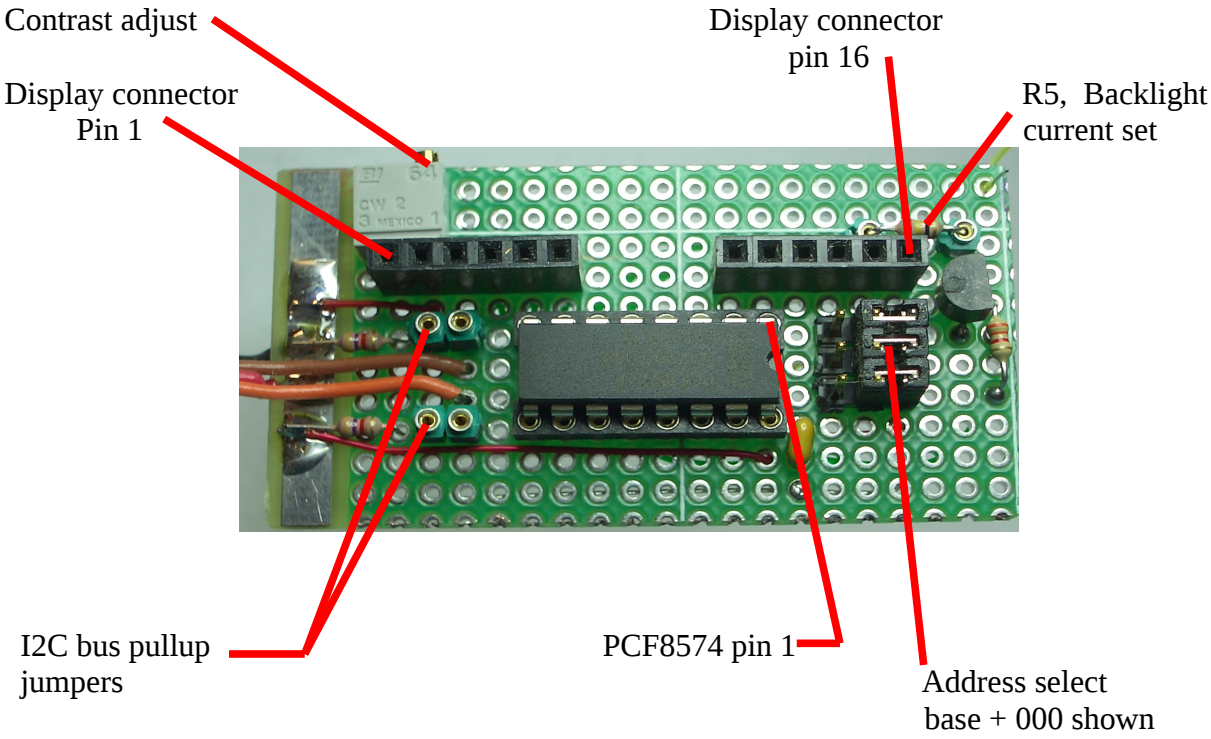
Datasheet for I2C display interface

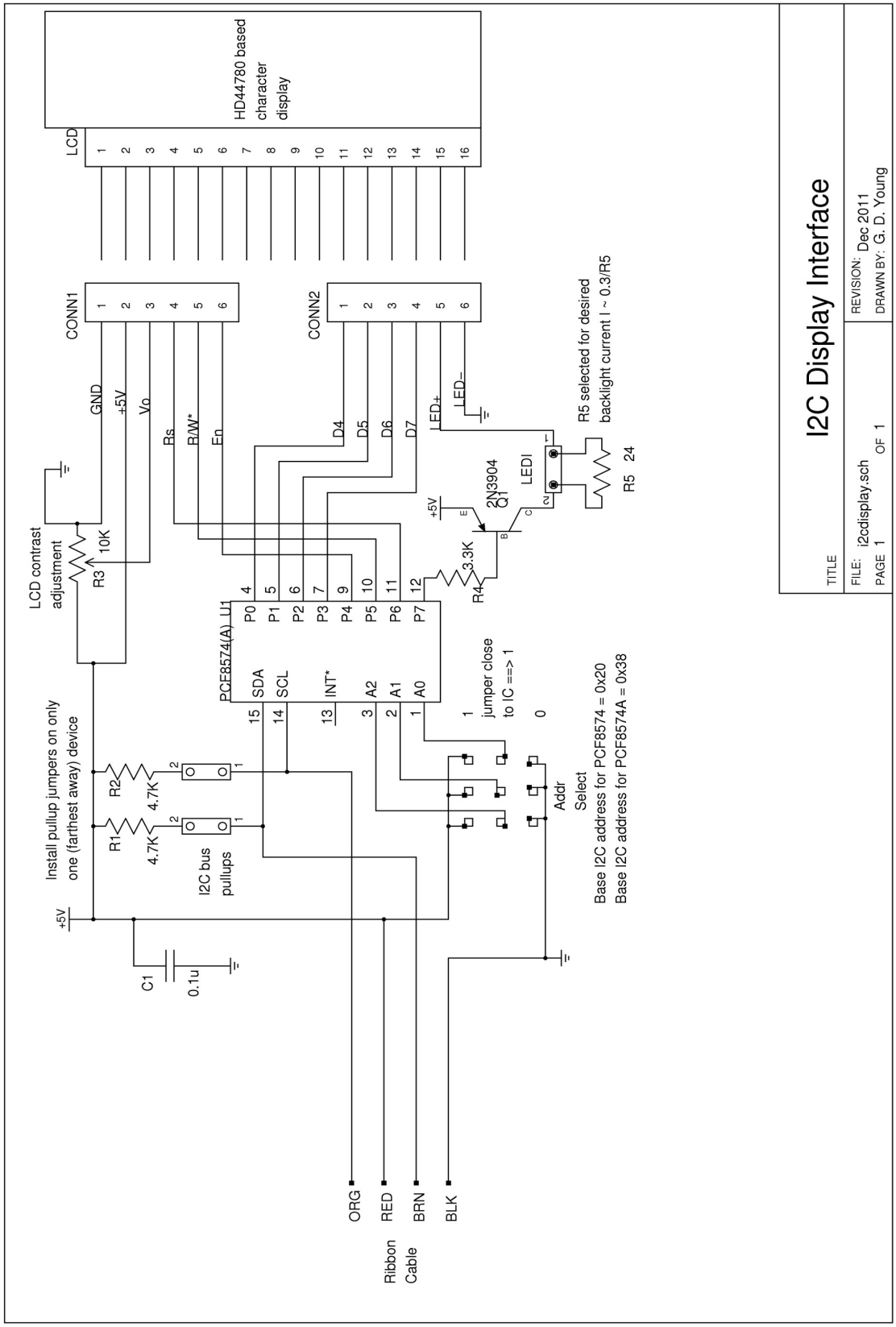
Board layout



Notes

- The base address for the PCF8574P is 0x20, for the PCF8574AP it is 0x38. The two devices are otherwise completely interchangeable. The 3 LSB of the address are selected with the 3 addres select jumpers. The bit is 1 when the jumper position is closer to the IC. The LSB is near the middle of the board.
- The I2C bus jumpers are only installed on one board/device in a system. Usually the jumpers are installed on the device that is physically the most distant from the bus master.
- The backlight current adjustment resistor is installed on jumper sockets so it can be changed for different display backlight requirements. A typical display backlight will have a voltage of about 4.2V, the transistor switch may drop about .1V, so the backlight current would be about 0.7V/R5 in a 5V system. The backlight LED voltage varies quite a bit from one display to the next, and is temperature sensitive. So the current may vary quite a bit, but it doesn't seem to affect the backlight level very much.
- The connection shown here uses the '4-bit mode' of the HD44780 LCD display controller, consequently the 4 LSB data lines are not connected.
- This interface works properly with the LiquidCrystal_I2C library.
- With the LiquidCrystal_I2C library, multiple instances can be created to accommodate more than one display.

Schematic


I2C Display Interface
TITLE
FILE: i2cdisplay.sch
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REVISION: Dec 2011
DRAWN BY: G. D. Young
HD44780 based character display
LCD
CONN1
CONN2
GND
+5V
Vo
Rs
R/W*
En
D4
D5
D6
D7
LED+
LED-
LCD contrast adjustment
R3 10K
R1 4.7K
R2 4.7K
I2C bus pullups
Install pullup jumpers on only one (farthest away) device
PCF8574(A) U1
SDA
SCL
INT*
A2
A1
A0
P0
P1
P2
P3
P4
P5
P6
P7
jumper close to IC ==> 1
Addr Select
Base I2C address for PCF8574 = 0x20
Base I2C address for PCF8574A = 0x38
R4 3.3K
2N3904 Q1
LED1
R5 selected for desired backlight current I ~ 0.3/R5
R5 24
C1 0.1u
ORG
RED
BRN
BLK
Ribbon Cable