

Scheme Spec:

FLASH: MLC, 3V
 DRAM: DDR3, 1.5V
 Power: DCIN, 5V, 2A
 Card: MicroSD

Power Supply:

Name	Vout	I _{max}	Use
AXP209 DCDC2	1.25V	1600mA	CPU-VDD-1V25
AXP209 DCDC3	1.2V	1200mA	DLL-VDD-1V2
AXP209 LDO1	1.3V	30mA	RTCVD
AXP209 LDO2	3V	200mA	AVCC-3V
TCP4199 DCDC	1.5V	1200mA	DRAM-VCC-1V5
TCP4199 DCDC	3.3V	1200mA	VCC-3V3
TCP2108 LDO	2.5V	300mA	SATA-VDD-2V5

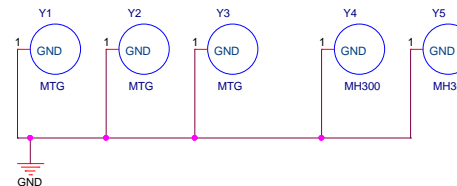
Schematics Index:

P01: COVER
 P02: Notes
 P03: PIO ASSIGNMENT
 P04: POWER TREE
 P05: A20-1
 P06: A20-2
 P07: Beside A20
 P08: DDR3 4X
 P09: POWER-PMU
 P10: POWER-DCDC
 P11: NAND
 P12: DIMM Interface
 P13: uSD & SATA
 P14: OPT

Notes:

预留屏蔽罩设计。
 屏蔽罩外预留定位孔X2,
 LED X2, SW X3, SATA X1,
 配置电阻 X6, uSD卡槽 X1

Rev	Description	Date	Drawn	Checked	Approved
Itead Core V2		2014-05-20			



Core V2		
Title	Notes	
Size	Document Number	Rev
A3	<V1.0>	
Date:	Friday, June 13, 2014	Sheet 1 of 14

Notes:

PD0-PD1, PD2-PD3, PD4-PD5, PD6-PD7,
PD8-PD9, PD10-PD11, PD12-PD13,
PD14-PD15, PD16-PD17, PD18-PD19,
差分走线, 阻抗100R+-5%

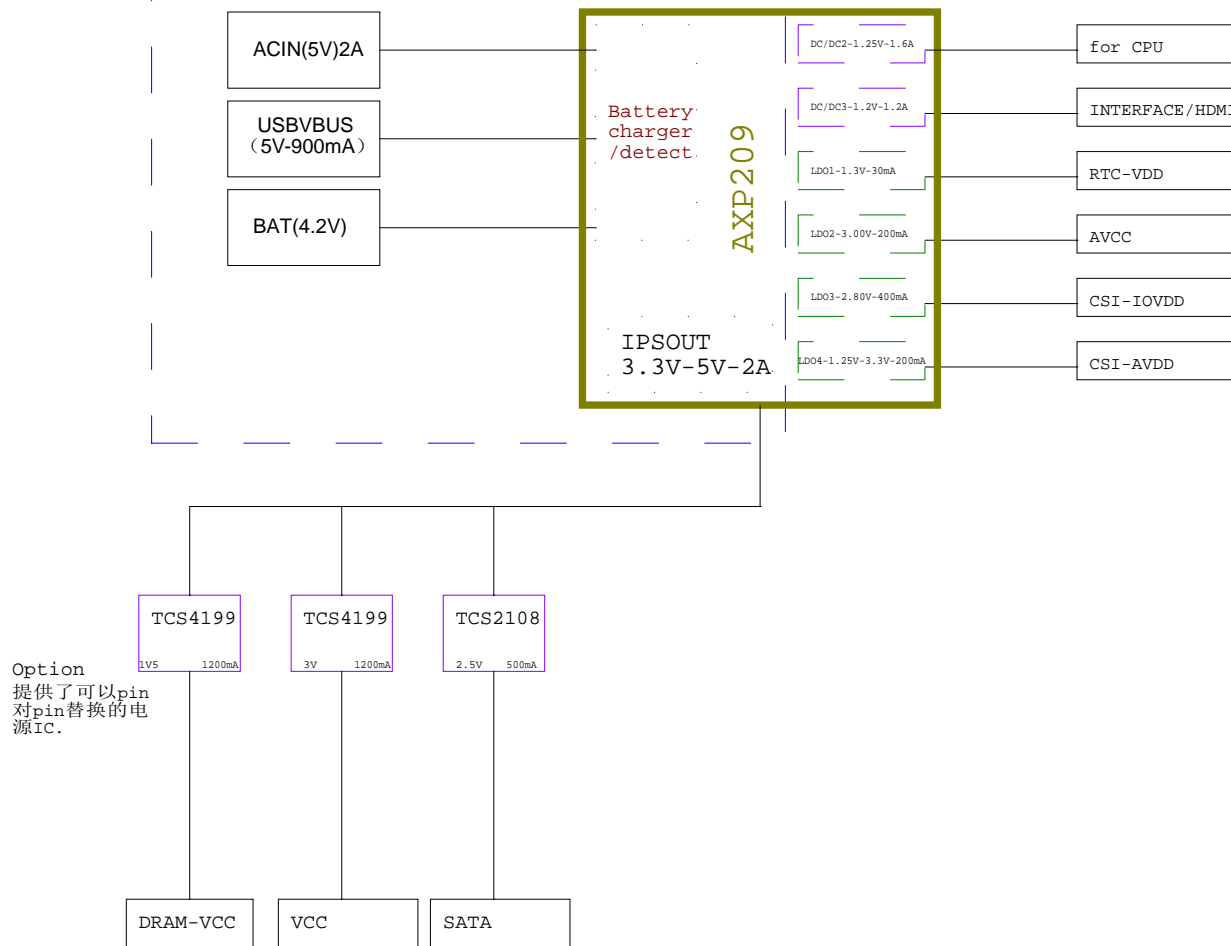
R57, R58, R59, R60, R61, R62, R63
为配置电阻, 放在屏蔽罩外。

