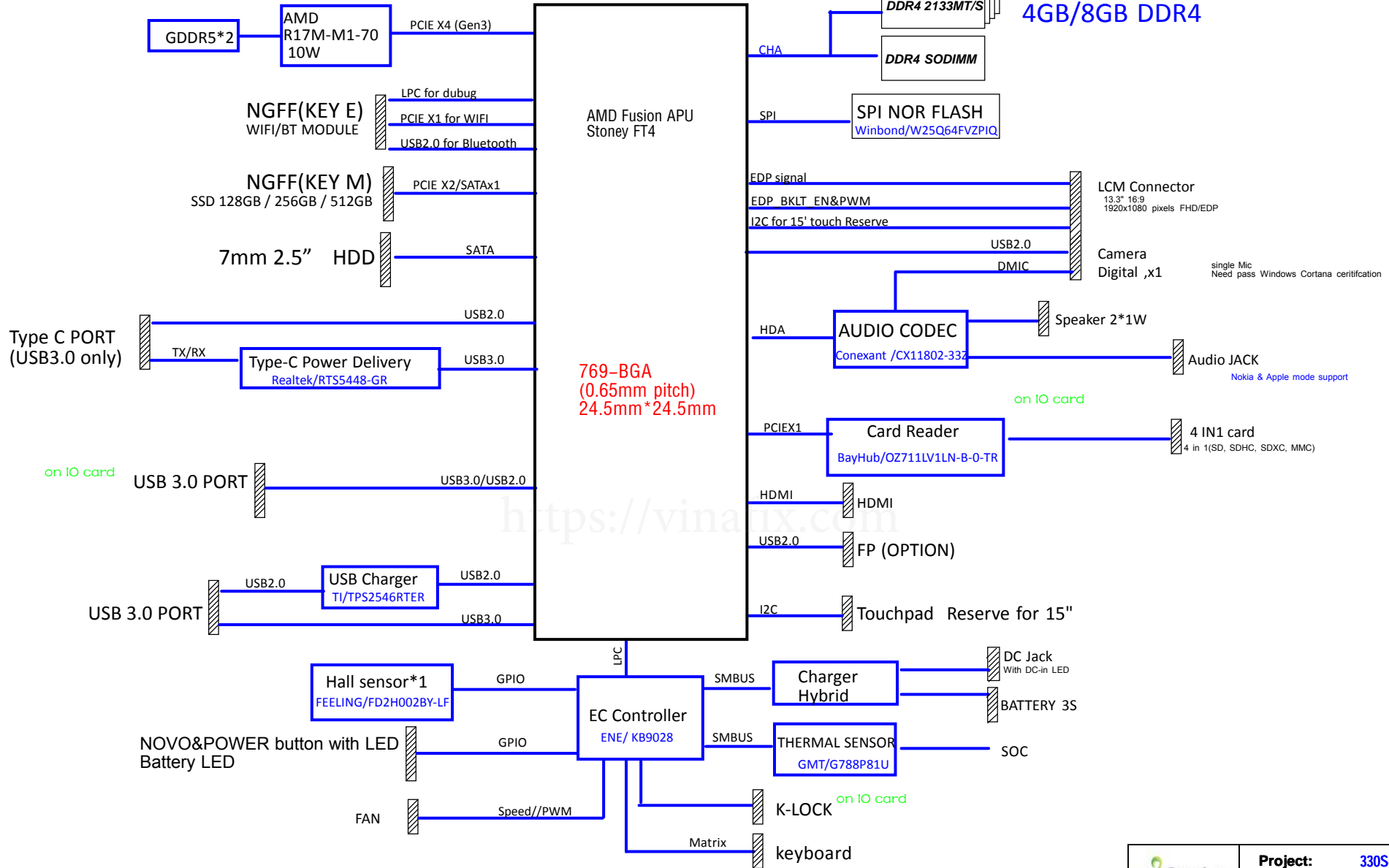


330S-14&15 for Lenovo

AMD FT4 Platform Block Diagram



		Project:	330S-14&15
		Engineer:	Ken
Size	Title:	Block Diagram	
Custom		Rev	V01
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29 -- CPU THERMAL SENSOR	59--PWR_CHARGER(OZ8690)	
30 -- FAN conn	60--PWR-+V5P0A / +V3P3A	

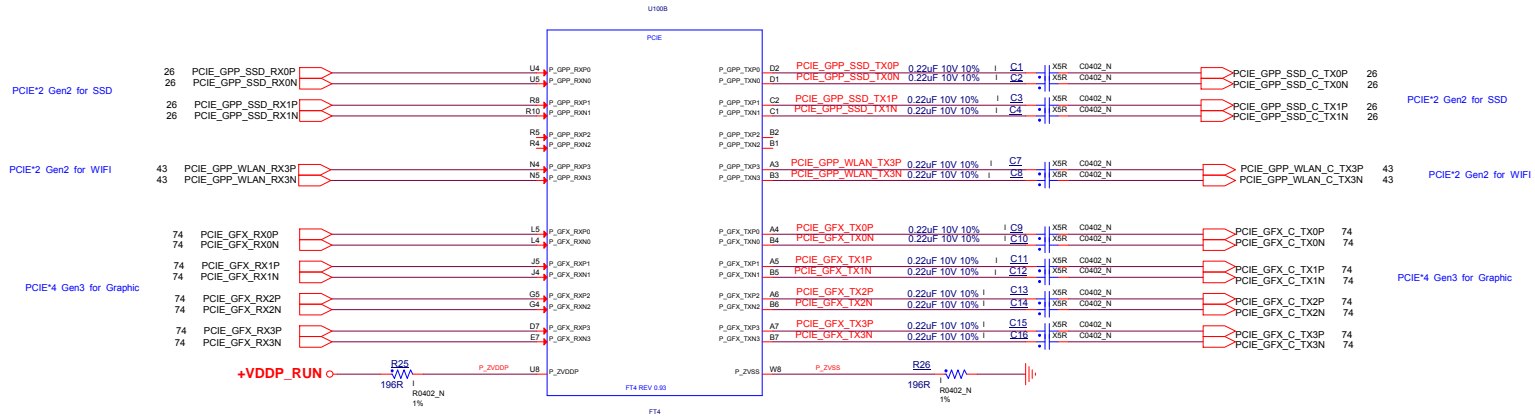
INTERNAL ONLY

BPAGE DRAWING

shy_x_mrd -
Wed Jun 03 11:22:42 2015

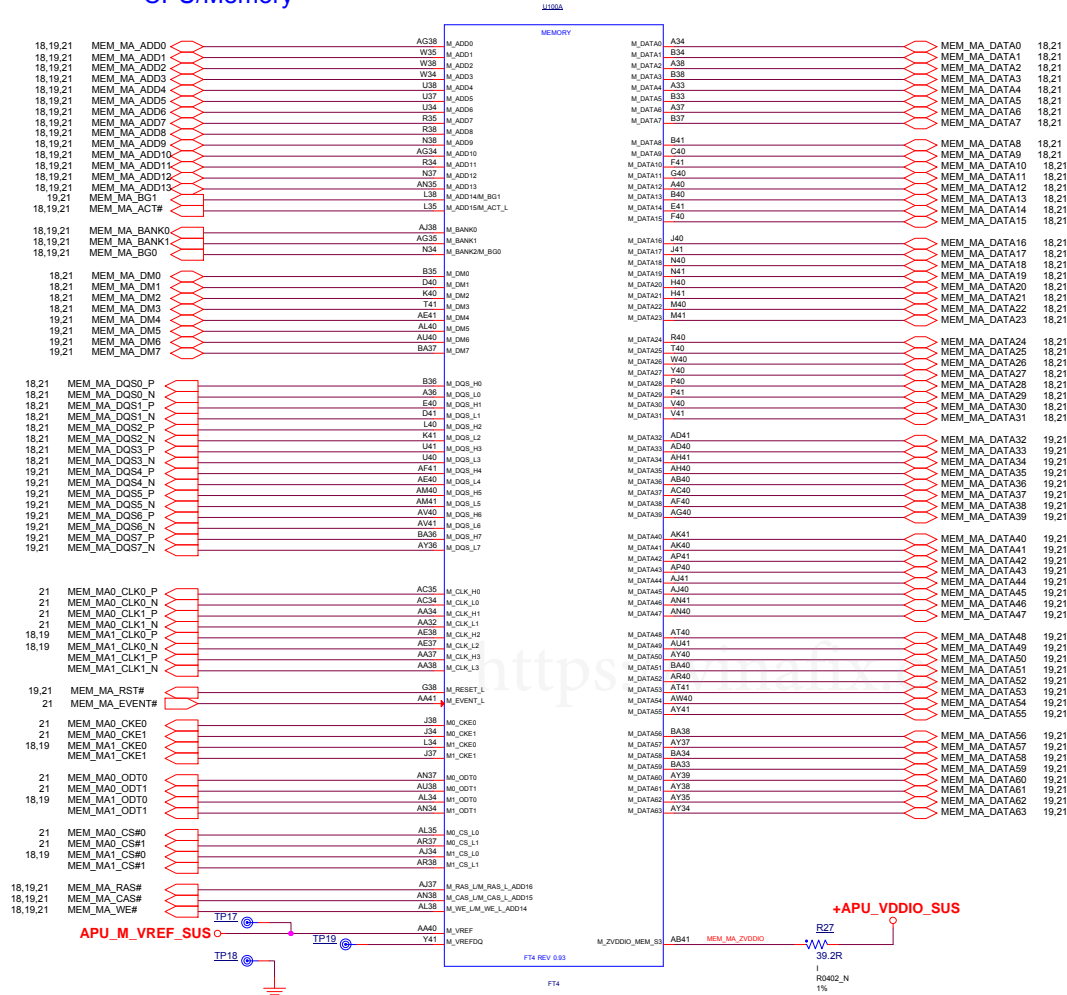
		Project: 330S-14&15	
Size		Engineer: Ken	Rev
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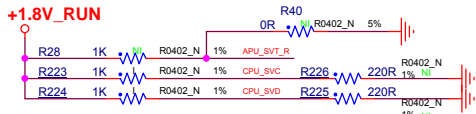
CPU/PCIE



<https://vinafix.com>

CPU/Memory



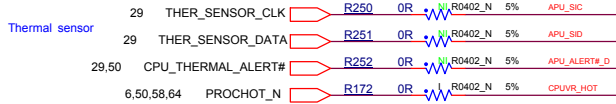
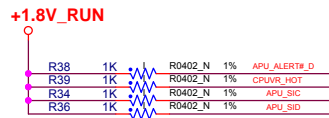
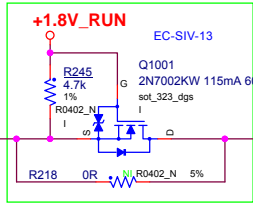


CPU/Display&MSIC

SVC and SVD are the clock and serial data of the serial VID interface.

PWROK is an APU output signal
Connect to VDDCR_CPU and
VDDCR_NB regulator
PWROK input/VDD_18.

