GPIO Bank EB
+3V3 Hdr_2x23_P1.27 +3V3

CFG_OK 46 45 CFG_FAIL
RST_IN 44 43 RST_OUT
        42 41
CLK2_OUT 40 39
        38 37 CLK3_OUT
        36 35
SW3 IN IO_EB_B0 34 33 IO_EB_A0 J1-4
LED D1 IO_EB_B1 32 31 IO_EB_A1 J1-5
LED D2 IO_EB_B2 30 29 IO_EB_A2 J1-6
                  28 27
LED D3 IO_EB_B3 26 25 IO_EB_A3 J1-7
LED D4 IO_EB_B4 24 23 IO_EB_A4 J1-8
LED D5 IO_EB_B5 22 21 IO_EB_A5 J1-9
                  20 19
LED D6 IO_EB_B6 18 17 IO_EB_A6 J1-10
LED D7 IO_EB_B7 16 15 IO_EB_A7 J1-11
LED D8 IO_EB_B8 14 13 IO_EB_A8 J1-12
                  12 11
                  10 9
                  8   7
EB_VIO_IN   6 5 EB_VIO_IN
EB_VIO_OUT   4 3 EB_VIO_OUT
             2 1
EB1
GND   GND

Evaluation Board IO Output

GPIO Bank EA
+3V3 Hdr_2x23_P1.27 +3V3

CFG_OK 46 45 CFG_FAIL
RST_IN 44 43 RST_OUT
        42 41
CLK2_OUT 40 39
        38 37 CLK3_OUT
        36 35
PB3   IO_EA_B0 34 33 IO_EA_A0 PB2
HEX1-G IO_EA_B1 32 31 IO_EA_A1 HEX0-DP
HEX1-F IO_EA_B2 30 29 IO_EA_A2 HEX0-A
                  28 27
HEX1-E IO_EA_B3 26 25 IO_EA_A3 HEX0-B
HEX1-D IO_EA_B4 24 23 IO_EA_A4 HEX0-C
HEX1-C IO_EA_B5 22 21 IO_EA_A5 HEX0-D
                  20 19
HEX1-B IO_EA_B6 18 17 IO_EA_A6 HEX0-E
HEX1-A IO_EA_B7 16 15 IO_EA_A7 HEX0-F
HEX1-DP IO_EA_B8 14 13 IO_EA_A8 HEX0-G
                  12 11
                  10 9
                  8   7
EA_VIO_IN   6 5 EA_VIO_IN
EA_VIO_OUT   4 3 EA_VIO_OUT
             2 1
EA1
GND   GND

GPIO Bank SB
+3V3 Hdr_2x23_P1.27 +3V3

CFG_OK 46 45 CFG_FAIL
RST_IN 44 43 RST_OUT
        42 41
CLK2_OUT 40 39
        38 37 CLK3_OUT
        36 35
IO_SB_B0 34 33 IO_SB_A0 SW9
IO_SB_B1 32 31 IO_SB_A1 SW8
IO_SB_B2 30 29 IO_SB_A2 SW7
          28 27
IO_SB_B3 26 25 IO_SB_A3 SW6
IO_SB_B4 24 23 IO_SB_A4 SW5
IO_SB_B5 22 21 IO_SB_A5 SW4
          20 19
IO_SB_B6 18 17 IO_SB_A6 SW3
SW0 IO_SB_B7 16 15 IO_SB_A7 SW2
SW1 IO_SB_B8 14 13 IO_SB_A8 Clock0 10MHz
          12 11
          10 9
          8   7
VIO_2V5   6 5 VIO_2V5
          4 3
          2 1
SB1
GND   GND

