

AUDIO OUT

3.5"
OUT

DAC

CX20921/4

3.5"
IN

SPI FLASH
Memory

USB

SPEECH OUT

To
Raspberry_Pi
CON 40-Pin

I2S

For AEC

RESET

WAKEUP

I2C

POWER

5V

3.3V

USB_5V

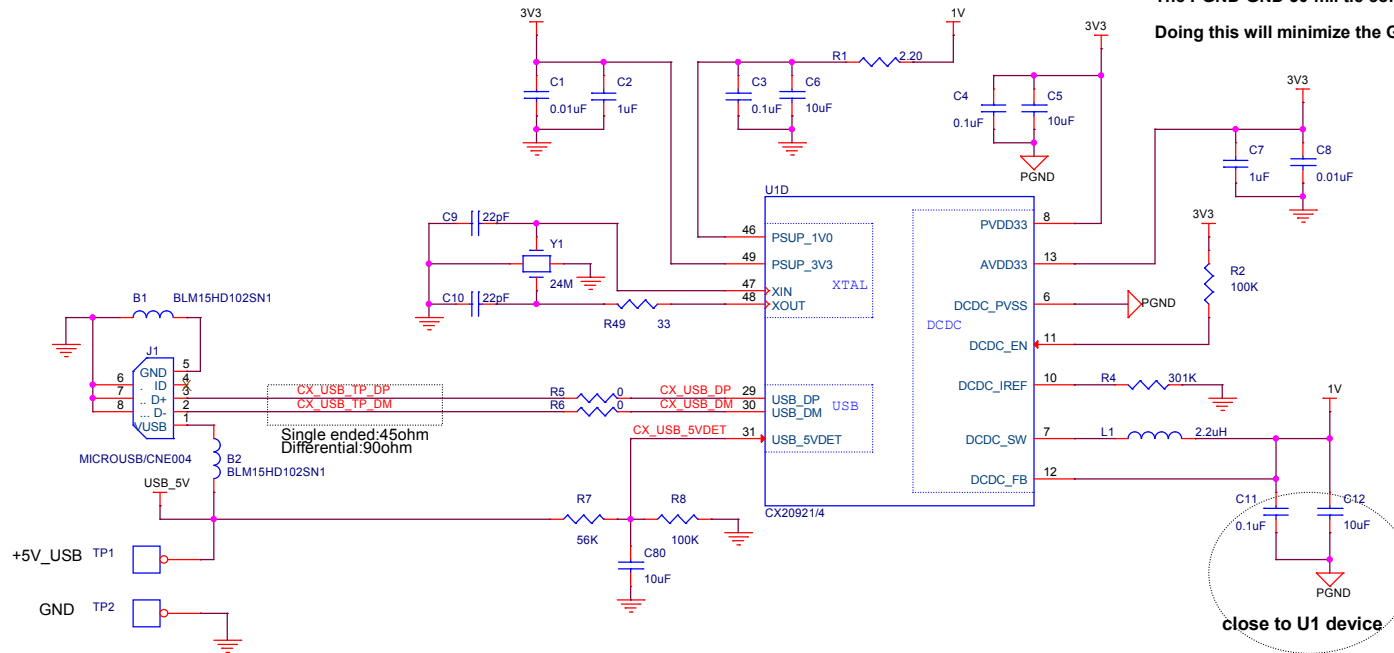
SPI



Baidu Online Network Technology (Beijing) Co., Ltd

MODEL	Baidu Dev Kit Individual 1		
Version	v1.0		
DESCRIPTION			
DATE:	Friday, June 23, 2017		SHEET 1 OF 4
APPROVAL	CHECK	DESIGN	DRAW
DATE	DATE	DATE	DATE

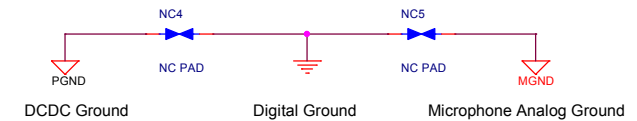
CX20921/4 DC-to-DC, USB and Crystal



DNE = Do Not Equip (for optional components in case needed)

DCDC/DIGITAL/MIC GROUNDS

Short PGND to DGND directly with a trace.
Short MGND to DGND directly with a trace.
Do not use a resistor or ferrite between the grounds.



