

# Hi3536-10HDD V1.0

- 01.HiFoneHi3536 VER.A
- 02.CHANGE LIST
- 03.BLOCK DIAGRAM
- 04.POWER TREE
- 05.Power Supply
- 06.Power Supply
- 07.Unit 8&9 of Hi3536V100 (GND)
- 08.Unit 7 of Hi3536V100 (POWER)
- 09.Unit 1&2 of Hi3536V100 (DDR0 DDR1)
- 10.DDRA&B NOVTT
- 11.DDRC&D NOVTT
- 12.Unit 5 of Hi3536V100 (SYSTEM)
- 13.NAND FLASH
- 14.POWER ON SETTING
- 15.Unit 3 of Hi3536V100 (INTERFACE0)
- 16.SATA EXTEND
- 17.USB & SATA
- 18.Unit 6 of Hi3536V100 (Display)
- 19.Display HDMI Display VGA OUT
- 20.Unit 4 of Hi3536V100 (INTERFACE1)
- 21.INTERFACE
- 22.ALARM
- 23.ETH0
- 24.ETH1

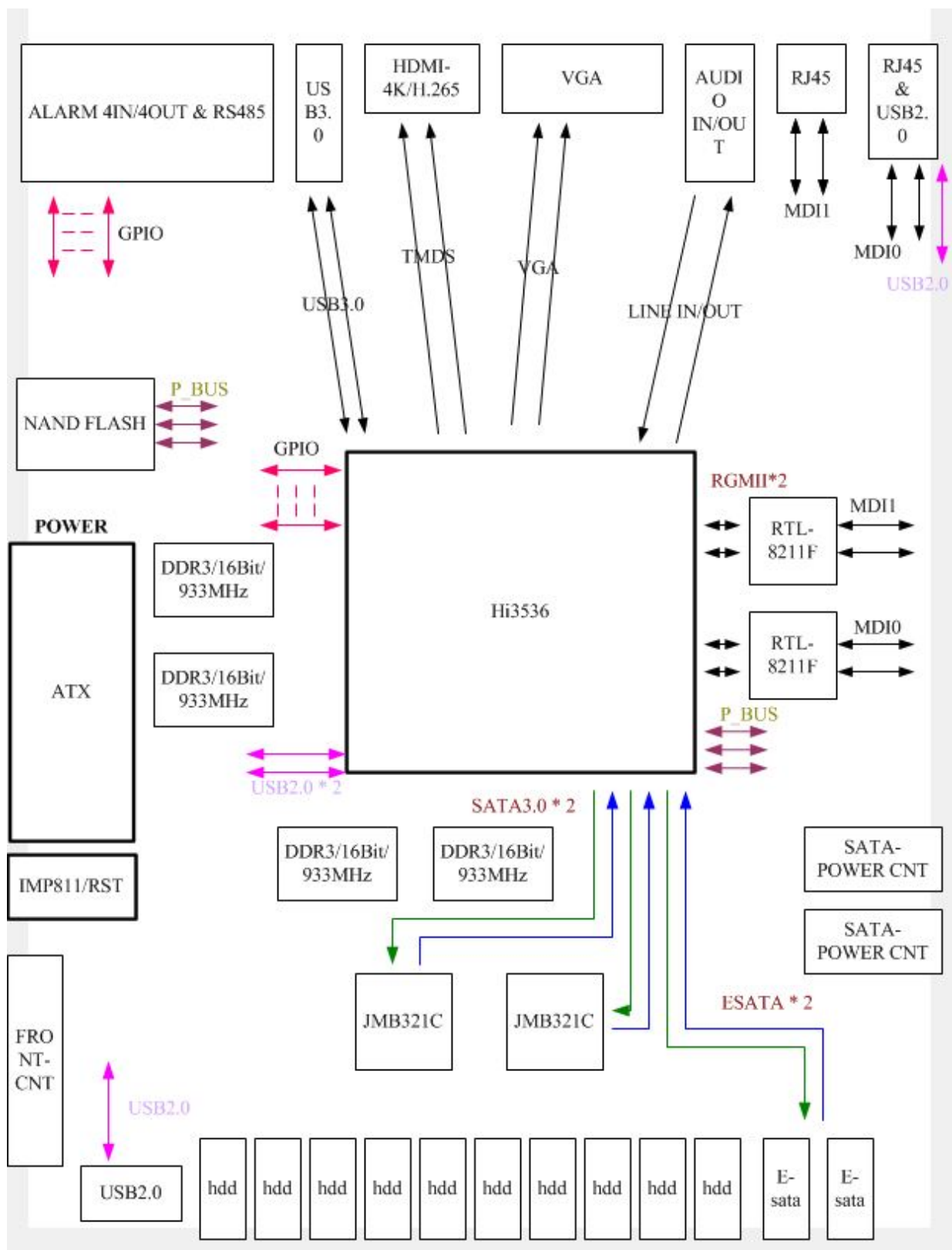
<OrgName>		
Title		
Size	Document Number	Rev
A3	Hi3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 1 of 24

# CHANGE LIST

2015.03.24 V1.0

<i>&lt;OrgName&gt;</i>		
Title		
Size	Document Number	Rev
A	Hi3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 2 of 24

# BLOCK DIAGRAM

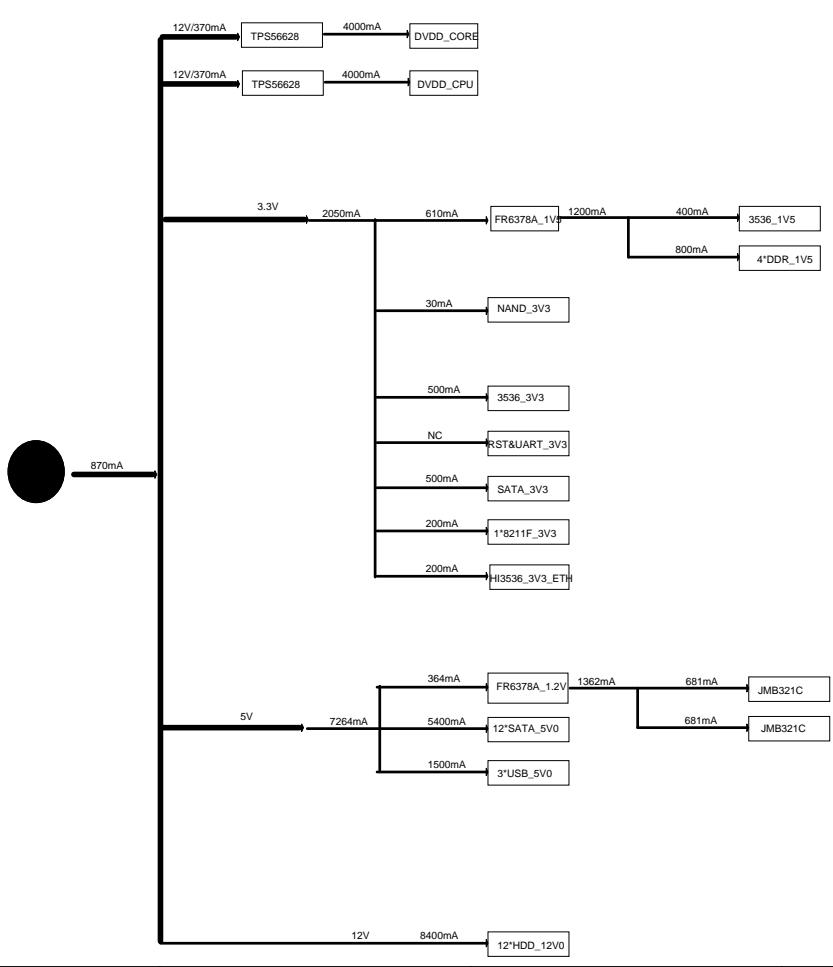


<b>&lt;OrgName&gt;</b>		
Title		
Size	Document Number	Rev
Custom	Hi3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 3 of 24

# POWER TREE

The adapter is at least 12VDO 7A adapter

5 4 3 2 1

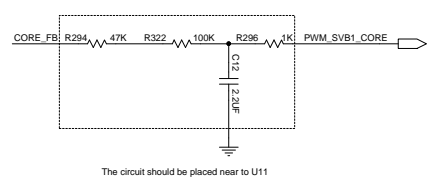
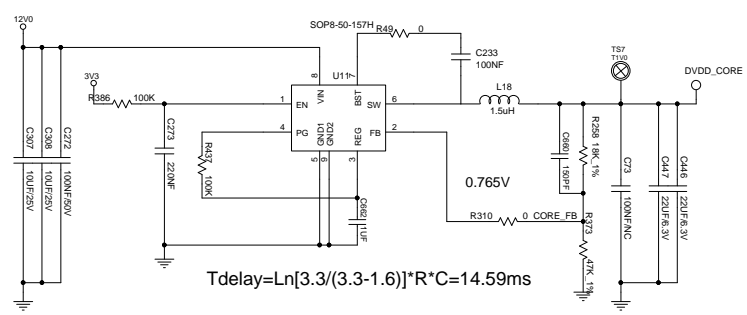


5 4 3 2 1

<OrgName>		
Title		
Size	Document Number	Rev
A3	HSSS8-10HDD-NYR	1.0
Date:	Thursday, May 21, 2015	Sheet 4 of 24

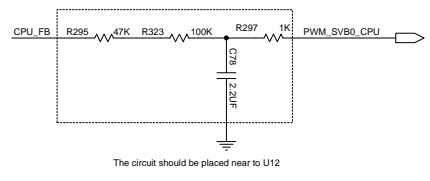
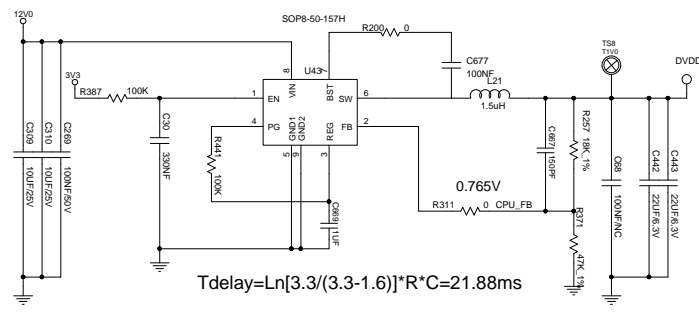
# Power Supply

