Parallel Port Breakout Board

Version 1.0
preliminary

Model: PBX-2

Breakout Board Specs:

- DB25 Female
- All Pins Brought Out
- Jumper Enabled Input Pull-up Resistors
- Integrated 5V Logic Supply Regulator
- PROBOTIX Pinheader & Screw Clamp Terminals
- Experimental USB Powered Logic Supply

Description

The PBX-2 is a Parallel Port breakout board designed specifically for Hobby CNC machines. It is compatible with a variety of Parallel Port CNC Control Software.

The PBX-2 has a built in LM317 based voltage regulator section that will supply 1.5AMPS @ +5V to the driver outputs of this interface. It also connects to the limit switch and e-stop inputs through a jumper connected 10K pull-up resistor network. The pullup resistors are needed in most cases when switching the logic inputs through physical switches.

The LM317 is rated for 40VDC, so you can wire it up to the same power supply as the motors. You may want to run it off of a WalWart to provide an additional layer of protection and to limit noise. Make sure to test the polarity of the the wires from the WalWart, and make sure it is not an AC output device. Any voltage between 6 and 40 volts should work.

The PBX-2 has an experimental USB power supply jack. This jack can supply the +5V logic supply side of your drivers. **Do not plug in a USB cable without disconnecting JP6**. JP6 isolates the LM317 based regulator section from the rest of the circuit, including the logic power indicator LED.

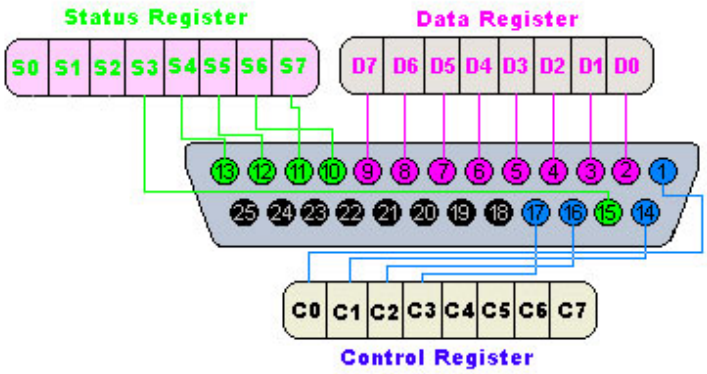
The USB specification allows the USB port to draw 100mA, without needing to enumerate. It is very likely that your PC's USB port is protected from current overdrive. Your results may vary, and I assume no liability for your PC. However, I have been using it for quite some time, on my PC. It probably would not protect you from spikes, so USE AT YOUR OWN RISK! I would recommend driving it through an externally powered USB hub.

The IDC cables can supply logic side power to your driver boards. Some of our drivers also have on-board logic supply regulators. **Use the jumpers to ensure that both regulator sections are not connected at the same time.**

The Parallel Port was primarily designed for controlling printer devices, so on some pins the logic inside of the PC is inverted for different reasons. The built in parallel port on your PC generally shows up at address 0x378, but that is determined by your BIOS

The PBX-2 is not an isolated breakout board. We strongly recommend that you use an add-on parallel port card. Be aware that hose $10 MOSCHIP NM9805 Chipset driven boards will initialize at non-standard addresses. The Windows XP drivers will not let you change the address. This is not a problem for EMC or Mach3, but currently KCam will not allow you to use a non-standard parallel prot address.

Here is a pinout of a DB25 parallel port:

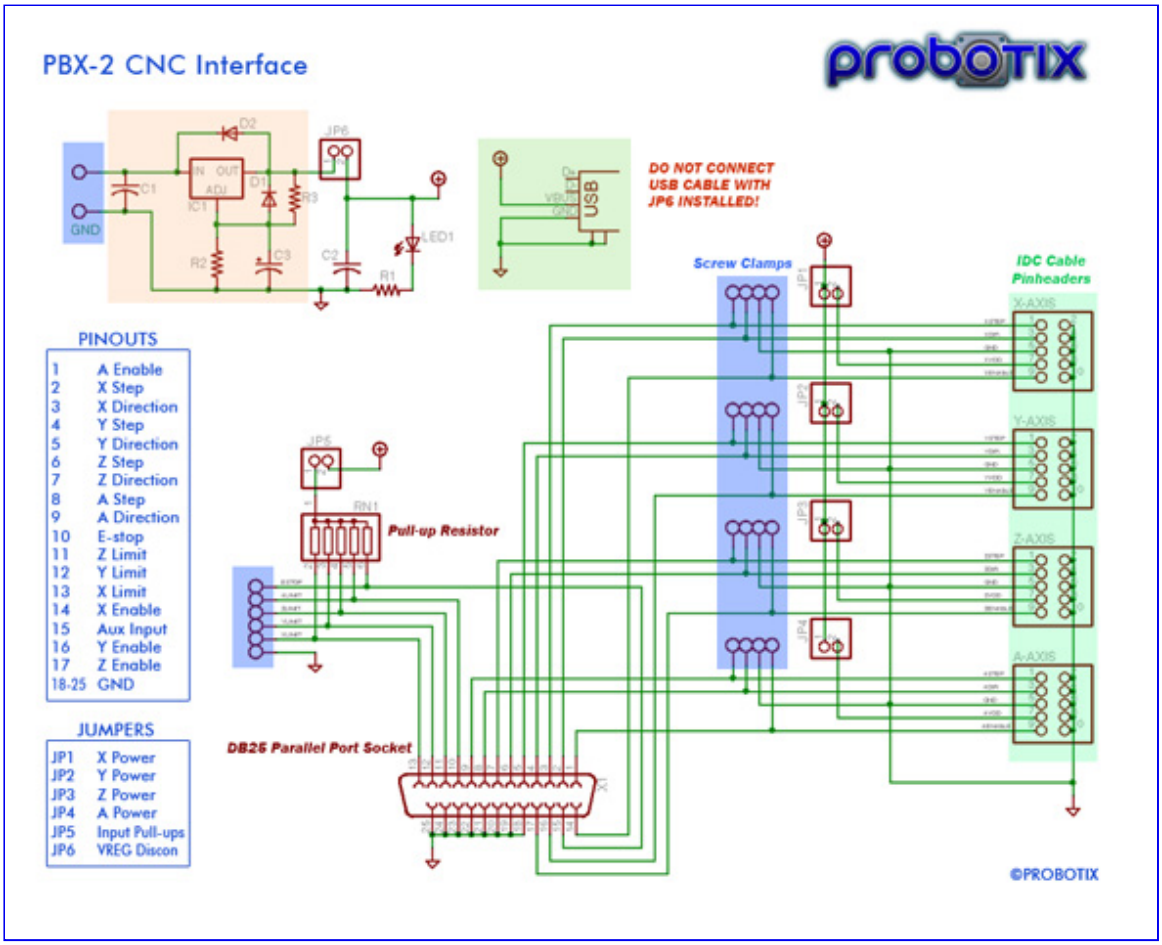


Pin No (DB25)	Signal name	Direction	Register - bit	Inverted
1	nStrobe	Out	Control-0	Yes
2	Data0	In/Out	Data-0	No
3	Data1	In/Out	Data-1	No
4	Data2	In/Out	Data-2	No
5	Data3	In/Out	Data-3	No
6	Data4	In/Out	Data-4	No
7	Data5	In/Out	Data-5	No
8	Data6	In/Out	Data-6	No
9	Data7	In/Out	Data-7	No
10	nAck	In	Status-6	No
11	Busy	In	Status-7	Yes
12	Paper-Out	In	Status-5	No
13	Select	In	Status-4	No
14	Linefeed	Out	Control-1	Yes
15	nError	In	Status-3	No
16	nInitialize	Out	Control-2	No
17	nSelect-Printer	Out	Control-3	Yes
18-25	Ground	-	-	-

Please note how they are designated inputs, outputs, or both. Also, some of them are inverted. Depending on the software you choose to control it, the configurations may need to be inverted on certain inputs or outputs. Without going into the details, just know that you may have to try different settings to get your machine to respond properly.

Here is the intended and typical pinout of the PBX-2 cnc interface:

PIN	Signal
1	A Enable
2	X Step
3	X Direction
4	Y Step
5	Y Direction
6	Z Step
7	Z Direction
8	A Step
9	A Direction
10	E-stop
11	Z Limit
12	Y Limit
13	X Limit
14	X Enable
15	Aux Input
16	Y Enable
17	Z Enable
18	-25 GND



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