74HC00 NAND gate used as a SR Latch 74HC00 NAND gate for some another logic 74HC138 3:8 Decoder with Active Low Outputs 74HC238 3:8 Decoder with Active High Outputs However, there seem to be no 74LVC238 variant. It might not be wise to directly replace the 74HC00 NAND gate used as a SR Latch. Perhaps a 74LVC Series Schmitt-Trigger NAND Gate? Power to the MOSFETS should only be enabled after some time, to allow the output of the logic circuits to be in a known state PTC Fuses with Hold Current of 750mA (But they cause an undesirable voltage drop, so extra capacitors are used) Pulldowns for Address Inputs IN_ADDR_X0 R85 R86 IN_ADDR_Y0 IN_ADDR_X1 R88 R89 IN_ADDR_Y1 NAND gate SR-latch, active LOW IN_ADDR_X2 R91 R92 IN_ADDR_Y2 Comparator with open drain outputs When SET is LOW, RST is HIGH, latch is set HIGH IN_ADDR_X3 R94 IN_ADDR_Y3 Use a different color for this LED Pullup/pulldown for the other control signals 3V3_IHB0 3V3 IN_DRV_X_EN R107 OUT_SENSE0 IN_DRV_Y_EN R96 3V3_IHB1 IN_DRV_Y_DIR R105 IN_DRV_IHB0_EN R115 IN_DRV_IHB0_DIR R116 **LED Indicator Driver** IN_DRV_IHB1_DIR IN_DRV_IHB0_DIR ______1 IN_SENSE_RST R99 3V3 3V3 5 VCC U28.1 SN74LVC2G17DBVR X & Y H-Bridge logic Note, the effect of 74HC238 decoder chip is such that the one side of the N channel gate effectively becomes inverted IN_DRV_X_EN IN_DRV_X_DIR 3V3 5 VCC U31.1 5 BUF 2 GND DRV_X_238 3V3 DRV_Y_238 Inhibit Group 0 & 1 H-Bridge logic Note, do not toggle the direction pin when enable is activated, as shoot through may occur 3V3 IN_DRV_IHB0_DIR 3V3 5 VCC U39.1 SN74LVC2G14DBVR 2 GND 100nF 3V3 VCC VCC VCC SN74LVC2G17DBVR 2 GND C29 100nF IN_DRV_IHB1_DIR 3V3 5 VCC U37.1 NOO C32 100nF

In the current design, tuning the select current awkwardly involves changing the supply voltage through external power supply. So, room for improvement could be had here.

I used 10.0 ohm resistors but if you wanted 10.3 ohm, it would be hard to find.

So either vary the supply voltage precisely, so put another small value resistor in series.

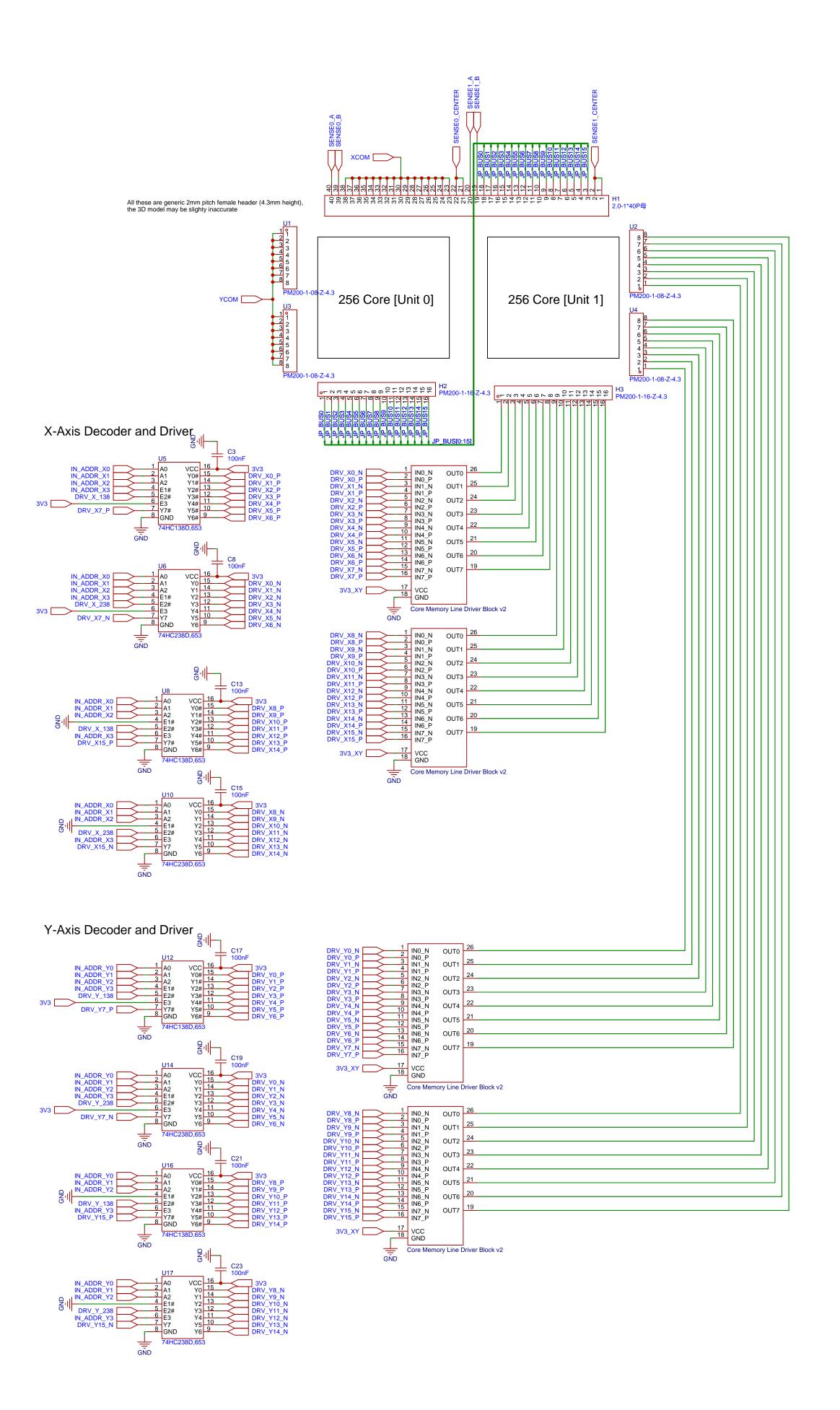
Project Changelog: V4 - Increase capacitance of bulk capacitors, Change Sense Detector Resistor Value

Note:
A mix of 74HC (slower logic) and 74LVC (faster logic) was used. This was what I had available.

The currently used 74LVC parts are: 74LVC2G17 Dual Schmitt-Trigger Buffer 74LVC2G14 Dual Schmitt-Trigger Inverter

The currently used 74HC parts are:

In the future, I would like to switch to all 74LVC series.



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