Core Board Connector

J1
DF40C−60DS−0.4V(51)

BANK1 3.3V
- H5_IOT61A GCLK
- J5_IOT61B GCLK
- L5_IOT63A GCLK
- K5_IOT63B GCLK
- H8_IOT66A
- H7_IOT66B
- G7_IOT68A
- G8_IOT68B
- F5_IOT72A
- G5_IOT72B

VCCIO0/1

BANK7 3.3V
- L6_IOT23A_USB_P
- K6_IOT23B_USB_N
- K7_IOT21A_40P
- J7_IOT21B_40P
- L7_IOT19A_40P
- L8_IOT19B_40P
- L10_IOT15A_40P
- K10_IOT15B_40P
- K11_IOT11A
- L11_IOT11B

BANK6 3.3V
- E11_IOL3A GCLK
- E10_IOL3B GCLK
- A11_IOL14A RPLL
- A10_IOL14B

GND

BANK0 3.3V
- L9_IOT31A_40P
- K9_IOT31B_40P
- J8_IOT56A_40P GCLK
- K8_IOT56B_40P GCLK
- F7_IOT58A_40P GCLK
- F6_IOT58B_40P GCLK

BANK4 3.3V
- E8_READY
- B3_IOB56A_FPGA_UART_RX
- C3_IOB56B_FPGA_UART_TX
- E3_IOB60A_40P
- D7_DONE

VCCIO6/7

BANK7 3.3V
- J11_IOT1A_40P
- J10_IOT1B_40P
- H11_IOT3A_S1
- H10_IOT3B_S2
- G11_IOT7A
- G10_IOT7B

BANK6 3.3V
- D11_IOL9A
- D10_IOL9B
- C11_IOL5A
- C10_IOL5B
- B11_IOL12A
- B10_IOL12B

J2
DF40C−60DS−0.4V(51)

VCCIO2/3

BANK2 3.3V
- L2_IOR18A_40P
- L1_IOR18B_40P
- K1_IOR20A_40P
- K2_IOR20B_40P
- J4_IOR22A_40P
- K4_IOR22B_40P
- G2_IOR24A_40P RPLL
- G1_IOR24B_40P

BANK3 3.3V
- L4_IOR31A_40P GCLK
- L3_IOR31B_40P GCLK
- J1_IOR33A_40P GCLK
- J2_IOR33B_40P GCLK
- G4_IOB89A_40P GCLK
- H4_IOB89B_40P GCLK
- H1_IOB91A_40P GCLK
- H2_IOB91B_40P GCLK

VDD_1V8
VDD_2V5
VDD_3V3
VDD_5V +5V

BANK5 3.3V
- B2_IOB4A_40P
- C2_IOB4B_40P
- F2_IOB26A_40P GCLK
- F1_IOB26B_40P GCLK
- A1_IOB24A_40P
- D8_RECONFIG
- E1_IOB12B_40P GCLK
- D1_IOB14B_40P

BANK10 3.3V
- C1_JTAG_TCK
- B1_JTAG_TMS
- A2_JTAG_TDO
- A3_JTAG_TDI

R9 5.1K GND

MIPI DPHY HardCore
- M0_D3_P
- M0_D3_N
- M0_D2_P
- M0_D2_N
- M0_CK_P
- M0_CK_N
- M0_D1_P
- M0_D1_N
- M0_D0_P
- M0_D0_N

Pin Connector

J3 耐高温排针2x20P_针长1.8+7
- K2_IOR20B_40P
- L1_IOR18B_40P
- K4_IOR22B_40P
- G1_IOR24B_40P
- L3_IOR31B_40P
- C2_IOB4B_40P
- F1_IOB26B_40P
- A1_IOB24A_40P
- D1_IOB14B_40P
- J2_IOR33B_40P
- H4_IOB89B_40P
- H2_IOB91B_40P
- J7_IOT21B_40P
- L8_IOT19B_40P
- K10_IOT15B_40P
- K9_IOT31B_40P
- K8_IOT56B_40P
- F6_IOT58B_40P
- J10_IOT1B_40P

