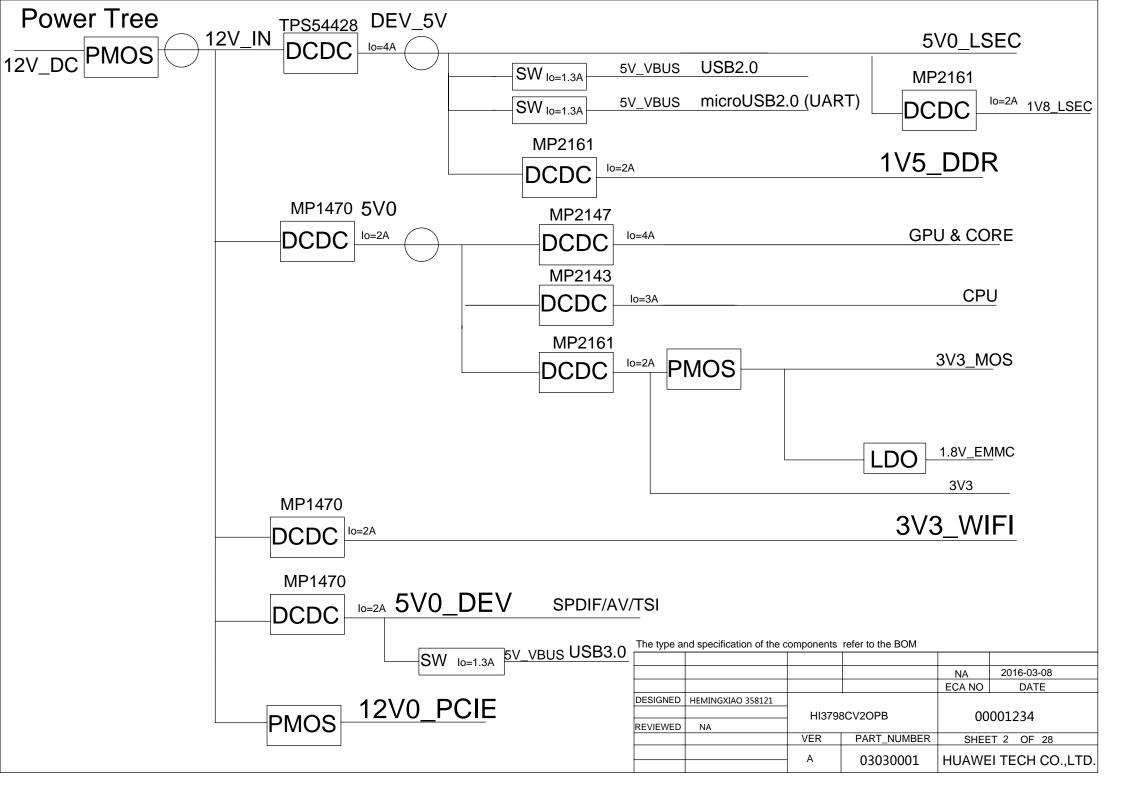
Hi3798CV2OPB VER.A

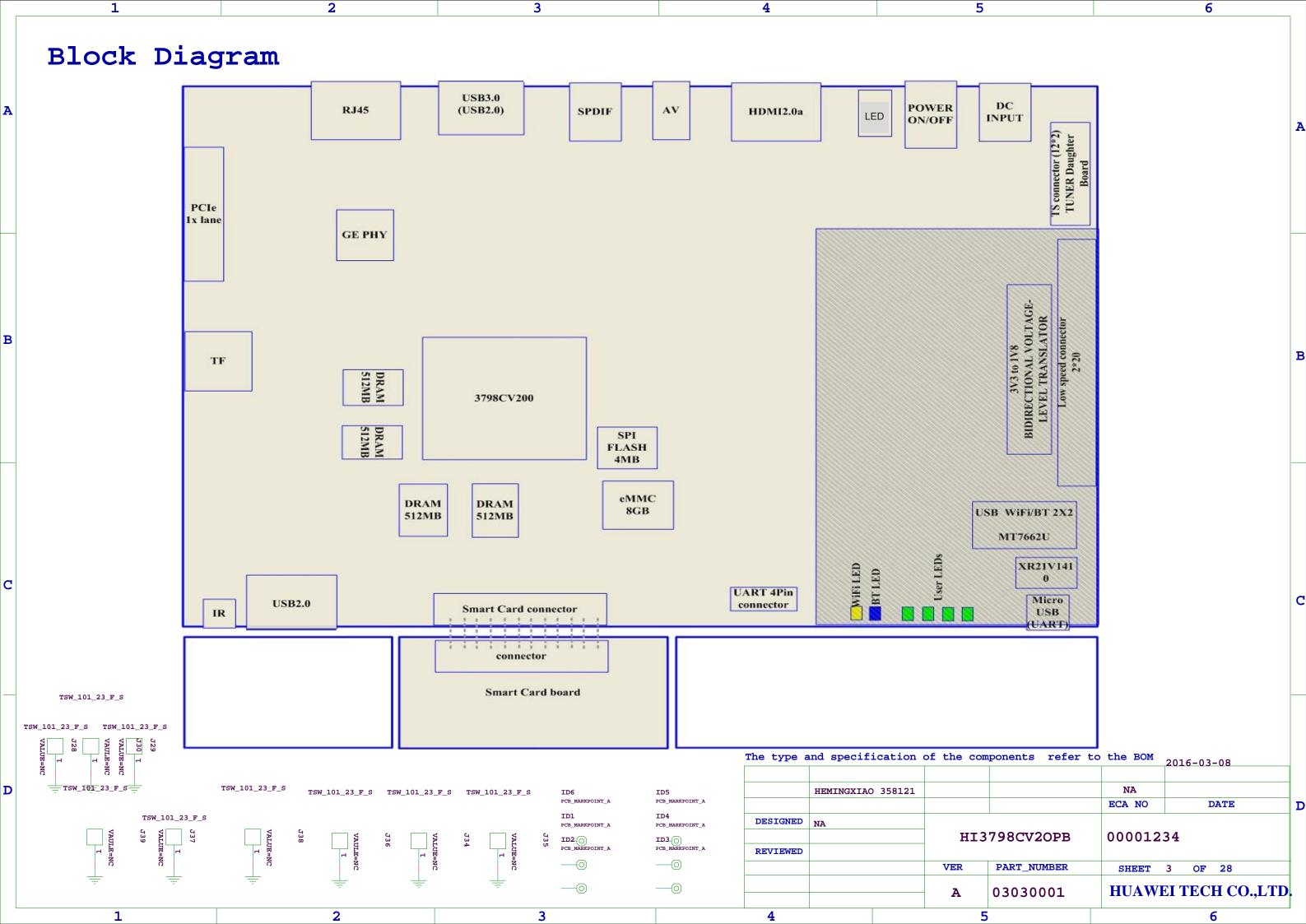
Hi3798CV200 Open Source Board 4 layers PCB with DDR3 8bit x 4