GPIO Bank SA
+3V3 Hdr_2x23_P1.27 +3V3

CFG_OK 46 45 CFG_FAIL
RST_IN 44 43 RST_OUT
        42 41
CLK2_OUT 40 39
        38 37 CLK3_OUT
        36 35
IO_SA_B0 34 33 IO_SA_A0 BZ1
IO_SA_B1 32 31 IO_SA_A1 LED9
IO_SA_B2 30 29 IO_SA_A2 LED8
          28 27
IO_SA_B3 26 25 IO_SA_A3 LED7
IO_SA_B4 24 23 IO_SA_A4 LED6
IO_SA_B5 22 21 IO_SA_A5 LED5
          20 19
IO_SA_B6 18 17 IO_SA_A6 LED4
LED0 IO_SA_B7 16 15 IO_SA_A7 LED3
LED1 IO_SA_B8 14 13 IO_SA_A8 LED2
          12 11
          10 9
          8   7
VIO_2V5   6 5 VIO_2V5
          4 3
          2 1
SA1
GND   GND

GPIO Bank WC
+3V3 Hdr_2x23_P1.27 +3V3

CFG_OK 46 45 CFG_FAIL
RST_IN 44 43 RST_OUT
        42 41
CLK2_OUT 40 39
        38 37 CLK3_OUT
        36 35
HEX4-G IO_WC_B8 34 33 IO_WC_A8 HEX5-DP
HEX4-F IO_WC_B7 32 31 IO_WC_A7 HEX5-A
HEX4-E IO_WC_B6 30 29 IO_WC_A6 HEX5-B
                  28 27
HEX4-D IO_WC_B5 26 25 IO_WC_A5 HEX5-C
HEX4-C IO_WC_B4 24 23 IO_WC_A4 HEX5-D
HEX4-B IO_WC_B3 22 21 IO_WC_A3 HEX5-E
                  20 19
HEX4-A IO_WC_B2 18 17 IO_WC_A2 HEX5-F
HEX4-DP IO_WC_B1 16 15 IO_WC_A1 HEX5-G
PB1   IO_WC_B0 14 13 IO_WC_A0 PB0
                  12 11
                  10 9
                  8   7
WC_VIO_2V5   6 5 WC_VIO_2V5
WC_VIO_OUT   4 3 WC_VIO_OUT
             2 1
WC1
GND   GND

GPIO Bank NA
+3V3 Hdr_2x23_P1.27 +3V3

CFG_OK 46 45 CFG_FAIL
RST_IN 44 43 RST_OUT
        42 41
CLK2_OUT 40 39
        38 37 CLK3_OUT
        36 35
HEX2-G IO_NA_B8 34 33 IO_NA_A8 HEX3-DP
HEX2-F IO_NA_B7 32 31 IO_NA_A7 HEX3-A
HEX2-E IO_NA_B6 30 29 IO_NA_A6 HEX3-B
                  28 27
HEX2-D IO_NA_B5 26 25 IO_NA_A5 HEX3-C
HEX2-C IO_NA_B4 24 23 IO_NA_A4 HEX3-D
HEX2-B IO_NA_B3 22 21 IO_NA_A3 HEX3-E
                  20 19
HEX2-A IO_NA_B2 18 17 IO_NA_A2 HEX3-F
HEX2-DP IO_NA_B1 16 15 IO_NA_A1 HEX3-G
J1-14   IO_NA_B0 14 13 IO_NA_A0 J1-13
                  12 11
                  10 9
                  8   7
NA_VIO_2V5   6 5 NA_VIO_2V5
NA_VIO_OUT   4 3 NA_VIO_OUT
             2 1
NA1
GND   GND

Power LED

NA_VIO_2V5 —— LED10 —— R29 160 —— GND
SMD0402

data-out
File: data-out.kicad_sch

data-in
File: data-in.kicad_sch

FM4DD:Label_5V
FM4DD:Label_GND
Logo_KiCad_5mm
Logo_FM4DD_5mm

Note:
GateMate CCGM1A1 max IO voltage is 2.7V, the pins are not 3.3V-safe.

Sheet: /
File: gm-study-e1.kicad_sch
Title: GateMate E1 Study Board
Size: A4   Date: 2022-09-07   Rev: 1.0
KiCad E.D.A. kicad (6.0.7)   Id: 1/3

Push Buttons

4x push buttons with pull-up. Negative logic: press = 0.