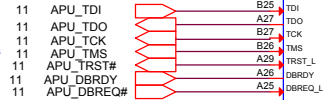
RESET_L is an active-low bidirectional
signal that resets the APU when asserted
VDD_18



The processor asserts PROCHOT_L when the
hardware thermal control (HTC) is active.
External hardware can assert PROCHOT_L to
reduce APU power consumption by forcing HTC
activation



Debug Signals

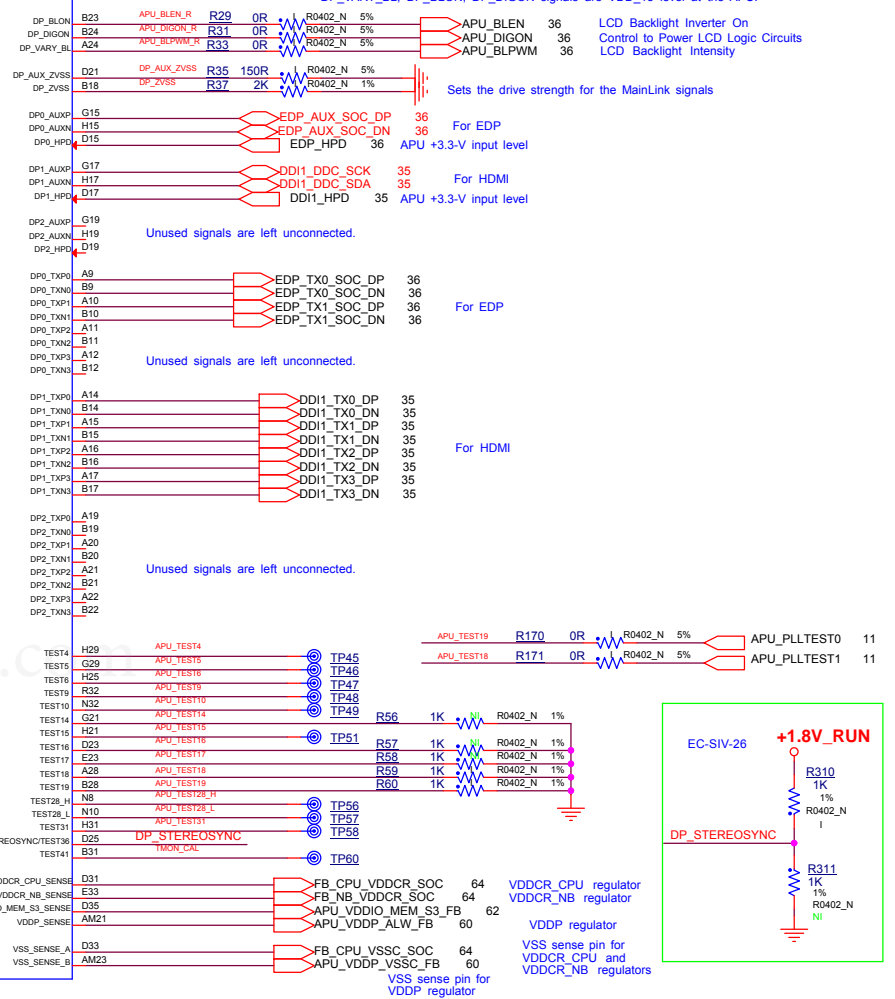


FT4 REV 0.93

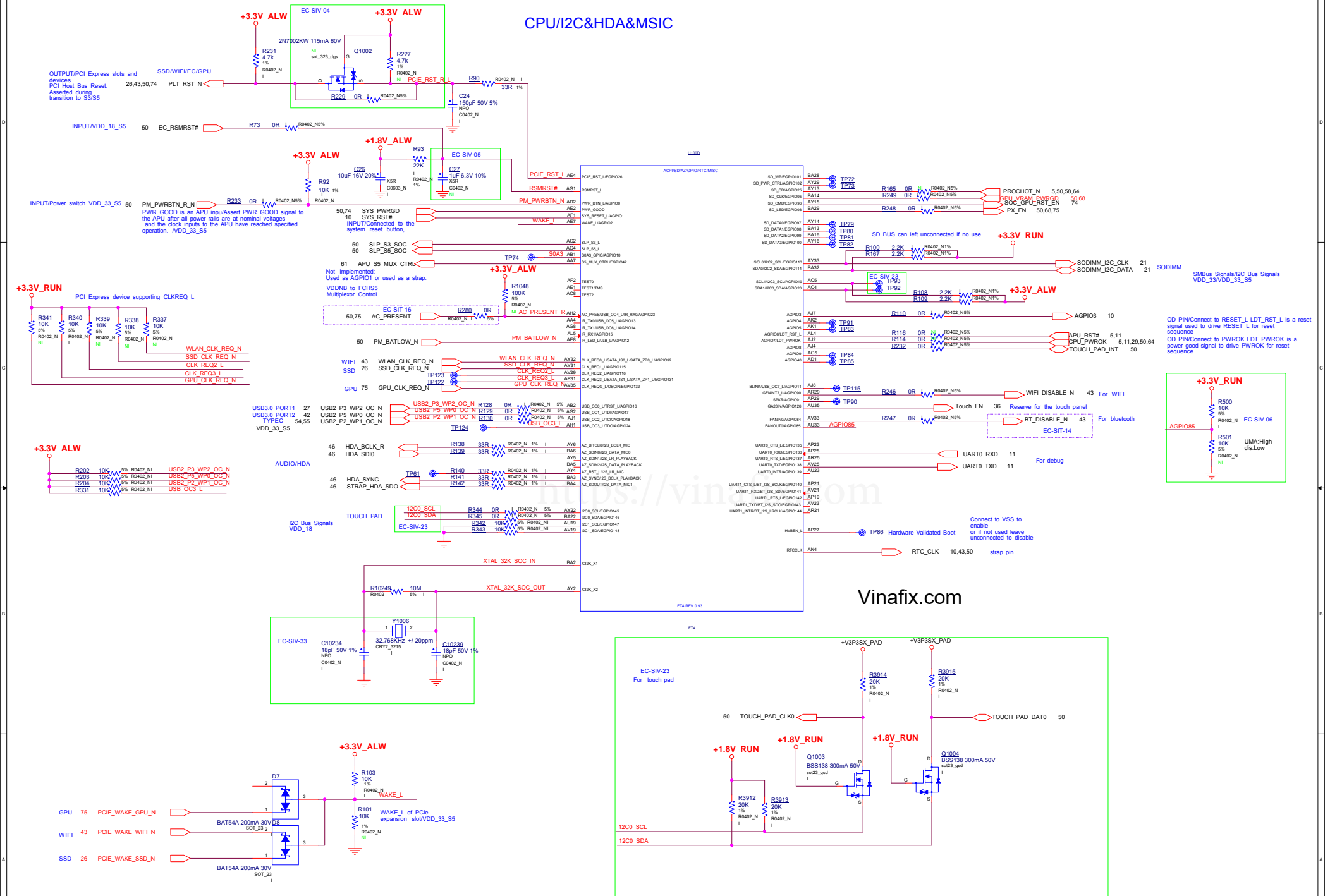
FT4

U190C

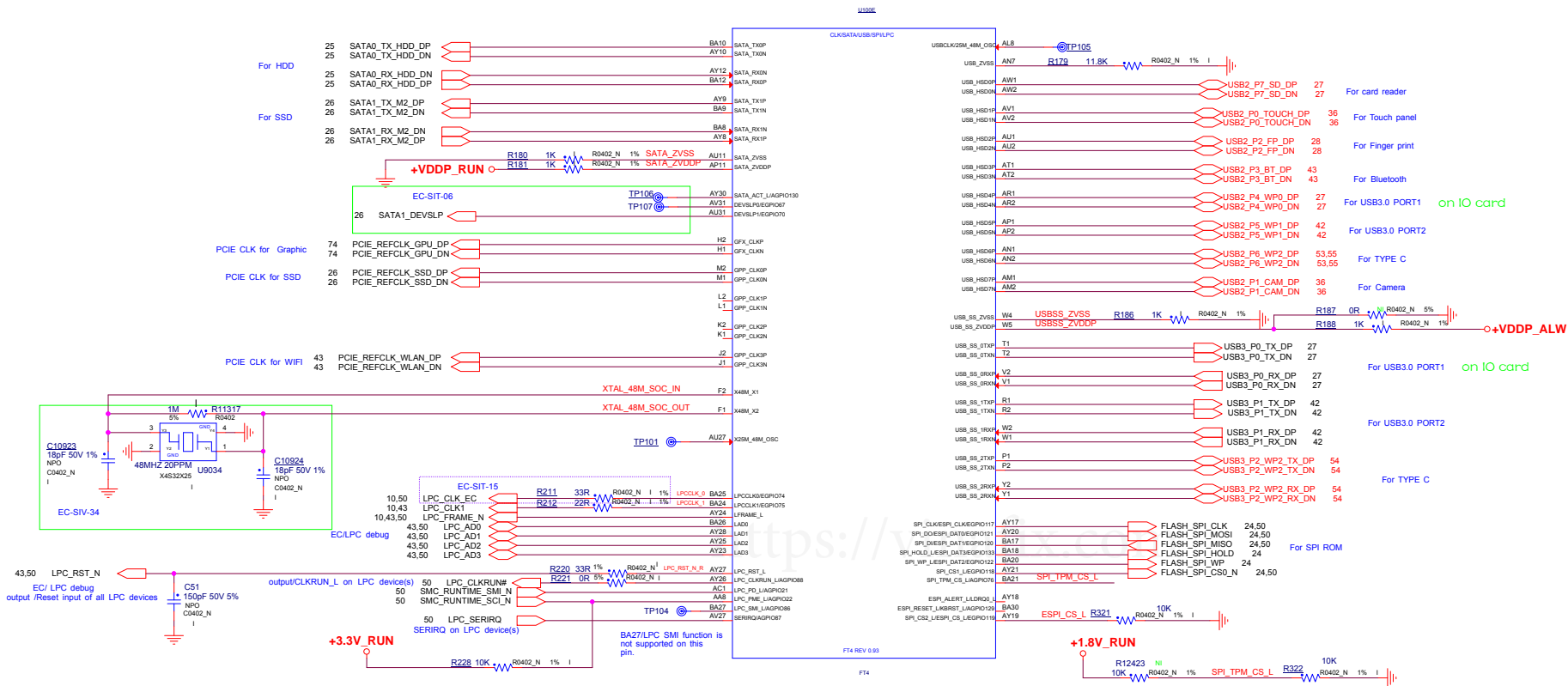
DISPLAY/SV2/JTAG/TEST



CPU/I2C&HDA&MSIC



CPU/SATA&USB&LPC&SPI



CPU/GND

U100G

U100H

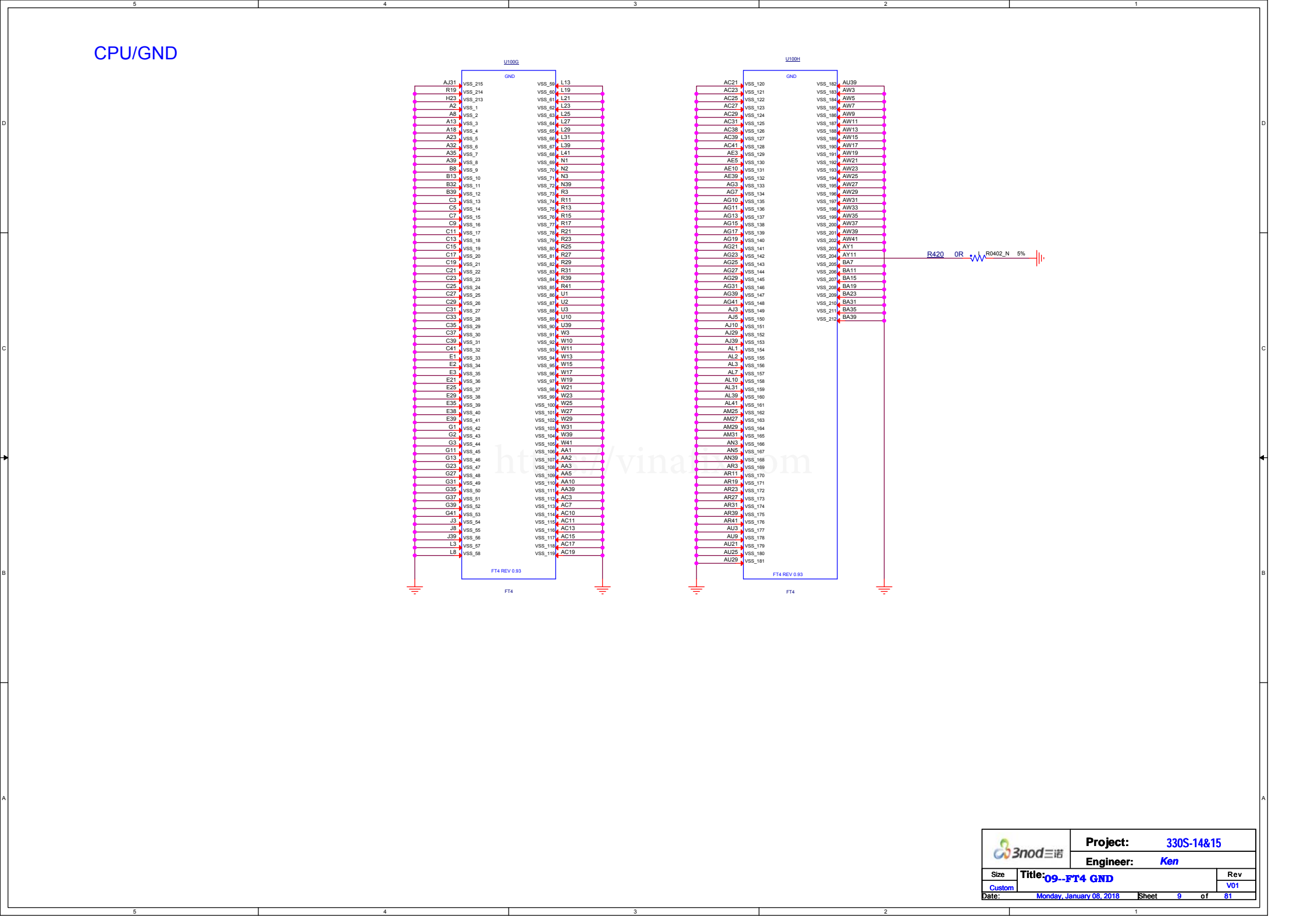
FT4 REV 0.93

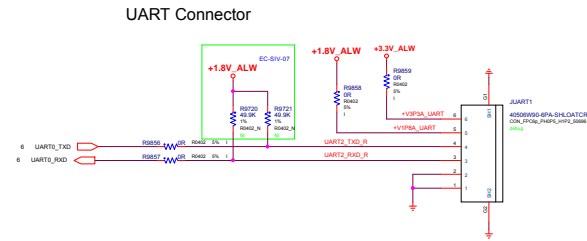
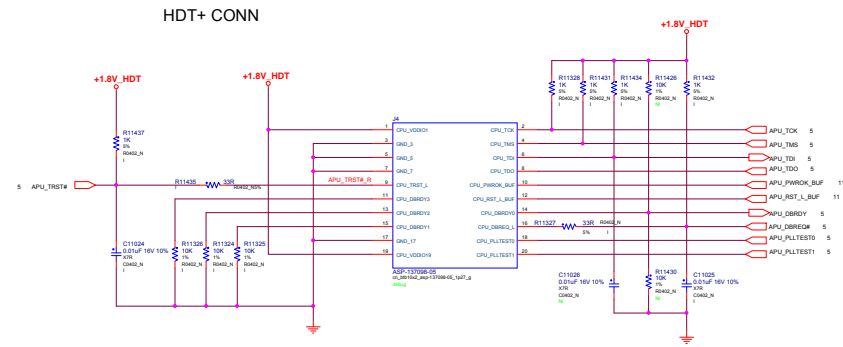
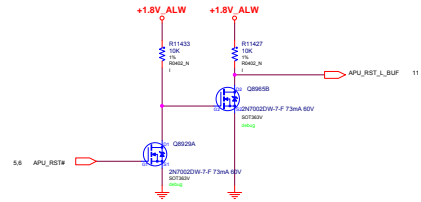
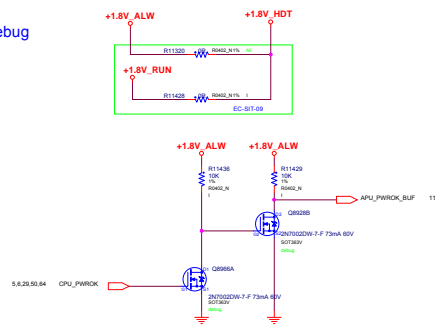
FT4

R420 0R


R0402_N 5%

		Project: 330S-14&15	
		Engineer: Ken	
Size	Title: 09--FT4 GND		Rev
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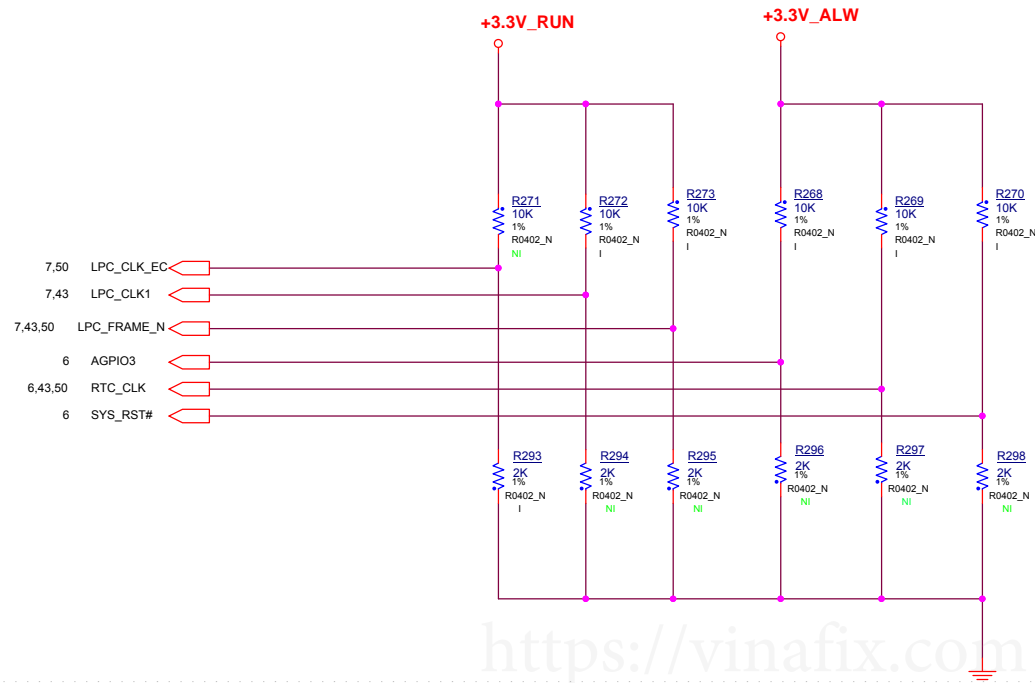