Title		
<Title>		
Size	Document Number	Rev
A3	<Doc>	<Rev Code>
Date:	Friday, June 13, 2014	Sheet 2 of 14

Pin Group	Pin Name	Define	Function	Pin Group	Pin Name	Define	Function	Pin Group	Pin Name	Define	Function	Pin Group	Pin Name	Define	Function	Pin Group	Pin Name	Define	Function	
PA(18)	PA0	ERXD3	ETH MII/GMII	PC(25)	PC0	NWE#	NAND	PD(28)	PD17	GPIO	LCD0_D17	PH(28)	PH0	GPIO	PI(22)	PI14	GPIO	PS2_SCK		
	PA1	ERXD2			PC1	NALE			PD18	GPIO	LCD0_D18		PH1	SD0-DET		PI15	GPIO	PS2_SDA		
	PA2	ERXD1			PC2	NCLE			PD19	GPIO	LCD0_D19		PH2	GPIO		PI16	GPIO	UART2_RTS		
	PA3	ERXD0			PC3	NCE1			PD20	GPIO	LCD0_D20		PH3	GPIO		PI17	GPIO	UART2_CTS		
	PA4	ETXD3			PC4	NCE0			PD21	GPIO	LCD0_D21		PH4	GPIO		PI18	GPIO	UART2_TX		
	PA5	ETXD2			PC5	NRE#			PD22	GPIO	LCD0_D22		PH5	GPIO		PI19	GPIO	UART2_RX		
	PA6	ETXD2			PC6	NRB0			PD23	GPIO	LCD0_D23		PH6	GPIO		PI20	GPIO	UART7_TX		
	PA7	ETXD2			PC7	NRB1			PD24	GPIO	LCD0_CLK		PH7	GPIO		PI21	GPIO	UART7_RX		
	PA8	ETXD2			PC8	NDQ0			PD25	GPIO	LCD0_DE		PH8	GPIO						
	PA9	ERXERR			PC9	NDQ1			PD26	GPIO	LCD0_HSYNC		PH9	GPIO						
	PA10	ERXDV			PC10	NDQ2			PD27	GPIO	LCD0_VSYNC		PH10	GPIO						
	PA11	EMDC			PC11	NDQ3							PH11	GPIO						
	PA12	EMDIO			PC12	NDQ4							PH12	GPIO						
	PA13	ETXEN			PC13	NDQ5							PH13	GPIO						
	PA14	ETXCK			PC14	NDQ6			PE(12)	PE4	GPIO		CSI0	PH(28)		PH14	GPIO			
	PA15	ECSR			PC15	NDQ7				PE3	GPIO					PH15	GPIO			
	PA16	ECOL			PC16	NWP				PE5	GPIO					PH16	GPIO			
PA17	ETXERR	PC17	NCE2	PE6	GPIO		PH17	GPIO												
		PC18	NCE3	PE7	GPIO		PH18	GPIO												
		PC19	NC	PE8	GPIO		PH19	GPIO												
		PC20	NC	PE9	GPIO		PH20	GPIO												
		PC21	NC	PE10	GPIO		PH21	GPIO												
		PC22	NC	PE11	GPIO		PH22	GPIO												
		PC23	NC				PH23	GPIO												
		PC24	NDQS				PH24	GPIO												
PB(24)	PB0	TWI0_SCK	PMU	PD(28)	PD0	GPIO	LCD0_D0	PF(6)		PF0	SDC0_D1	SDC0	PH(28)		PH25	GPIO				
	PB1	TWI0_SDA			PD1	GPIO	LCD0_D1			PF1	SDC0_CLK				PH26	GPIO				
	PB2	GPIO	PWM		PD2	GPIO	LCD0_D2			PF2	SDC0_CMD				PH27	GPIO				
	PB3	GPIO	IR_TX		PD3	GPIO	LCD0_D3			PF3	SDC0_CMD									
	PB4	GPIO	IR_RX		PD4	GPIO	LCD0_D4			PF4	SDC0_D3									
	PB5	GPIO	I2S_MCLK		PD5	GPIO	LCD0_D5			PF5	SDC0_D2									
	PB6	GPIO	I2S_BCLK		PD6	GPIO	LCD0_D6													
	PB7	GPIO	I2S_LRCLK		PD7	GPIO	LCD0_D7	PG0	GPIO	SDIO1_CMD	PI0	GPIO								
	PB8	GPIO	I2S_D00		PD8	GPIO	LCD0_D8	PG1	GPIO	SDIO1_CLK	PI1	GPIO								
	PB9	GPIO			PD9	GPIO	LCD0_D9	PG2	GPIO	SDIO1_D0	PI2	GPIO								
	PB10	GPIO			PD10	GPIO	LCD0_D10	PG3	GPIO	SDIO1_D1	PI3	GPIO		PWM						
	PB11	GPIO			PD11	GPIO	LCD0_D11	PG4	GPIO	SDIO1_D2	PI4	GPIO		SDC3_CMD						
	PB12	GPIO			PD12	GPIO	LCD0_D12	PG5	GPIO	SDIO1_D3	PI5	GPIO		SDC3_CLK						
	PB13	GPIO	SPDIF_OUT		PD13	GPIO	LCD0_D13	PG6	GPIO	UART3_TX	PI6	GPIO		SDC3_D0						
	PB14	GPIO			PD14	GPIO	LCD0_D14	PG7	GPIO	UART3_RX	PI7	GPIO		SDC3_D1						
	PB15	GPIO			PD15	GPIO	LCD0_D15	PG8	GPIO	UART3_RTS	PI8	GPIO		SDC3_D2						
	PB16	GPIO			PD16	GPIO	LCD0_D16	PG9	GPIO	UART3_CTS	PI9	GPIO		SDC3_D3						
PB17	GPIO					PG10	GPIO	UART4_TX	PI10	GPIO	SPI0_CS									
PB18	GPIO	TWI1_SCK				PG11	GPIO	UART4_RX	PI11	GPIO	SPI0_SCK									
PB19	GPIO	TWI1_SDA							PI12	GPIO	SPI0_MOSI									
PB20	GPIO	TWI2_SCK							PI13	GPIO	SPI0_MISO									
PB21	GPIO	TWI2_SDA																		
PB22	UART0_TX	UART0 (DEBUG)																		
PB23	UART0_RX																			

POWER TREE

LAYOUT: ACIN、BATT、IPSOUT输入或输出线，从PMU管脚处就要保证尽量粗。



Option
提供了可以pin
对pin替换的电
源IC.

