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

FB1
BLM18PG121SN1D

GND
#SHIELD0101
#SHIELD0102 GND

LEDs

3V3   3V3   3V3   5V0

LED1   LED2   3V3   5V0
KP-1608CGCK   KP-1608CGCK   KP-1608CGCK   KP-1608CGCK

R7   R8   R6   R5
330R   330R   330R   470R

Q2   Q3
BSS138AKA   BSS138AKA

GP_LED1   GP_LED2

GND   GND

GND   GND

Power indicators

General purpose LEDs driven from FPGA

3V3 to 5V0 step-up converter

L1
XFL4020-102MEB

3V3   5V0

U2
TPS61232DRCT

C4
22u

GND

VIN   SW
HYS   SW
EN   VOUT
SS   VOUT
PG   FB

max 2A

R12
0R

C5
10n

R10
402k

R11
100k

C6   C7   C8
22u   22u   22u

1M
R9

GND   GND   GND   GND   GND   GND

Provides 5V0 system voltage for HDMI interfacing

Board-to-board connector

3V3

J3   J1
SMH-120-02-T-D

N17   IO_L23P_T3_34   VCCO_34   JB2_SMB_nINT
P18   IO_L23N_T3_34   GP_LED1   IO_0_34
                        GP_LED2   TMDS_DATA2_N   P16
                                                TMDS_DATA2_P   P15
                        IO_L20P_T3_34
                        IO_L20N_T3_34   TMDS_DATA1_N   IO_L19N_T3_VREF_34   R17
V17   IO_L21P_T3_DQS_34   TMDS_DATA1_P   IO_L19P_T3_34   R16
V18   IO_L21N_T3_DQS_34 TMDS_CLK_P   TMDS_DATA0_N   IO_L22N_T3_34   W19
                        TMDS_CLK_N   TMDS_DATA0_P   IO_L22P_T3_34   W18
T20   IO_L15P_T2_DQS_34   IO_L18N_T2_34
U20   IO_L15N_T2_DQS_34   IO_L18P_T2_34
V20   IO_L16P_T2_34   HDMI_SCL_3V3   IO_L17N_T2_34   Y19
W20   IO_L16N_T2_34   HDMI_SDA_3V3   IO_L17P_T2_34   Y18
      IO_L14P_T2_SRCC_34 TMDS_HPD_3V3   IO_L13P_T2_MRCC_34 P19
      IO_L14N_T2_SRCC_34   IO_L13N_T2_MRCC_34
      SMB_I2C_SCL3   SMB_I2C_SDA3

TP1   TP3
TP2   TP4

GND   GND

This connector matches the JB2 pinhead on breakyBreaky

HPD negation

3V3

R2
10k

TMDS_HPD_3V3

Q1
BSS138AKA

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

5V0   3V3

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
HDMI_SCL_3V3   SCL_A   SCL_B   HDMI_SCL_5V
HDMI_SDA_3V3   SDA_A   SDA_B   HDMI_SDA_5V
HDMI_HPD_3V3   HPD_A   HPD_B   HDMI_HPD_5V
                LS_OE   5V_OUT   HDMI_PWR_5V
                CT_HPD
                VCC5V   GND
                VCCA   GND

TP5   R14   0R
TP6   R13   0R

R4
10k

C1
100n

C2
100n

C3
100n

GND   GND   GND   GND   GND

Logo N1 oshw_logo   Logo N2 antmicro_logo

antmicro

open source hardware