Board Size:160mm x 120mm x 1.6mm Hi3798CV2OPB VER.A_V1.0.0.0

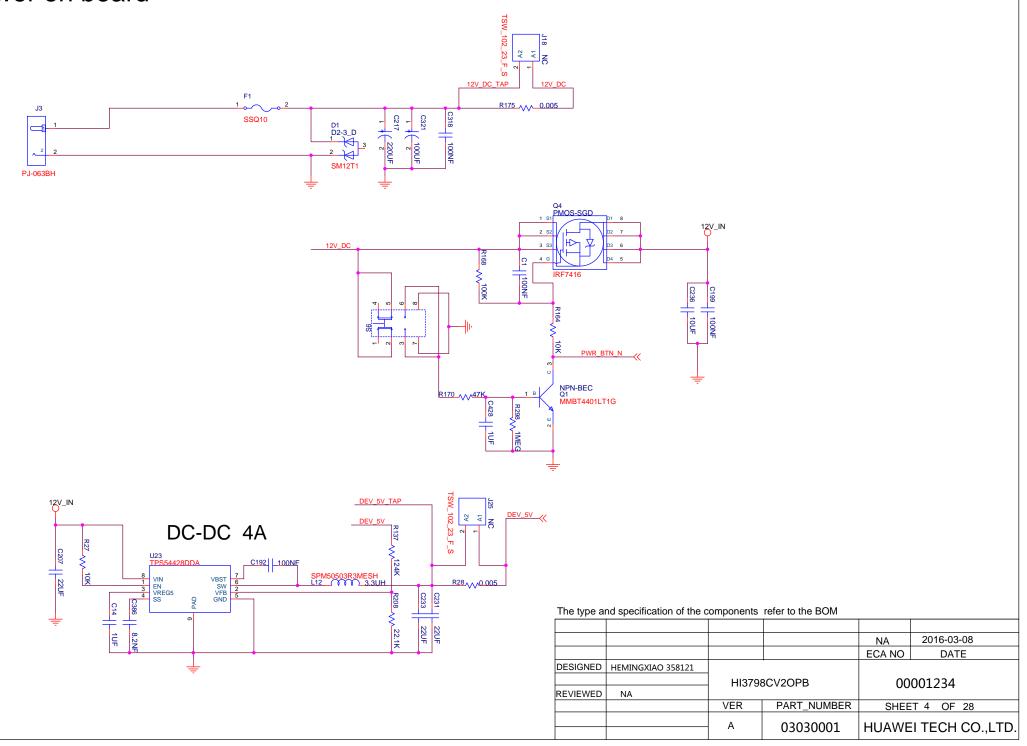
PAGE1	Title Page
PAGE2	Power Tree
PAGE3	Block Diagram
PAGE4	Power on board
PAGE5	Power on board
PAGE6	Power Ctrl
PAGE7	Unit 1 of Hi3798CV200(FLASH\UART\IR\PWM\XTAL)
PAGE8	Unit 2 of Hi3798CV200(HDMI TX\VDAC\ADAC)
PAGE9	Unit 3 of Hi3798CV200(RGMII\RMII\SDIO\TS)
PAGE10	Unit 4 of Hi3798CV200(USB2.0\USB3.0\COMBPHY\SATA\PCIE\U3)
PAGE11	Unit 5 of Hi3798CV200(DDR3 PHY)
PAGE12	Unit 6 of Hi3798CV200(POWER)
PAGE13	DDR Byte0 & Byte1
PAGE14	DDR Byte2 & Byte3
PAGE15	DDR VTT
PAGE16	SPI NOR\EMMC
PAGE17	HDMI2.0 TX\CVBS
PAGE18	WIFI(USB2.0)
PAGE19	SPDIF\AUDIO BUFFER
PAGE20	TF CARD\KEY\LED\IR
PAGE21	USB2.0 & USB3.0
PAGE22	RGMII
PAGE23	TS\JTAG\UART
PAGE24	SMART CARD
PAGE25	LOW SPEED EXPANSION CONNECTOR
PAGE26	PCIE
PAGE27	TUNER Board
PAGE28	TUNER Board

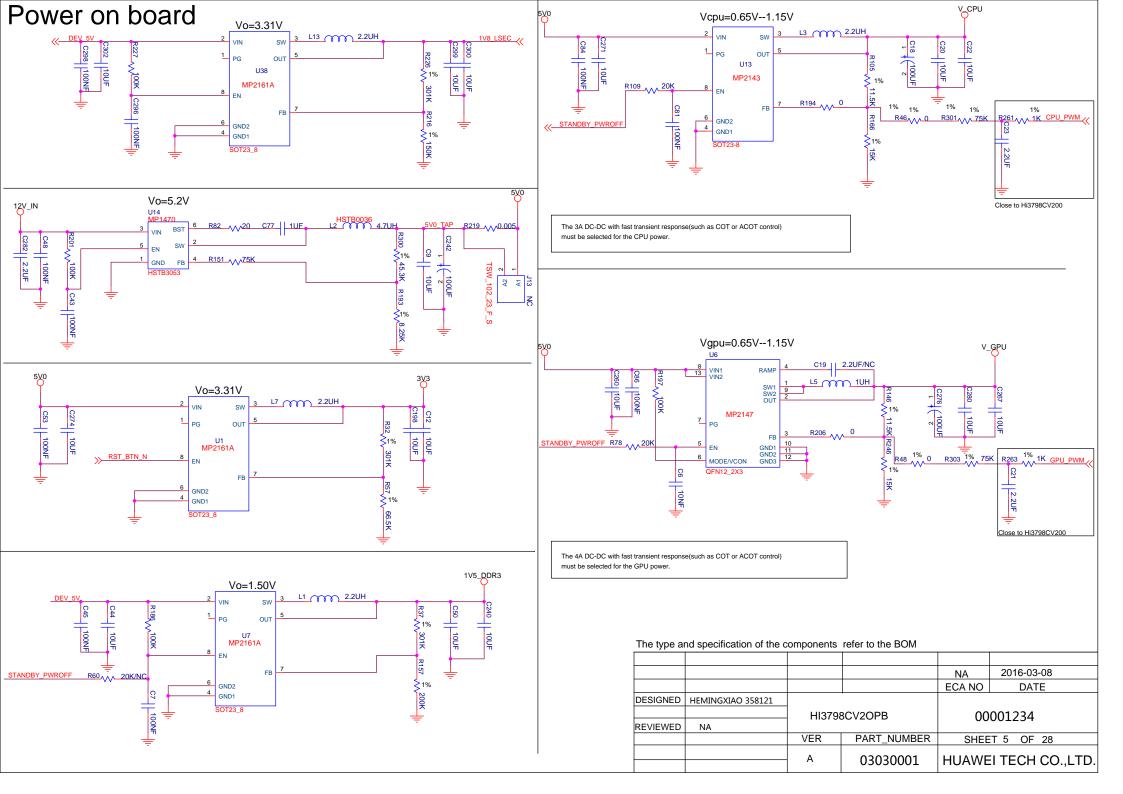
	na opodinoation of the o	0111p 01101110	10:0: 10 1::0 2 0:::			
				NA	2016-03-08	
				ECA NO	DATE	
DESIGNED	HEMINGXIAO 358121					
		HI3798	BCV2OPB	00001234		
REVIEWED	NA				001231	
		VER	PART_NUMBER	SHEE	T 1 OF 28	
		Α	03030001	HUAWE	EI TECH CO.,LTD.	



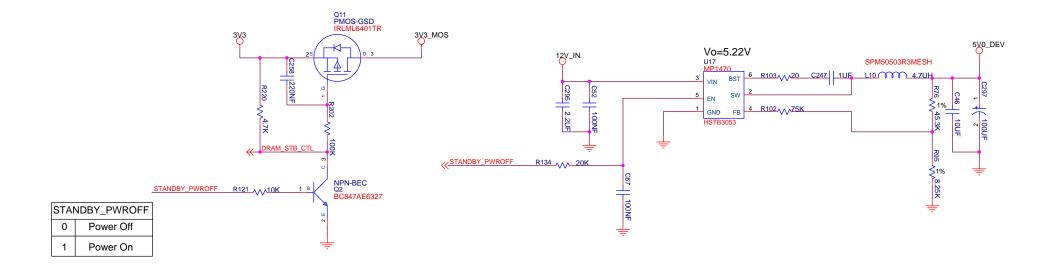


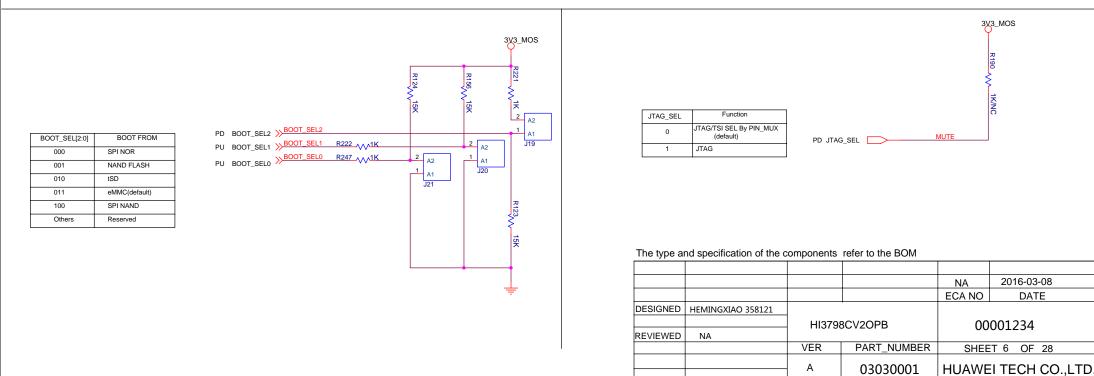
Power on board





Power Ctrl





DATE

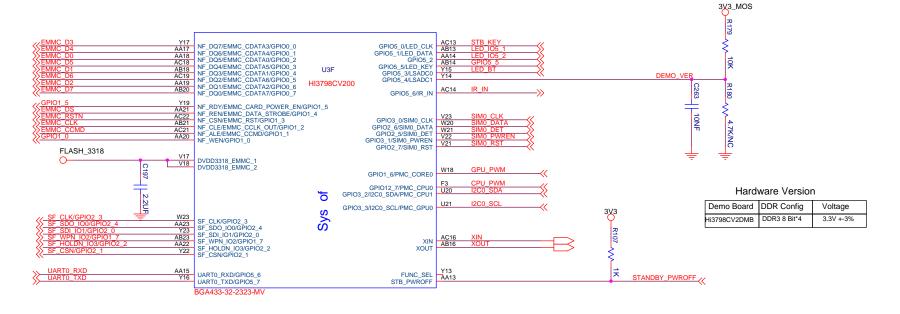
Unit 1 of Hi3798CV200(FLASH/UART/IR/PWM/XTAL)

