Header B2 (Header 9X2 female)

DCDC_3V3 GND
B2

I2C2_SCL	1 2	I2C2_SDA
CSI_VSYNC	3 4	CSI_HSYNC
CSI_PIXCLK	5 6	CSI_MCLK
CSI_D7 CSI_DATA7	7 8	CSI_DATA6 CSI_D6
CSI_D5 CSI_DATA5	9 10	CSI_DATA4 CSI_D4
CSI_D3 CSI_DATA3	11 12	CSI_DATA2 CSI_D2
CSI_D1 CSI_DATA1	13 14	CSI_DATA0 CSI_D0
CAM_RESET	15 16	
	17 18	CAM_PWDN

Header 9X2 female

P2 / JTAG

DCDC_3V3
R18 120
P2

JTAG_nTRST/SAI_TXD	1 2	
JTAG_TDI/SAI_BCLK	3 4	
JTAG_TMS/SAI_MCLK	5 6	
JTAG_TCK/SAI_RXD	7 8	
	9 10	
JTAG_TDO/SAI_SYNC	11 12	
	13 14	
POR_B	15 16	
	17 18	
JTAG_DACK	19 20	

R19 10k
GND

CAN Transceivers

VSYS
C1 0.22uF C2 22uF
GND R27 10k CAN1_H
U3 XL1050
TXD Rs
VSS CANH
VDD CANL
RXD VREF
CAN1_TX CAN1_RX
R7 120 CAN1_L
P4 WJ124-3.81-2P
MCP2551-I/SN

VSYS
C27 0.22uF C28 22uF
GND R28 10k CAN2_H
U4 XL1050
TXD Rs
VSS CANH
VDD CANL
RXD VREF
CAN2_TX CAN2_RX
R8 120 CAN2_L
P5 WJ124-3.81-2P
MCP2551-I/SN

CH340C (U1)

J3 Vbus D- D+ ID GND
VSYS C3 47uF
DEBUG_TX DEBUG_RX
DCDC_3V3
U1 CH340C
GND VCC
TXD R232
RXD RTS
V3 DTR
VD+ DCD
VD- RI
VD- DSR
NC CTS
NC
C4 22nF
GND

P3 Header 10 female

VSYS DCDC_3V3
P3
1 2
JTAG_TDI/SAI_BCLK
JTAG_TDO/SAI_SYNC
JTAG_nTRST/SAI_TXD
JTAG_TCK/SAI_RXD
I2C1_SCL
I2C1_SDA
Header 10 female
JTAG_TMS/SAI_MCLK
GND

J701

VSYS
J701
Vbus D- D+ ID GND
C799 47uF
GND
C46391

USB sections

CN1 Header 2X2
VSYS [5V]
CN2 Header 4X2
ECSPI4_MOSI LORA_RESET
ECSPI4_MISO ECSPI4_SS0
ECSPI4_CLK LORA_PPS
GND

USB2_HOST_VBUS
FB1 120 Ohms
C33 22uF C31 0.22uF
CN3 VBUS D- D+ GND
USB_HOST_D_N USB_HOST_D_P
C42675
GND_CHASSIS

FB2 90 Ohms
USB_OTG2_D_N USB_OTG2_D_P
D14 D141 ESD05V32D-A

USB1_HOST_VBUS R1 0.0 VSYS
USB2_HOST_VBUS R2 0.0

USB1_HOST_VBUS
FB3 120 Ohms
C36 22uF C35 0.22uF
J2 VBUS D- D+ GND
USB_OTG_D_N USB_OTG_D_P
C42675
GND_CHASSIS_2

FB4 90 Ohms
USB_OTG1_D_N USB_OTG1_D_P
D15 D151 ESD05V32D-A

VCCDIG33 : 3.3V (U201)

VSYS
U201 AP3429KTTR-G1
C202 22uF VIN LX L200 2.2µH DCDC_3V3
GND FB
EN
VSYS C215 22pF R213 680k
C201 22uF
R214 150k GND
GND