R21	200K
R22	200K
R23	200K
R24	200K
R25	33
R26	33
R27	33
R28	33

SW_Push PB0
SW_Push PB1
SW_Push PB2
SW_Push PB3

WC_VIO_2V5
VIO_2V5
IO_WC_B0
IO_WC_A0
IO_EA_A0
IO_EA_B0

C3 C4 C5 C6
1u 1u 1u 1u

GND
GND GND GND GND
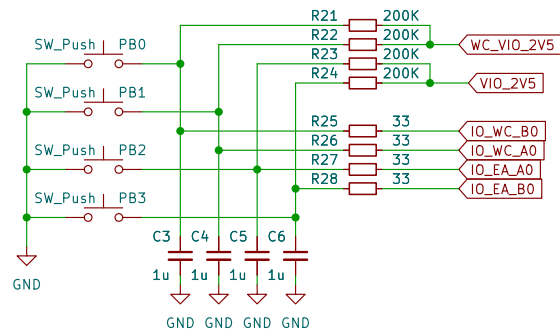
Slide Switches

10x slide switches set GND / +3V3 level signals.
*IO_SB_A8 is skipped because it connects clock0 10MHz

VIO_2V5

JP1
2 1
Jumper

GND

SW0 SW1 SW2 SW3 SW4 SW5 SW6 SW7 SW8 SW9
SW_SPDT (×10)