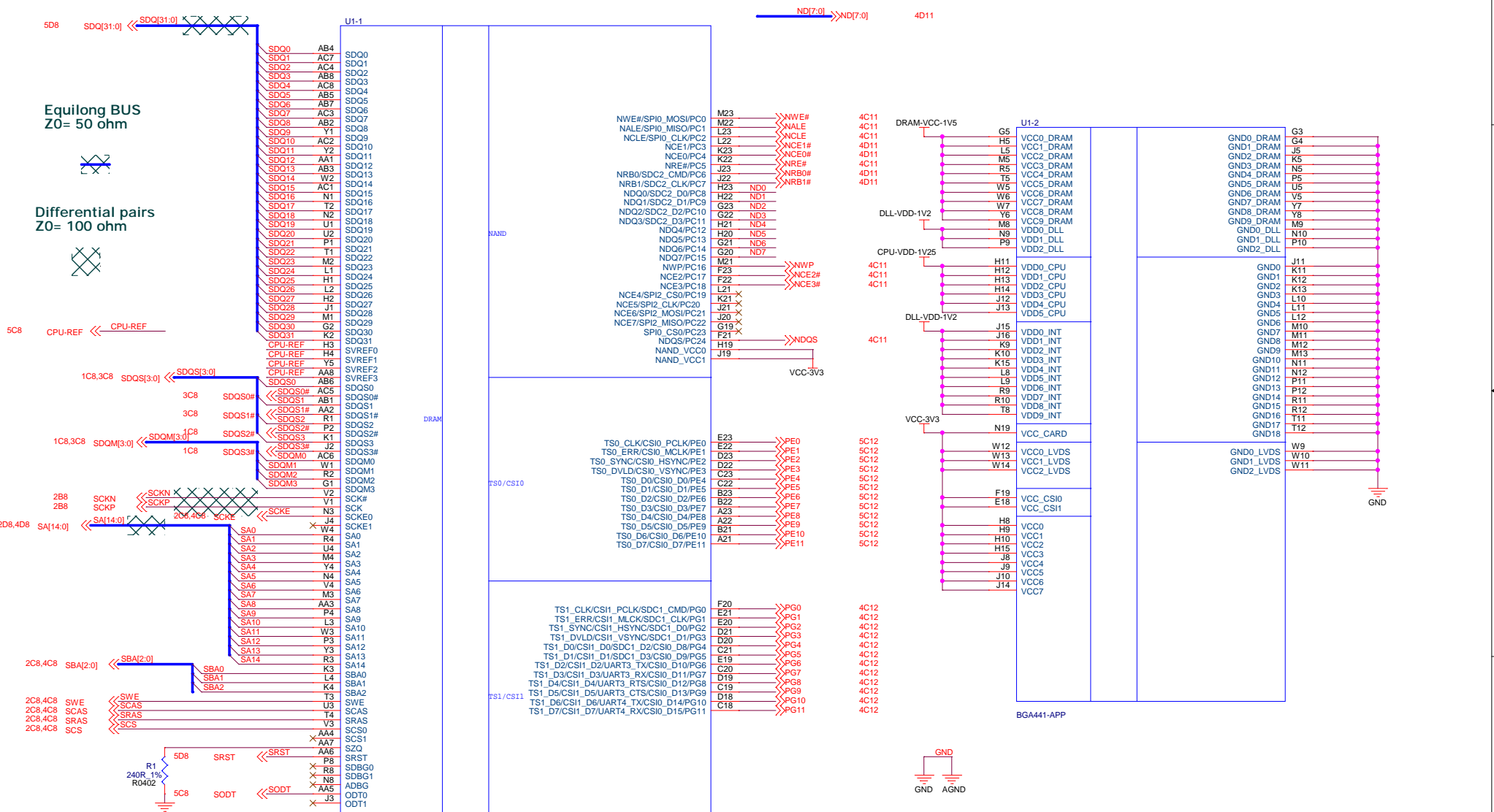
Title		<Title>	
Size	Document Number	Rev	<Rev Code>
A3	<Doc>		
Date:	Friday, June 13, 2014	Sheet	4 of 14

