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Description of the parallel port configuration for machine control

It is amazing what parallel port (AKA Printer port) allows us to achieve in the world of motion control.

Pins 2, 3, 4, 5, 6 and 7 are used for the three step motors for the three axis.

Pins 1, 14, 16, and 17 are output lines. Microsoft Windows prefer to set all the bits on the parallel port to logic high when Windows is invoked. To be compatible and to avoid any surprise turning on of the I/O lines, we recommend that the logic be setup to invoke the I/O's when you receive logic low from the parallel port.

It is always a good Idea and a good practice to turn on the PC first and your driver module after the Windows is loaded. In the same manner, It is always a good Idea to turn off the PC last when you switch off the system.

The procedure will be that the X and Y motors will move to a position. The speed of the move will be determined by the pre-selected speed in the software. The customer will also pre-select the number of micro steps required.

Pins 10, 12 and 13 along with one of the ground lines (18 through 25) will be used for the Home switches, if necessary.

It is important to note that the gates on the parallel ports may not be able to source 4 mA to 5 mA and may not be able to sink much more current. Some of the newer parallel port boards may use lower power circuits (instead of 5 V TTL, it may be a 3.3 VDC level). Some parallel ports may be able to drive the gates of the step motor drivers. Others may not be able to. Additionally, if you plan to use solid state relays to control I/O's, the relays may require more current. For all these reasons, it is advisable to use a breakout board that may have a couple of high current drivers IC's to Interface to the parallel port (you need two of such IC's and may cost around 25 cents each) to do the trick. We build simple breakout boards and make them available to simplify the system builder's job.

It is important to note that the Home switch feed back shall be TTL levels only, if you use our breakout board. This means that the high output level shall not exceed 5 VDC or it may damage your parallel port card.

Standard configuration of Parallel Port of a PC for MaxMotion Multi-Axis Virtual Controller

Parallel port on the back of a PC has a 25 pin female connector. Most computers may have only one parallel

port. However, a PC can be configured with as many as 3 parallel ports. You can use any one of them to connect to the XYZ table. Following is the pin configuration:

DB-25 pins   Signals

DB-25 pins	Signals
1	I/O (2) output switch (I/O signal, turns on and off with the job)
2	X - Step
3	X - Direction
4	Y - Step
5	Y - Direction
6	Z - Step
7	Z - Direction
8	Switching between cylindrical and flat axis (new breakout board)
9	Reverse 24 VDC spindle motor direction (new breakout board)
10	Home switch Input to parallel port- Z axis
11	Future use
12	Home switch Input to parallel port - X axis
13	Home switch Input to parallel port - Y axis
14	I/O (1) output switch (I/O signal, turns on and off with the job)
15	Emergency switch Input to parallel port
16	I/O 4, Spindle motor enable (Programmable delay available before plunging)
17	I/O 3 output switch
18 - 25	Ground lines

This is a standard configuration. Custom configurations are available.