

## Introduction

This is a brief description of a CNC interface board for parallel port CNC step/dir operation of VSD-A. Breakout board serves as easy to use interface between the PC and up to 4 drives. This board is suitable for VSD-A Rev1 and Rev2 drives.

## Obtaining boards

This board is **available as bare PCB** from Granite Devices. You can also use provided Cadsoft Eagle or Gerber files to produce breakout board. Several PCB houses accept these files directly for fabrication. See attached `vsd-a-rev2_bom.txt` for bill of materials and needed components.

**Note:** IC1 must be 7408 or 74LS08 chip. Any other logic family will not work (74HCT, 74AC etc).

**Note 2:** Use at least VSD-A firmware version 1.14 for optimum operation

## Features

- 1-4 axis VSD-A outputs
- Direct ribbon cable connections to VSD-A drives
- 4 limit switch inputs + E-stop input
- USB connector for board power
- Drive enable pin from PC
- Drive fault to PC signal

## Pinout

Configure your CNC control software pinout accordingly

<b>Parallel port pin</b>	<b>Function</b>
1	<i>Not connected</i>
2	A axis direction
3	A axis step (rising edge)
4	Z axis direction
5	Z axis step (rising edge)
6	Y axis direction
7	Y axis step (rising edge)
8	X axis direction
9	X axis step (rising edge)
10	Drive fault & E-stop input to PC (active low)
11	X switch to PC
12	Y switch to PC
13	Z switch to PC
14	Drive enable from PC (drives active when high, disabled when low)
15	A switch to PC
16	<i>Not connected</i>
17	<i>Not connected</i>
18-25	Ground

