512-LED Matrix (64 columns by 8 rows)

To U4-U10 pin 3 for D1-D7 respectively.

J1 LED Matrix

To corresponding pins of U3-U10.

SRCLK
RCLK
G
SRCLR

+5V

+9V +5V

J0 POWER
1 +5V
2 GND
3 +9V

C1
0.1µF

+5V

U3
TPIC6B595

SER_IN   VCC   DRAIN0
SRCK   DRAIN1
SRCLR   DRAIN2
RCLK   DRAIN3
G   DRAIN4
               DRAIN5
               DRAIN6
LGND   PGND   DRAIN7
               SER_OUT

R8
R9
R10
R11
R12
R13
R14
R15

COL 0
COL 1
COL 2
COL 3
COL 4
COL 5
COL 6
COL 7

D1
Short to Cascade

R8-R71 as appropriate to limit LED current.
At +9V supply, <20 mA:
For 2.0-2.2 V LEDs (red, yellow): R=360Ω
For 3.0-3.2 V LEDs (white, blue, green): R=300Ω

Repeat for total of 8 blocks with U3-U10, C1-C8, R8-R71,
with inputs D1-D7, outputs to columns 0-63.

COL 0   COL 1   COL 2   COL 63

D0   D8   D16   D504
ROW 0

D1   D9   D17   D505
ROW 1

D2   D10   D18   D506
ROW 2

D7   D15   D23   D511
ROW 7

+5V

U0
74HCT238

A0   VCC   Y0
A1   Y1
A2   Y2
           Y3
E1   Y4
E2   Y5
E3 GND   Y6
           Y7

R0
R1
R2

REN

U2
ULN2803A

I1   COM   O1
I2   O2
I3   O3
I4   O4
I5   O5
I6   O6
I7   O7
I8 GND   O8

+9V

R0
1K

Q0
May substitute e.g. IRF9530
FQP47P06

ROW 0

Repeat for total of 8 outputs
for R0-R7, Q0-Q7, from pins
17-11 respectively, driving
rows 0-7.

J2
Discrete LEDs

L7
L6
L5
L4
L3
L2
L1
L0

U1
ULN2803A

I1   COM   O1
I2   O2
I3   O3
I4   O4
I5   O5
I6   O6
I7   O7
I8 GND   O8

R72-R79 as appropriate
for each LED value.

+9V

R72   D512   WHITE
R73   D513   BLUE
R74   D514   BLUE
R75   D515   RED
R76   D516   RED
R77   D517   YELLOW
R78   D518   YELLOW
R79   D519   GREEN

For 2.0-2.2 V LEDs (red, yellow) at +9V supply, <20 mA: R=360Ω
For 3.0-3.2 V LEDs (white, blue, green): R=300Ω

ARDUINO SHIELD

N/C
IOREF
RESET
+3.3V
+5V
GND
GND
VIN

ARDUINO PINS

+5V

+5V

J2SH
POWER
1 +9V OUT
2 +5V OUT
3 +9V IN
4 GND

C0SH
10µF

J3SH
Remove to program

SCL1
SDA1
AREF
GND
13
12
11
10
9
8

ARDUINO PINS

J1SH
Discrete LEDs

L0
L1

L7
L6
L5
L4

L3
L2

7
6
5
4
3
2
1/TX0
0/RX0

ARDUINO PINS

A8
A9
A10
A11
A12
A13
A14
A15

ARDUINO PINS

J0SH   LED Matrix

D6
D7
SRCLK
RCLK
G
SRCLR

+5V   +5V

R2
R1
R0
REN

A7
A6
A5
A4
A3
A2
A1
A0

ARDUINO PINS

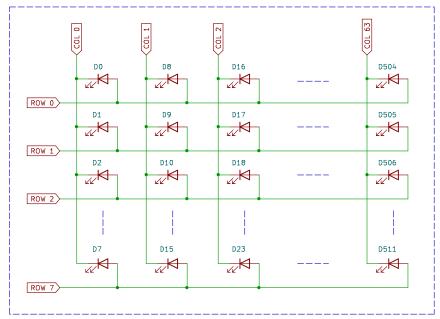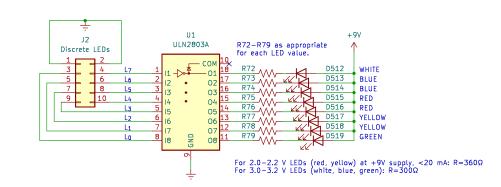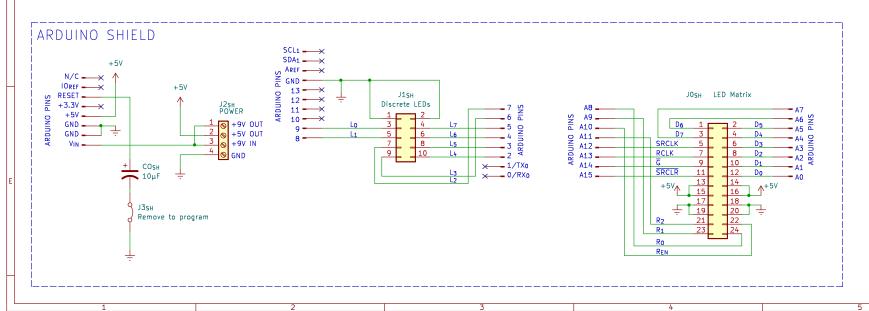64x8 LED MATRIX

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