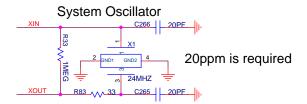
*****Low Speed ADC Information*****

Input Voltage Range: 0V - 3.3V(> 3.63V is forbidden)

LSADC0: used as Key input or Power detected

LSADC1: used as Hardware Version detected





The type and specification of the components Telef to the BOW							
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DESIGNED	HEMINGXIAO 358121						
		HI3798	BCV2OPB	00001234			
REVIEWED	NA						
		VER	PART_NUMBER	SHEE	T 7 OF	28	
		Α	03030001	HUAWE	I TECH	CO.,LTD	

Unit 2 of Hi3798CV200(HDMI TX/VDAC/ADAC)

** HDMI Design guideline **

A.routii

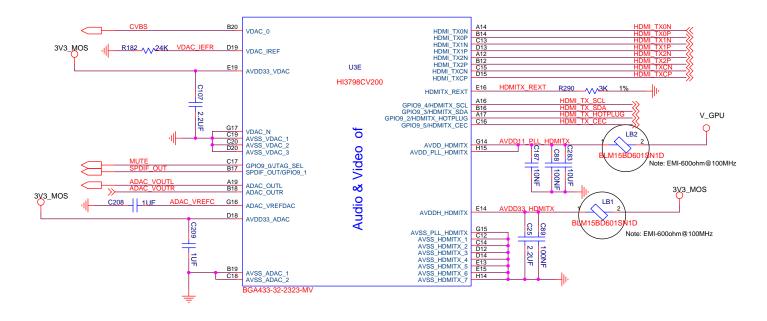
- 1.Route as 100 Ohm differential impedance.
- 2.Differential pairs should be routed on TOP layer only.

B.trace length

- 1. The length for the differential pairs should be less than 5 inches.
- 2.Match trace length of differential pairs, 5 mils max within a pair.

C.component selection

- 1.REXT resistor should be 3K Ohm +/-1%
- 2.ESD components are suggested for ports protection.
- 3.All equivalent capacitance of ESD components should be < 0.35pF.



** Audio & Video Design guideline ** A.VIDEO 1.VIDEO REXT resistor should be 12K +/-1% precision for full current model,

.VIDEO REXT resistor should be 12K +/-1% precision for full current model, and 24K +/-1% precision for quarter current model

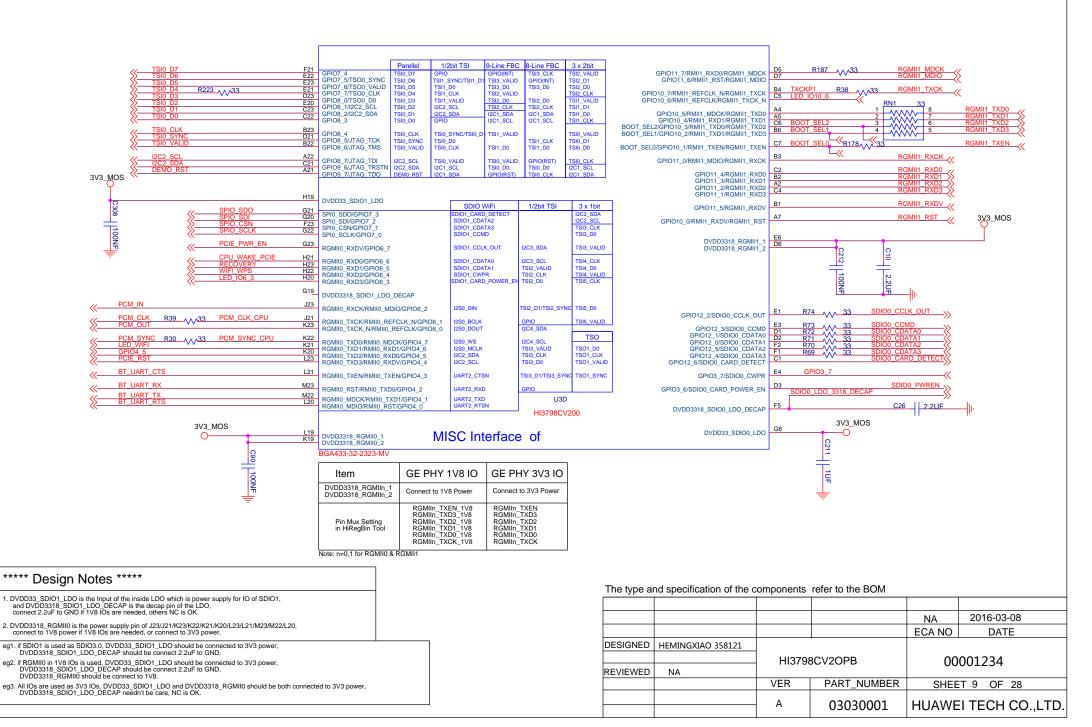
 REXT/COMP should be traced as short as possible, and isolated from all other traces.

B.AUDIO

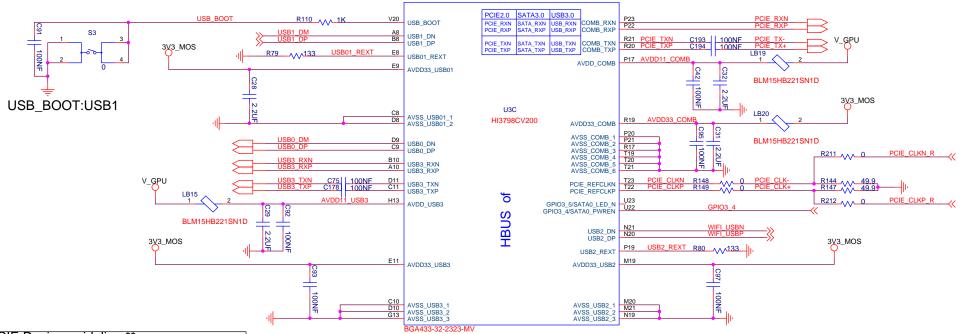
 VREF should be traced as short as possible, and isolated from all other traces.

The type and specification of the components Telef to the BOW								
				NA	2016-03-08			
				ECA NO	DATE			
DESIGNED	HEMINGXIAO 358121							
		HI3798	3CV2OPB	00001234				
REVIEWED	NA							
		VER	PART_NUMBER	SHEE	T 8 OF 28			
		A	03030001	HUAWE	EI TECH CO.,LTI	5 .		

Unit 3 of Hi3798CV200(RGMII/RMII/SDIO/TS)



Unit 4 of Hi3798CV200(USB2.0/USB3.0/COMBPHY(SATA/U3/PCIE))



** SATA&PCIE Design guideline **

A.routing

- 1.Route as 100 Ohm differential impedance.
- 2.Differential pairs should be routed on TOP layer only.

B.trace length

- 1. The length for the differential pairs should be less than 5 inches.
- 2.Match trace length of DP and DM differential pairs, 10 mils max within a pair.

C.component selection

- 1.SATA: The value of capacitors for AC coupling should be <=12nF, default 10nF
- 2.PCIE:The value of capacitors for AC coupling should be <=200nF,default 100nF

** USB Design guideline **

A.routing

- 1.Route as 90 Ohm differential impedance.
- Differential pairs should be routed on TOP layer only.