SD Card J1 (HYC77-TF09-200)

SD1_DATA2 DAT2
SD1_DATA3 CD/DAT3
SD1_CMD CMD
DCDC_3V3 VDD
SD1_CLK CLK
GND GND
SD1_DATA0 DAT0
SD1_DATA1 DAT1
GND G1 G2 G3 G4 GND GND GND GND
SD1_CD
J1 Switch Card Detect
HYC77-TF09-200

PESD5V0U1UA.115 (D5 D6 D7 D8 D11 D12)
CESDB5V0D3 D13
GND

P6 Header 15 (B1A)

GND VSYS DCDC_3V3
P6 Header 15

B1A imx6ull_som_W_2E Rev4.4

Pin	Signal	Signal		
GND				
GND				
5V				
5V				
JTAG_TMS/SAI_MCLK	JTAG_TMS	SAI2.MCLK	GPIO1.IO[11]	PWM8.OUT
JTAG_nTRST/SAI_TXD	JTAG_TRST	SAI2.TX_DATA	GPIO1.IO[15]	PWM7.OUT
JTAG_TCK/SAI_RXD	JTAG_TCK	SAI2.RX_DATA	GPIO1.IO[14]	
JTAG_TDO/SAI_SYNC	JTAG_TDO	SAI2.TX_SYNC	GPIO1.IO[12]	
	JTAG_MOD		GPIO1.IO[10]	
JTAG_TDI/SAI_BCLK	JTAG_TDI	SAI2.TX_BCK	GPIO1.IO[13]	PWM6.OUT
	GPIO_9	PWM2.OUT	GPIO1.IO[9]	CSI.HSYNC SD2.RESET_B SD1.RESET_B UART5.CTS_B
	GPIO_4	PWM3.OUT	GPIO1.IO[4]	USB.OTG1_PWR SD1.RESET_B UART5.TX
	GPIO_1	I2C2.SDA	GPIO1.IO[1]	USB.OTG1_OC
USB_OTG1_ID	GPIO_0	I2C2.SCL	GPIO1.IO[0]	
	CLK1_P			
	CLK1_N			
	GPIO_8	PWM1.OUT	GPIO1.IO[8]	CSI.VSYNC SD2.VSELECT UART5.RTS_B
	GPIO_5	PWM4.OUT	GPIO1.IO[5]	CSI.FIELD SD1.VSELECT UART5.RX
UART1_TXD		I2C3.SCL	GPIO1.IO[16]	UART1.TX ENET1.RDATA2 CSI.DATA[2] UART5.TX
DEBUG_TX UART1_RXD		I2C3.SDA	GPIO1.IO[17]	UART1.RX ENET1.RDATA3 CSI.DATA[3] UART5.RX
DEBUG_RX CAN1_RX UART3_RTS		CAN1.RX	GPIO1.IO[27]	UART3.RTS_B ENET2.TX_ER CSI.DATA[11]
CAN1_TX UART3_CTS		CAN1.TX	GPIO1.IO[26]	UART3.CTS_B ENET2.RX_CLK CSI.DATA[10]

GND

P7 Header 15 (B1B)