CPU1

Equilong BUS
Z0= 50 ohm



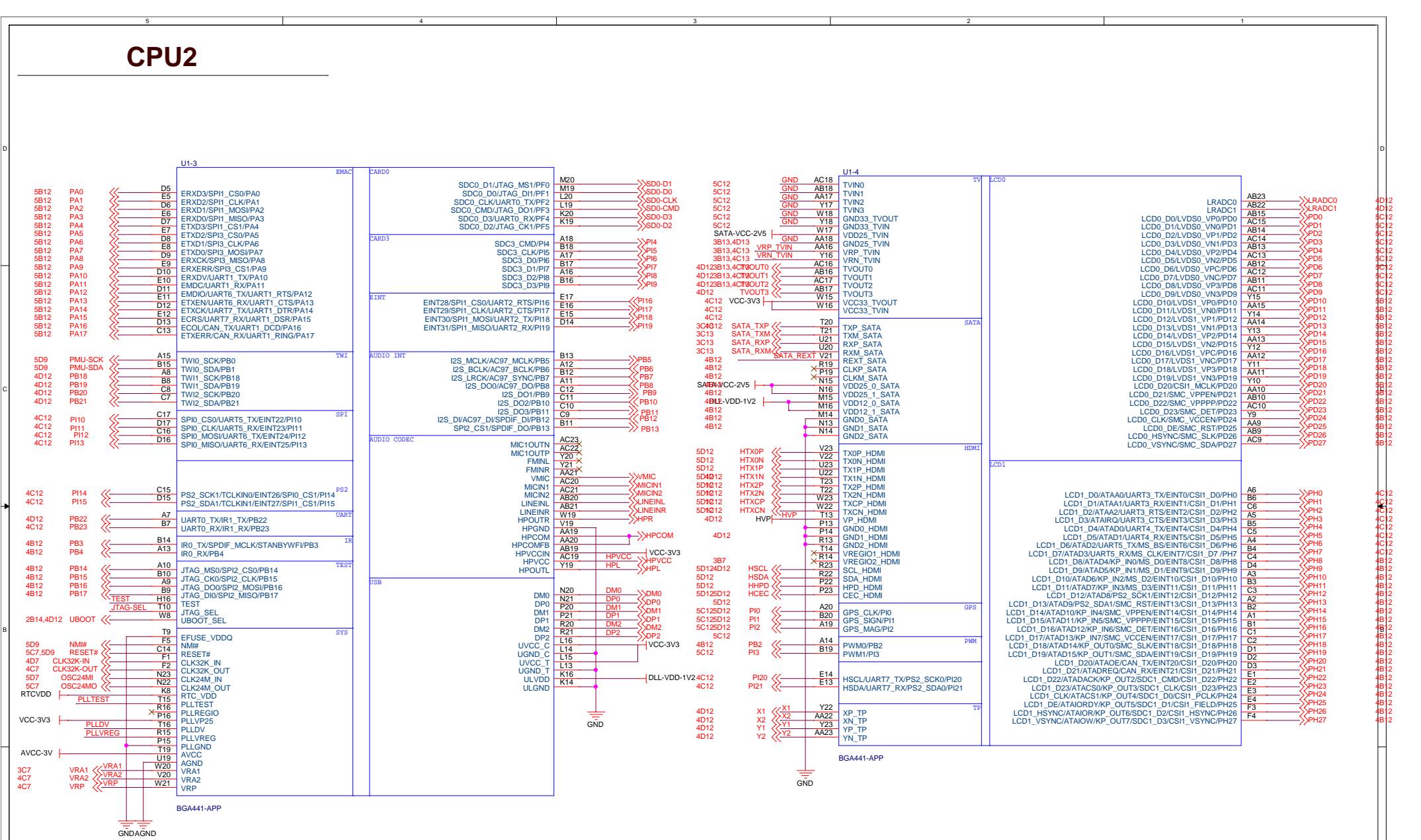
Differential pairs
Z0= 100 ohm



MAINCHIP_PAD_DDR3

Title CPU1		
Size A3	Document Number <V1.0>	Rev
Date: Friday, June 13, 2014	Sheet 5	of 14

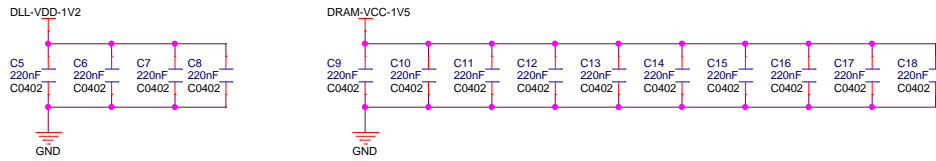
CPU2



Title			
MAINCHIP_PAD_DDR3			
CPU2			
Size	Document Number	Rev	
A3	<V1.0>		
Date:	Friday, June 13, 2014	Sheet	6 of 14