B.trace length

- 1. The length for the differential pairs should be less than 5 inches.
- 2.Match trace length of DP and DM differential pairs, 10 mils max within a pair.

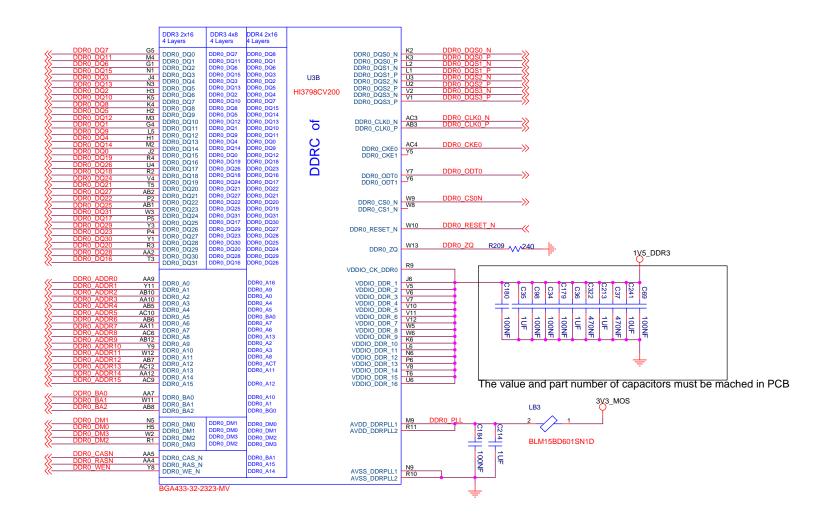
C.component selection

- 1.USB2.0 REXT resistor should be 133 ohm +/-1% and USB3.0 133 ohm +/-1%
- 2.ESD components are suggested for ports protection.
- 3.Equivalent capacitance of ESD component should be < 1.5pF.

The type and specification of the components refer to the BOW							
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				ECA NO	DATE		
DESIGNED	HEMINGXIAO 358121						
		HI3798	3CV2OPB	00001234			
REVIEWED	NA			00001254			
		VER	PART_NUMBER	SHEE	T 10 OF 28		
		Α	03030001	HUAWE	EI TECH CO.,LTD.		
			0000001				

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Unit 5 of Hi3798CV200(DDRC)

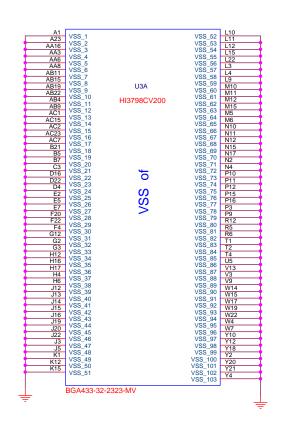


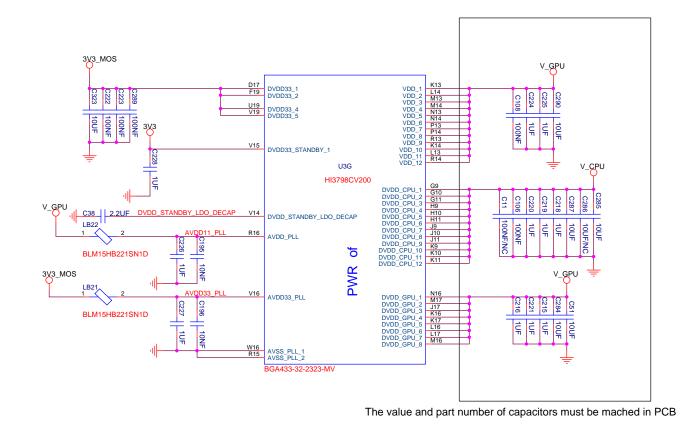
** DDR Design guideline ** A.general suggestion 1.Hi3798CV200 supports DDR3/DDR3L/DDR4 2.Hi3798CV200 supports up to 2GB DDR3. 3.The ciruit of DDR_VREF_CA and DDR_VREF_DQ must be independent. 4.Please copy the decoupling capacitor design from hisilicon demo board. 5.3V3 DDRPLL is needed. B.Layout suggestion 1. Please copy hisilicon demo board completely

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	HI3798	BCV2OPB	00001234				
NA	1110700012012			001231			
	VER	PART_NUMBER	SHEE	T 11 OF 28			
	Α	03030001	HUAWE	TECH CO.,LTD.			
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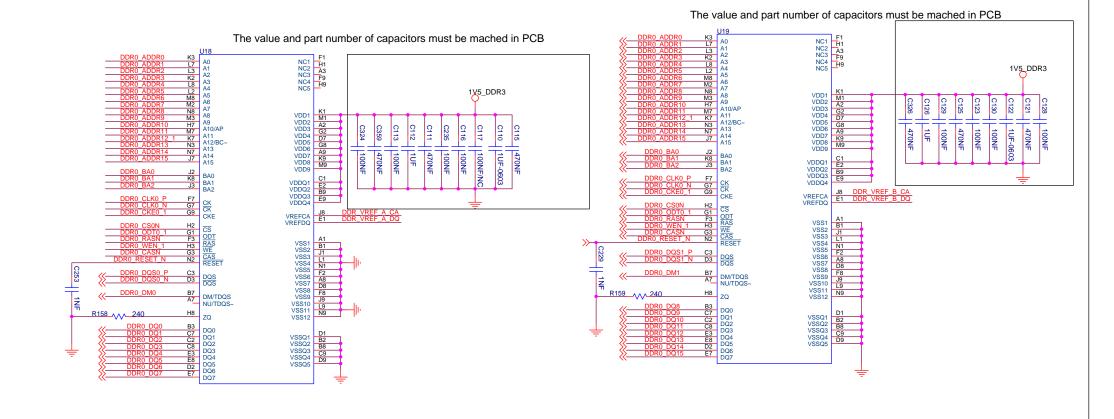
Unit 6 of Hi3798CV200(POWER/VSS)

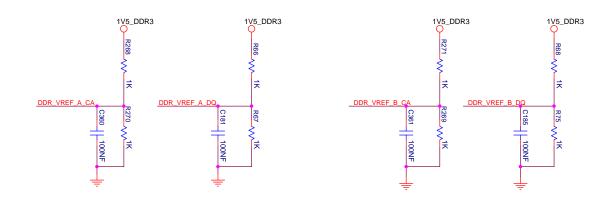




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			ECA NO	DATE			
HEMINGXIAO 358121							
	HI3798	3CV2OPB	00001234				
NA				001231			
	VER	PART_NUMBER	SHEE	T 12 OF 28			
	Α	03030001	HUAWE	TECH CO.,LTD.			
	HEMINGXIAO 358121	HEMINGXIAO 358121 NA VER	HEMINGXIAO 358121 NA VER PART_NUMBER	NA ECA NO HEMINGXIAO 358121 NA VER PART_NUMBER SHEE			

DDR Byte0 & Byte1

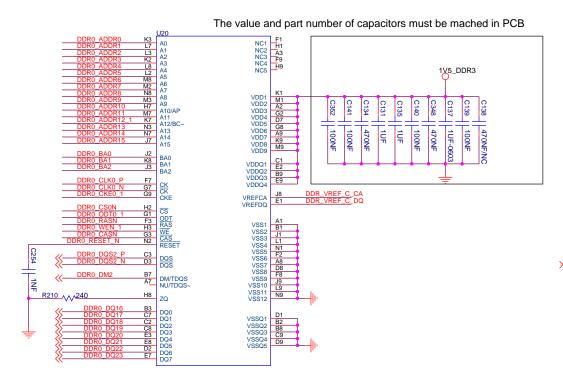


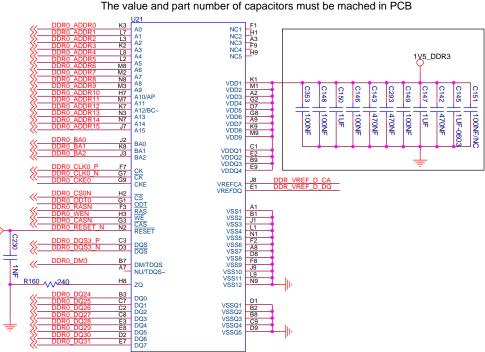


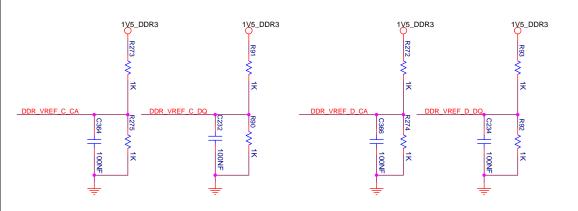
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		VER	PART_NUMBER	SHEET 13 OF 28				
		Α	03030001	HUAWE	TECH CO.,LTD.			