## Schematics & layout

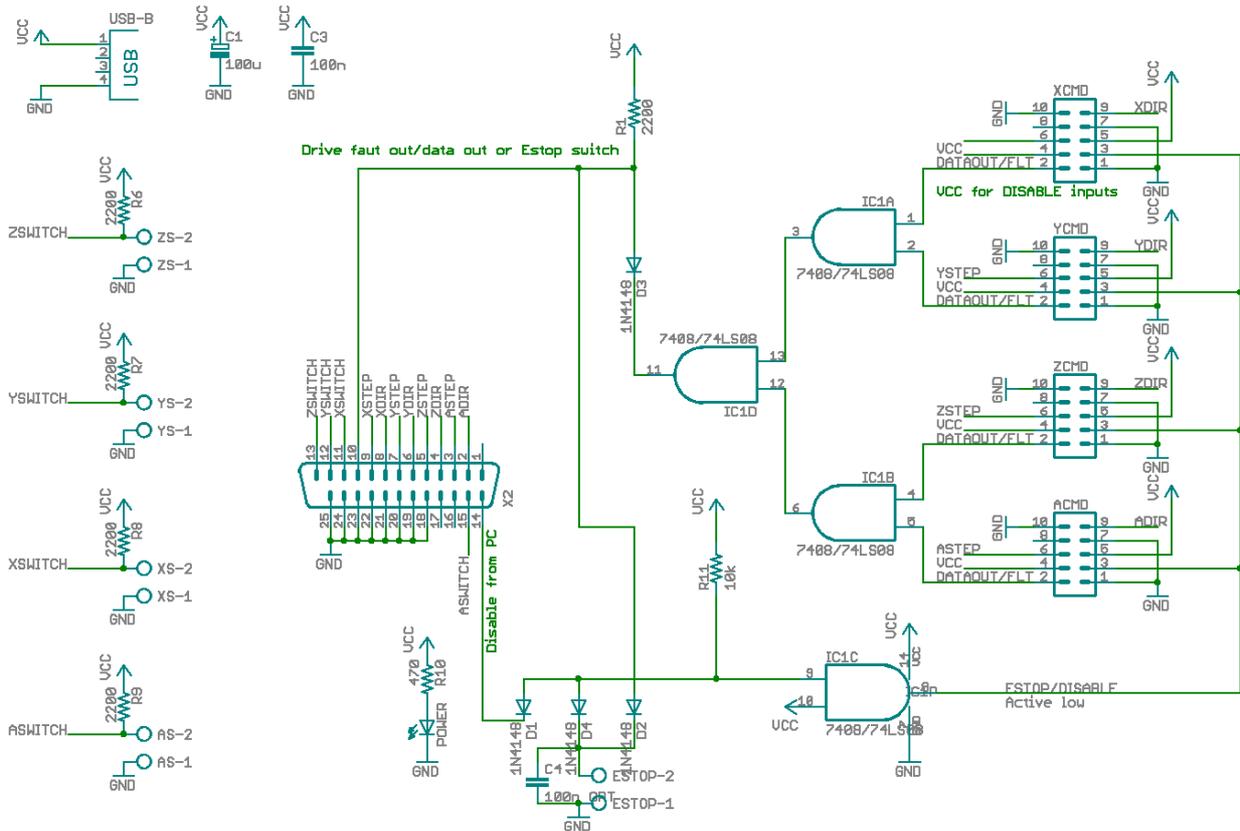


Figure 1: Breakout board schematics

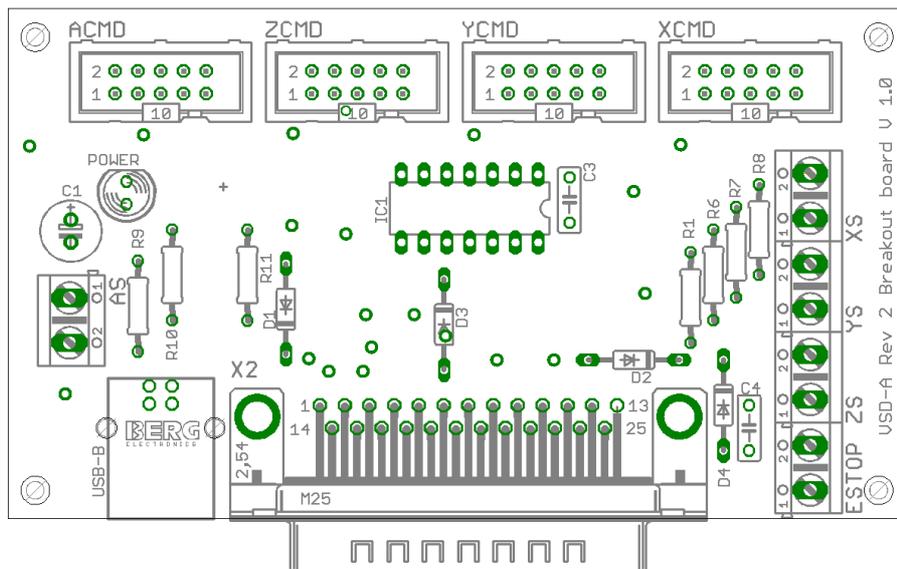


Figure 2: Board layout & component placement

## Usage

Sample pin configuration for Mach 3 ([www.artofcnc.ca](http://www.artofcnc.ca)). Note: with Mach it is recommended to use at least version 114 of VSD-A firmware.