<https://vinafix.com>

		Project: 330S-14&15	
		Engineer: Ken	
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		Project: 330S-14&15	
		Engineer: Ken	
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CPU/Straping




	LPC_CLK0	LPC_CLK1	LFRAME_L	AGPIO3 Int pull-up	RTC_CLK Int pull-up	SYS_RST# Int pull-up
PULL HIGH	BOOT FAIL TIMER ENABLED	Use 48Mhz crystal clock and generate both internal and external clocks (DEFAULT)	SPI ROM (DEFAULT)	Enhanced reset logic (for quicker S5 S5 resume) (DEFAULT)	Coin battery is on board. (DEFAULT)	normal reset mode (DEFAULT)
PULL LOW	BOOT FAIL TIMER DISABLED (DEFAULT)	Use 100Mhz PCIE clock as reference clock and generate internal clocks only	LPC ROM	Default to traditional reset logic	Coin battery is not on board.	short reset mode

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		Project: 330S-14&15	
		Engineer: Ken	
Size	Title: NA		Rev
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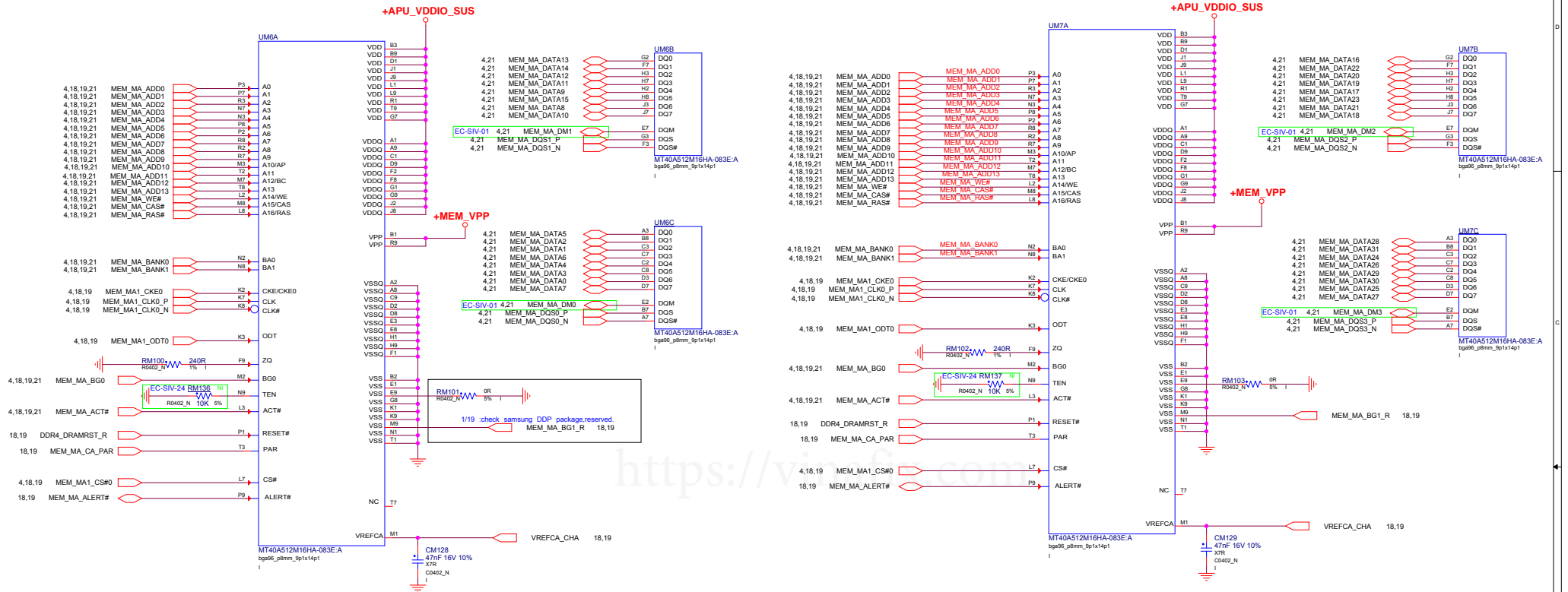
Vinafix.com