DDR Byte2 & Byte3



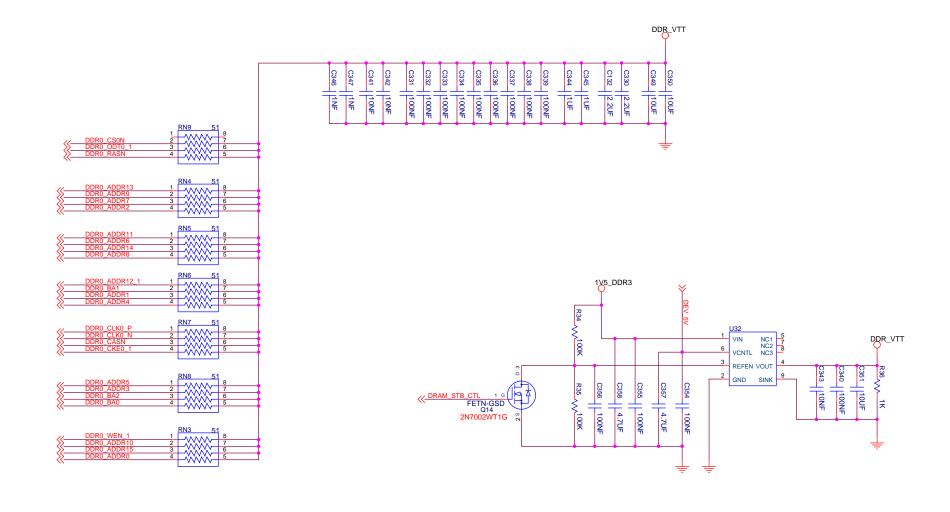




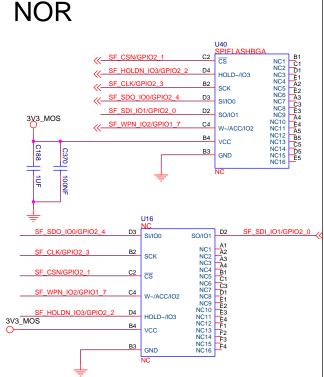
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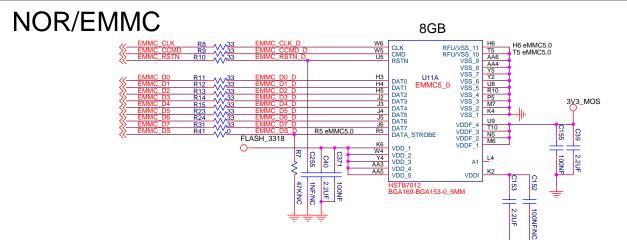
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DDR VTT

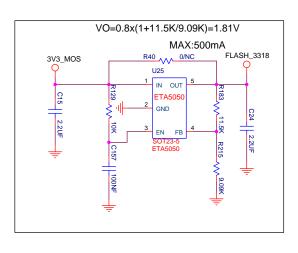


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	HI3798	3CV2OPB	00001234					
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	VER	PART_NUMBER	SHEE	T 15 OF 28				
	Α	03030001	HUAWE	TECH CO.,LTD.				
	HEMINGXIAO 358121	HEMINGXIAO 358121 NA VER	HEMINGXIAO 358121 NA VER PART_NUMBER	NA ECA NO				





- ** eMMC design guideline **
- The different length of CLK, CMD, DAT0-7 and DATA_STROBE must be kept within 200mil.
- 2. The value of R9 in CMD line must follow the corresponding datasheet for detail



3.3V IO only For eMMC DDR50 Mode R40 = 0 ohm others = NC

eMMC5.0(1.8V) default

1.8V IO For eMMC HS200\HS400 Mode R40 = NCOthers Mounted

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				NA	2016-03-08			
				ECA NO	DATE			
DESIGNED	HEMINGXIAO 358121							
		HI3798CV2OPB		00001234				
REVIEWED	NA				001201			
		VER	PART_NUMBER	SHEE	T 16 OF 28			
		A	03030001	HUAWEI TECH CO.,LT				

A4 NC 1 A6 NC 1 A9 NC 2 A11 NC 3 B2 NC 5 B13 NC 5 B13 NC 7 D14 NC 7 D14 NC 7 H2 NC 9 H2 NC 10 H7 NC 11 H8 NC 11 H8 NC 14 H9 NC 14 H10 NC 14 H11 NC 15

NC_12 NC_13 NC_14 NC_15 NC_16 NC_17 NC_18 NC_19 NC_20 NC_21 NC_21

H12 NC 16
H13 NC 17
H14 NC 18
H15 NC 19
H16 NC 19
H17 NC 20
H17 NC 21
H18 NC 27
H18 NC 28
H19 NC 30
H18 NC 30
H19 NC

N14 P1 P2 P3 P10

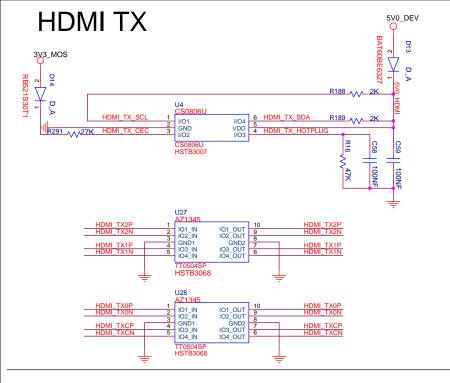
NC_64 NC_65 NC_66 NC_67 NC_68

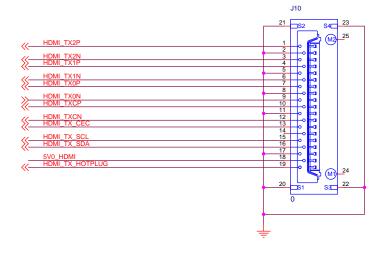
AG13 AG2 AE14 AE1 AA14 AA13 AA12 AA11 AA9 AA8 AA7 AA2 AA1 Y14 Y13 Y12 Y11 Y10 Y9 Y8 Y7 Y6 Y7 Y6 Y3 Y7 Y7 Y6 Y7 Y1

NC_135
NC_134
NC_133
NC_132
NC_131
NC_130
NC_129
NC_127
NC_126
NC_127
NC_126
NC_127
NC_127
NC_128
NC_121
NC_120
NC_119
NC_120
NC_119
NC_110
NC_100
NC_118
NC_111
NC_110
NC_100
NC

W14 W13 W12 W11 W10 W9 W8 W7 W3 W2 W1 V14 V13 V12 V3

AH1:
V2
V1
U14
U13
U12
U10
U7
U6
U3
U12
U1
T14
T13
T12
R2
T3
T1
R14
R13
AH6
AH6
AH6
R1



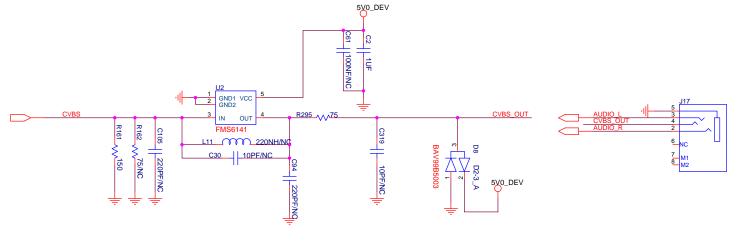


VIDEO OUTPUT

** Design guideline **

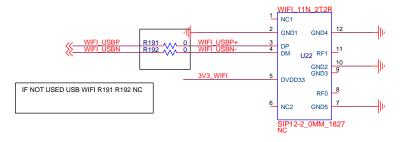
1.All channel traces should be separated from other traces by GND.2.ESD components are suggested for ports protection, default BAV99.