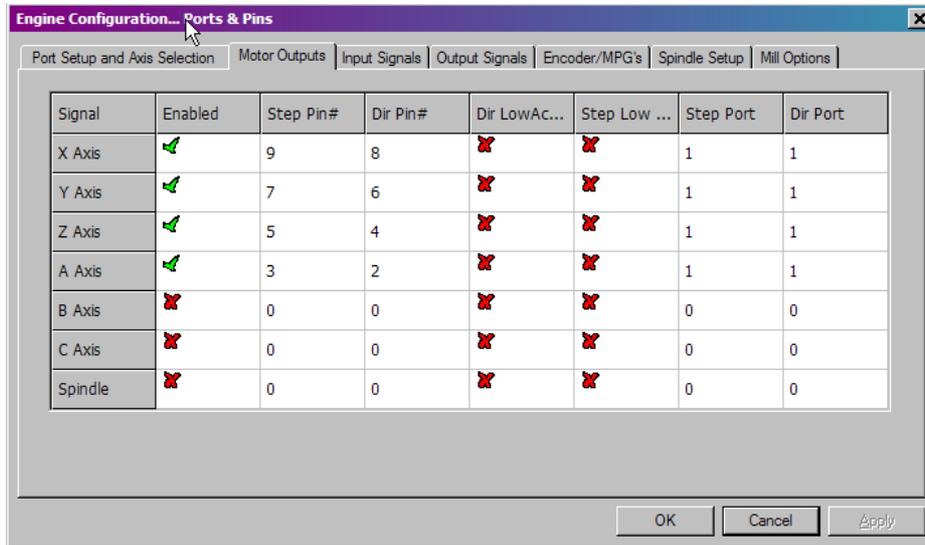


Figure 3: Step/dir outputs

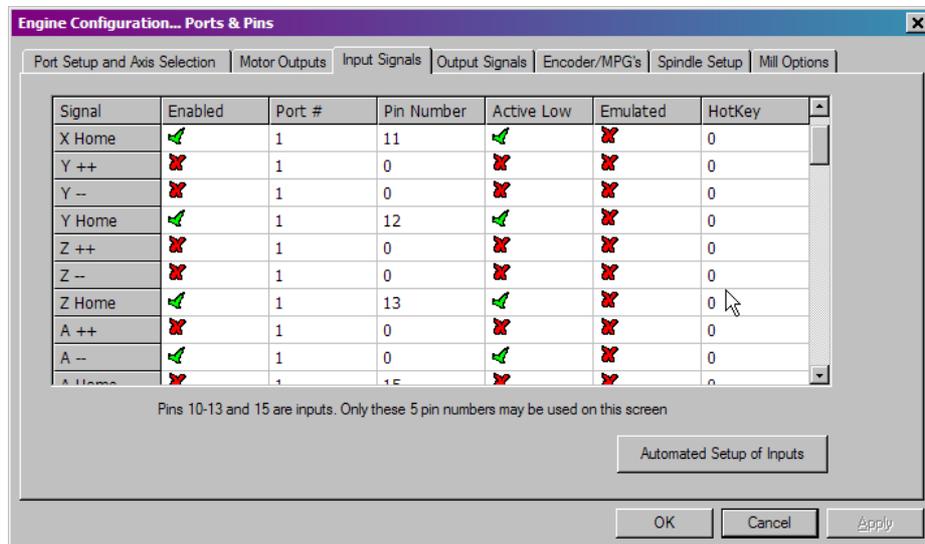


Figure 4: Home switch inputs. Note that home switch inputs can also be configured differently for different kind of setups (for example use as limit switches).

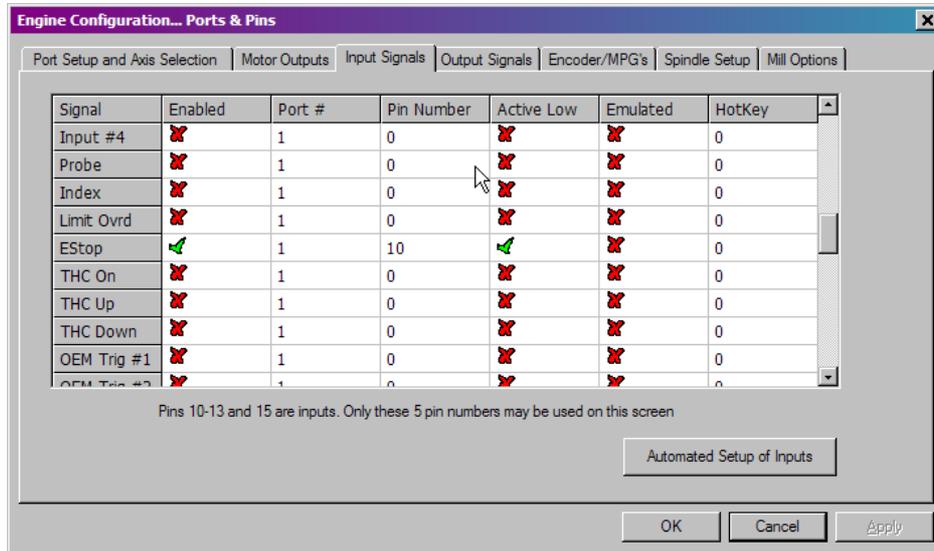


Figure 5: EStop input

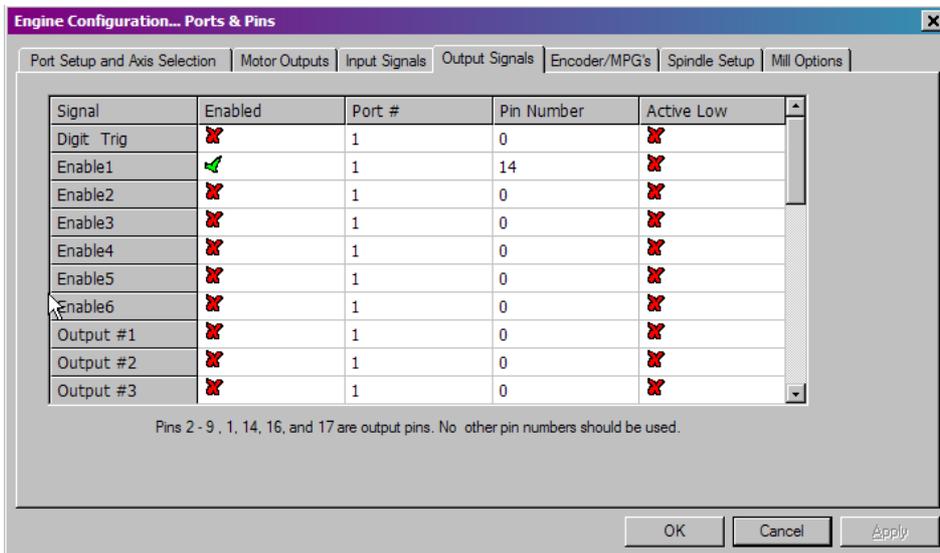


Figure 6: Drive enable output

## Important notices

Granite Devices is not responsible for possible damages or losses caused by this document or supplied files. This information or files should not be used in applications where malfunction may result to injury, death or large financial losses.