 3nod三诺		Project: 330S-14&15		
		Engineer: Ken		
Size	Title: NA			Rev
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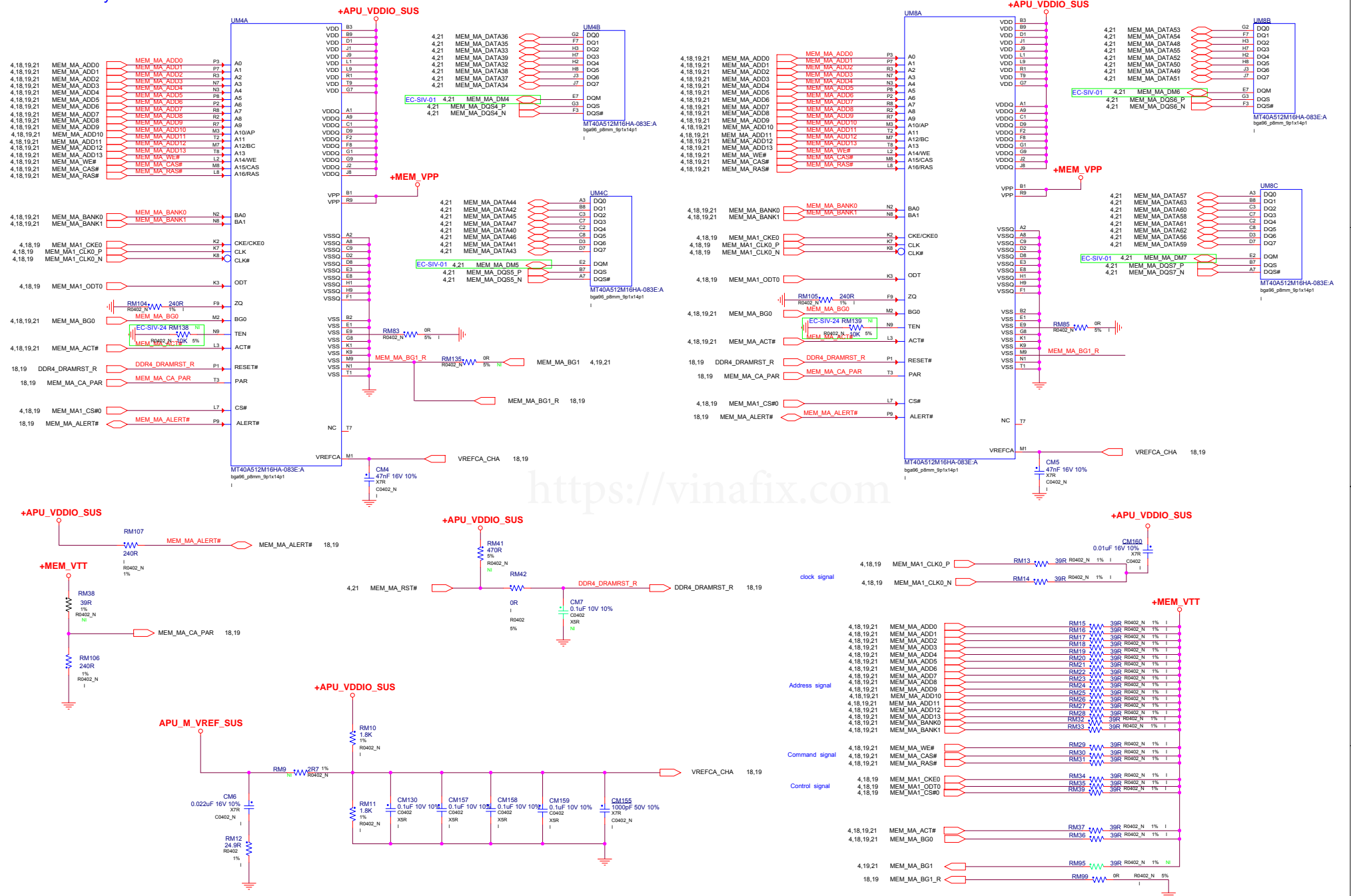
<https://vinafix.com>

		Project: 330S-14&15	
		Engineer: Ken	
Size	Title: NA		Rev
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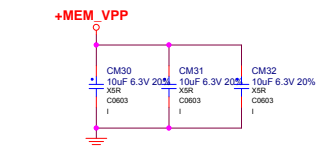
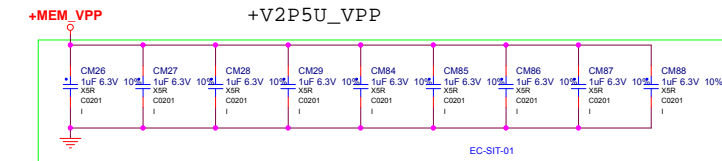
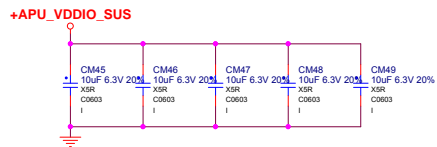
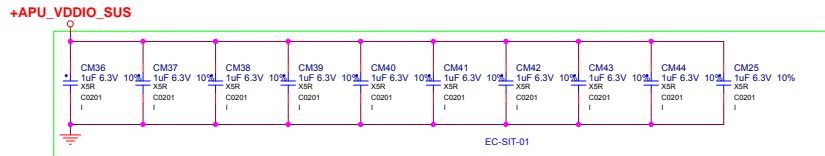
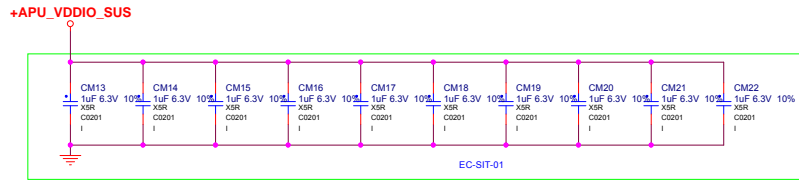
Memory down/DDR4*4



Memory down/DDR4*4



DDR4*4 /Decoupling capacitor



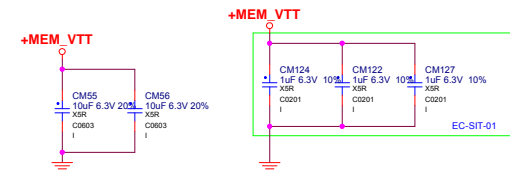
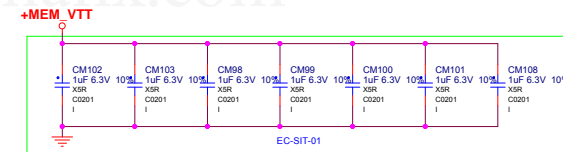
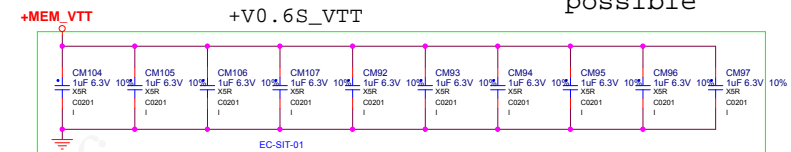
1uF:2 as near each x16
DRAM device as
possible

10uF:Distributed around
the DRAM devices

1uF:4 as near each x16
DRAM device as
possible


10uF:Distributed around
the DRAM devices

1uF:2 as near each x20
DRAM device as
possible




10uF:Distributed around
the DRAM devices

<https://vinafix.com>

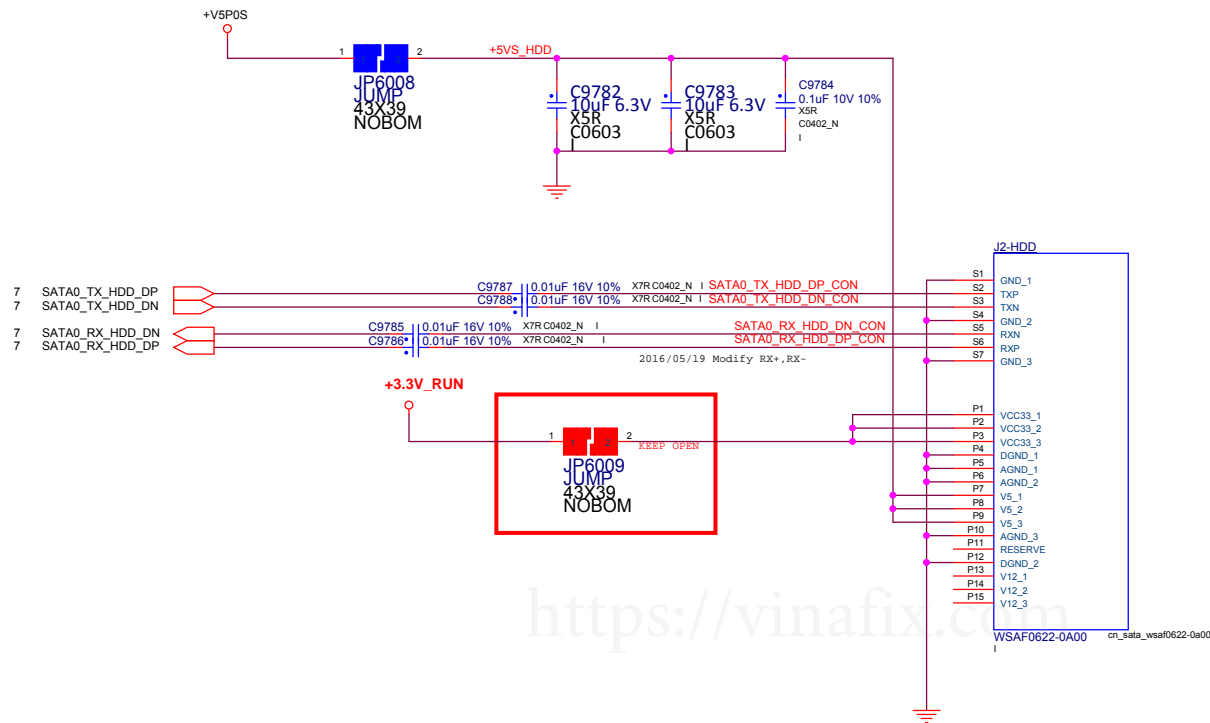
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		Engineer: Ken	
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		Project: 330S-14&15	
		Engineer: Ken	
Size	Title: RF / EMC Solution		Rev
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SATA HDD