VIDEO BUFFER	LC Filter
R182 = 24K 1%	R182 = 12K 1%
R161 = 150 1%	R161 = 75 1%
R162 = NC	R162 = NC
C105 = NC	C105 = NC
C30 = NC	C30 = 10PF
L11 = NC	L11 = 220NH
C94 = NC	C94 = 220PF
R295 = 75 1%	R295 = 0
C319 = NC	C319 = NC
C61 = NC	C61 = NC
C2 = 1UF	C2 = NC
U2 = FMS6141	U2 = NC

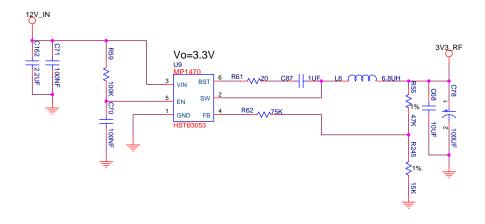


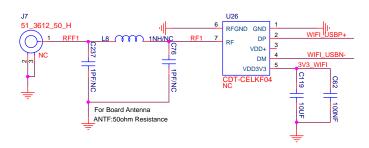
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		Α	03030001	HUAWEI TECH CO.,			

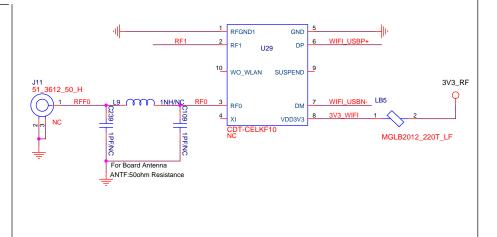
USB WIFI



POWER OF WIFI

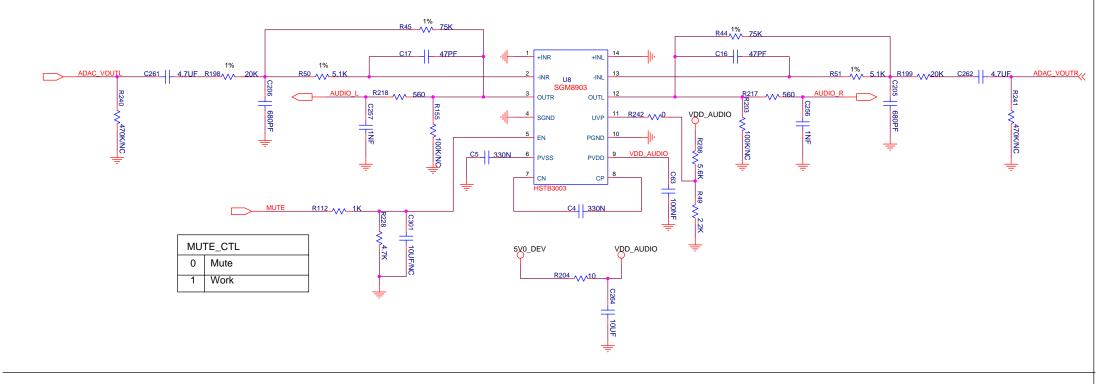




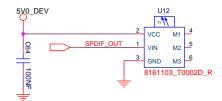


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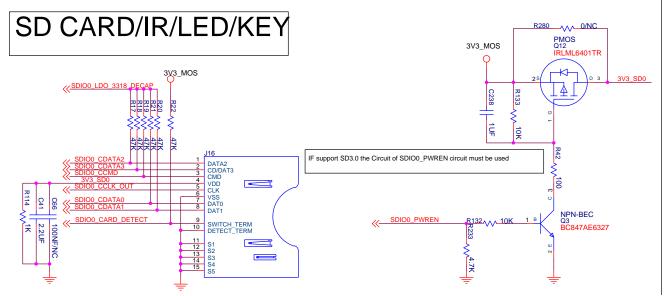
AUDIO OUTPUT

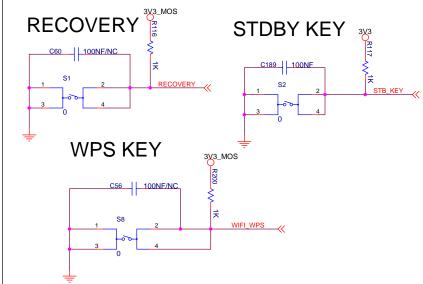


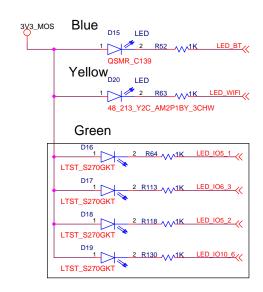
SPDIF

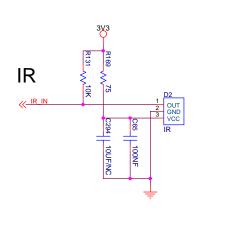


The type and specification of the components Telef to the BOW							
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DESIGNED	HEMINGXIAO 358121						
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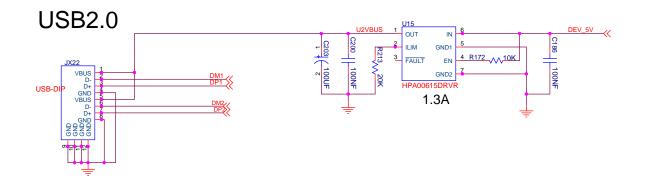