Create PGND plane, separate from normal GND (Digital Ground) plane for internal DCDC.
Tie the PGND to Digital Ground planes together at C8/C12/Pin_6 junction using 50-mil trace.

Mic section has its own plane GND?
Tie MGND to GND with 50-mils metal plane on Bottom layer.

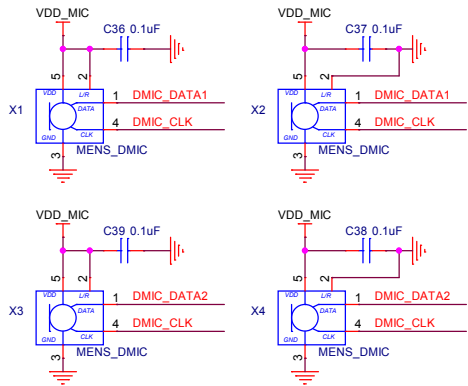
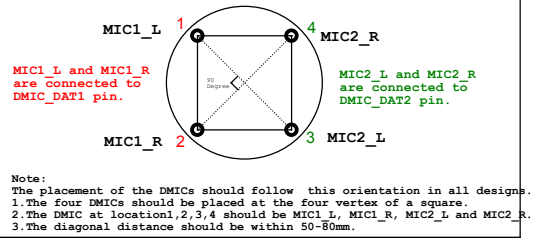


VDDO_1 - Input supply which internally powers I2S TX, I2C Slave, SPI Master, and RESET interfaces.
VDDO_2 - Input supply which internally powers I2S RX, GPIOs and UART interfaces.
VDDO_3 - Input supply which internally powers the USB interface, must always connect to +3.3V only.
Note: VDDO_1 and VDDO_2 should connect directly to +3.3V or +1.8V external System power, based on I/O signal level requirements.