## DC/DC 12V->DVDD\_CORE 6Amax



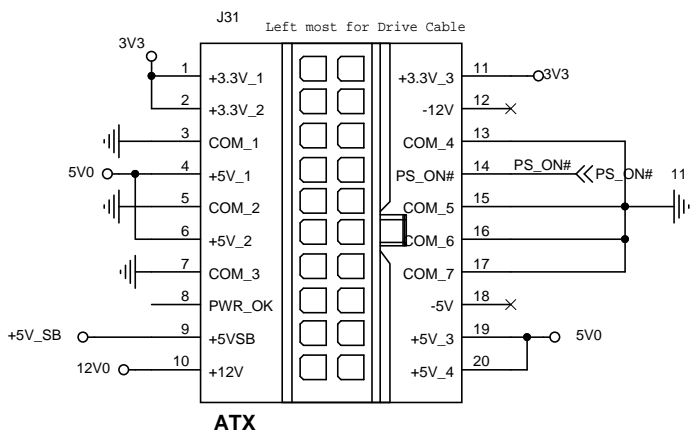
## DC/DC 12V->DVDD\_CPU 6Amax

SVB电阻的RC值见  
《Hi3536硬件设计用户指南》P10 表 1-4 RC参数

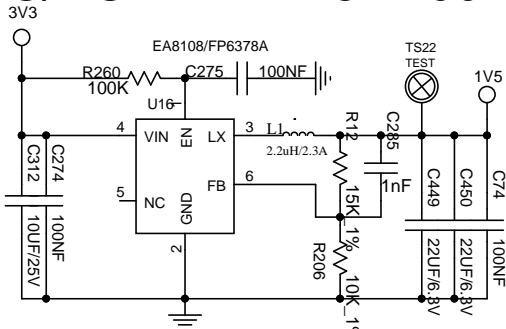


<b>&lt;OrgName&gt;</b>		
Title		
Size	Document Number	Rev
A3	Hi3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 5 of 24

# Power Supply

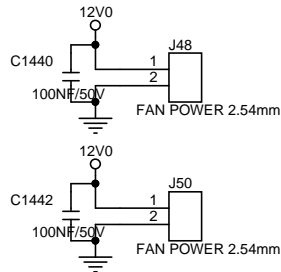
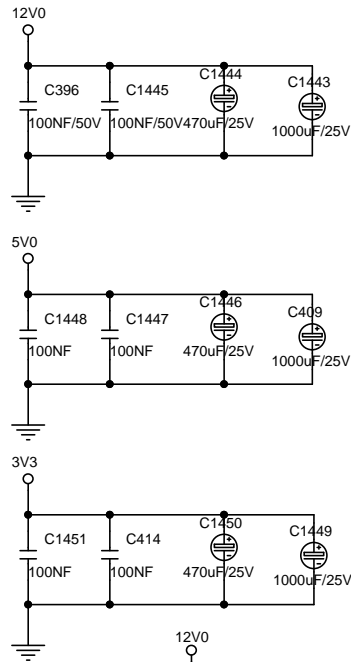


## DC/DC 12V->1V5 1200Amax

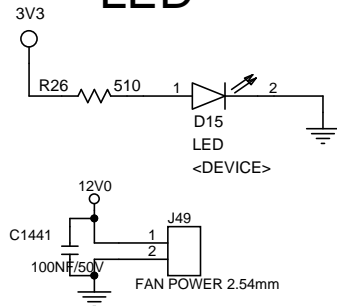


$$V_{out} = 0.6 * [1 + R12/R206] = 1.499V$$

$$T_{delay} = \ln[3.3/(3.3-2)] * R * C = 9.31ms$$

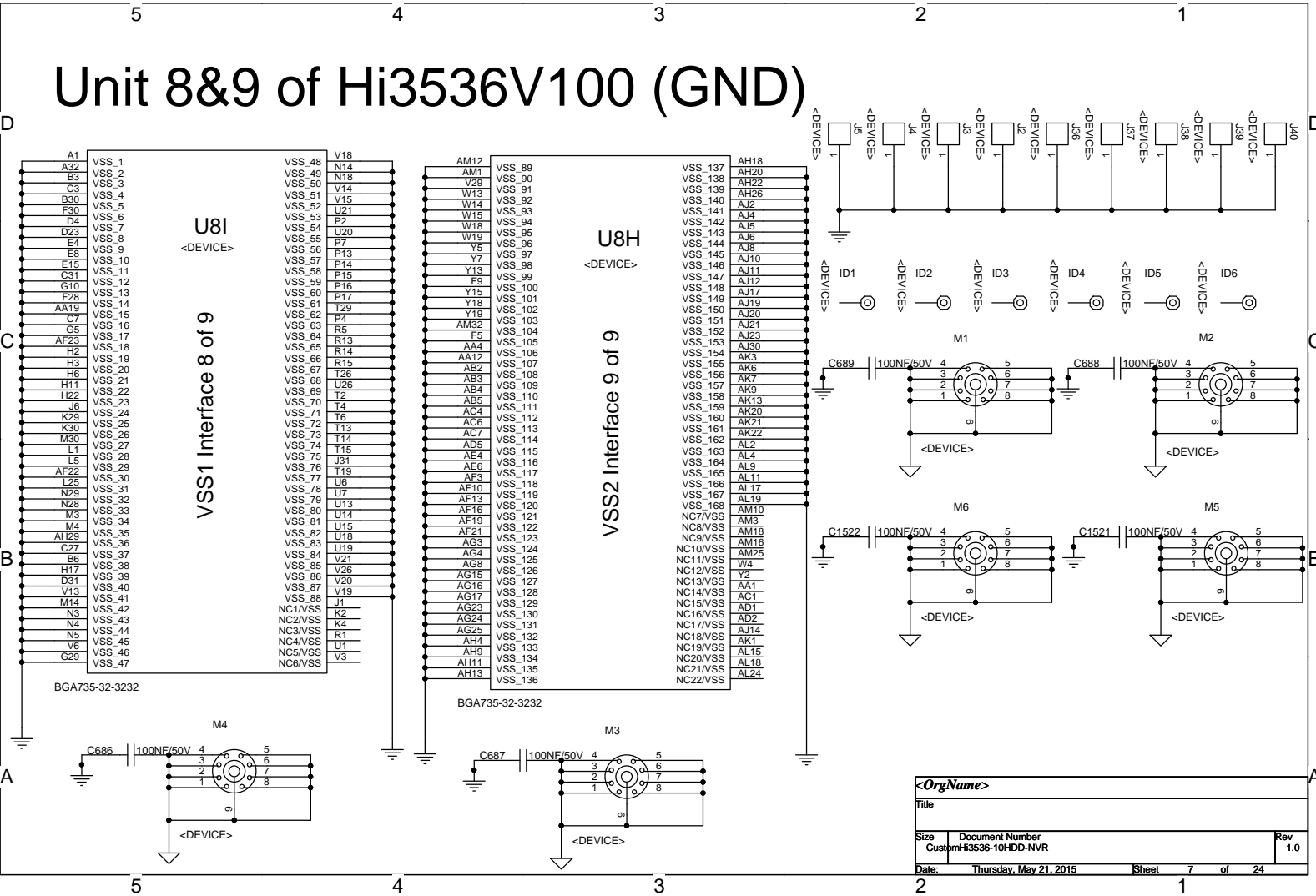


## LED

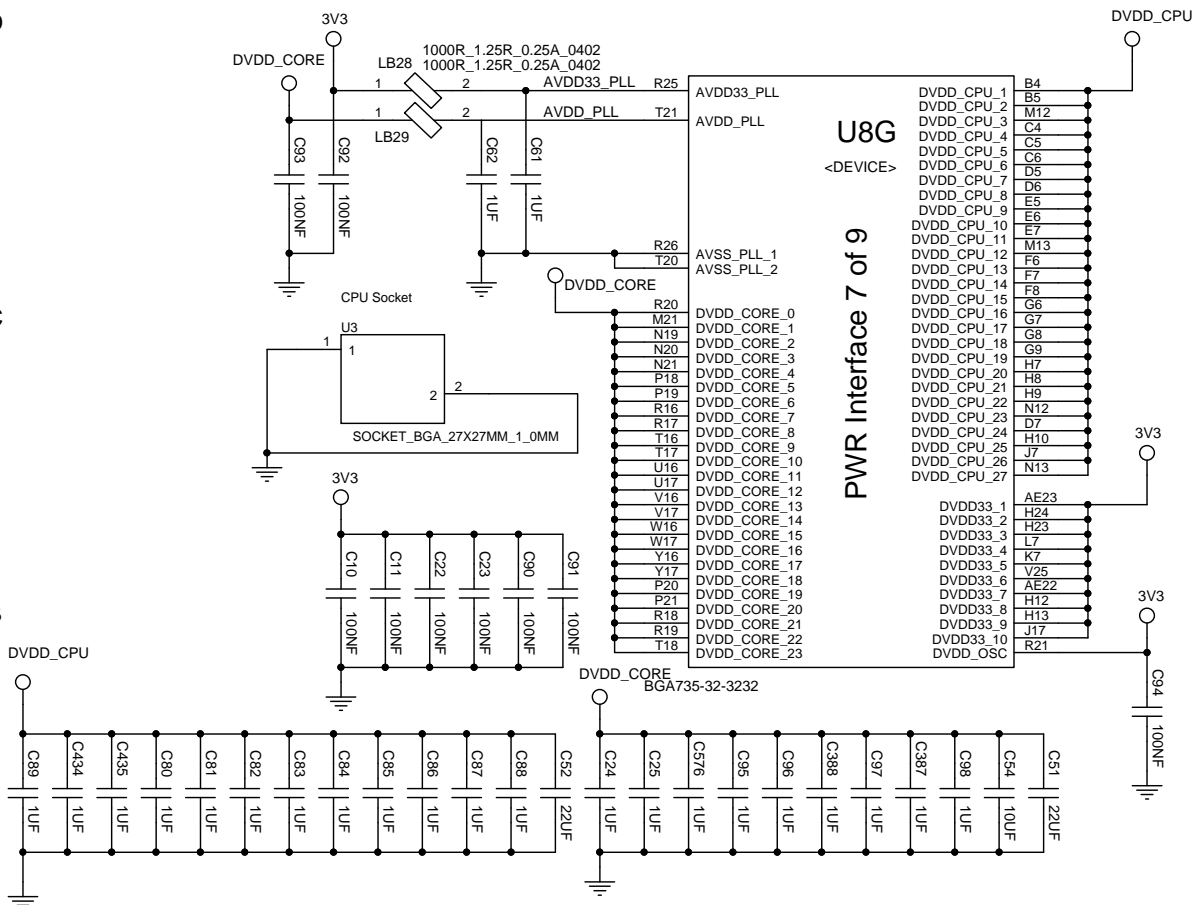


<OrgName>		
Title		
Size	Document Number	Rev
A	Hi3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 6 of 24