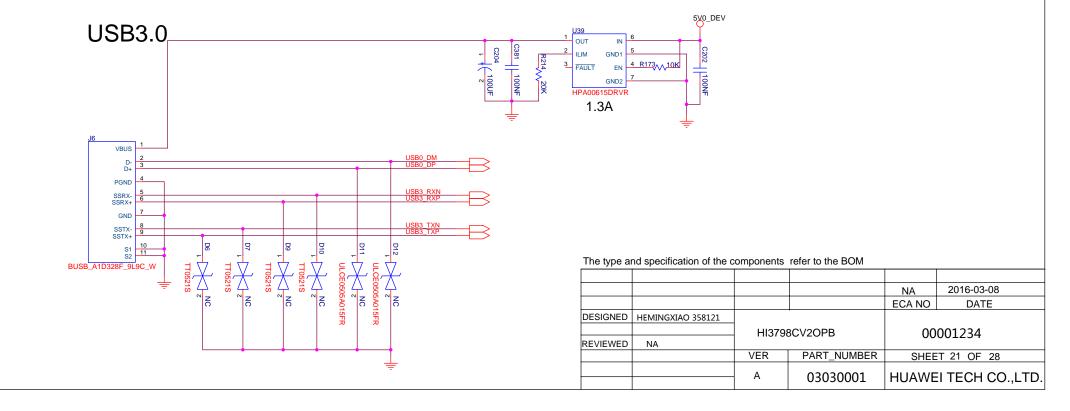




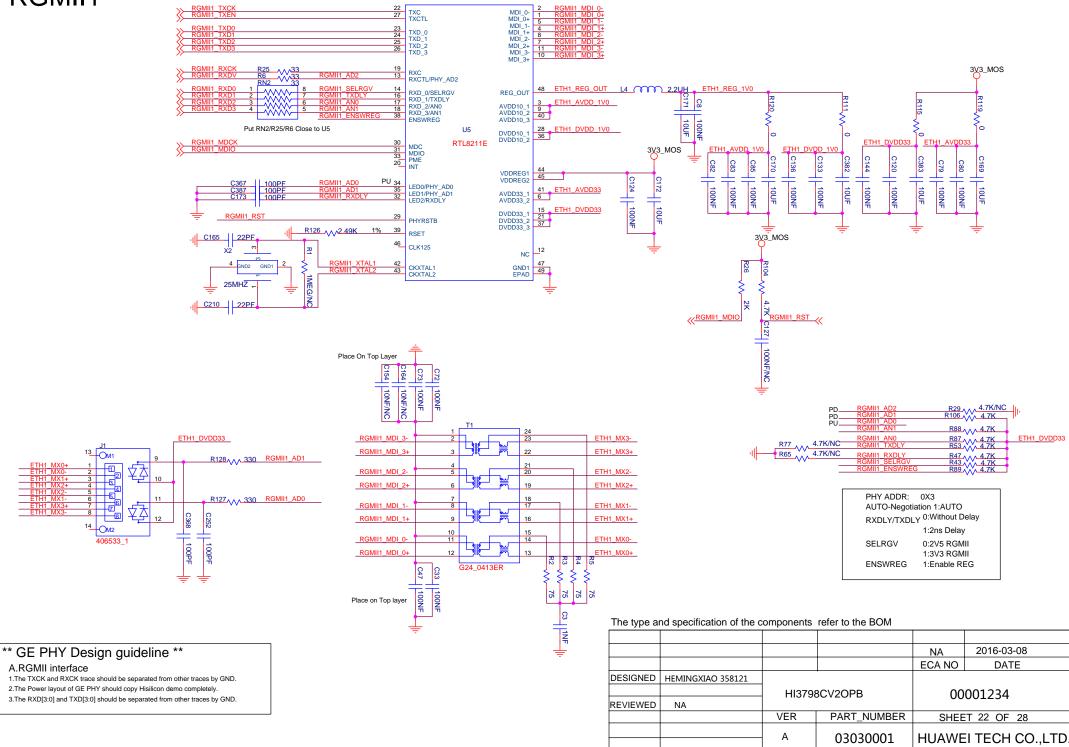
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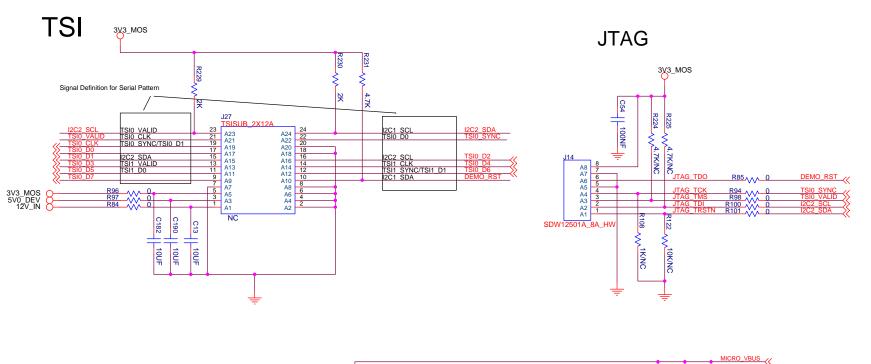
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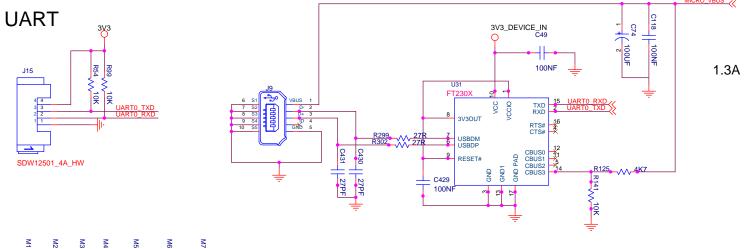




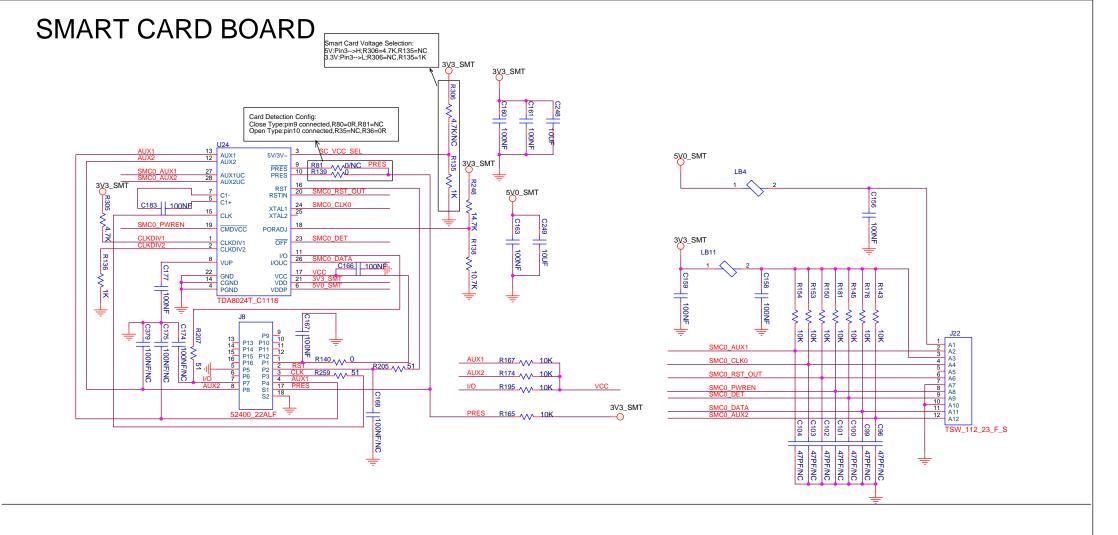
RGMII1



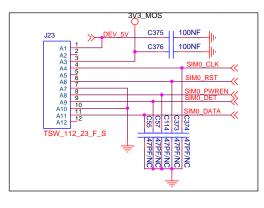




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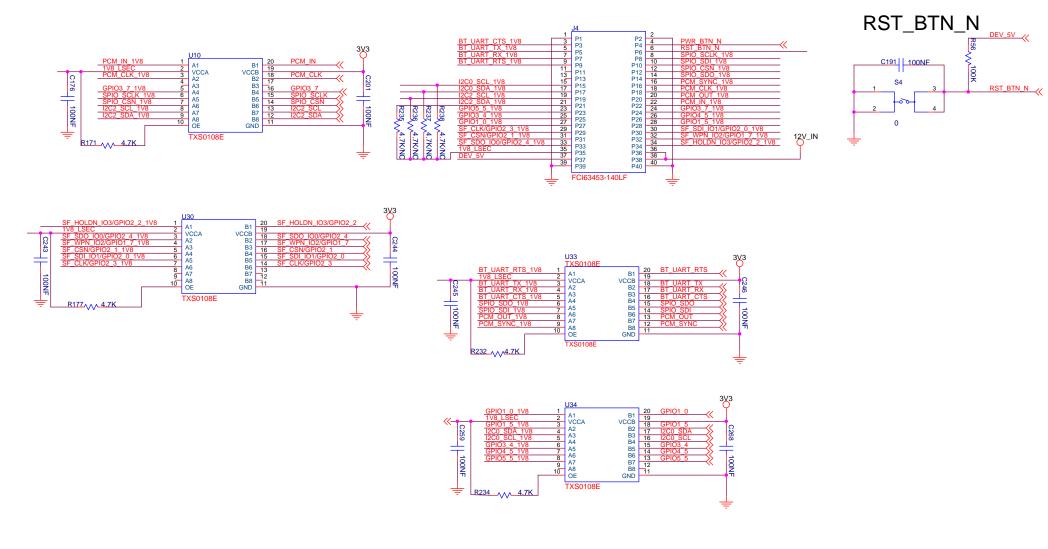
Connector for Smart Card Board



The type and specification of the components refer to the BOM

The type and specification of the components refer to the Between								
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				NA	2016-03-08			
				ECA NO	DATE			
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		HI3798	BCV2OPB					
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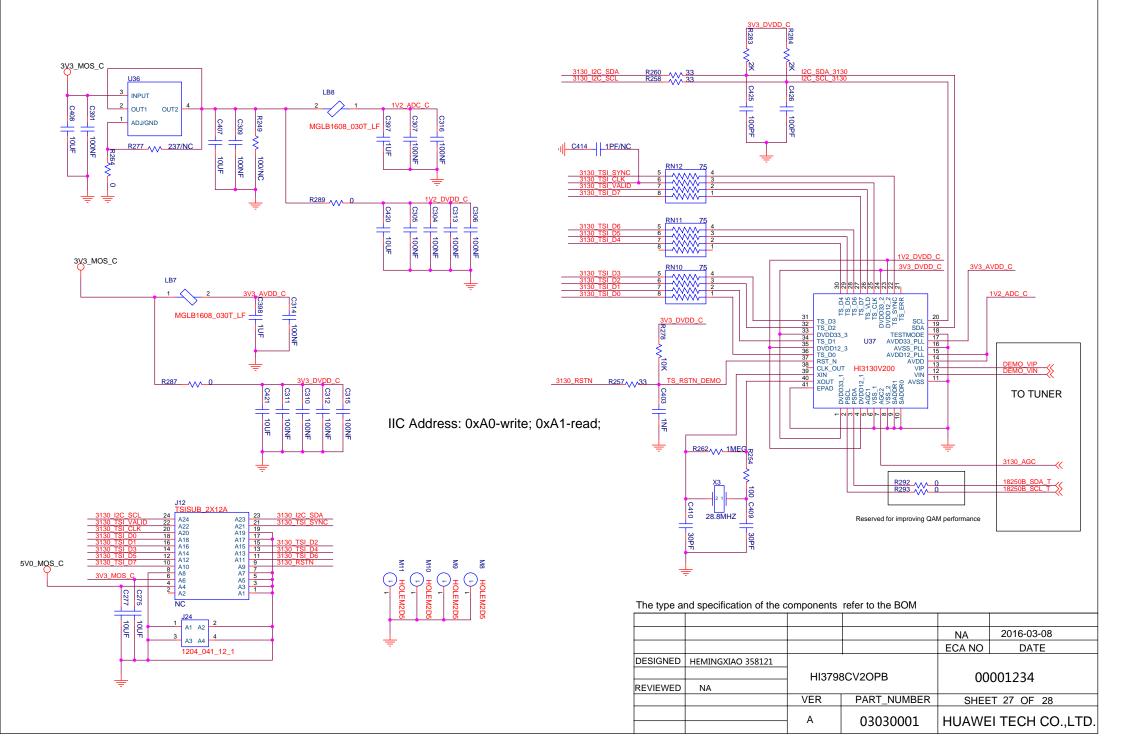
Low Speed Expansion Connector(LSEC)