- K1_IOR20A_40P
- L2_IOR18A_40P
- J4_IOR22A_40P
- G2_IOR24A_40P
- L4_IOR31A_40P
- GND
- B2_IOB4A_40P
- E1_IOB12B_40P
- E3_IOB60A_40P
- J1_IOR33A_40P
- G4_IOB89A_40P
- H1_IOB91A_40P
- K7_IOT21A_40P
- L7_IOT19A_40P
- L10_IOT15A_40P
- L9_IOT31A_40P
- J8_IOT56A_40P
- F7_IOT58A_40P
- J11_IOT1A_40P

+5V GND

J4 耐高温侧卧排母02x06_Pin_针长1.8
+3V3 / GND
- C10_IOL5B
- B10_IOL12B
- D10_IOL9B
- G10_IOT7B
- C11_IOL5A
- D11_IOL9A
- G11_IOT7A
+3V3 / GND

J5 耐高温侧卧排母02x06_Pin_针长1.8
+3V3 / GND
- K5_IOT63B
- L11_IOT11B
- E10_IOL3B
- A10_IOL14B
- L5_IOT63A
- K11_IOT11A
- E11_IOL3A
- A11_IOL14A
+3V3 / GND

J6 耐高温侧卧排母02x06_Pin_针长1.8
+3V3 / GND
- J5_IOT61B
- H7_IOT66B
- G8_IOT68B
- G5_IOT72B
- H5_IOT61A
- H8_IOT66A
- G7_IOT68A
- F5_IOT72A
+3V3 / GND

POWER

L1 PZ1608D300−3R0TF VCCIO0/1 — VDD_3V3
L2 PZ1608D300−3R0TF VCCIO6/7 — VDD_3V3
L3 PZ1608D300−3R0TF VCCIO2/3 — VDD_3V3 → +3V3

+5V C20 220uF 10V GND
+3V3 C21 220uF 10V GND

Mounting Holes

- GND J9 MountingHole
- GND J10 MountingHole
- GND J11 MountingHole
- GND J12 MountingHole

Peripherals

USB
- L6_IOT23A_USB_P — USBA_P
- K6_IOT23B_USB_N — USBA_N
- E8_READY — USB_DP_Pull

File: USB.kicad_sch

Debugger
- A3_JTAG_TDI — JTAG_TDI
- A2_JTAG_TDO — JTAG_TDO
- B1_JTAG_TMS — JTAG_TMS
- C1_JTAG_TCK — JTAG_TCK
- B3_IOB56A_FPGA_UART_TX — 616_UART_TX
- C3_IOB56B_FPGA_UART_TX — 616_UART_RX

File: Debugger.kicad_sch

Buttons

+3V3 R7 100R S1 — H11_IOT3A_S1
D2 LXES15AAA1−153 C1 100nF GND

+3V3 R8 100R S2 — H10_IOT3B_S2
D1 LXES15AAA1−153 C2 100nF GND

LED

+3V3 R3 49.9K LED1 GND **POWER** Green_LED_0603

+3V3 R1 49.9K E8_READY R5 49.9K LED3 GND **READY** Green_LED_0603
Ready : Ready=1
Not Ready : Ready=0

R2 49.9K D7_DONE R6 49.9K LED4 GND **DONE** Green_LED_0603
Normal : Done=1
Fail : Done=0

USB-JTAG & UART

J7 Conn_02x04_2.54mm_双排针

JTAG_TMS	1	2	JTAG_TDI
JTAG_TCK	3	4	+5V
JTAG_TDO	5	6	GND
+3V3	7	8	BL616_EN

If you want to use external JTAG debugger :
Please Connect BL616_EN and GND

If you want to change BL616 into Flash mode :
Please connect JTAG_TDO to 3V3 before power up

+3V3
AVDD33_RF1

C3 10pF/50V GND
C12 10uF/16V GND

AVDD33_RF2
C4 100nF/25V GND

VDD18_FLASH
C13 4.7uF/10V GND

AVDD33_AON
C5 100nF/25V GND

DVDD11
C14 2.2uF/10V GND

PVDD33_DCDC
+2V5 BL616_VDDIO2
C6 4.7uF/10V GND
Via to GND
C15 100nF/25V GND

VDDIO_USB
C7 100nF/25V GND

AVDD18_RF
DCDC_OUT
C16 100nF/25V GND

AVDD33_RF3
C8 100nF/25V GND

L4 2.2uH 1.5A 电感
C11 4.7uF/10V GND
SW_DCDC

AVDD15_RF1
AVDD15_RF2
C9 2.2uF/10V GND
C17 10pF/50V GND

GND Y1
40MHz/10pF无源晶振
BL616_XOUT BL616_XIN
+3V3 BL616_VDDIO1
C18 100nF/25V GND
Via to GND