# Unit 8&9 of Hi3536V100 (GND)



# Unit 7 of Hi3536V100 (POWER)

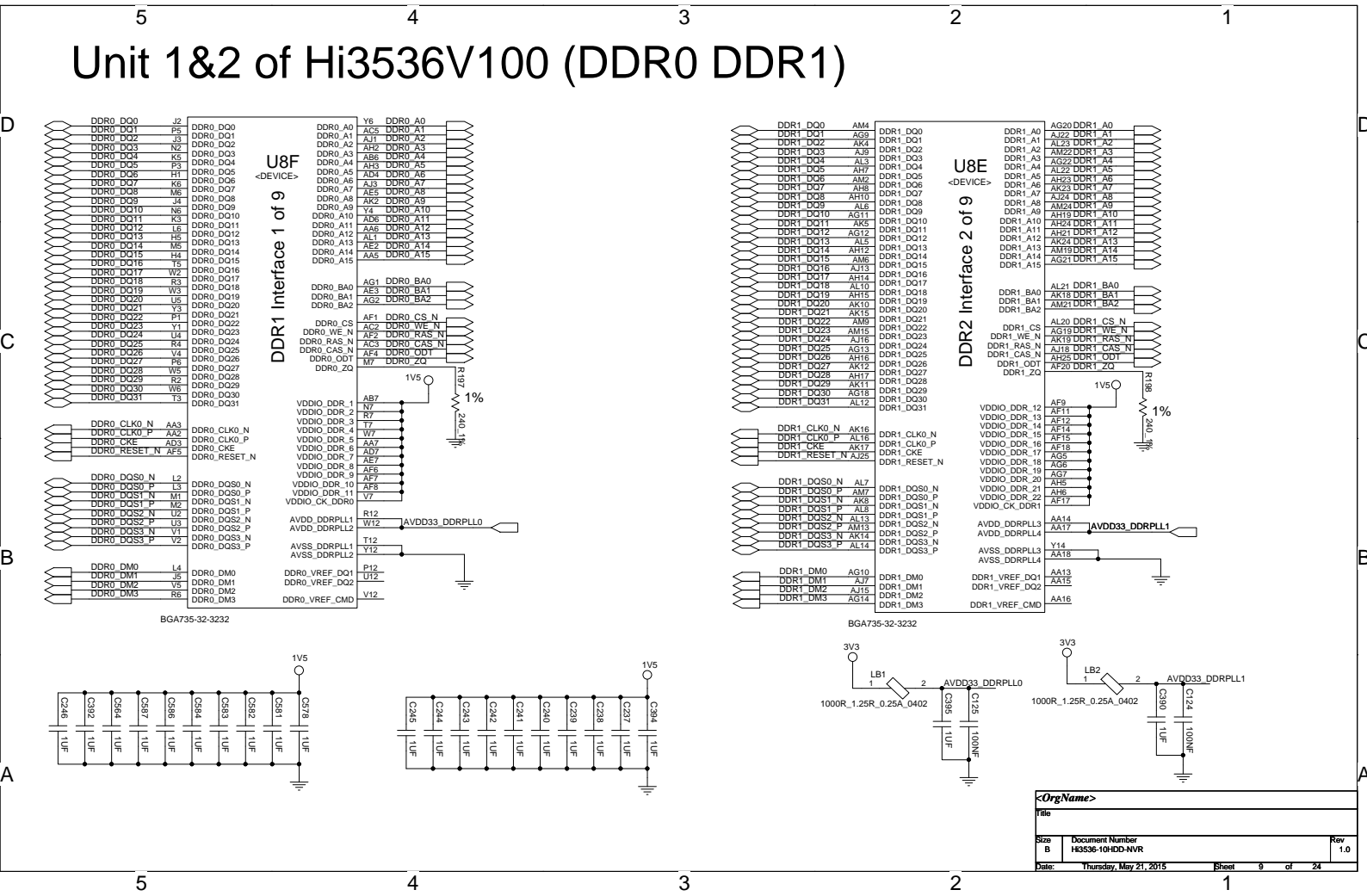


The kind and quantity of the caps must be the same as that of Hi3536DMEB board

<b>&lt;OrgName&gt;</b>		
Title		
Size	Document Number	Rev
Custom	Hi3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 8 of 24



# Unit 1&2 of Hi3536V100 (DDR0 DDR1)

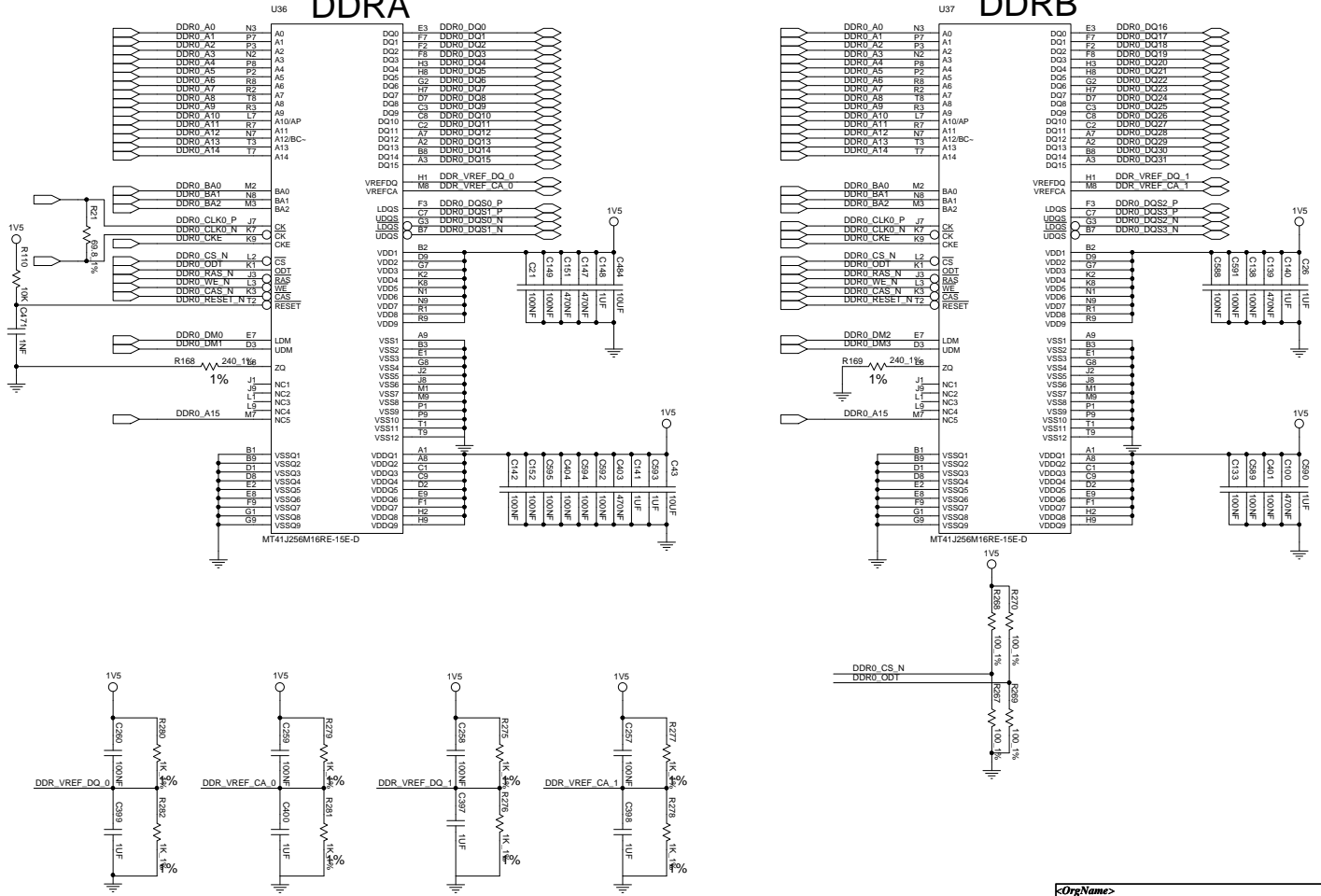


OrgName		
File		
Size	Document Number	Rev
B	H3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 9 of 24