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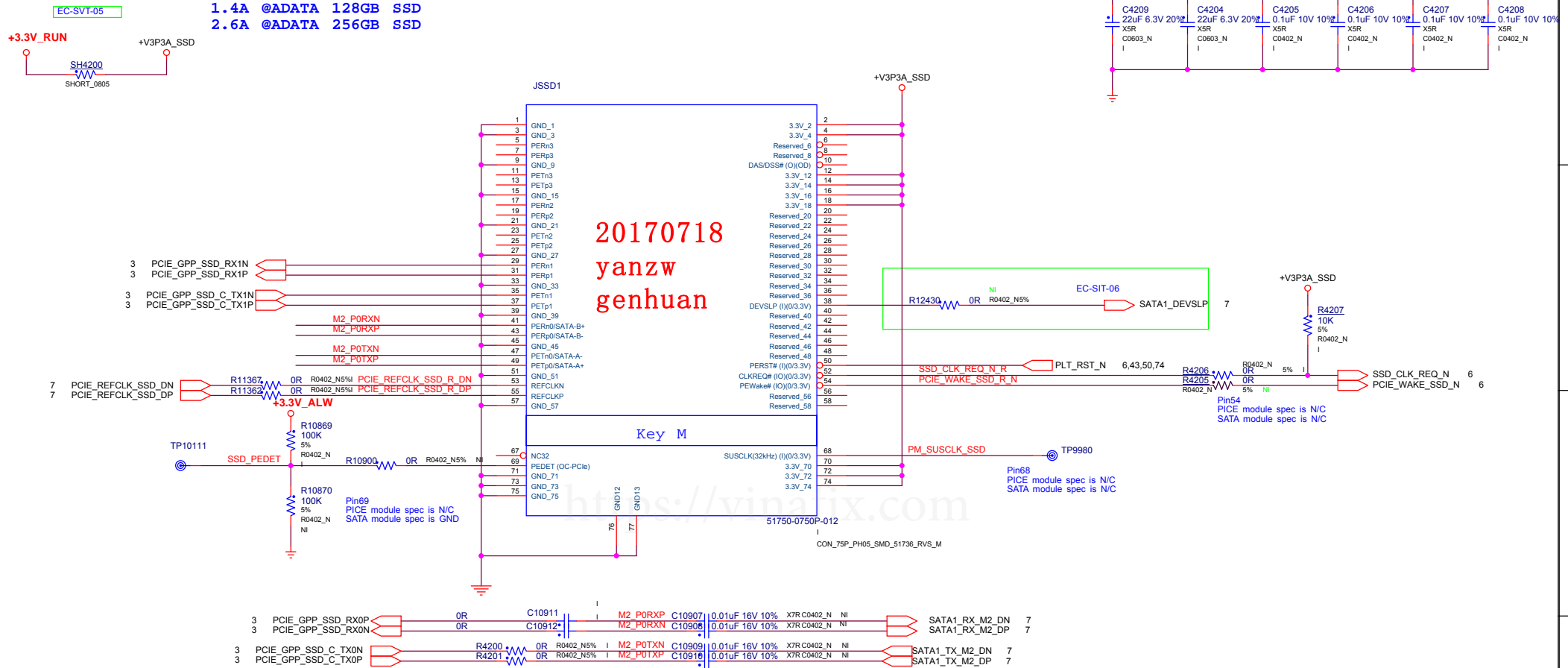
INTERNAL ONLY

BPAGE DRAWING

sky_y_mrd.GND
Wed Jun 03 11:22:52 2015

		Project: 330S-14&15	
Engineer: Ken		Rev V01	
Size Custom	Title: HDD	Date: Monday, January 08, 2018	Sheet 25 of 81


M.2 SSD Module



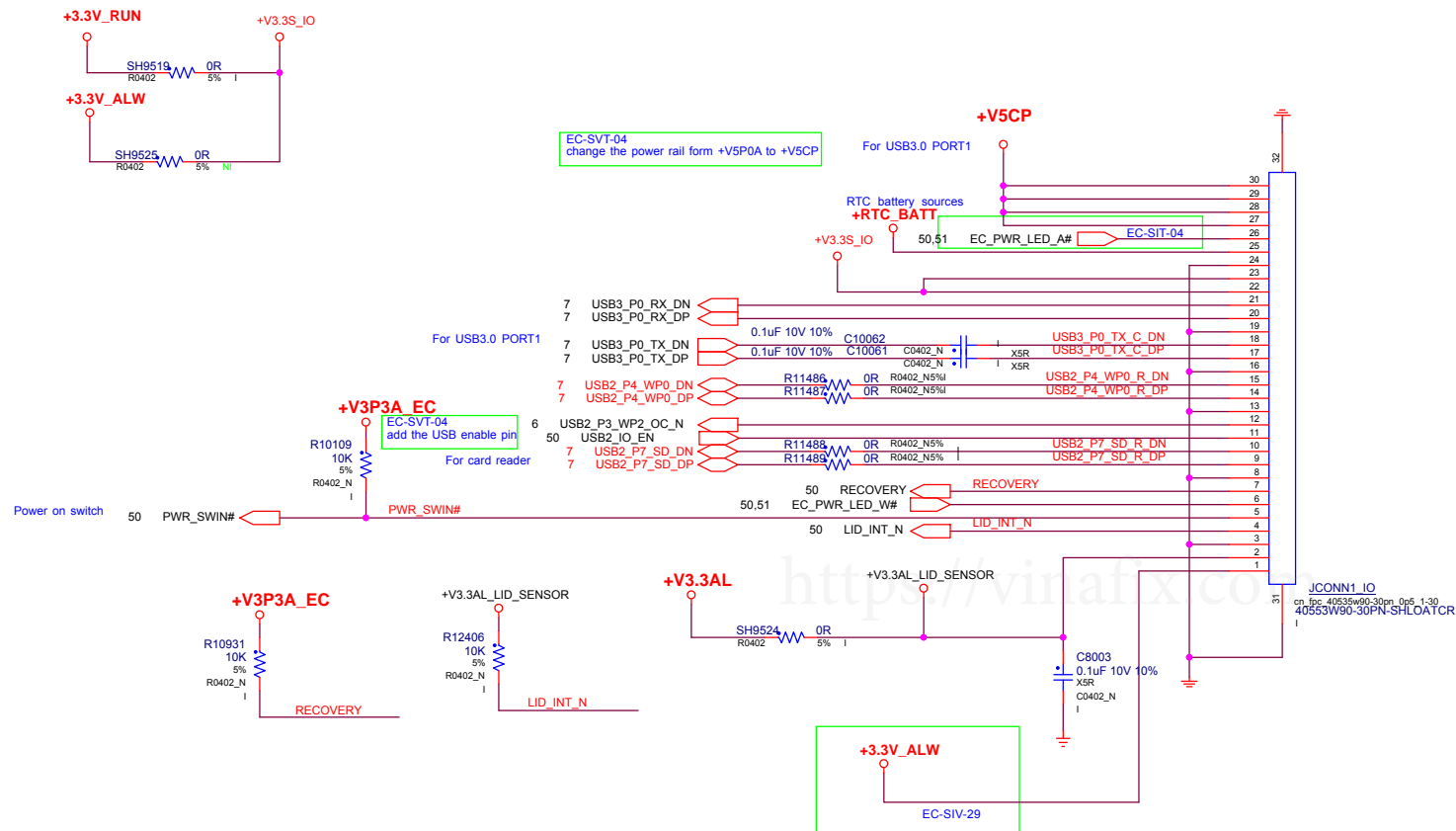
INTERNAL ONLY

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shy_x_mrd +V3P3.26
Wed Jun 03 11:22:52 2015

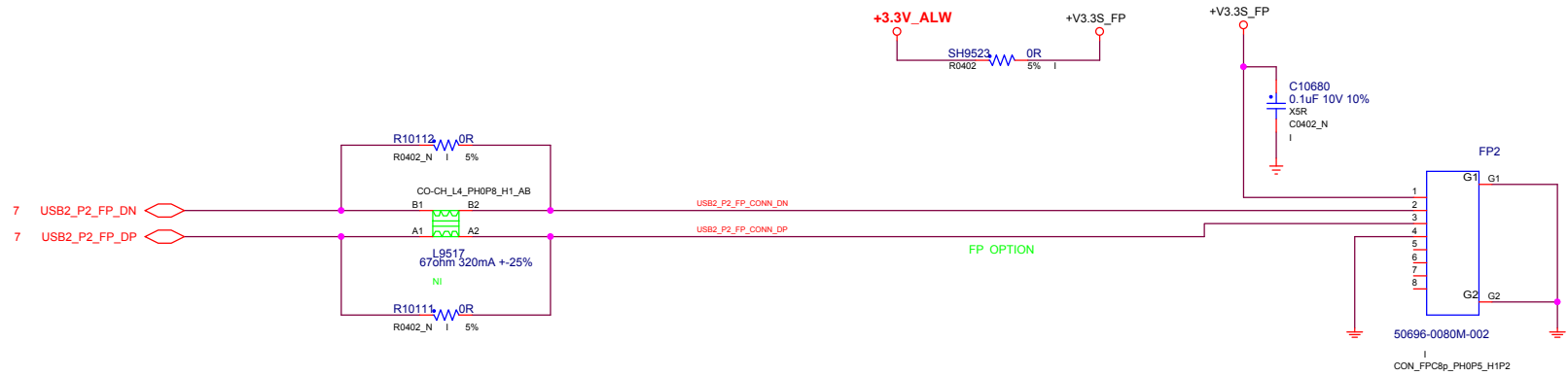
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		Engineer: Ken	
Size	Title: PCIE SSD MODULE	Rev	
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IO connector/USB3.0 PORT&USB card reader&LID sensor



		Project: 330S-14&15	
		Engineer: Ken	
Size	Title: IO CONNECTOR	Rev	
Custom		V01	
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Finger Print