DEBUG_TX DEBUG_RX GND VSYS DCDC_3V3
P7 Header 15

B1B imx6ull_som_W_2E Rev4.4

Signal	Signal				
I2C2_SDA	UART5_RX	GPIO1.IO[31]	ENET2.COL	I2C2.SDA	CSI.DATA[15] ESPI2_MISO
I2C2_SCL	UART5_TX	GPIO1.IO[30]	ENET2.CRS	I2C2.SCL	CSI.DATA[14] ECSPI2_MOSI
RXI1_N	RXI1_N				
RXI1_P	RXI1_P				
TXO1_N	TXO1_N				
TXO1_P	TXO1_P				
I2C1_SCL	UART4_TX	GPIO1.IO[18]	ENET2.TDATA[2]	I2C1.SCL	CSI.DATA[12] ECSPI2_SCLK
I2C1_SDA	UART4_RX	GPIO1.IO[29]	ENET2.TDATA[3]	I2C1.SDA	CSI.DATA[13] ECSPI2_SS0
	NAND_DQS	GPIO4.IO[16]	CSI.FIELD	QSPIA_SS0	PWM5.OUT
	NAND_WP	GPIO4.IO[11]	SD1.DATA6	QSPIA_SCLK	PWM4.OUT ECSPI3_RDY
	NAND_CE1	GPIO4.IO[14]	SD1.DATA6	QSPIA_DATA[2]	ECSPI3_MOSI UART3.CTS_B
	NAND_CE0	GPIO4.IO[13]	SD1.DATA5	QSPIA_DATA[1]	ECSPI3_SCLK UART3.RX
	NAND_CLE	GPIO4.IO[15]	SD1.DATA7	QSPIA_DATA[3]	ECSPI3_MISO UART3.RTS_B
	NAND_READY	GPIO4.IO[12]	SD1.DATA4	QSPIA_DATA[0]	ECSPI3_SS0 UART3.TX
SD1_CD	UART1_RTS	GPIO1.IO[19]	ENET1.TX_ER	SD1.DATA[5]	CSI.DATA[5] SD2.CD_B UART5.RTS_B
SD1_DATA0	SD1_DATA0	GPIO2.IO[18]	SD1.DATA0	SAI2.TX_SYNC	CAN1.TX
SD1_DATA3	SD1_DATA3	GPIO2.IO[21]	SD1.DATA3	SAI2.TX_DATA	CAN2.RX
SD1_DATA1	SD1_DATA1	GPIO2.IO[19]	SD1.DATA1	SAI2.TX_BCLK	CAN1.RX USB.OTG2_PWR
SD1_CMD	SD1_CMD	GPIO2.IO[16]	SD1.CMD	SAI2.RX_SYNC	USB.OTG2_OC
SD1_DATA2	SD1_DATA2	GPIO2.IO[20]	SD1.DATA2	SAI2.RX_DATA	CAN2.TX USB.OTG1_PWR
SD1_CLK	SD1_CLK	GPIO2.IO[17]	SD1.CLK	SAI2.MCLK	USB.OTG1_OC
ECSPI4_SS0	NAND_DATA7	GPIO4.IO[9]	SD2.DATA7	QSPIA.SS1_B	ECSPI4.SS0 UART2.RTS_B
ECSPI4_MISO	NAND_DATA6	GPIO4.IO[8]	SD2.DATA6	QSPIB.DATA[3]	ECSPI4_MISO UART2.CTS_B
ECSPI4_MOSI	NAND_DATA5	GPIO4.IO[7]	SD2.DATA5	QSPIB.DATA[2]	ECSPI4_MOSI UART2.RX
ECSPI4_CLK	NAND_DATA4	GPIO4.IO[6]	SD2.DATA4	QSPIB.DATA[1]	ECSPI4_SCLK UART2.TX
	NAND_DATA3	GPIO4.IO[5]	SD2.DATA3	QSPIB.DATA[0]	ECSPI4_SS3
	NAND_ALE	GPIO4.IO[10]	SD2.RESET_B	QSPIA.DQS	PWM3.OUT ECSPI3_SS1

B1C (imx6ull_som_W_2E Rev4.4)