# DDRA&B NOVTT

# DDRA

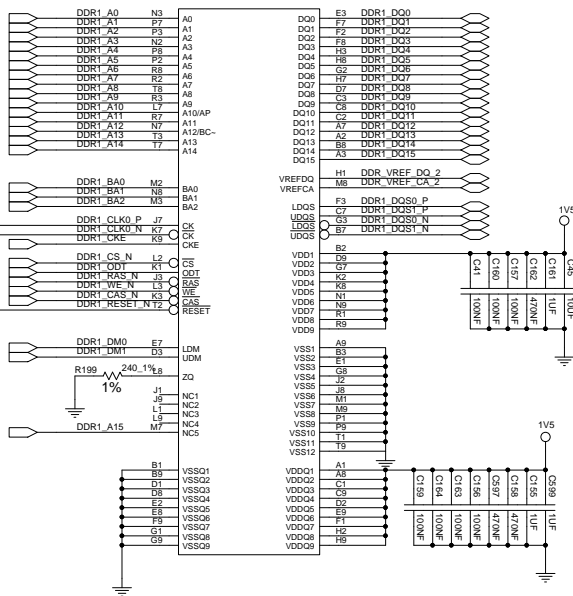
# DDR B



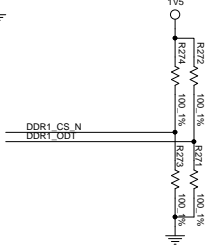
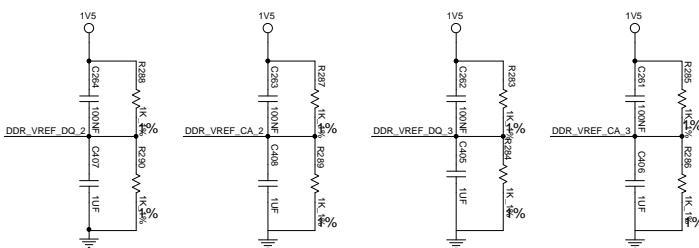
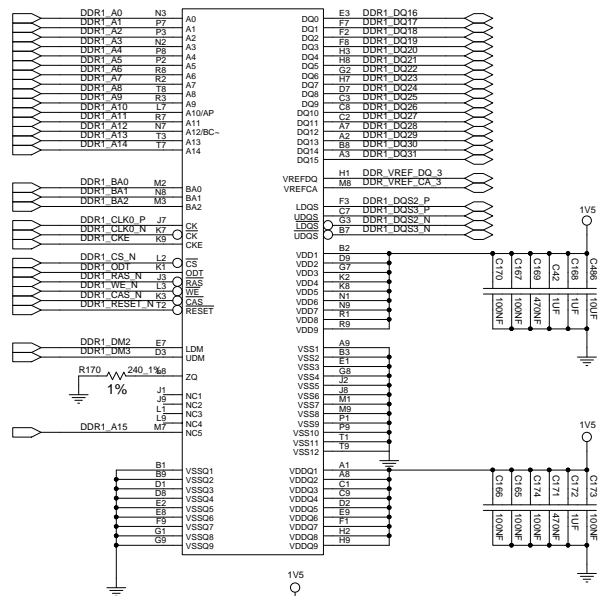
OrgName		
Title		
Size	Document Number	Rev
A3	HSS38-10H0D-NVR	1.0
Date:	Thursday, Mar 21, 2015	Sheet 10 of 24

# DDRC&D NOVTT

## U38 DDRC

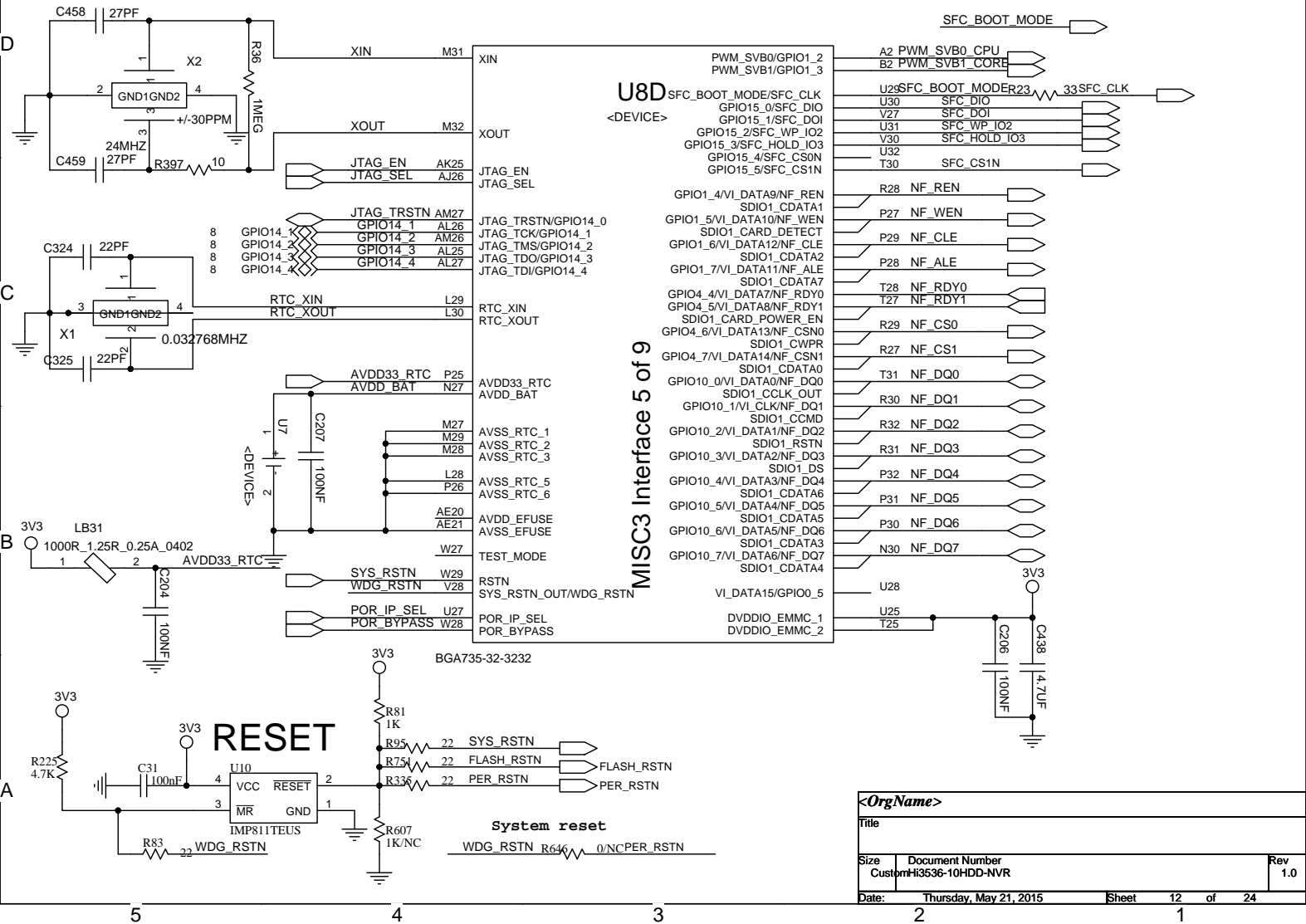


## U39 DDRD



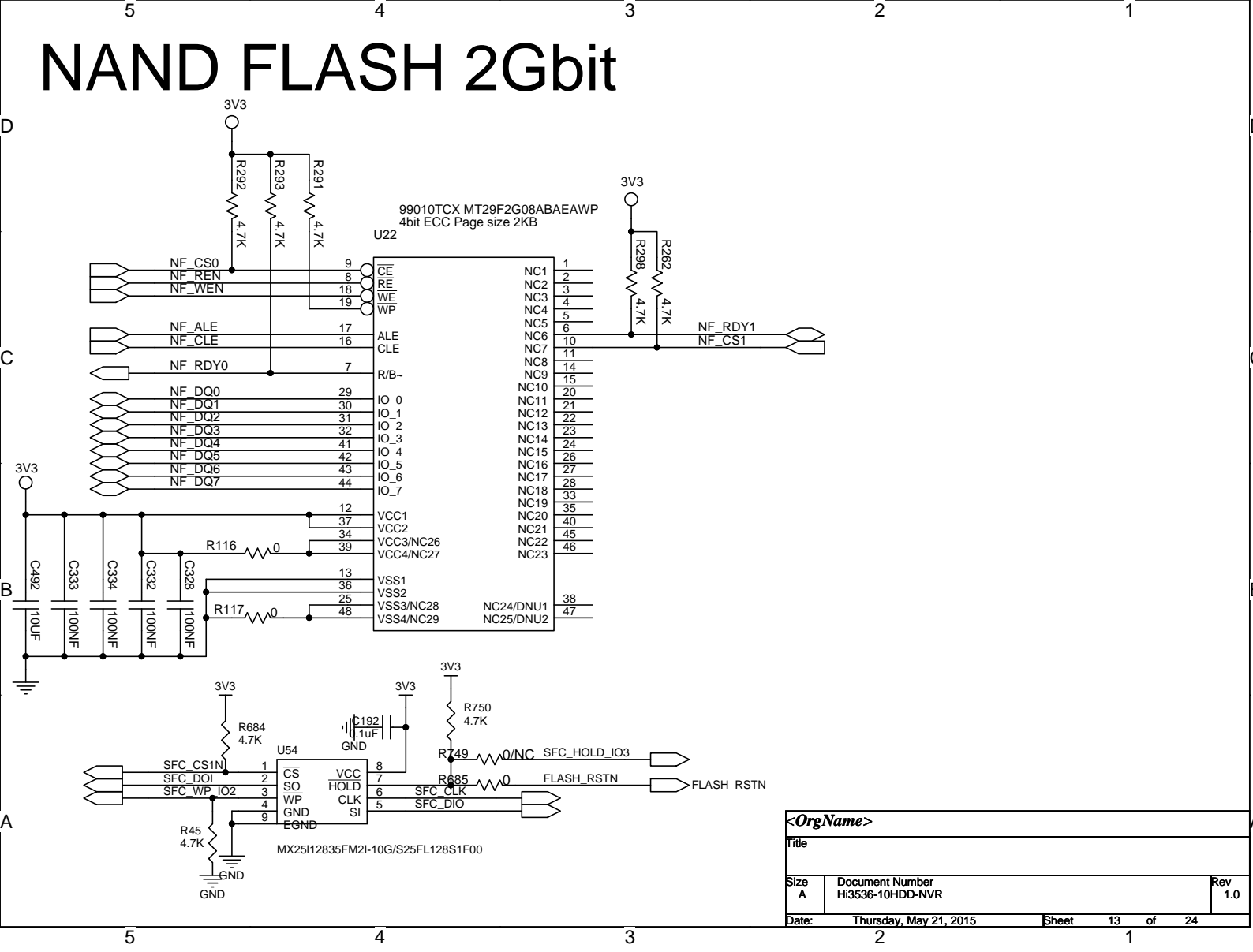
<b>&lt;OrgName&gt;</b>		
Title		
Size A3	Document Number HISS8-10HDD-NVR	Rev 1.0
Date: Thursday, May 21, 2015	Sheet 11	of 24