GND
R10 5.1K
BL616_BOOT
R11 1K
JTAG_TDO

+3V3
R12 15K
BL616_EN

R4 100R
S3
BL616_IO12
GND
D6 LXES15AAA1-153
+3V3
R13 15K
C22 100nF
GND GND

U1
BL616C-50-Q2I-QFN40

GND_EP 41
AVDD15_RF1 40
AVDD15_RF2 39
AVDD18_RF 38
AVDD33_RF3 37
XTAL_OUT 36
XTAL_IN 35 BL616_XOUT
GPIO_30 34 BL616_XIN
GPIO_29 33
GPIO_28 32
GPIO_27 31

BL616_ANT 1 ANT
AVDD33_RF1 2 AVDD33_RF1
AVDD33_RF2 3 AVDD33_RF2
JTAG_TMS 4 GPIO_0
JTAG_TCK 5 GPIO_1
JTAG_TDO 6 GPIO_2
JTAG_TDI 7 GPIO_3
BL616_VDDIO1 8 VDDIO1
616_UART_RXD R15 0R 9 GPIO_10
616_UART_TX R16 0R 10 GPIO_11

VDDIO2 30 BL616_VDDIO2
GPIO_22 29 BL616_IO22
GPIO_21 28 BL616_IO21
GPIO_20 27 BL616_IO20
USB_DM 26 BL616_USB_N
USB_DP 25 BL616_USB_P
VDDIO_USB 24 VDDIO_USB
DVDD11 23 DVDD11
DCDC_OUT 22 DCDC_OUT
SW_DCDC 21 SW_DCDC

GPIO_12 11 BL616_IO12
GPIO_13 12 BL616_IO13
GPIO_14 13 BL616_IO14
GPIO_15 14 BL616_IO15
GPIO_16 15 BL616_IO16
GPIO_17 16 BL616_IO17
CHIP_EN 17 BL616_EN
AVDD33_AON 18 AVDD33_AON
VDD18_FLASH 19 VDD18_FLASH
PVDD33_DCDC 20 PVDD33_DCDC

C19 100nF/25V GND

FU1 6V 2A 5V_USB
+5V

GND R21 5.1K
GND R22 5.1K

R19 0R BL616_USB#_N
R20 0R BL616_USB#_P

J8 USB_C_母座_16pin
VBUS A4
CC1 A5
CC2 B5
D- A7
D- B7
D+ A6
D+ B6
SBU1 A8
SBU2 B8
GND A1
SHIELD S1
GND GND

BL616_USB#_N D3 LXES15AAA1-153 GND
BL616_USB#_P D4 LXES15AAA1-153 GND
5V_USB D5 0402ESDA-05N GND

+3V3
R23 49.9K
LED5 Green_LED_0603
BL616_IO20

SiPEED

Sheet: /Debugger/
File: Debugger.kicad_sch

Title:

Size: A4   Date:
KiCad E.D.A. kicad (6.0.11)

Rev:
Id: 2/3

USB Host

J13

VBUS   +5V
1

D+   3 USBA#_P   R29   0R   USBA_P
D-   2 USBA#_N   R30   0R   USBA_N

Shield
GND

5 4

GND

USB_DP_Pull   R31   USBA_P
NC(1.5K)

USB Host   USBA_P   R26   15K   GND
   USBA_N   R27   15K   GND

USB Device   USBA_P   R28   NC(1.5K)   +3V3

USBA#_P   D7   LXES15AAA1-153   GND
USBA#_N   D8   LXES15AAA1-153   GND
+5V   D9   0402ESDA-05N   GND

+5V   +5V   +5V

C10   C23   C24
22uF 10V   22uF 10V   22uF 10V

GND   GND   GND