BESIDE CPU

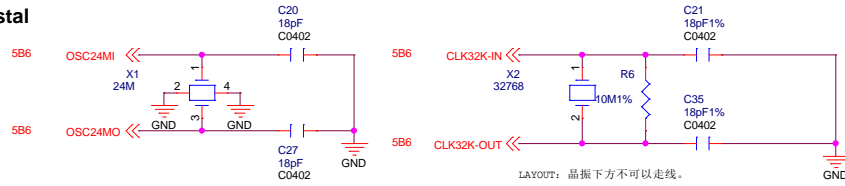
DRAM



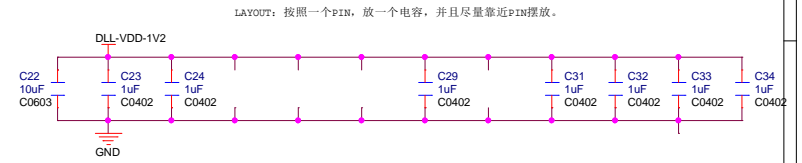
PLL



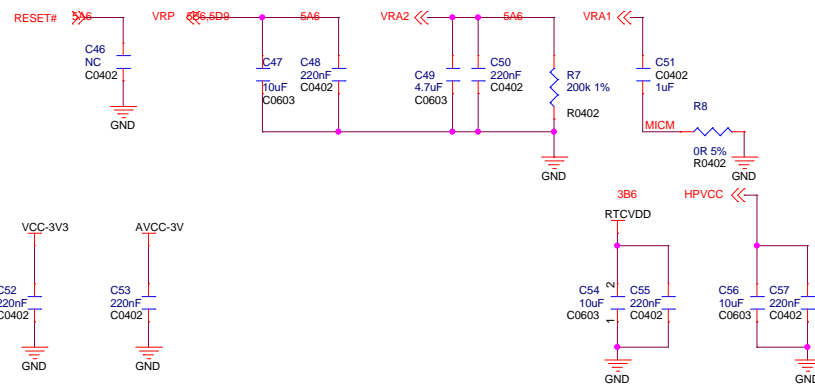
Crystal



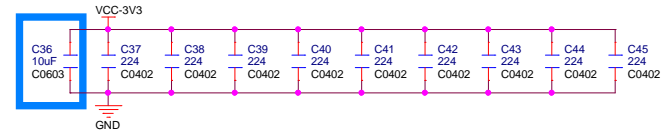
CORE



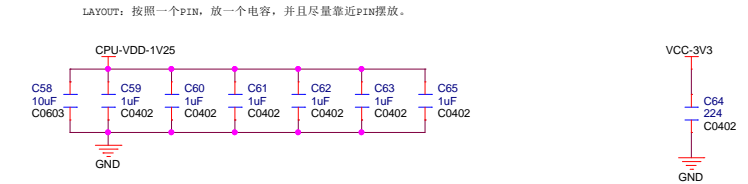
AUDIO&SYS&TP



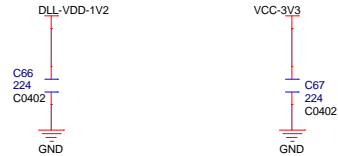
PIO-INTFACE



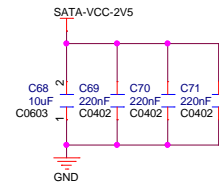
CPU&TV



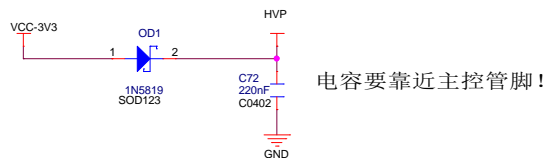
USB



SATA



HDMI

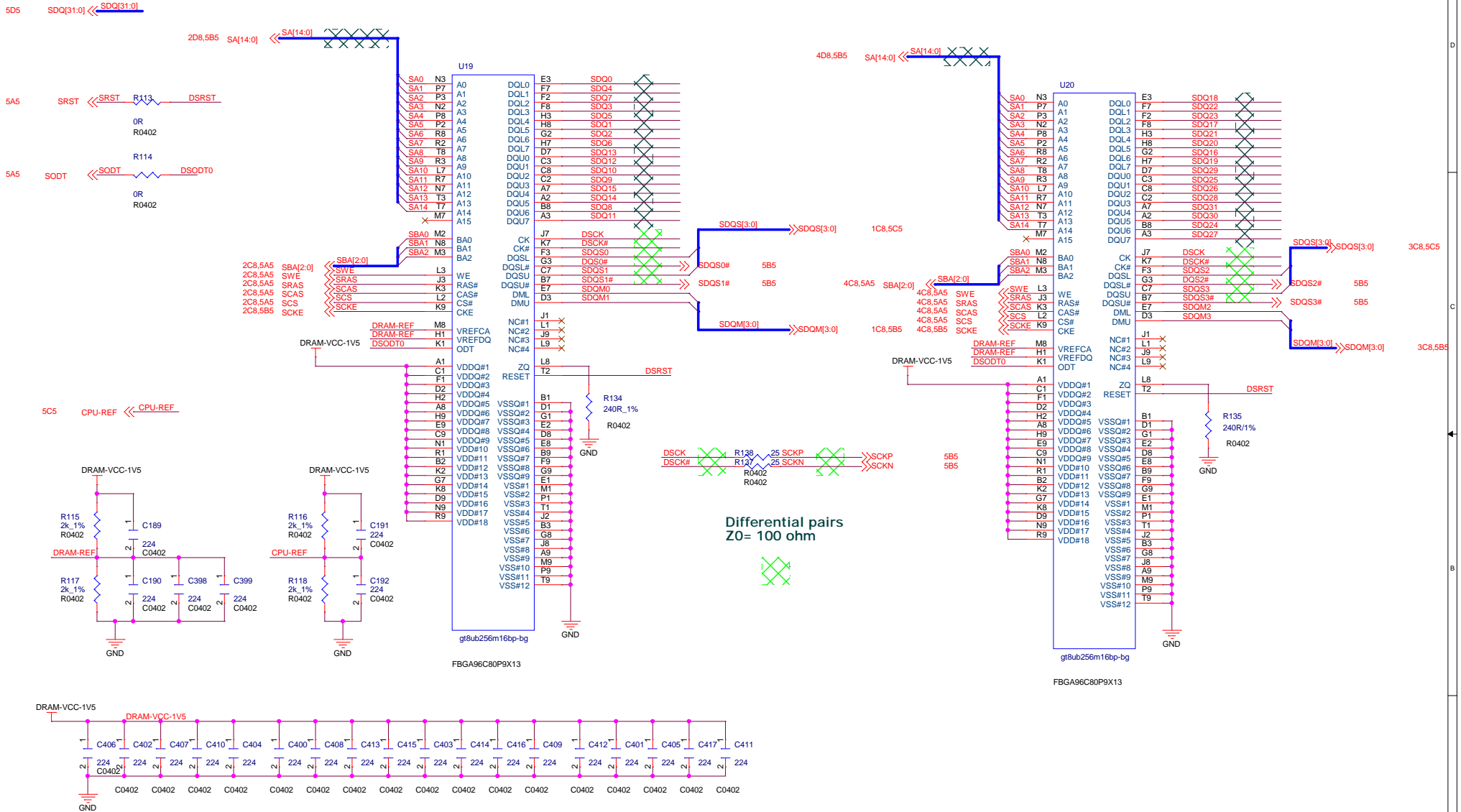


MAINCHIP_PAD_DDR3

Title BESIDE CPU		
Size A3	Document Number <V1.0>	Rev
Date: Friday, June 13, 2014	Sheet 7	of 14

DDR3-16BITX2

Please directly copy the referred DRAM layout and follow the PCB layout guide. This circuit is only for single-side PCB layout.



DQ0-7, DQM0, DQS0 Length matching 50mil
 DQ8-15, DQM1, DQS1 Length matching 50mil
 DQ16-23, DQM2, DQS2 Length matching 50mil
 DQ24-31, DQM3, DQS3 Length matching 50mil
 DA, CONTROL, CK Length matching 100mil
 DQSn, DQSn# Differential pairs Z0= 100 ohm, Length matching 10mil
 CK, CK# Differential pairs Z0= 100 ohm, Length matching 10mil