# Unit 5 of Hi3536V100 (SYSTEM)



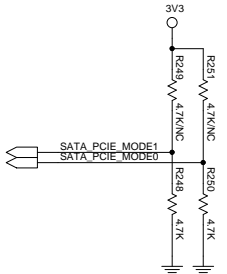
<OrgName>		
Title		
Size	Document Number	Rev
Custom	Hi3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 12 of 24

# NAND FLASH 2Gbit

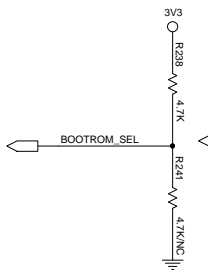


<OrgName>		
Title		
Size	Document Number	Rev
A	Hi3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 13 of 24

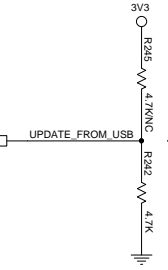
# POWER ON SETTING



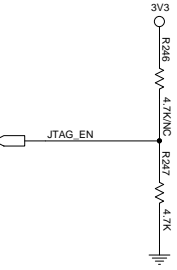
SATA PCIE_MODE1(0)	
00	4 Port SATA
01	3 Port SATA + PCIe X1
10	RESERVE
11	2 Port SATA + PCIe X2(default)



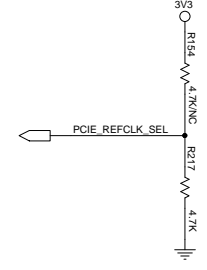
BOOTROM_SEL	
0	Boot from flash(default)
1	Bootrom Emmc/fastboot



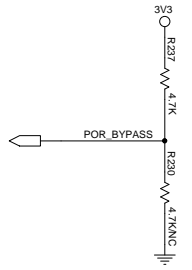
UPDATE FROM USB	
0	NOT UPDATE(default)
1	UPDATE FROM USB



JTAG_EN	
0	Disable JTAG(default)
1	Enable JTAG

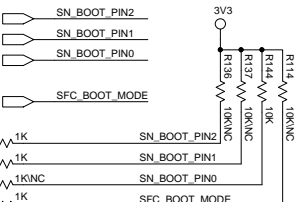


PCIE REFCLK_SEL	
0	inter CRG clk(default)
1	external clk



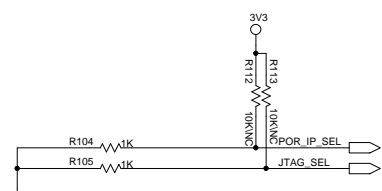
POR_BYPASS	
0	enable interior reset(default)
1	disable interior reset

## 4 PORT SATA



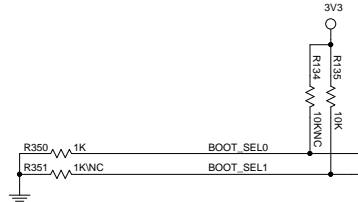
SF NAND_BOOT_PIN2		SFC_BOOT_MODE(SPI/Nand)	
0	2KB PageSize(default)	0	one line boot(default)
1	4KB PageSize	1	four line boot
SF NAND_BOOT_PIN1(0)		SFC_BOOT_MODE(SPI/NOR)	
00	RESERVE	0	3 Byte mode(default)
01	4bit ecc(default)	1	4 Byte mode
10	RESERVE		
11	24bit ecc		

2KB 4BIT ECC ONLY FOR SPI FLASH



JTAG_SEL	
0	Connect A17(default)
1	Connect A7
POR_IP_SEL	
0	Reset after Core power on(default)
1	Reset after IO power on

POR\_BYPASS = 1 POR\_IP\_SEL = 0  
3536 RESET BY RSTN PIN (811)

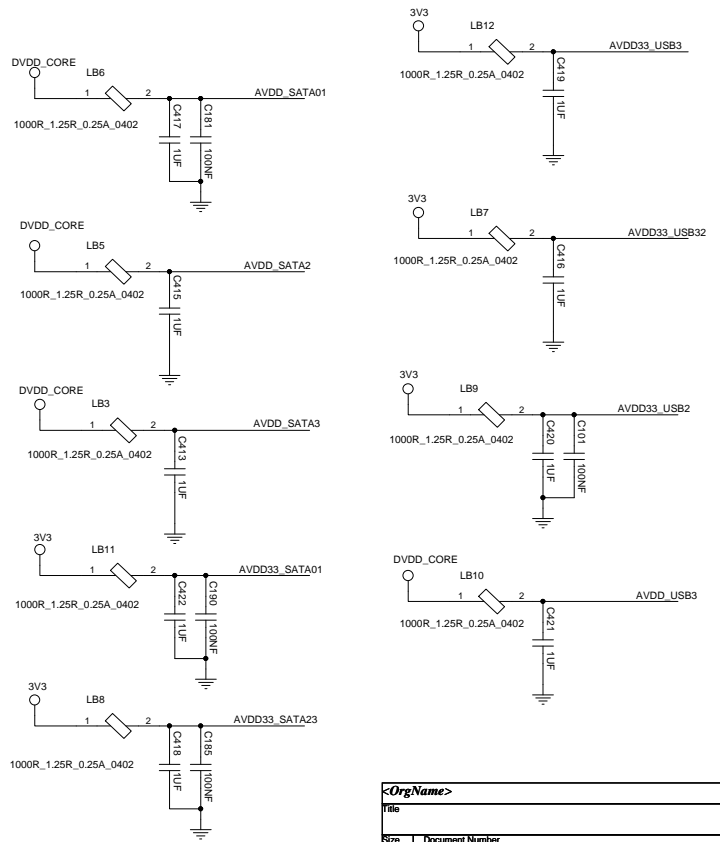
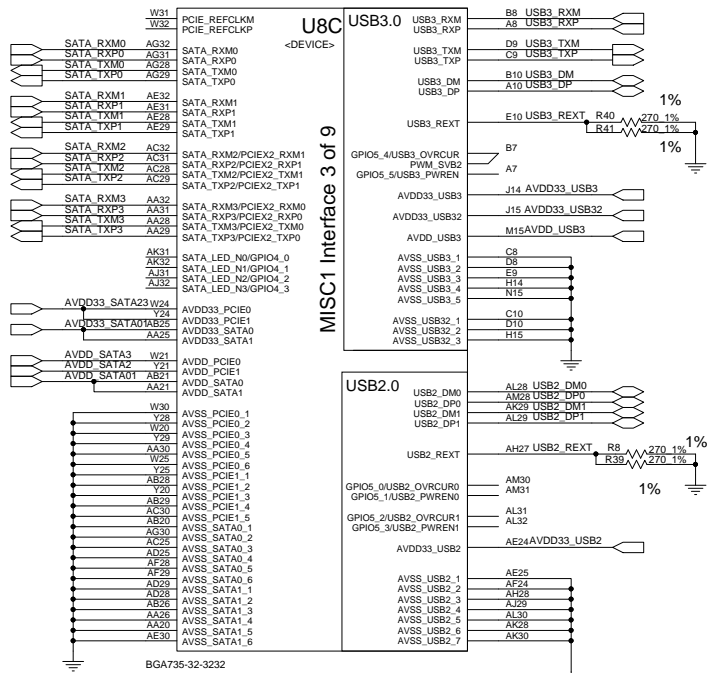


BOOT_SEL1(0)	
00	SPI NOR FLASH(default)
01	SPI NAND FLASH
11	SYSRAM

NAND FLASH

<OrgName>		
File		
Size	Document Number	Rev
Custom	#3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 14 of 24

# Unit 3 of Hi3536V100 (INTERFACE0)

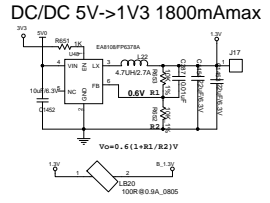
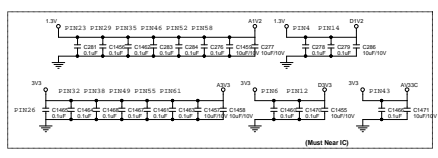
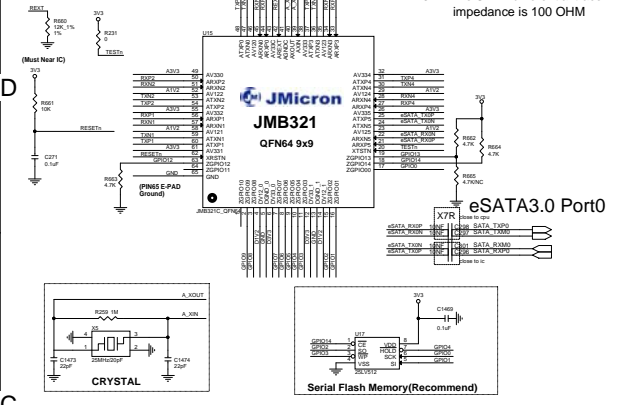


<b>&lt;OrgName&gt;</b>		
Title		
Size B	Document Number Hi3536-10HDD-NVR	Rev 1.0
Date:	Thursday, May 21, 2015	Sheet 15 of 24