GND
{eCSPI1_MOSI}
{eCSPI1_CLK}
{eCSPI1_SS0}
{eCSPI1_MISO}

Pin	Signal	Signal				
51	GND					
52 CSI_PIXCLK	CSI_PIXCLK	GPIO4.IO[18]	SD2_WP	I2C1.SCL	UART6_RX	ESAI.TX2_RX3
53 CSI_DATA6	CSI_DATA4	GPIO4.IO[27]	SD2.DATA6	ECSPI1_MOSI	SAI1_RX_DATA SD1_RST	
54 CSI_DATA4	CSI_DATA4	GPIO4.IO[25]	SD2.DATA4	ECSPI1_CLK	SAI1_TX_SYNC SD1_WP	ESAI.TX_FS
55 CSI_DATA5	CSI_DATA5	GPIO4.IO[26]	SD2.DATA5	ECSPI1_SS0	SAI1_TX_BCLK SD1_CD_B	ESAI.TX_CLK
56 CSI_DATA7	CSI_DATA7	GPIO4.IO[28]	SD2.DATA7	ECSPI1_MISO	SAI1_TX_DATA SD1_VSELECT	ESAI.TX0
57 CSI_DATA1	CSI_DATA1	GPIO4.IO[22]	SD2.DATA1	ECSPI2_SS0	SAI1MCLK	ESAI.RX_HF_CLK
58 CSI_DATA0	CSI_DATA0	GPIO4.IO[21]	SD2.DATA0	ECSPI2_CLK		ESAI.TX_HF_CLK
59 CSI_DATA2	CSI_DATA2	GPIO4.IO[23]	SD2.DATA2	ECSPI2_MOSI	SAI1_RX_SYNC UART5_RX	ESAI.RX_FS
60 CSI_DATA3	CSI_DATA3	GPIO4.IO[24]	SD2.DATA3	ECSPI2_MISO	SAI1.RX_BCLK UART5_CTS	
61 CSI_VSYNC	CSI_VSYNC	GPIO4.IO[19]	SD2_CLK	I2C2.SDA	PWM7.OUT UART5_RTS	ESAI.TX4_RX1
62 CSI_HSYNC	CSI_HSYNC	GPIO4.IO[20]	SD2.CMD	I2C2.SCL	PWM8.OUT UART6_RTS_B	ESAI.TX4_RX1
63 CSI_MCLK	CSI_MCLK	GPIO4.IO[17]	SD2.CD_B	I2C1.SDA	UART6_TX	
64	GND					
65 NAND_DATA0	NAND_DATA0	GPIO4.IO[2]	SD2.DATA0	QSPIB_SS1_B	ECSPI4.RDY	
66 NAND_nRE	NAND_nRE	GPIO4.IO[0]	SD2.CLK	QSPIB_SCLK	ECSPI3.SS2	
67 NAND_nWE	NAND_nWE	GPIO4.IO[1]	SD2.CMD	QSPIB_SS0_B	ECSPI3.SS3	
68 NAND_DATA1	NAND_DATA1	GPIO4.IO[3]	SD2.DATA1	QSPIB.DQS	ECSPI4.SS1	
69 NAND_DATA2	NAND_DATA2	GPIO4.IO[4]	SD2.DATA2	QSPIB.DATA[0]	ECSPI4.SS2	
70 CAN2_TX LCD_DATA_10	LCD_DATA_10	GPIO3.IO[15]	SAI3.RX_SYNC CSI.DATA[18]		CAN2.TX	
71 CAN2_RX LCD_DATA_11	LCD_DATA_11	GPIO3.IO[16]	SAI3.RX_BCLK CSI.DATA[19]		CAN2.RX	
72 I2C3_SCL LCD_DATA_1	LCD_DATA_1	GPIO3.IO[6]	PWM2.OUT	I2C3.SCL	SAI1.TX_SYNC	
73 GPIO3_IO_6 LCD_ENABLE	LCD_ENABLE	GPIO3.IO[1]	UART4.RX	SAI3.TX_SYNC	ECSPI2.RDY	

GPIO4.IO2 GPIO4.IO0 GPIO4.IO1 GPIO4.IO3 GPIO4.IO4

P8 Header / B1D

GPIO3_IO_6 I2C3_SCL
GPIO4.IO4 GPIO4.IO3
GPIO4.IO1 GPIO4.IO0
GPIO4.IO2 POR_B
TAMPER9 TAMPER5
ONOFF TAMPER8
TAMPER0 TAMPER6
VSYS
DCDC_3V3
P8