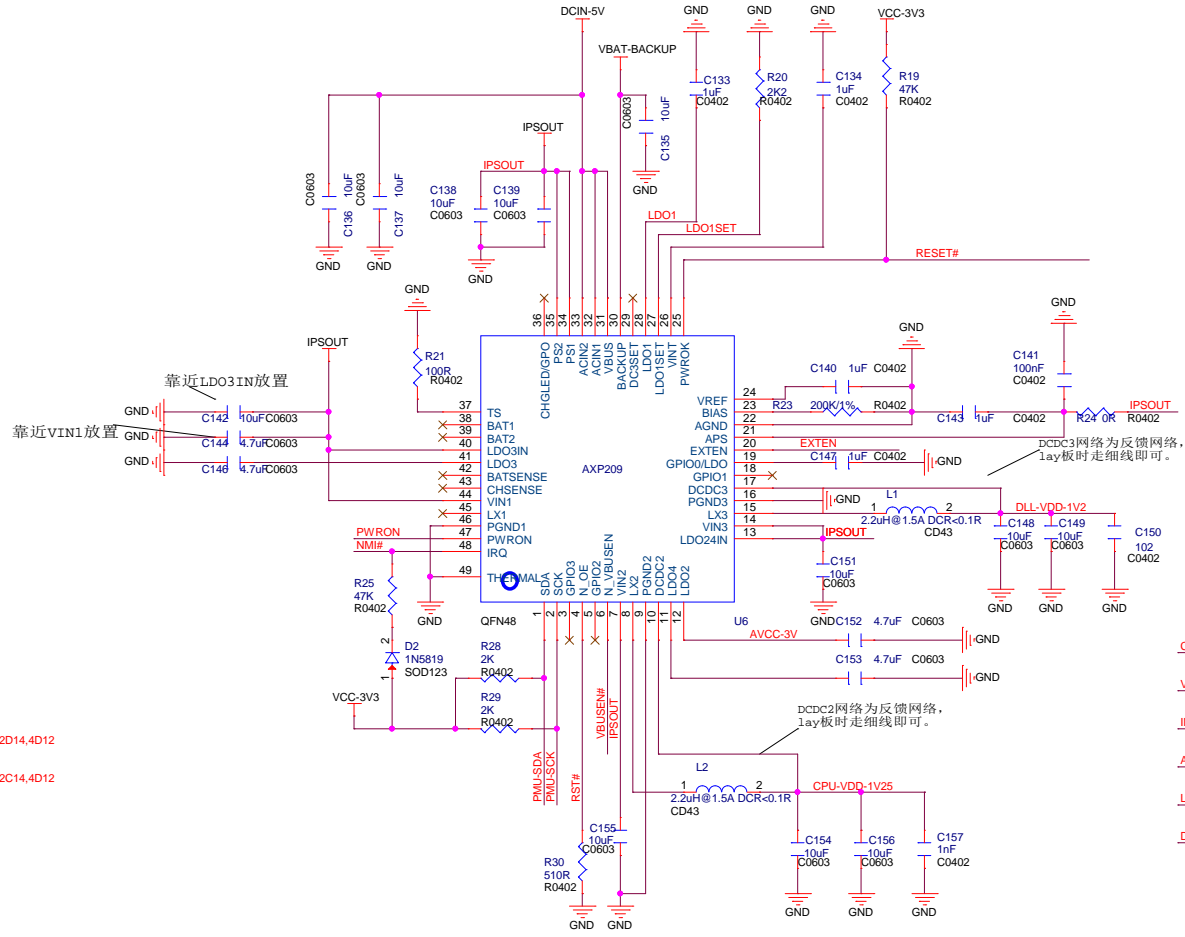
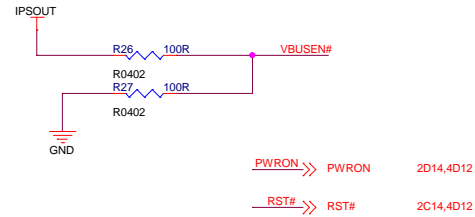
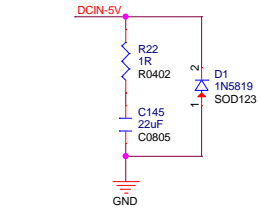
DDR3 2X

Title DDR3		
Size A3	Document Number <V1.0>	Rev
Date: Wednesday, June 18, 2014	Sheet 8	of 14

5B6 NMI# <<< NMI#
 5C8 PMU-SDA <<< PMU-SDA
 5C8 PMU-SCK <<< PMU-SCK

5D10 EXTEN <<< EXTEN
 5B6,5C7 RESET# <<< RESET#

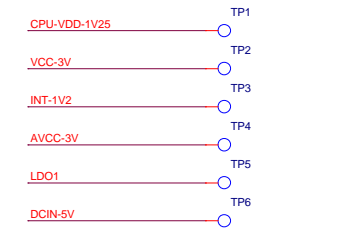
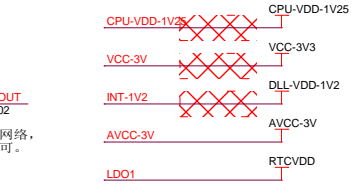
POWER INPUT



POWER LINE:Width>=80mil



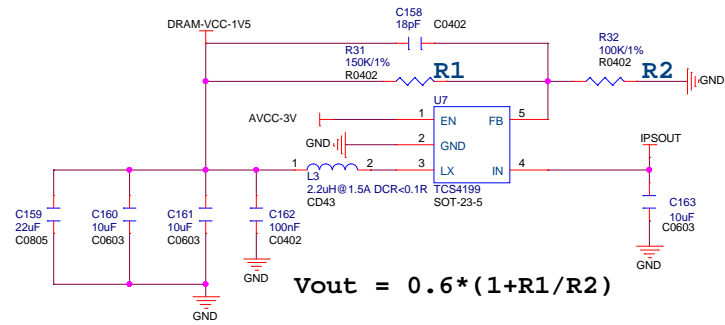
POWER LINE:Width>=40mil



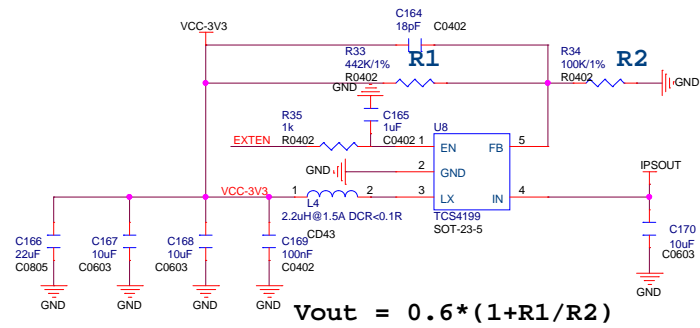
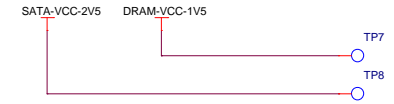
备注:
 对于电感尺寸有轻薄要求的, 推荐使用乾坤的PSE250201B-2R2MS, 其体积为2.6x2.1平方毫米, 饱和电流为1.8A, 直流阻抗为85毫欧。