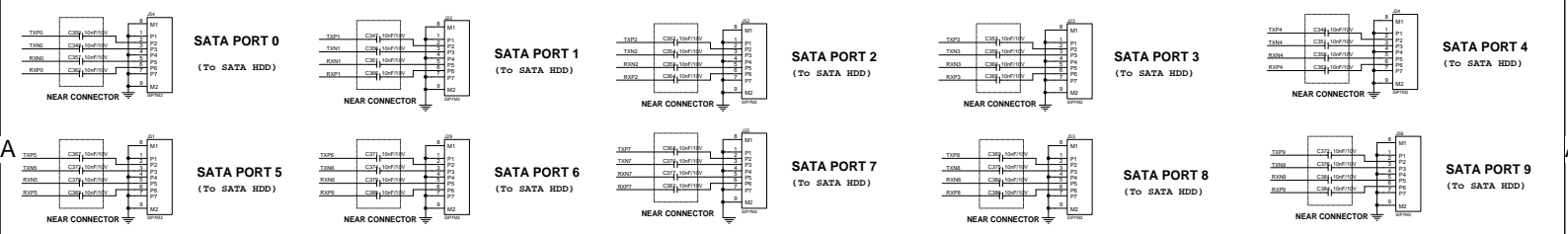
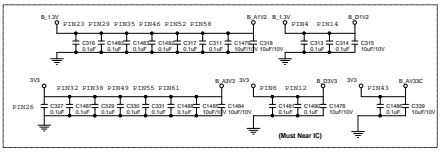
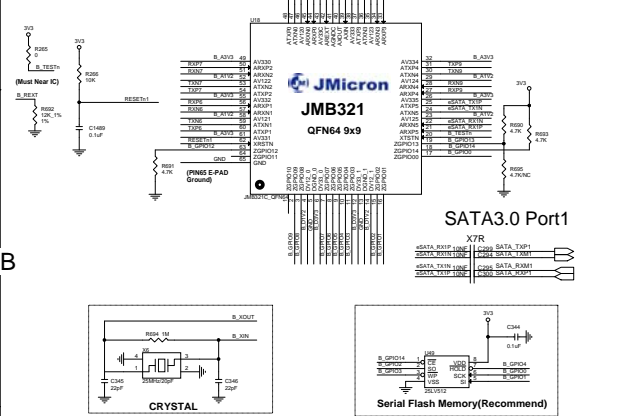
5 4 3 2 1

# SATA EXTEND

NOTE: The SATA differential trace impedance is 100 OHM



C

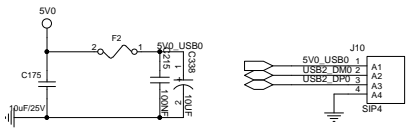


5 4 3 2 1

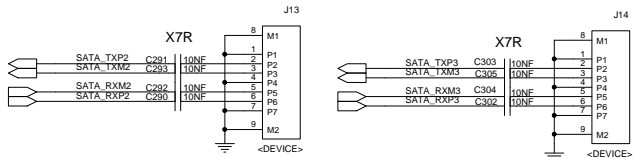


# USB & SATA

## USB2.0\*1



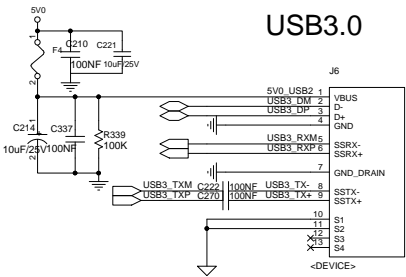
NOTES: The SATA differential trace impedance is 100 OHM.  
The SATA trace length is less than 5 inch.



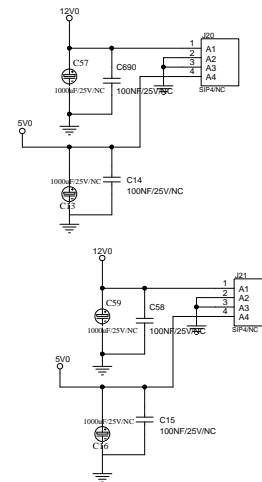
ESATA3.0 Port1

ESATA3.0 Port2

## USB3.0

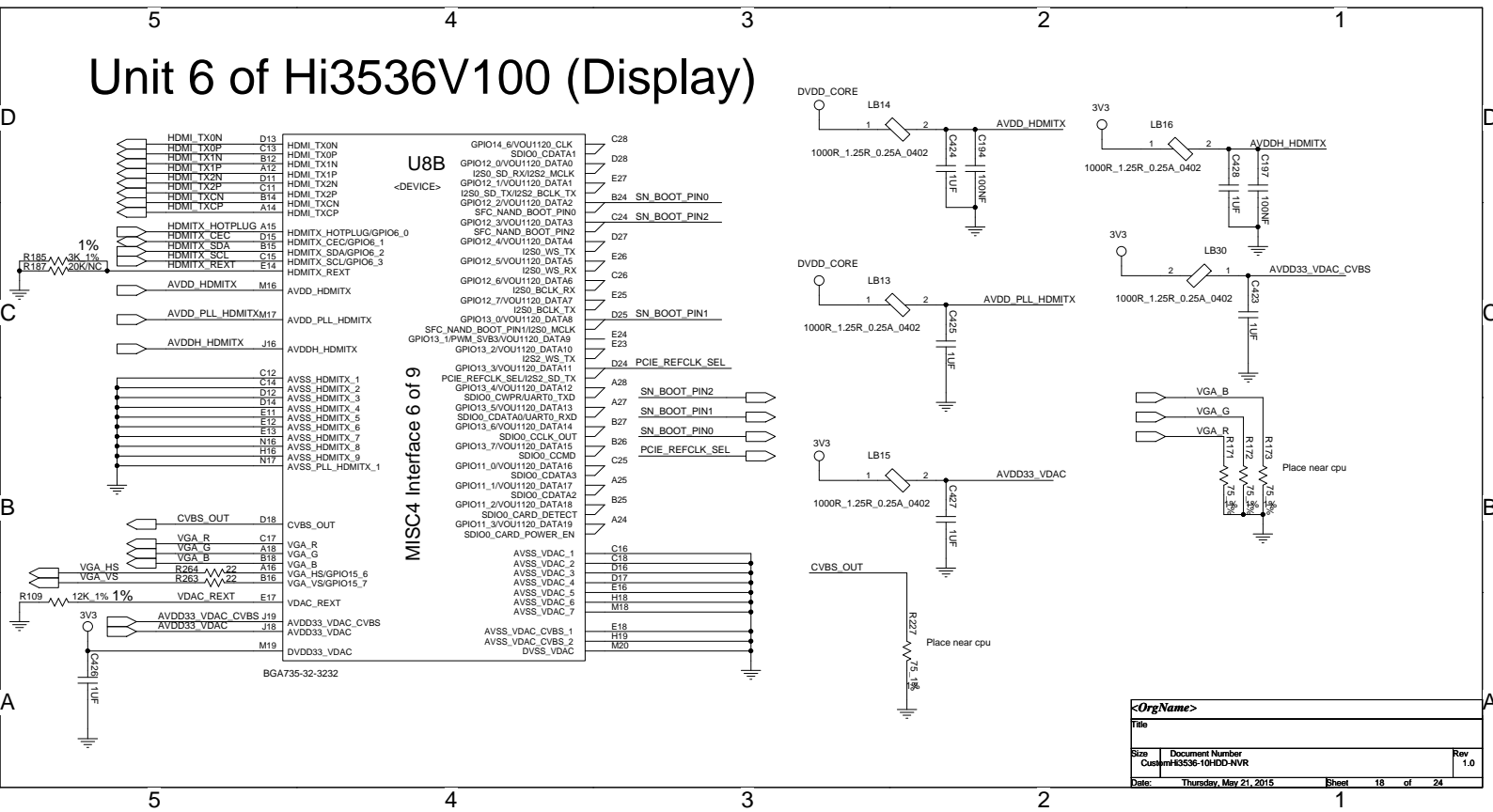


NOTES:  
The USB differential trace impedance is 90 OHM.  
The USB2.0 trace length is less than 8 inch.  
The USB3.0 trace length is less than 5 inch.



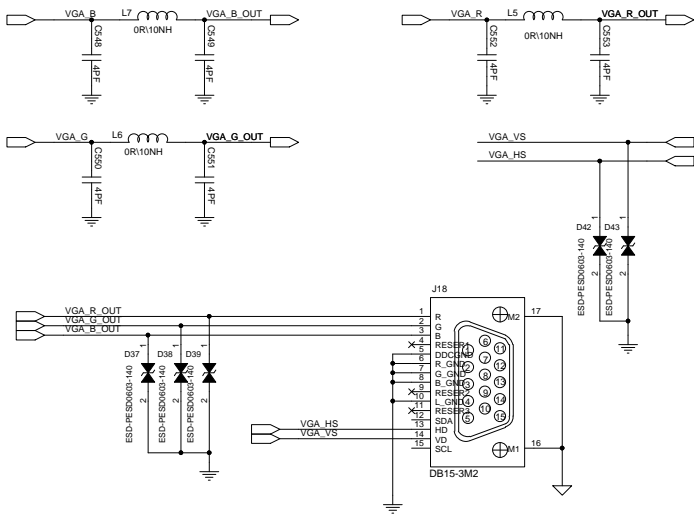
<b>&lt;OrgName&gt;</b>		
Title		
Size	Document Number	Rev
A3	HSSSB-10HDD-NYR	1.0
Date:	Thursday, May 21, 2015	Sheet 17 of 24

# Unit 6 of Hi3536V100 (Display)



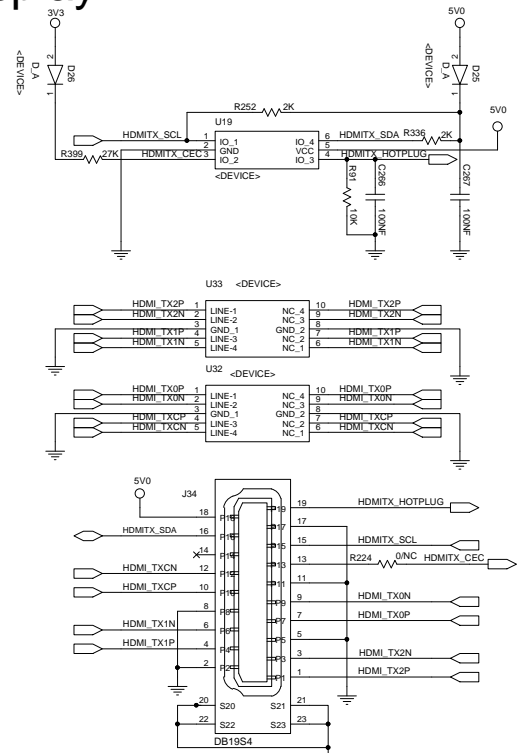
<b>&lt;OrgName&gt;</b>		
File		
Size	Document Number	Rev
Custom	Hi3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 18 of 24