<https://vinafix.com>

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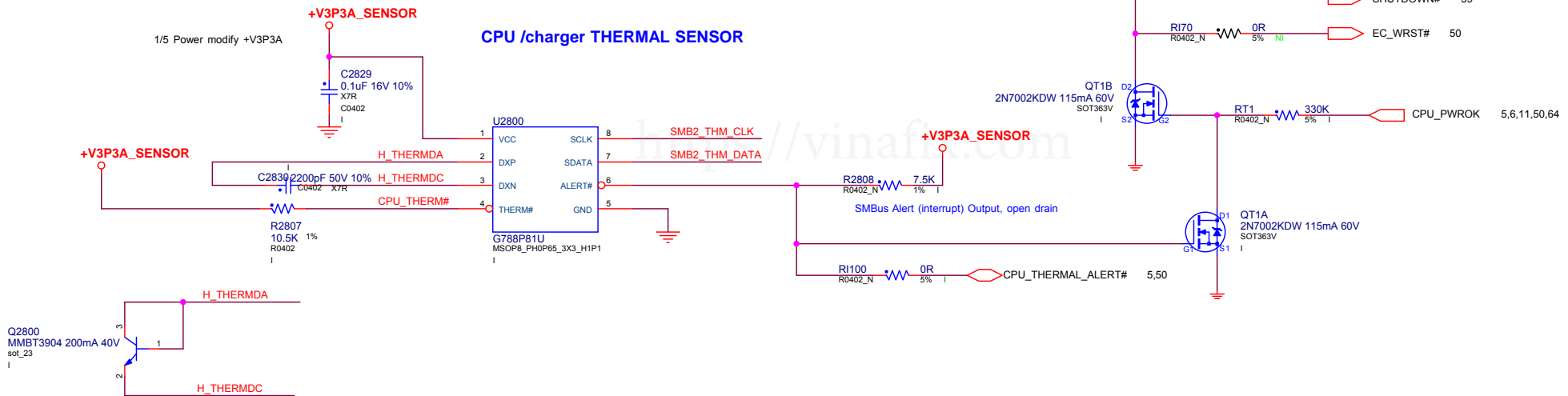
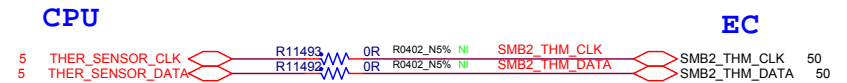
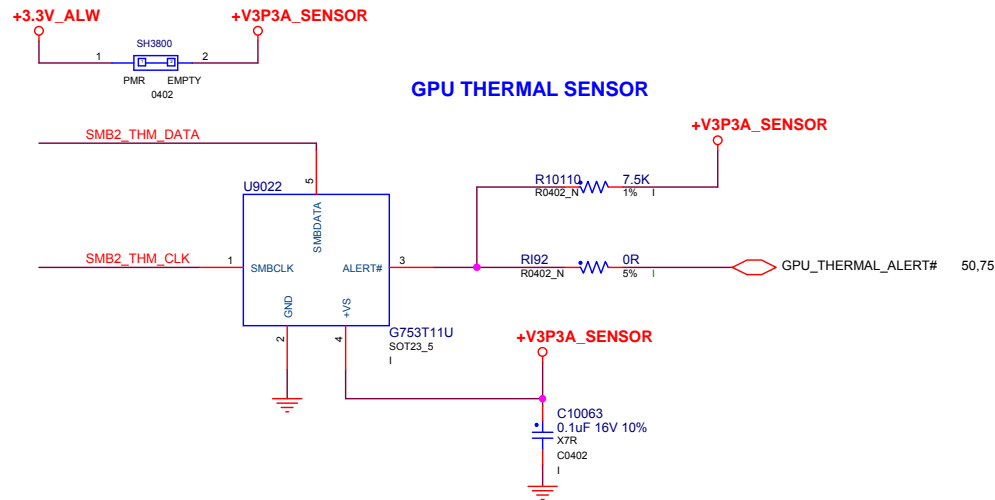
BPAGE DRAWING

sky_y_mrd.GND
Wed Jun 03 11:22:53 2015

		Project: 330S-14&15	
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Size	Title: FINGER PRINT		Rev
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Thermal Sensor

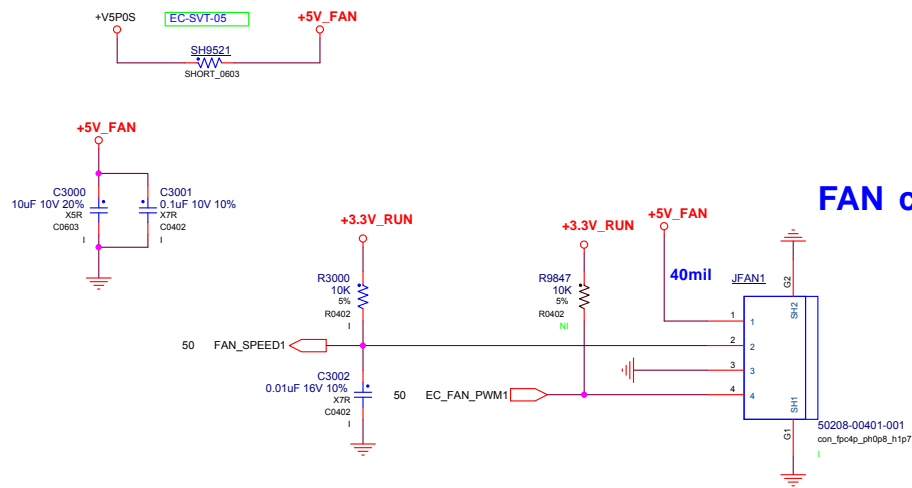
1/4 Add connect to SOC & EC

Table 10. Remote temperature $\overline{\text{THERM}}$ limit

The default value is trapping after power up 100ms by different pull-up resistors of $\overline{\text{THERM}}$ and $\overline{\text{ALERT}}$ pin:

TEMPERATURE (°C)		THERM				
		2KΩ	7.5KΩ	10.5KΩ	14KΩ	18.7KΩ
ALERT#	2KΩ	77	87	97	107	117
	7.5KΩ	79	89	99	109	119
	10.5KΩ	81	91	101	111	121
	14KΩ	83	93	103	113	123
	18.7KΩ	85	95	105	115	125

		Project: 330S-14&15	
		Engineer: Ken	
Size	Title: CPU THERMAL SENSOR		Rev
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FAN conn

1/11 Update FAN pin define



1. Power Supply (+)
2. FG or RD Output
3. Power Return (-)
4. PWM Input

CIS ok

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3nod 三诺		Project: 330S-14&15	
Size Custom		Engineer: Ken	
Date: Monday, January 08, 2018	Sheet 30 of 81	Title: FAN conn	
		Rev V01	

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BPAGE DRAWING

sky_y_mrd-V3P3.32
Wed Jun 03 11:22:55 2015

		Project: 330S-14&15	
		Engineer: Ken	
Size	Title: NA		Rev
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B									B
A									A
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Wed Jun 03 11:22:55 2015

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		Engineer: Ken	
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3nod三诺

Size

Custom

Date:

Title:NA

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V01

Project: 330S-14&15

Engineer: Luffy


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Wed Jun 03 11:22:56 2015

https://vinafix.com

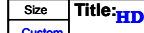
<https://vinafix.com>

Wed Jun 03 11:22:56 2015

		Project: 330S-14&15	
		Engineer: Luffy	
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sky_y_mrd.GND

sky_y_mrd.GND



Engineer: *Luffy*

Engineer: *Luffy*

Custom Date: Monday, January 08, 2018 Sh

Custom Date: Monday, January 08, 2018 Sh

2	1
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<https://vinafix.com>

BPAGE DRAWING


apl_11.GND
Fri May 27 06:47:32 2016

		Project: 330S-14&15	
		Engineer: Luffy	
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Sensors

<https://vinafix.com>

+V3.3AL  +V3.3AL 27,42,50,51,57,59,60

		Project: 330S-14&15	
		Engineer: Luffy	
Size	Title: LID		Rev
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 3nod 三诺		Project: 330S-14&15		
		Engineer: Luffy		
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		Project: 330S-14&15	
		Engineer: Luffy	
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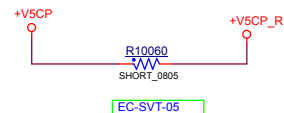
INTERNAL ONLY

BPAGE DRAWING

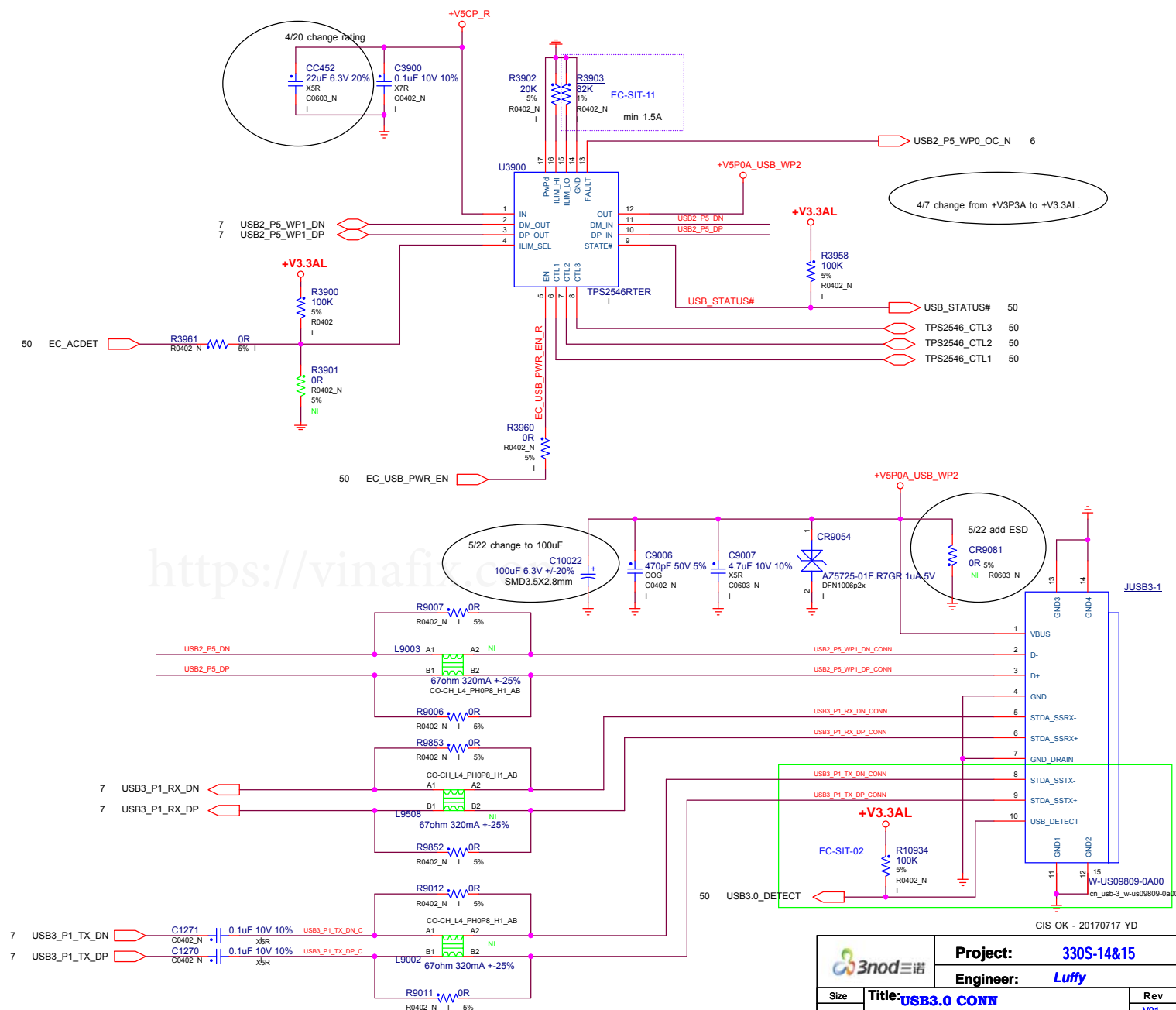
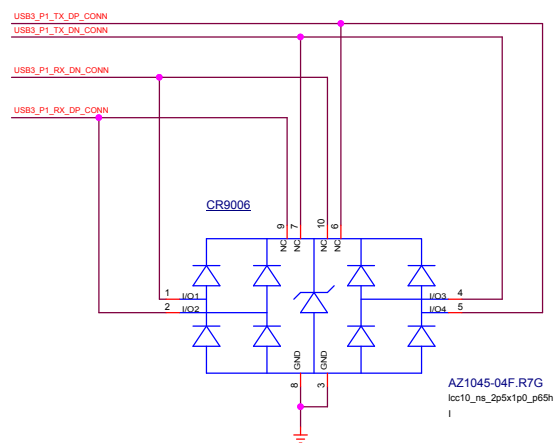
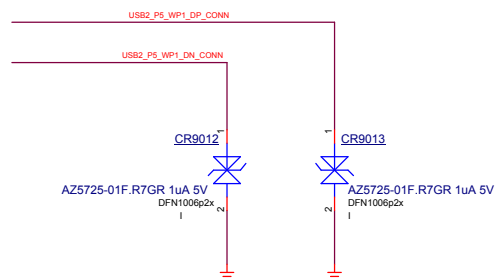
slky_v_rmd-1\3P3.41
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		Project: 330S-14&15	
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USB3.0