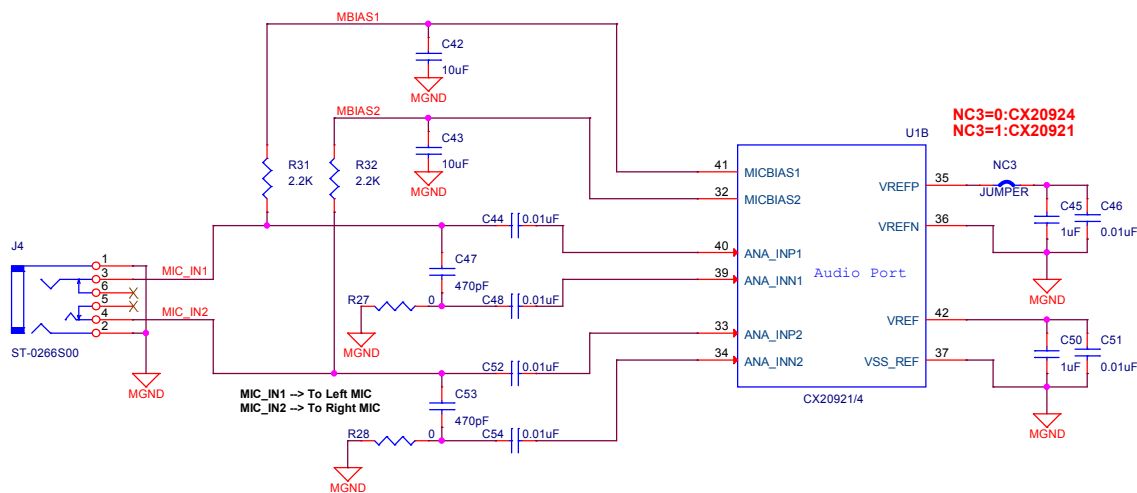
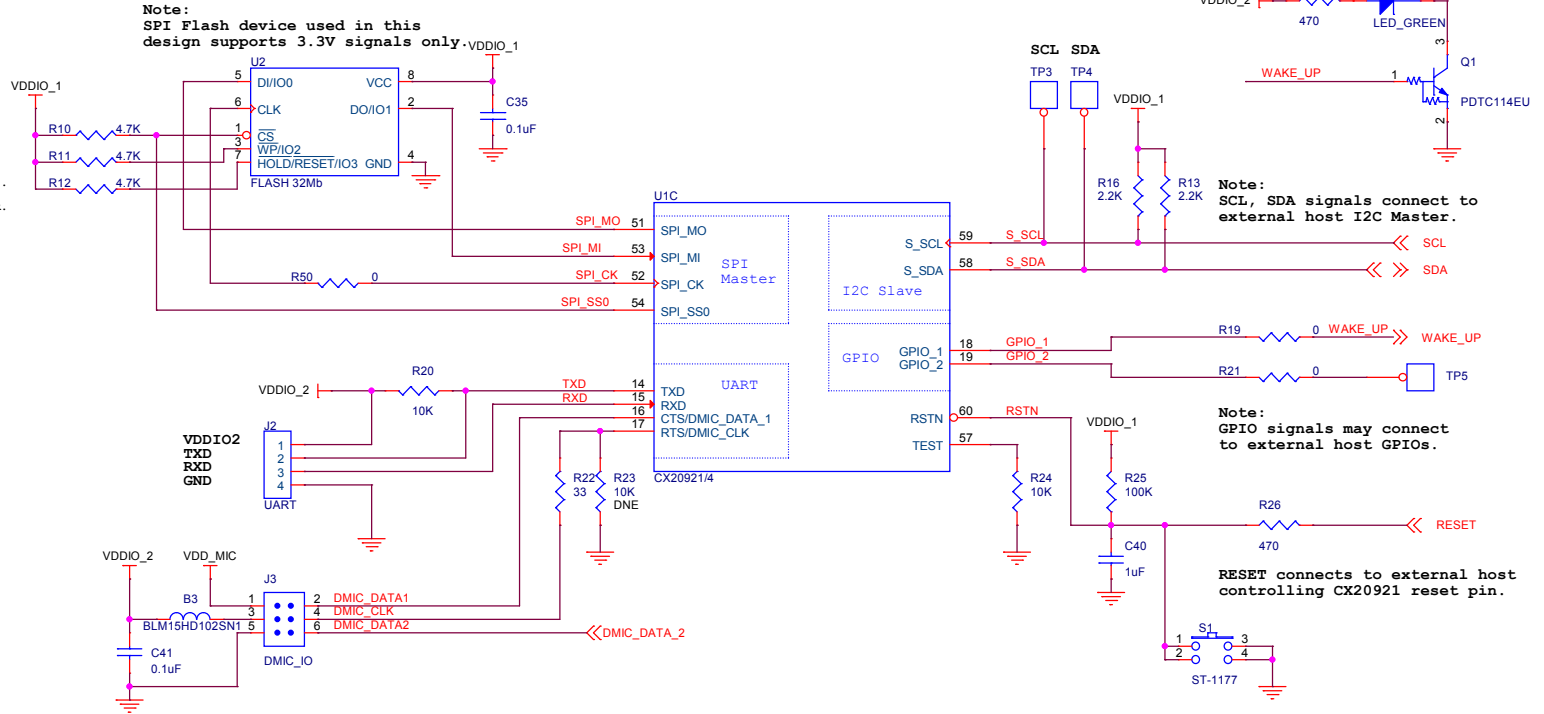
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MODEL	Baidu Dev Kit Individual 1		
Version	v1.0		
DESCRIPTION	DCDC, USB, XTAL, Power, GND		
DATE: Friday, June 23, 2017	SHEET 2 OF 4		
APPROVAL	CHECK	DESIGN	DRAW
DATE	DATE	DATE	DATE

Controller Path (CX20921/4 I2C Slave), SPI Master, Reset, UART and GPIOs

DMIC Orientation



CX20921/4 Digital Microphones Signals



CX20921 Stereo Microphones Signals

I2S_TX to Host Device for Digital Audio:

1. Pin 3 -> I2S_TX_CLK
2. Pin 1 -> I2S_TX_DATA_1
3. Pin 2 -> I2S_TX_LRCK

2-CH Echo Reference I2S:

1. Pin 22 -> I2S_RX_CLK
2. Pin 23 -> I2S_RX_DATA1
3. Pin 24 -> I2S_RX_LRCK

4-CH Echo Reference I2S:

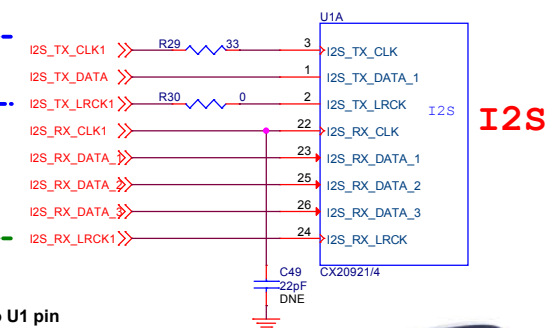
1. Pin 22 -> I2S_RX_CLK
2. Pin 23 -> I2S_RX_DATA1
3. Pin 25 -> I2S_RX_DATA2
4. Pin 24 -> I2S_RX_LRCK

Note: Place C49, R41 and R42 close to U1 pin

Note:

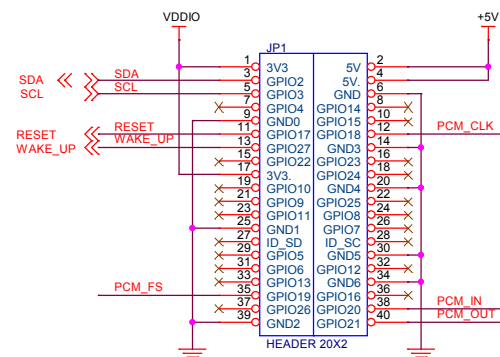
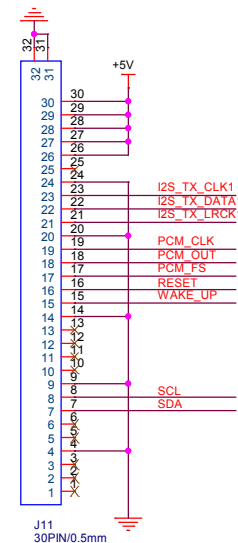
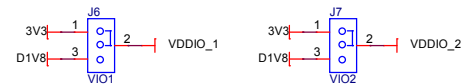
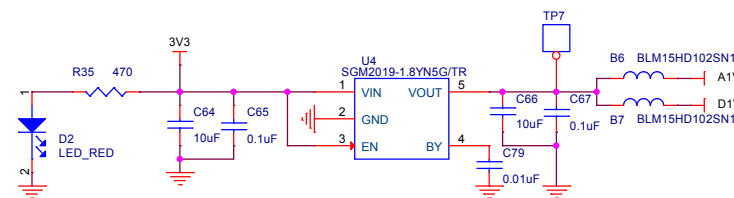
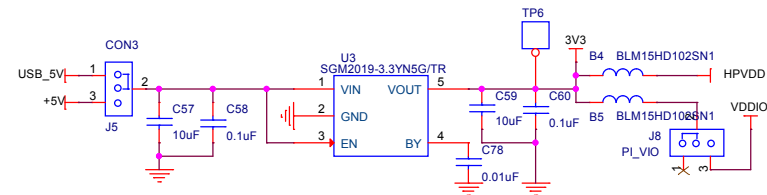
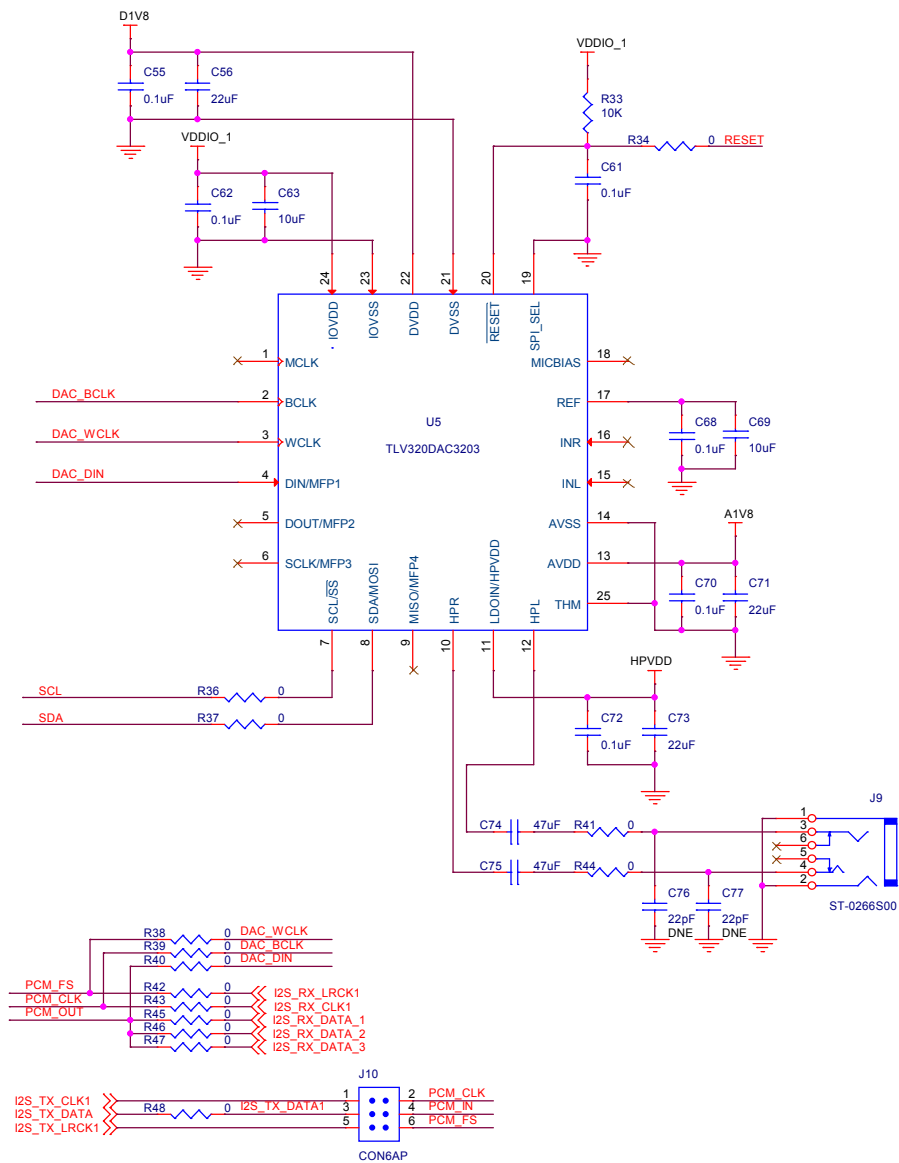
I2S_TX_CLK1, I2S_TX_DATA, I2S_TX_LRCK1, I2S_RX_CLK1, I2S_RX_DATA_1, I2S_RX_LRCK1 signals are connected to external host.

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Baidu Online Network Technology (Beijing) Co., Ltd			
MODEL	Baidu Dev Kit Individual 1		
Version	v1.0		
DESCRIPTION	I2S, RESET, GPIOs, UART, SPI Master, I2C Slave, Stereo MICs		
DATE:	Friday, June 23, 2017	SHEET	3 OF 4
APPROVAL	CHECK	DESIGN	DRAW
DATE	DATE	DATE	DATE



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Baidu Online Network Technology (Beijing) Co., Ltd				
MODEL	Baidu Dev Kit Individual 1			
Version	v1.0			
DESCRIPTION	Raspberry_Pi & DAC & POWER			
DATE:	Friday, June 23, 2017			SHEET 4 OF 4
APPROVAL	CHECK	DESIGN	DRAW	
DATE	DATE	DATE	DATE	

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