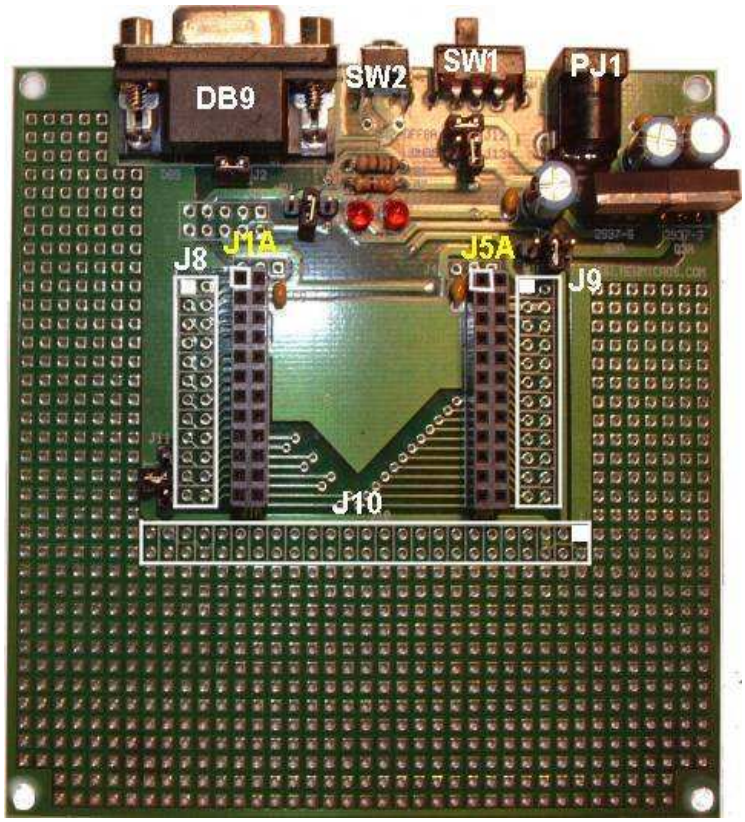
J11:  IsoMax autostart bypass jumper.

J12:  Power input jumper for the on-board  Tini's or pluga's regulators

J13:  Power input jumper for the  5.0V & 3.3V regulators on the carrier board.

## I/O Connections

The I/O's & power pins are brought out to J8, J9, and J10. Where J1A & J5A are the mating connectors for the Tini's & Pluga's controller module.




J8: I/O pins brought out from Tini's or Pluga's J1 connector.

J9: I/O pins brought out from Pluga's J5 connector.

J10: I/O pins brought out from Tini's or Pluga's J1 & J5 connectors.

## Miscellaneous

PJ1: Power Jack

SW1: Power On/Off switch

SW2: Reset switch

DB9: Serial RS-232 DB9F connector