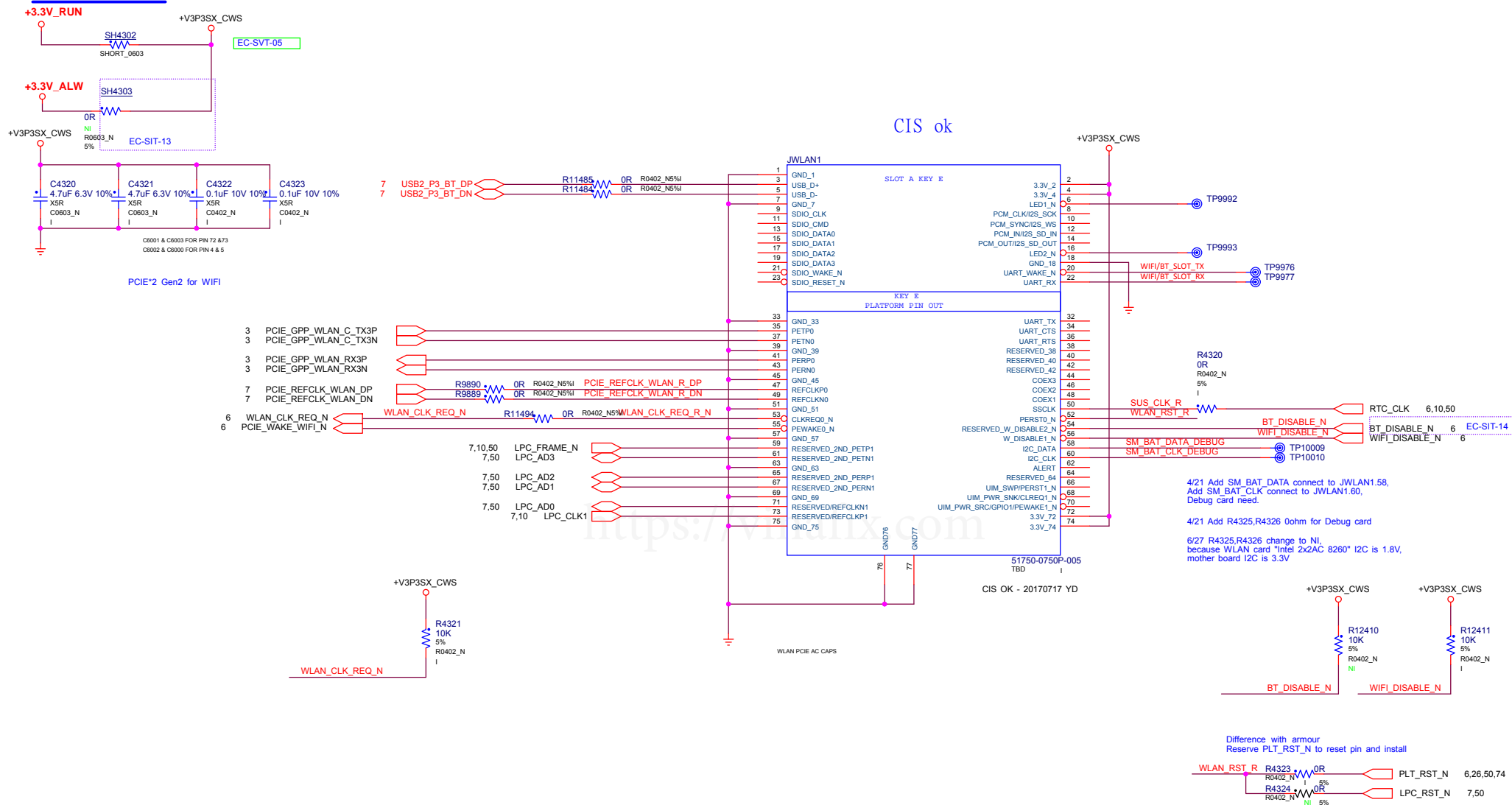


D+/D- ESD



		Project: 330S-14&15	
		Engineer: Luffy	
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WIFI & BT Module



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BPAGE DRAWING

sky_y_mrd.+V3P3.43
Wed Jun 03 11:23:00 2015



Project: 330S-14&15

Engineer: *Luffy*

Size	Title: WLAN WIFI BT MODULE	Rev
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<https://vinafix.com>

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3nod

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Size

Custom

Title:NA

Date:Monday, January 08, 2018

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V01

Project:330S-14&15

Engineer:Luffy

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sky_x_mrd.GND


Wed Jun 03 11:23:01 2015

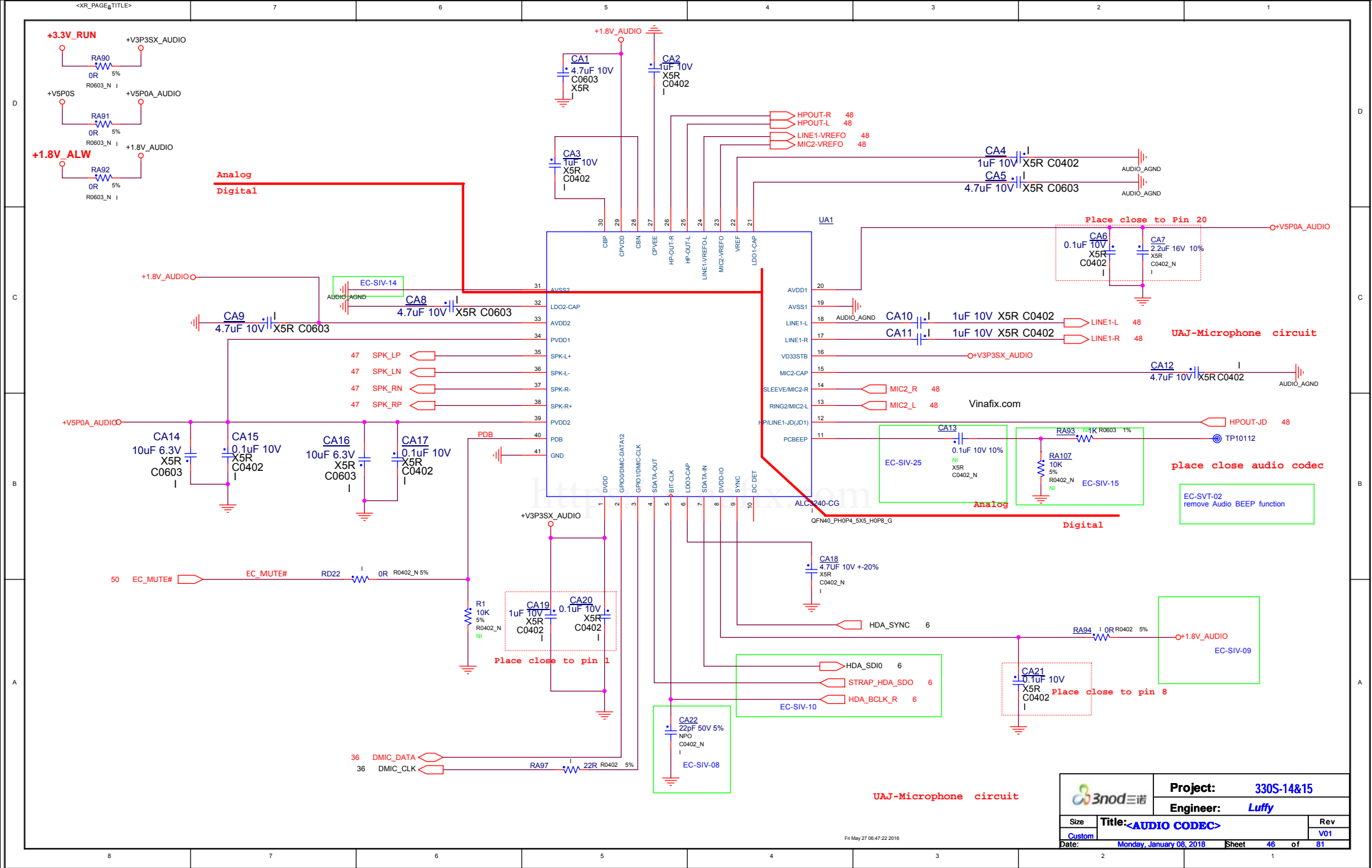
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BPAGE DRAWING
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Wed Jun 03 11:23:01 2015

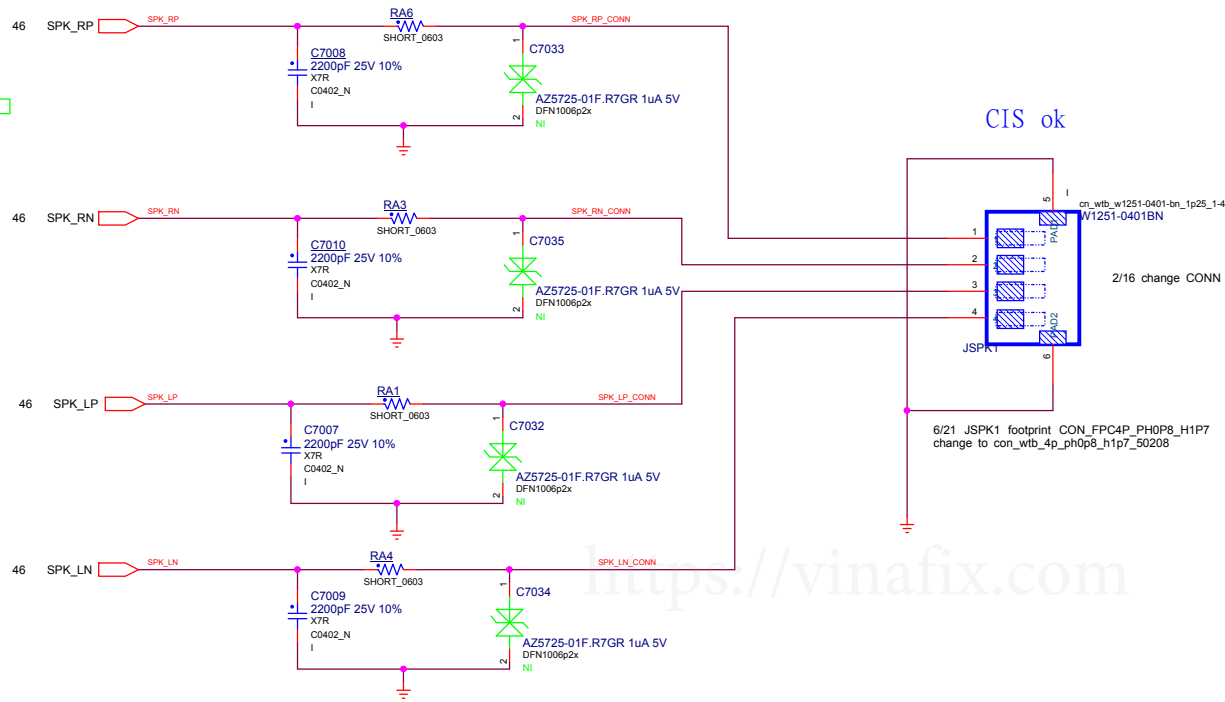
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		Engineer: Luffy	
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		Project:	330S-14&15
		Engineer:	Luffy
Size	Title: <AUDIO CODEC>	Rev	
Custom		V01	
Date:	Monday, January 08, 2018	Sheet	46 of 81