# Display VGA



NO CVBS OUTPUT

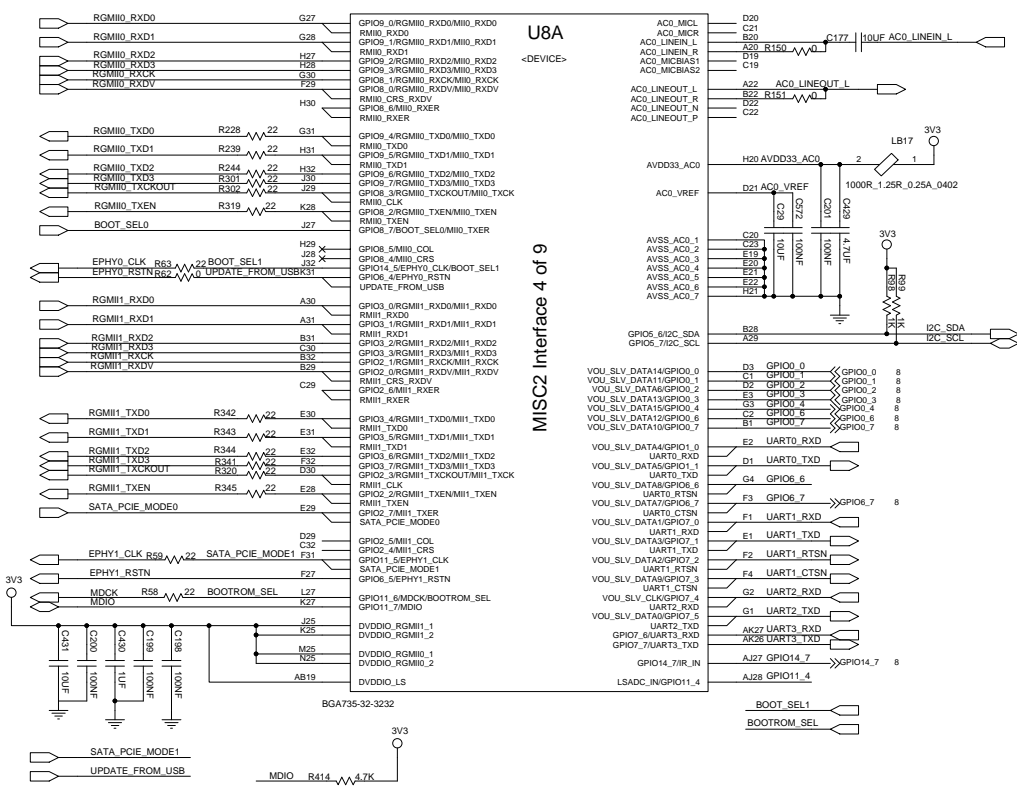
# Display HDMI



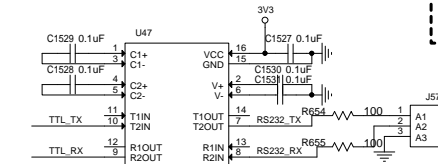
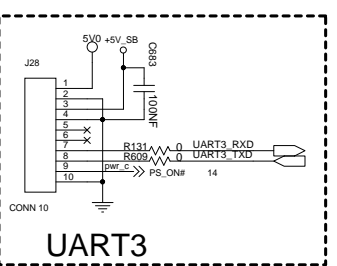
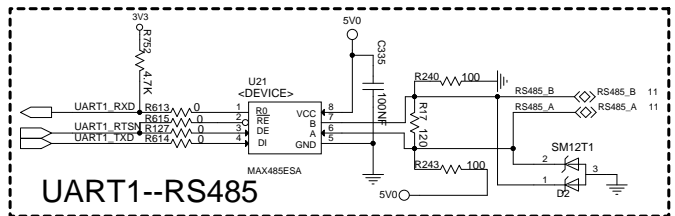
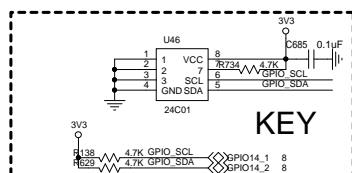
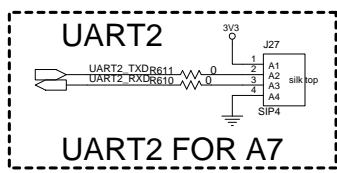
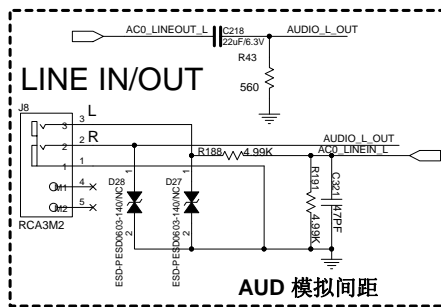
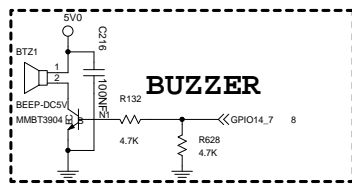
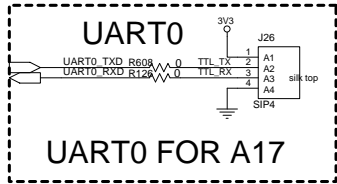
NOTES: The HDMI differential trace impedance is 100 OHM.  
 The HDMI trace length is less than 5 inch.  
 Pay attention to the junction capacitance of ESD component.  
 We recommend that it be lower than 0.8pF

<OrgName>		
Title		
Size	Document Number	Rev
A3	HSS38-10HDD-NYR	1.0
Date:	Thursday, May 21, 2015	Sheet 18 of 24

# Unit 4 of Hi3536V100 (INTERFACE1)

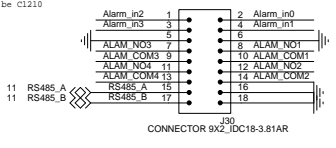
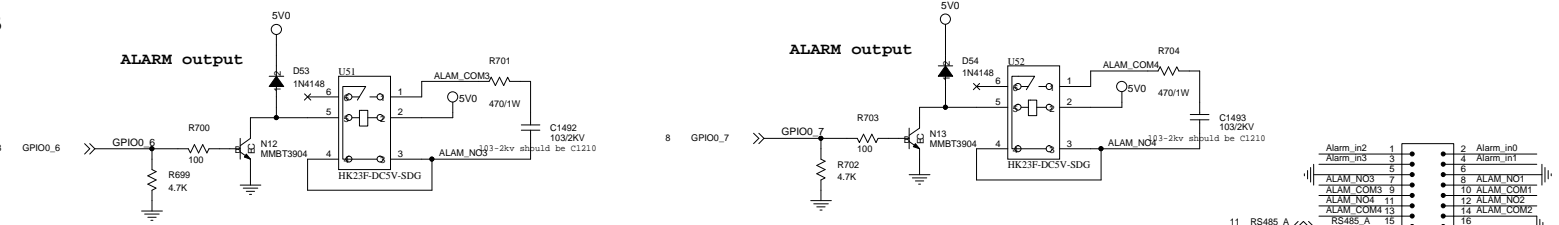
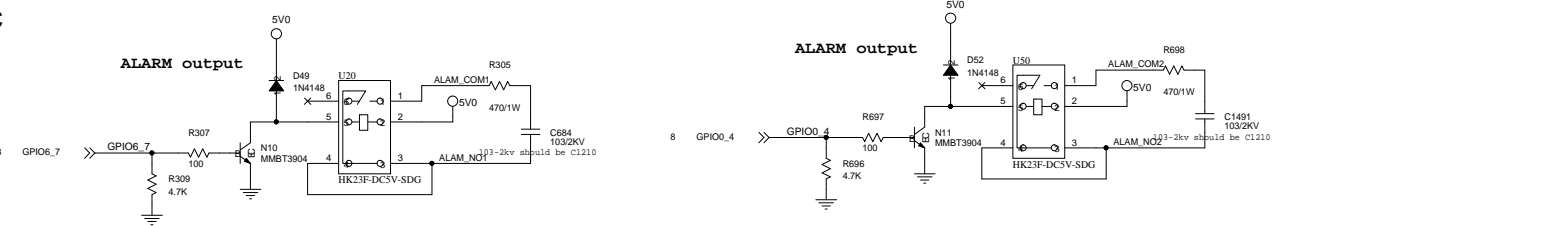
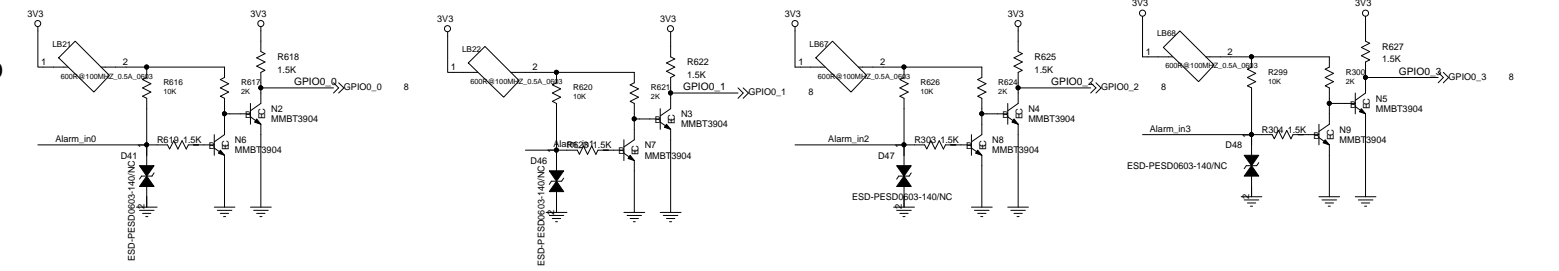


# UART & RS485 & LINE IN/OUT & ALARM & KEY & BUZZER



<b>&lt;OrgName&gt;</b>		
Title		
Size	Document Number	Rev
B	H3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 21 of 24