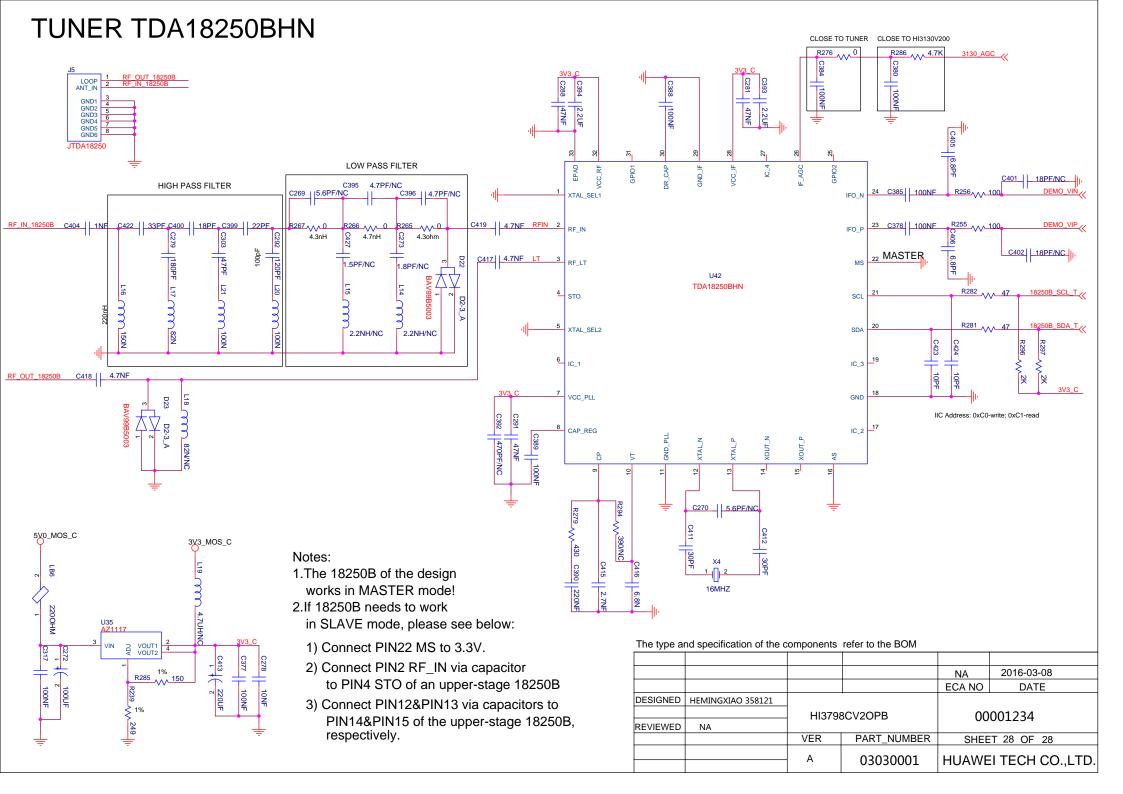


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		Α	03030001	HUAWE	TECH CO.,LTD.			

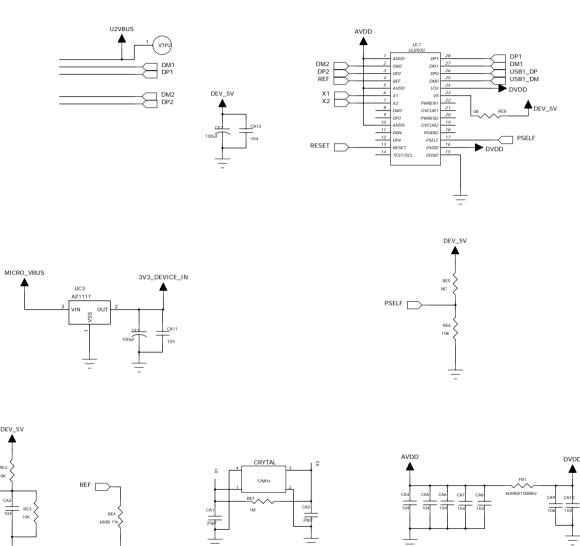
PCIe 1 lane PCIE0_12V0 Q5 PMOS-GSD IRLML5203TR C369 (100UF) 12V_IN PCIE0_12V0 LB32 PRSNT1 12V+_4 12V+_1 12V+_2 12V+_3 GND31 SMCLK SMCLK SMDAT 12V+_5 GND13 3V3_MOS MGLB2012_220T_LF JTAG2 JTAG3 GND37 3V3+_1 JTAG1 3.3VAUX WAKE JTAG4 JTAG5 R252 _______4.7K 3V3 PCIE0 3V3+_3 3V3+_3 PERST PCIE RST 3.3VAUX WAKE RSVD4 B12 RSVD4 B13 B14 PETP0 PETN0_1 GND20 PRSNT2_1 B16 CND21 B17 CPU_WAKE_PCIE GND1 REFCLK-A13 A14 REFCLK-GND2 PERPO PERNO PCIE0_HOTPLUG R250 AAA 4.7K/NC GND21 PETN1 GND22 GND23 PETN2 GND23 PETN2 GND24 GND25 PETN2 GND26 GND26 PRSNT2. GND26 FRSNT2. GND26 FRSNT2. GND26 FRSNT2. FRSNT2. GND26 FRSNT2. FRSNT2. GND26 FRSNT2. FRSNT2. GND26 FRSNT2. FRSNT2. GND36 GND30 GND30 GND30 GND30 GND30 GND30 FRSNT2. FRSNT2. GND36 FRSNT2. GND56 GND57 FRSNT2. GND56 GND56 FRSNT2. GND56 GND56 FRSNT2. GND56 GND57 FRSNT2. GND56 GND56 FRSNT2. FRSNT2. FRSNT2. FRSNT2. GND56 FRSNT2. FRSNT2. GND56 FRSNT2. FRSNT2 3V3_PCIE0 Close to PCIE SKT NPN-BEC Q16 // PCIE_PWR_EN BC847AE6327 PCIE TX TERMINATE NEEDS AC COUPLE Q18 PMOS-GSD IRLML6401TR 3V3_PCIE0 3V3_MOS C250 100NF C329 | 10UF 3V3_MOS LB31 PERP11 PERN11 GND45 GND46 GND60 GND61 PETP12 PETN12 MGLB1608_030T_LF GND62 GND63 PETP13 PETN13 GND64 GND65 PETP14 PERP12 PERN12 NPN-BEC Q7 GND47 GND48 PERP13 PERN13 GND49 PCIE0_PWR_EN: H Power On L Power Off GND50 PERP14 PETN14 GND66 GND67 PETP15 PERN14 GND51 PETP15 PETN15 B80 GND68 PRSNT2_4 RSVD7 GND52 PERP15 PERN15 GND53 M2 The type and specification of the components refer to the BOM 2EG08227_D2D_DF NA 2016-03-08 PCIe_Socket ECA NO DATE DESIGNED | HEMINGXIAO 358121 HI3798CV2OPB 00001234 REVIEWED PART_NUMBER VER SHEET 26 OF 28 HUAWEI TECH CO.,LTD. 03030001

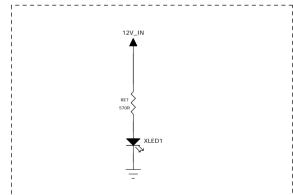
HI3130V200





HUB





Power indicator light