HDMI connector

J2
685119134923

TMDS_DATA2_P
TMDS_DATA2_N
TMDS_DATA0_P
TMDS_DATA0_N
HDMI_CEC_5V
HDMI_SCL_5V
HDMI_HPD_5V

TMDS_DATA1_P
TMDS_DATA1_N
TMDS_CLK_P
TMDS_CLK_N
HDMI_SDA_5V
HDMI_PWR_5V

D1
1N4148WS

GND

#SHIELD0101

FB1
BLM18PG121SN1D

#SHIELD0102 GND

LEDs

LED1
KP-1608CGCK

LED2
KP-1608CGCK

3V3
KP-1608CGCK

5V0
KP-1608CGCK

R7
330R

R8
330R

R6
330R

R5
470R

Q2
BSS138AKA

Q3
BSS138AKA

GP_LED1 G

GP_LED2 G

GND

GND

Power indicators

GND

GND

General purpose LEDs driven from FPGA

3V3 to 5V0 step-up converter

L1
XFL4020-102MEB

U2
TPS61232DRCT

VIN SW
HYS SW
EN   VOUT
SS   VOUT
PG   FB
GND

C4
22u

GND

C5
10n

GND

R9
1M

GND

max 2A

R12
0R

R10
402k

R11
100k

C6
22u

C7
22u

C8
22u

GND GND GND

Provides 5V0 system voltage for HDMI interfacing
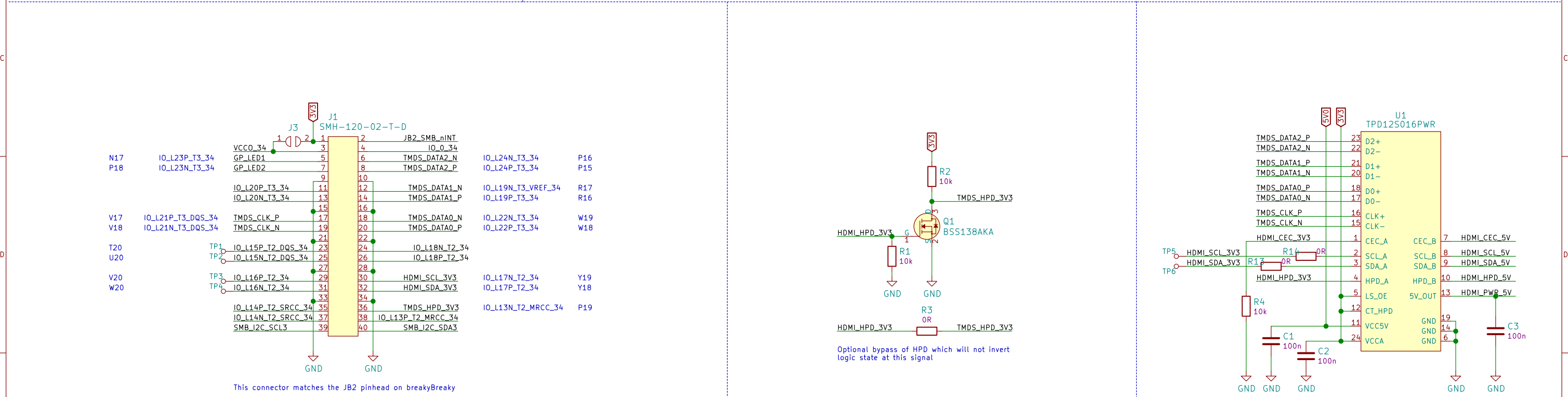
Board-to-board connector

J3

J1
SMH-120-02-T-D

N17   IO_L23P_T3_34
P18   IO_L23N_T3_34

V17   IO_L21P_T3_DQS_34
V18   IO_L21N_T3_DQS_34

T20   TP1
U20   TP2

V20   TP3
W20   TP4

VCCO_34
GP_LED1
GP_LED2

IO_L20P_T3_34
IO_L20N_T3_34

TMDS_CLK_P
TMDS_CLK_N

IO_L15P_T2_DQS_34
IO_L15N_T2_DQS_34

IO_L16P_T2_34
IO_L16N_T2_34

IO_L14P_T2_SRCC_34
IO_L14N_T2_SRCC_34
SMB_I2C_SCL3

JB2_SMB_nINT
IO_0_34

TMDS_DATA2_N
TMDS_DATA2_P

TMDS_DATA1_N
TMDS_DATA1_P

TMDS_DATA0_N
TMDS_DATA0_P

IO_L18N_T2_34
IO_L18P_T2_34

HDMI_SCL_3V3
HDMI_SDA_3V3

TMDS_HPD_3V3
IO_L13P_T2_MRCC_34
SMB_I2C_SDA3

IO_0_34   P16
IO_L24N_T3_34   P15
IO_L24P_T3_34

IO_L19N_T3_VREF_34 R17
IO_L19P_T3_34   R16

IO_L22N_T3_34   W19
IO_L22P_T3_34   W18

IO_L17N_T2_34   Y19
IO_L17P_T2_34   Y18

IO_L13N_T2_MRCC_34 P19

GND   GND

This connector matches the JB2 pinhead on breakyBreaky

HPD negation

R2
10k

Q1
BSS138AKA

TMDS_HPD_3V3

HDMI_HPD_3V3

R1
10k

GND   GND

R3
0R

HDMI_HPD_3V3   TMDS_HPD_3V3

Optional bypass of HPD which will not invert logic state at this signal

HDMI companion chip

U1
TPD12S016PWR

TMDS_DATA2_P   D2+
TMDS_DATA2_N   D2-

TMDS_DATA1_P   D1+
TMDS_DATA1_N   D1-

TMDS_DATA0_P   D0+
TMDS_DATA0_N   D0-

TMDS_CLK_P   CLK+
TMDS_CLK_N   CLK-

HDMI_CEC_3V3   CEC_A   CEC_B   HDMI_CEC_5V
TP5 HDMI_SCL_3V3   SCL_A   SCL_B   HDMI_SCL_5V
     HDMI_SDA_3V3   SDA_A   SDA_B   HDMI_SDA_5V
TP6 HDMI_HPD_3V3   HPD_A   HPD_B   HDMI_HPD_5V
                    LS_OE   5V_OUT   HDMI_PWR_5V
                    CT_HPD
R4   VCC5V   GND
10k   VCCA   GND
                             GND

R14 0R
R13 0R

C1
100n

C2
100n

GND GND GND

C3
100n

GND   GND