# ALARM



Title		
Size	Document Number	Rev
B	H3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 22 of 24

# ETH0

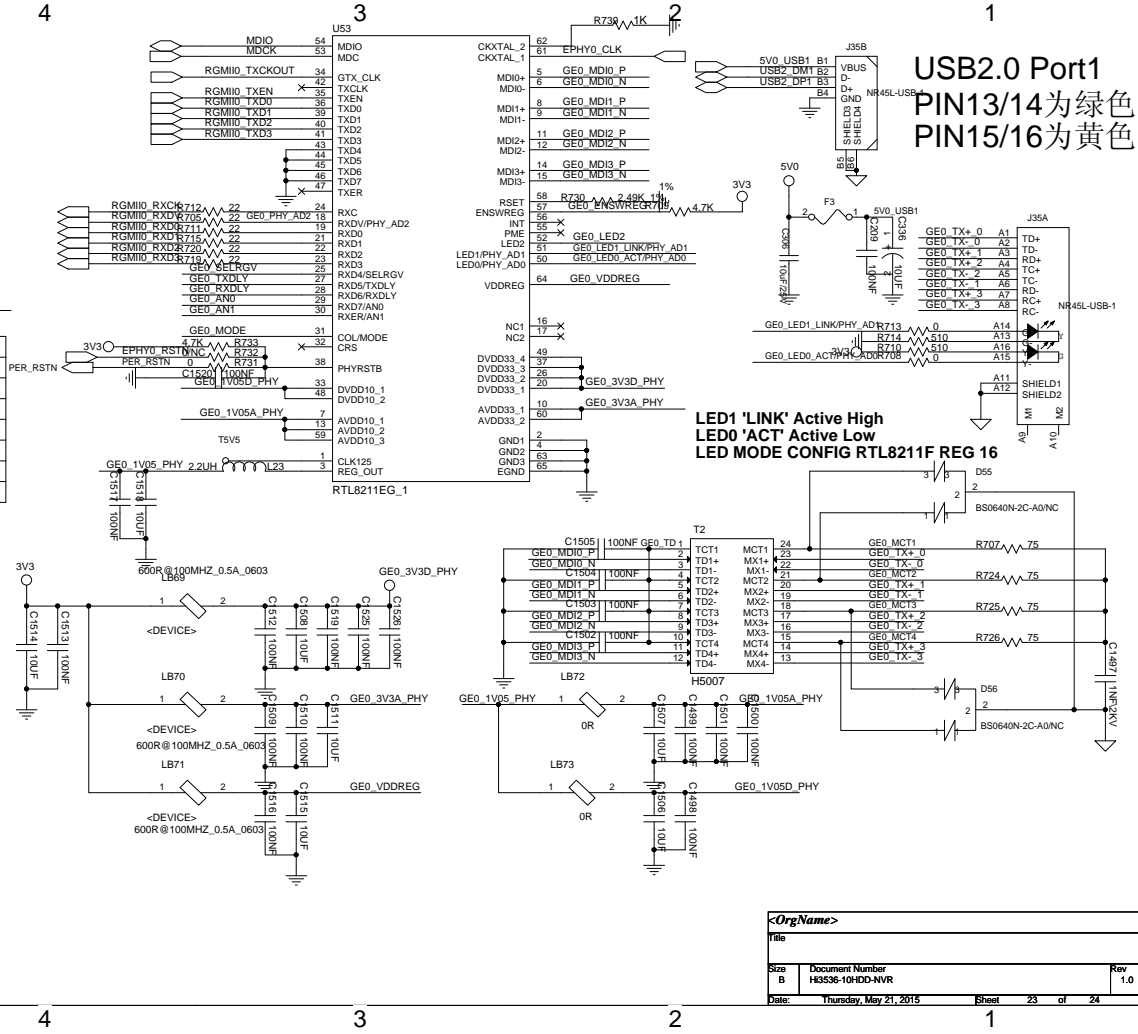
add 2ns delay to RXC/TXC for RXD/TXD latch  
 Auto negotiation, advise all capabilities  
 RTL8211EG\_VB: Pull up for 3.3V  
 1 = RGMII Mode

RGMII Power Source	CFG_EXT	CFG_LDO[1:0]
External 3.3V (default)	1'b1	2'b00
External 2.5V	1'b1	2'b01
External 1.8V	1'b1	2'b10
Internal 2.5V	1'b1	2'b11
Internal 1.8V	1'b0	2'b01
Internal 1.5V	1'b0	2'b10
Internal 1.5V	1'b0	2'b11

RGMII Power 设置为3.3V

与DEMO的PHY地址一致

PHY Address	PHYAD[2:0]
0	3'b000
1 (default)	3'b001
2	3'b010
3	3'b011
4	3'b100
5	3'b101
6	3'b110
7	3'b111



USB2.0 Port1  
 PIN13/14为绿色  
 PIN15/16为黄色

LED1 'LINK' Active High  
 LED0 'ACT' Active Low  
 LED MODE CONFIG RTL8211F REG 16

<OrgName>		
File		
Size	Document Number	Rev
B	H3536-10HDD-NVR	1.0
Date:	Thursday, May 21, 2015	Sheet 23 of 24

# ETH1

add 2ns delay to RXC/TXC for RXD/TXD latching

Auto negotiation, advise all capabilities  
RTL8211EG\_VB; Pull up for 3.3V  
1 = RGMII Mode

GE1\_3V3D\_PHY

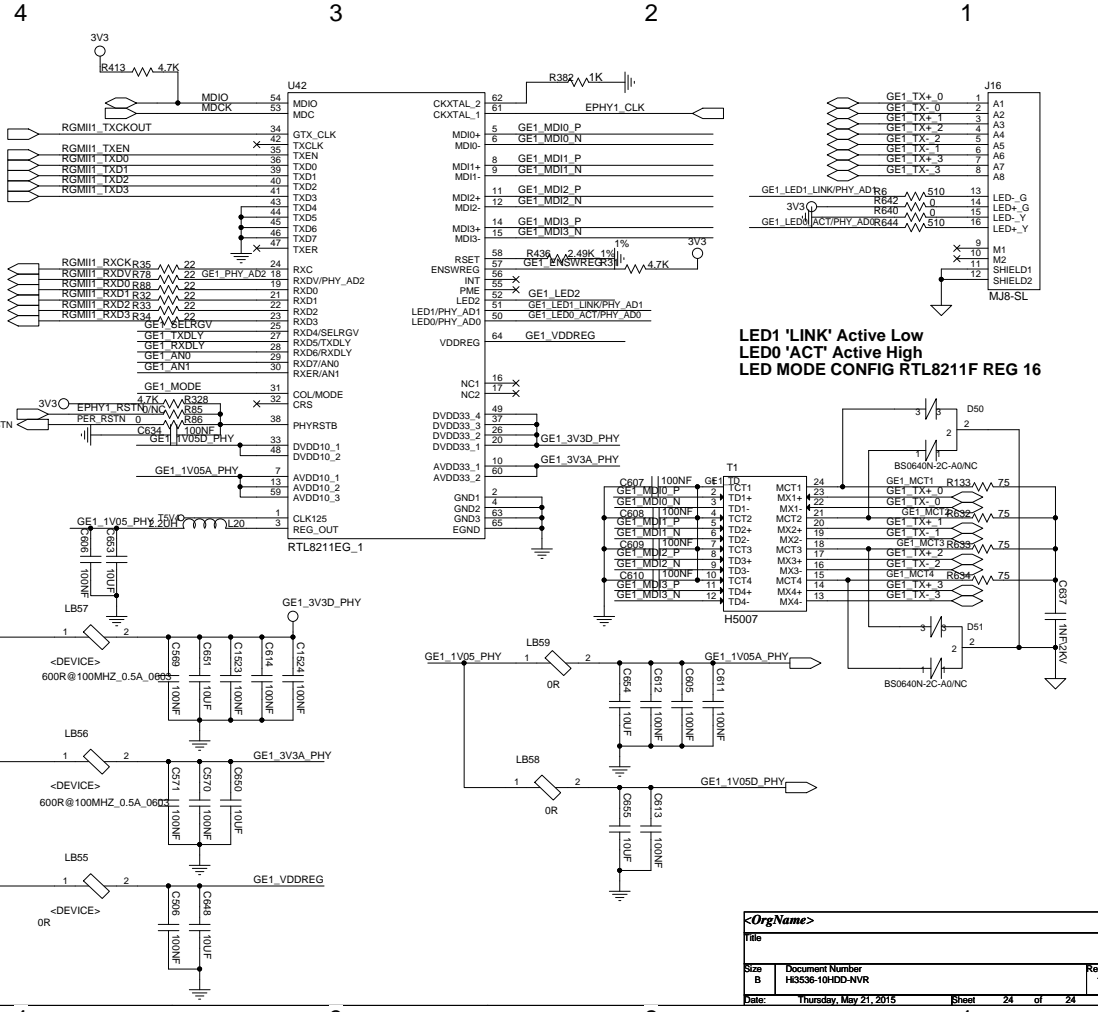
- GE1\_RXDLY R407 4.7K
- GE1\_TXDLY R408 4.7K
- GE1\_AND R412 4.7K
- GE1\_ANT R416 4.7K
- GE1\_SELRGV R725 4.7K
- GE1\_MODE R736 4.7K

GE1\_3V3D\_PHY

- R411 4.7K GE1\_LED0\_ACT/PHY\_AD0
- R410 4.7K GE1\_LED1\_LINK/PHY\_AD0

与DEMO的PHY地址一致

PHY Address	PHYAD[2:0]
0	3'b000
1 (default)	3'b001
2	3'b010
3	3'b011
4	3'b100
5	3'b101
6	3'b110
7	3'b111



LED1 'LINK' Active Low  
LED0 'ACT' Active High  
LED MODE CONFIG RTL8211F REG 16

<OrgName>		
Title		
Size B	Document Number H3536-10HDD-NVR	Rev 1.0
Date:	Thursday, May 21, 2015	Sheet 24 of 24