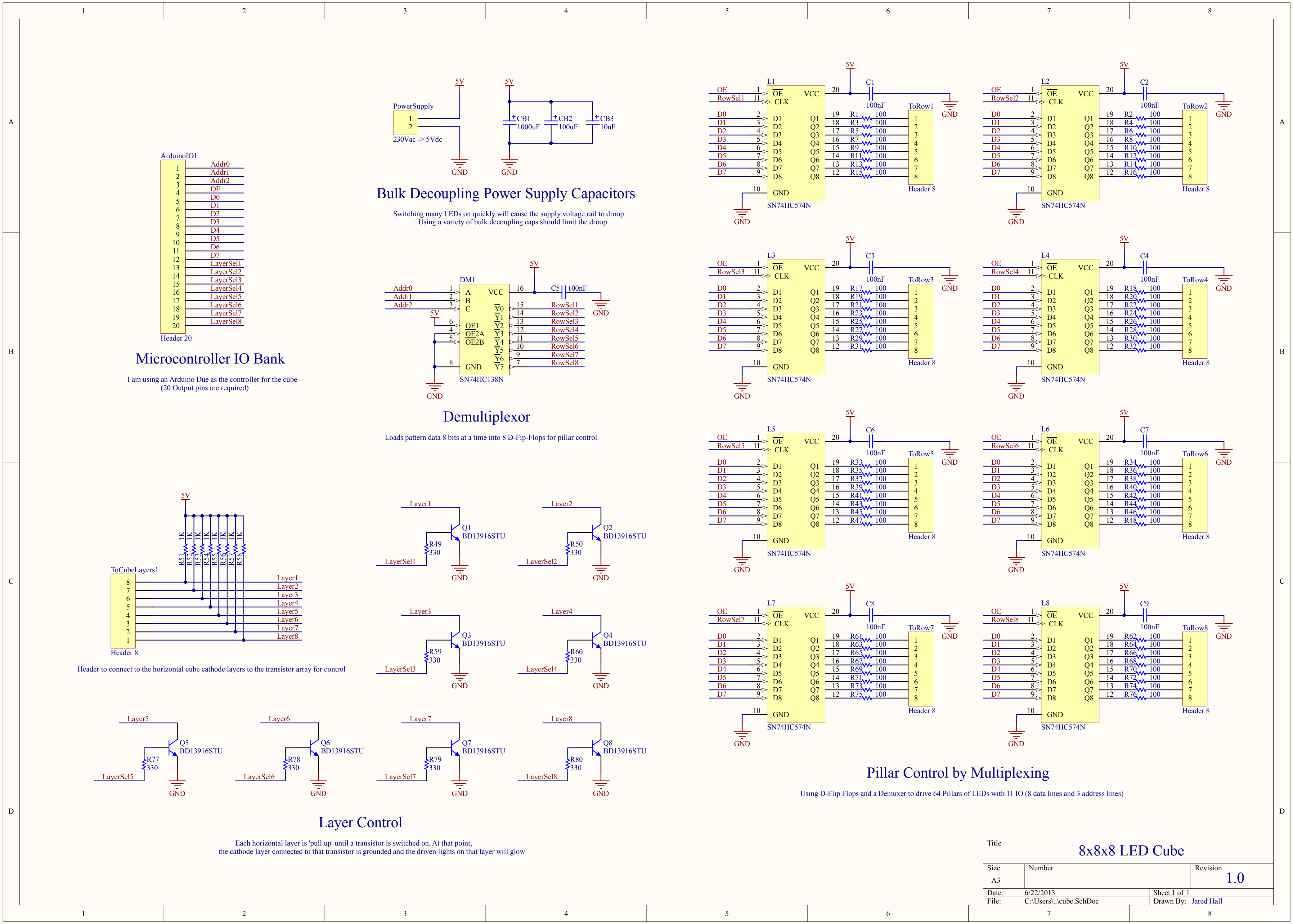
Bulk Decoupling Power Supply Capacitors
Switching many LEDs on quickly will cause the supply voltage rail to droop
Using a variety of bulk decoupling caps should limit the droop
PowerSupply
230Vac -> 5Vdc
CB1 1000uF
CB2 100uF
CB3 10uF
ArduinoIO1
Header 20
Microcontroller IO Bank
I am using an Arduino Due as the controller for the cube
(20 Output pins are required)
DM1
SN74HC138N
Demultiplexor
Loads pattern data 8 bits at a time into 8 D-Fip-Flops for pillar control
ToCubeLayers1
Header 8
Header to connect to the horizontal cube cathode layers to the transistor array for control
BD13916STU
Layer Control
Each horizontal layer is 'pull up' until a transistor is switched on. At that point,
the cathode layer connected to that transistor is grounded and the driven lights on that layer will glow
SN74HC574N
Pillar Control by Multiplexing
Using D-Flip Flops and a Demuxer to drive 64 Pillars of LEDs with 11 IO (8 data lines and 3 address lines)
Title
8x8x8 LED Cube
Size
A3
Number
Revision
1.0
Date: 6/22/2013
File: C:\Users\..\cube.SchDoc
Sheet 1 of 1
Drawn By: Jared Hall