R1 10K
R2 10K
R3 10K
R4 10K
R5 10K
R6 10K
R7 10K
R8 10K
R9 10K
R10 10K

IO_SB_B7
IO_SB_B8
IO_SB_A7
IO_SB_A6
IO_SB_A5
IO_SB_A4
IO_SB_A3
IO_SB_A2
IO_SB_A1
IO_SB_A0

7-Segment Display

6 Digits, common anode, no mulitplexing
Single-digit SMD module 0.28'' Sunlight SLS0281FR1A1GD
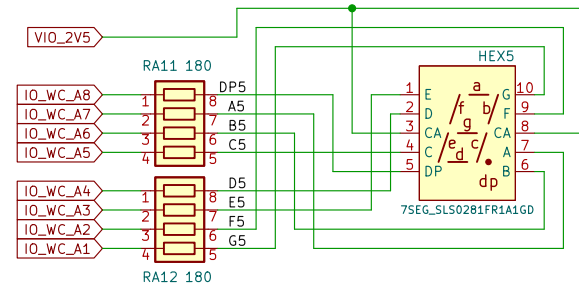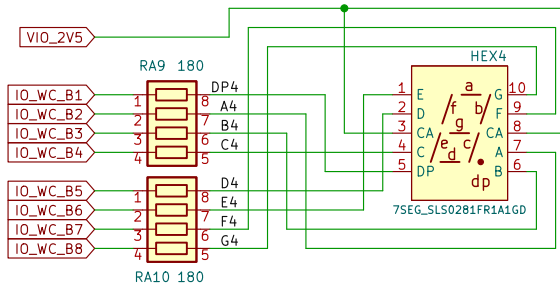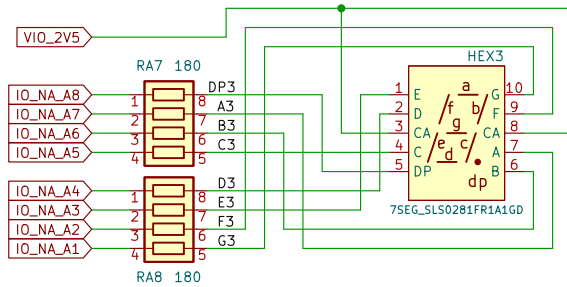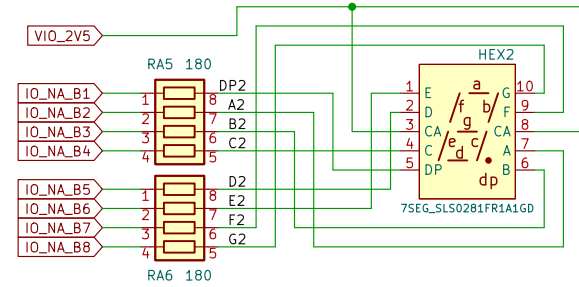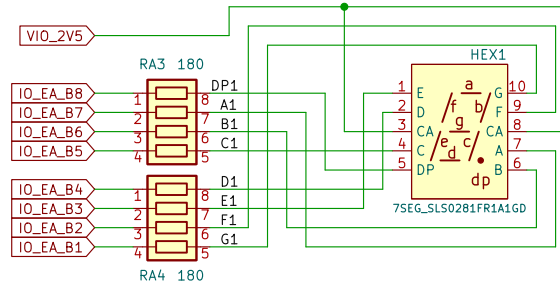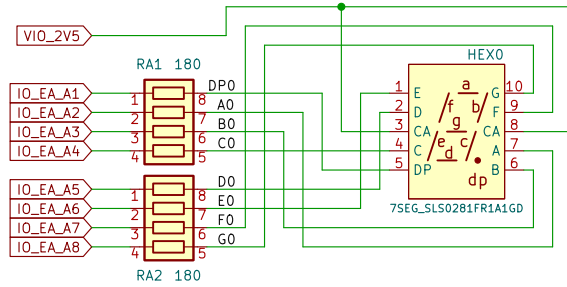
10x LED Output
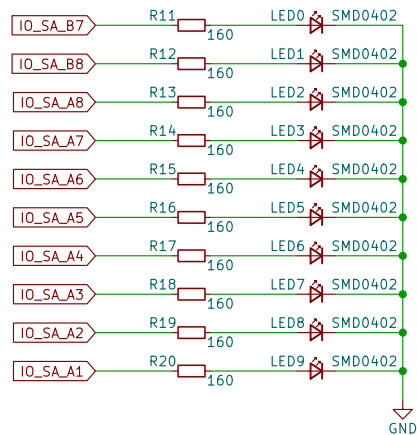
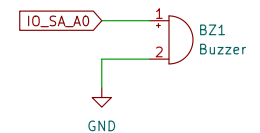

2.54mm generic IO Header
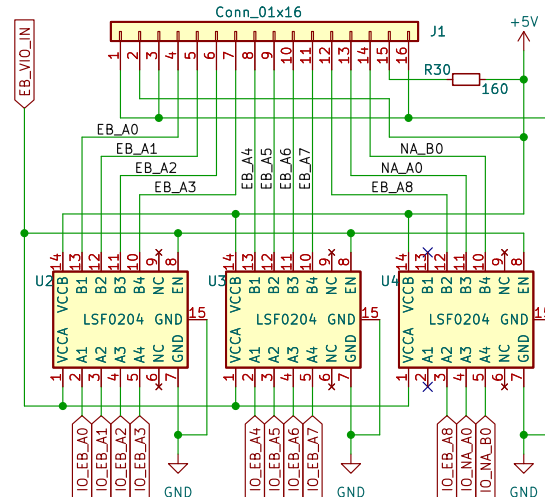
16-pin HD44780 character LCD connector compatible, with level shifter to 5V TTL
Adding R30 powers LCD backlight via pin 15, leave open to disable LCD backlight

3.3V to 5V Power Boost
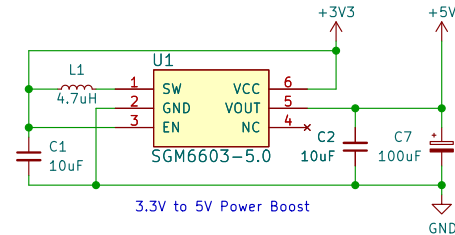
Buzzer Output

Sheet: /data-out/
File: data-out.kicad_sch

Title: GateMate E1 Study Board — Output Signals

Size: A4 | Date: 2022-09-07 | Rev:
KiCad E.D.A. kicad (6.0.7) | Id: 3/3