B1D imx6ull_som_W_2E Rev4.4

Pin	Signal				
74	LCD_DATA_17	GPIO3.IO[22]	UART7.RX	CSI.DATA[0]	SD2.DATA[7]
75 RXI2_N	RXI2_N				
76 RXI2_P	RXI2_P				
77 TXO2_N	TXO2_N				
78 TXO2_P	TXO2_P				
79	USB_OTG2_VBUS				
80 USB_OTG2_D_N	USB_OTG2_D_N				
81 USB_OTG2_D_P	USB_OTG2_D_P				
82 POR_B	POR_B_B				
83	GND				
84 TAMPER9	TAMPER_9	GPIO5.IO[9]			
85 TAMPER_5	TAMPER_5	GPIO5.IO[5]			
86 ONOFF	ONOFF				
87 TAMPER4	TAMPER_4	GPIO5.IO[4]			
88 TAMPER1	TAMPER_1	GPIO5.IO[1]			
89 TAMPER8	TAMPER_8	GPIO5.IO[8]			
90 TAMPER0	TAMPER_0	GPIO5.IO[0]			
91 CAM_PWDN	TAMPER_3	GPIO5.IO[3]			
92 LORA_RESET	TAMPER_7	GPIO5.IO[7]			
93 CAM_RESET	TAMPER_2	GPIO5.IO[2]			
94	USB_OTG1_VBUS				
95 TAMPER6	TAMPER_6	GPIO5.IO[6]			
96 USB_OTG1_D_P	USB_OTG1_D_P				
97 USB_OTG1_D_N	USB_OTG1_D_N				

USB2_HOST_VBUS R20 0.0
GND
TAMPER6
USB1_HOST_VBUS R17 0.0

Power Over Ethernet

100ohm

INPUT

CN10

TX+ 1
TX- 2
RX+ 3
nc4 4
nc5 5
RX- 6
nc7 7
nc8 8

RC01456

TX_P
TX_N
RX_P
RJ_45
RX_N
RJ_78

Matched Net Lengths [Tolerance = 100mil]
Diff Pair 100ohm
Matched Net Lengths [Tolerance = 100mil]
Diff Pair 100ohm
Matched Net Lengths [Tolerance = 100mil]   Diff Pair 100ohm
Diff Pair 100ohm
Matched Net Lengths [Tolerance = 100mil]
Diff Pair 100ohm

NOTE : Place for additional ferrite beads

T4

16
15
14
11
10
9

H1601CG

1 TXO1_P
2
3 TXO1_N
6 RXI1_P
7   0.0 ohm
8 RXI1_N

R46 75
R33 75
R26 75
C37 1nF
C32 1nF
R42 75
C26 1nF
C34 1nF
C89 1000pF

Chassis

Chassis   R96 0.0

Power Over Ethernet

100ohm

INPUT

CN4

TX+ 1
TX- 2
RX+ 3
nc4 4
nc5 5
RX- 6
nc7 7
nc8 8

RC01456

TX2_P
TX2_N
RX2_P
RJ_45_2
RX2_N
RJ_78_2

Matched Net Lengths [Tolerance = 100mil]
Diff Pair 100ohm
Matched Net Lengths [Tolerance = 100mil]
Diff Pair 100ohm
Matched Net Lengths [Tolerance = 100mil]   Diff Pair 100ohm
Diff Pair 100ohm
Matched Net Lengths [Tolerance = 100mil]
Diff Pair 100ohm

NOTE : Place for additional ferrite beads

T3

16
15
14
11
10
9

H1601CG

1 TXO2_P
2
3 TXO2_N
6 RXI2_P
7
8 RXI2_N

R29 75
R30 75
R31 75
C23 1nF
C25 1nF
R32 75
C29 1nF
C30 1nF
C38 1000pF

Chassis_2

Chassis_2   R34 0.0

i.MX6ULL IOMUX