Title		<Title>
Size	Document Number	Rev
A3	<Doc>	<Rev Code>
Date:	Friday, June 13, 2014	Sheet 9 of 14

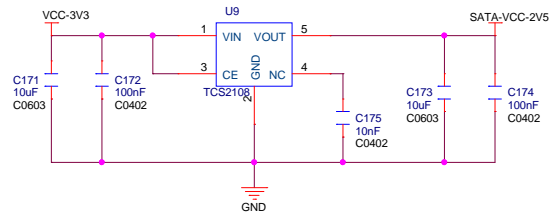
EXTEN >>> EXTEN 6D9



$$V_{out} = 0.6 * (1 + R1/R2)$$

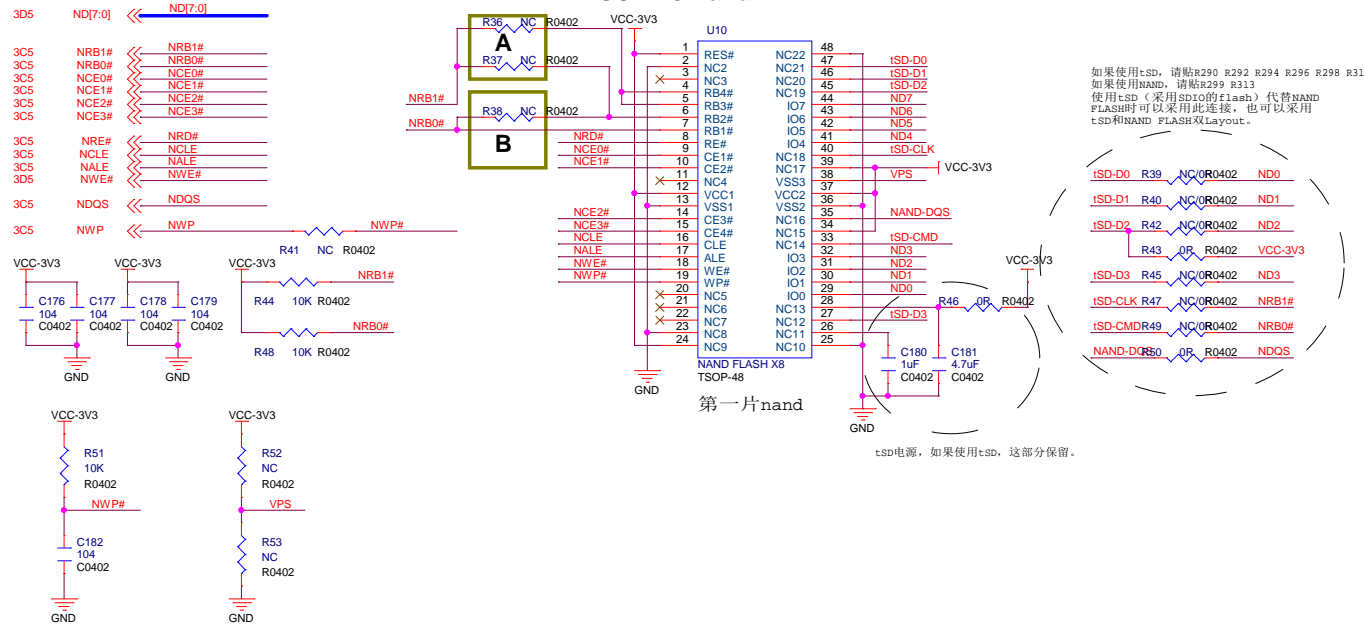


$$V_{out} = 0.6 * (1 + R1/R2)$$

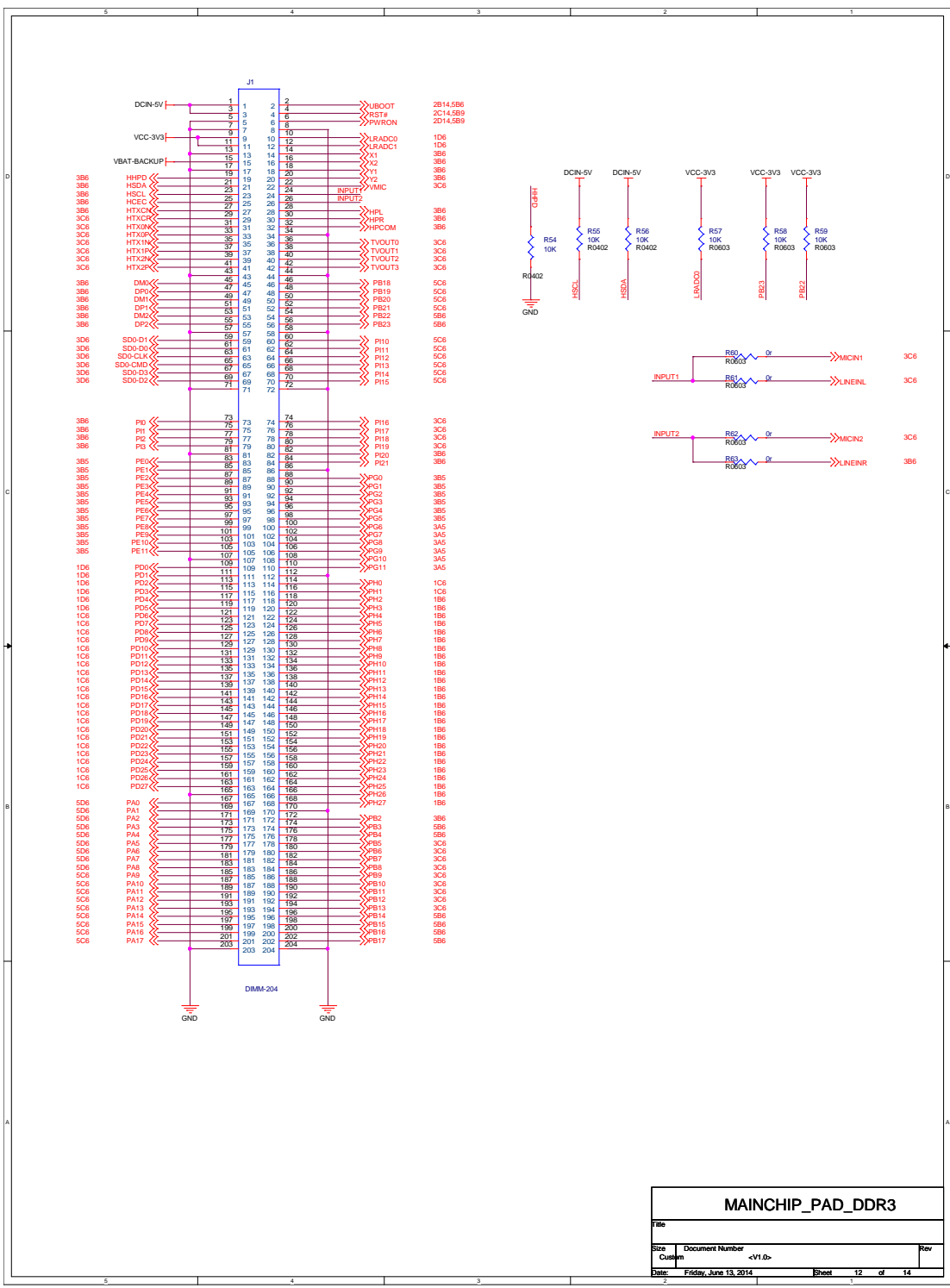


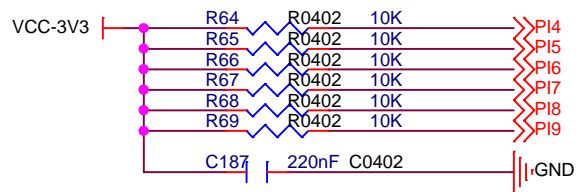
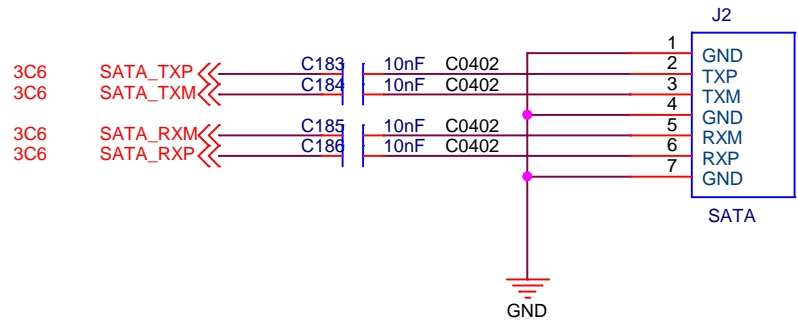
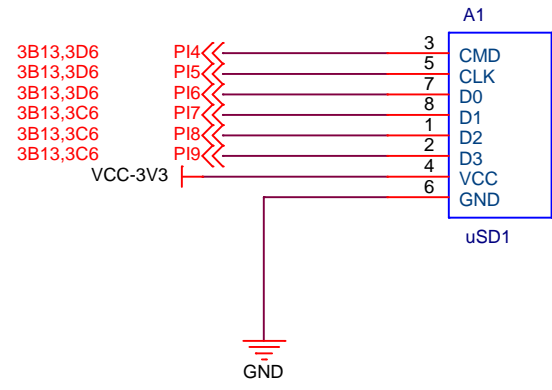
Title		<Title>
Size	Document Number	Rev
A3	<Doc>	<Rev Code>
Date:	Friday, June 13, 2014	Sheet 10 of 14

- (1) 接1片单片选Nand 时, 电阻A, B全断开
- (2) 接1片双片选Nand 时, 连接电阻A, 断开电阻B
- (3) 接1片四片选Nand 时, 连接电阻B, 断开电阻A
- (4) 接2片单片选或接2片双片选Nand 时, 连接电阻A, 断开电阻B



Title		
<Title>		
Size	Document Number	Rev
A3	<Doc>	<RevCode>
Date:	Friday, June 13, 2014	Sheet 11 of 14

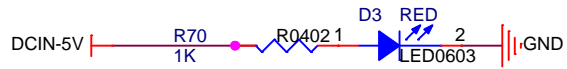




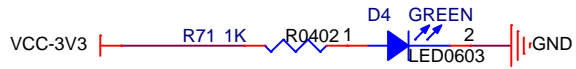
3D6,4D13
 3D6,4C13
 3D6,4C13
 3C6,4C13
 3C6,4C13
 3C6,4C13

Title		
<Title>		
Size	Document Number	Rev
A	<Doc>	<RevCode>
Date:	Friday, June 13, 2014	Sheet 13 of 14

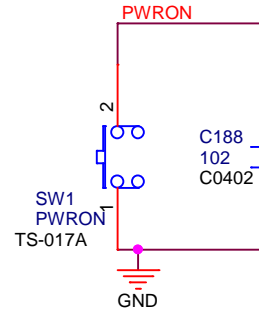
DC IN INDOCTOR



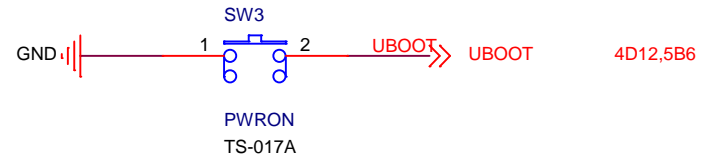
WORK INDOCTOR



4D12,5B9 PWRON <<< PWRON



IPSOUT



Title		
<Title>		
Size	Document Number	Rev
A	<Doc>	<RevCode>
Date: Friday, June 13, 2014		Sheet 14 of 14