Speaker


EC-SVT-05



INTERNAL ONLY

BPAGE DRAWING

sky_y_mrd.GND
Wed Jun 03 11:23:02 2015

		Project: 330S-14&15	
Size: Custom		Engineer: Luffy	
Title: Speaker		Rev: V01	
Date: Wednesday, January 10, 2018		Sheet 47 of 81	


<XPL_PAGE_TITLE>		7	6	5	4	3	2	1	
D									D
C									C
B									B
A									A
8	7	6	5	4	3	2	1		

</

<https://vinafix.com>

BPAGE DRAWING

shy_y_mrd +VCHG.49
Wed Jun 03 11:23:03 2015

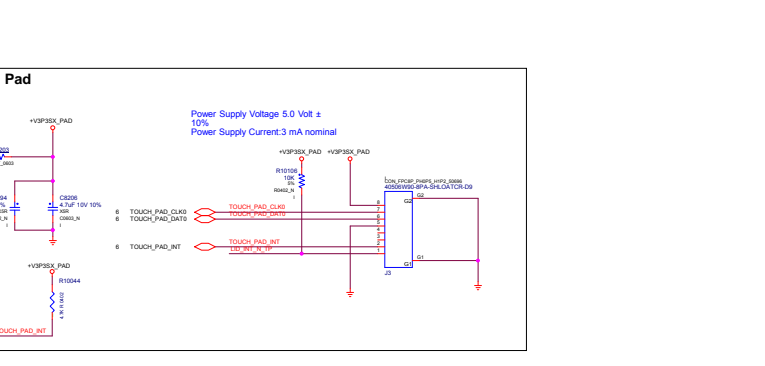
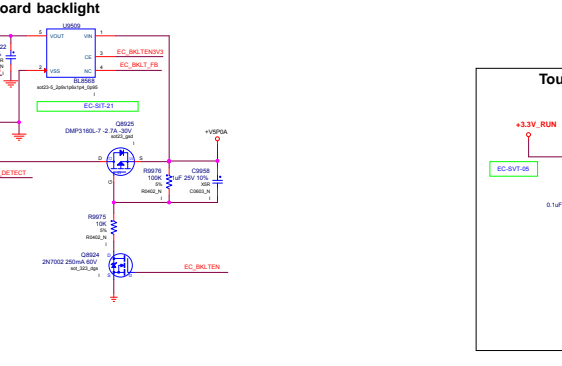
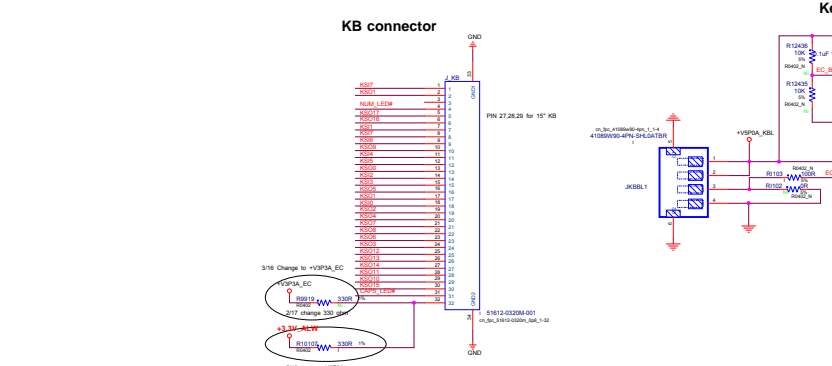
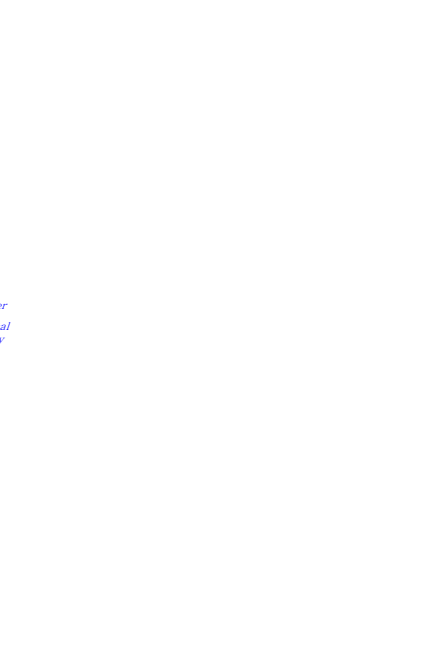
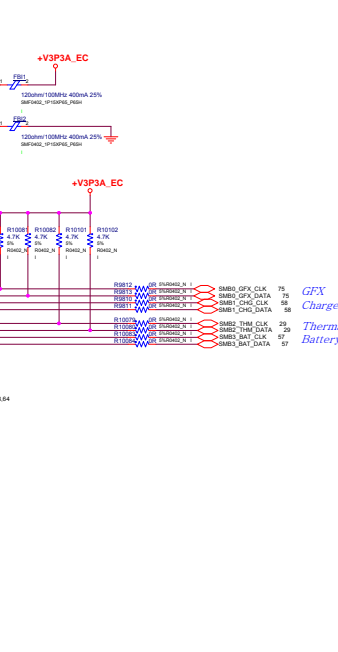
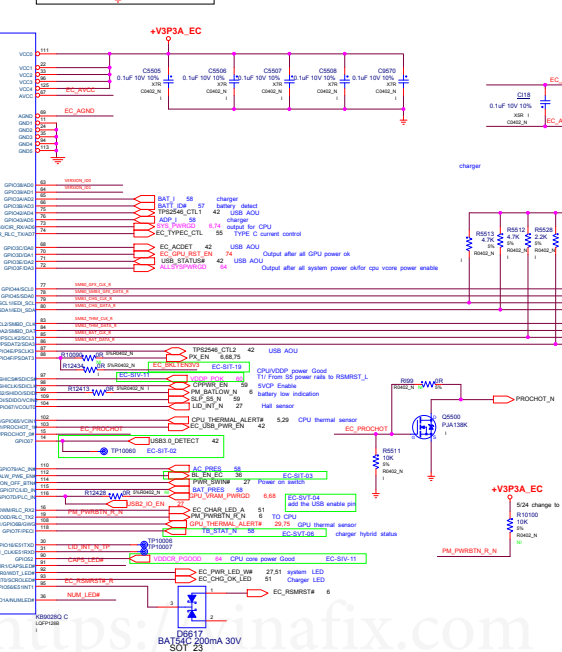
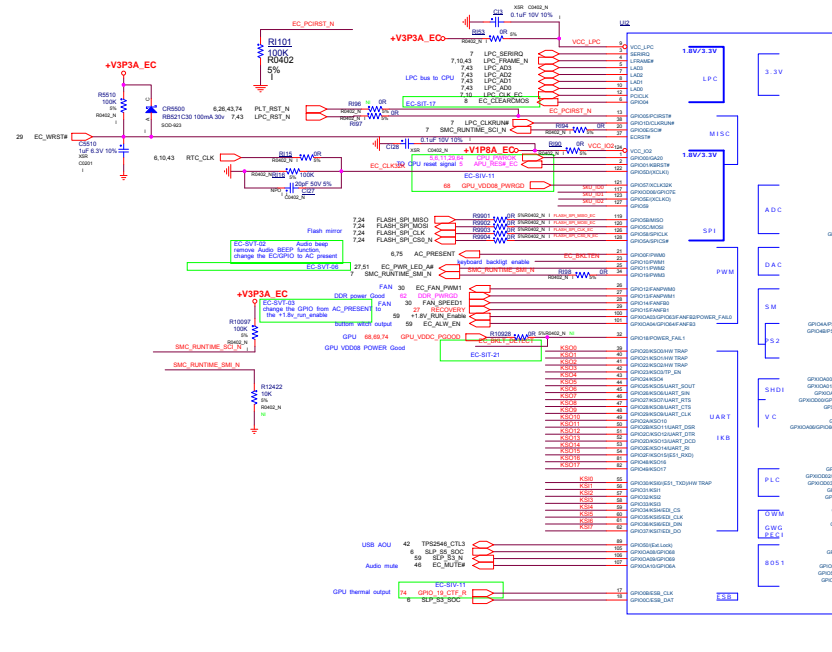
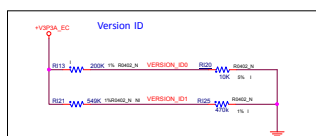
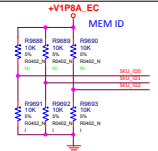
		Project: 330S-14&15	
		Engineer: Luffy	
Size	Title: NA	Vinafix.com	Rev
Custom			V01
Date: Monday, January 08, 2018		Sheet 49 of 81	

EC controller

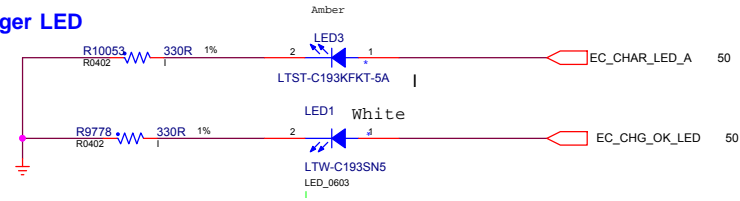
version ID

version ID	14"	15"
VERSION_ID0	1	0
VERSION_ID1	0	1
VERSION_ID2	0	0

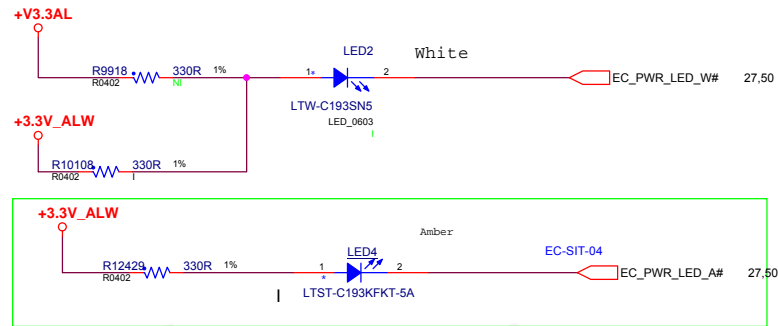
Memory ID	8GB	16GB	32GB
MEM_ID0	0	0	0
MEM_ID1	0	0	1
MEM_ID2	0	1	0




Charger LED



SYS LED



<https://vinafix.com>

		Project: 330S-14&15	
		Engineer: Luffy	
Size	Title: BUTTON & LED		Rev
Custom			V01
Date:	Monday, February 05, 2018	Sheet 51 of 81	

<XR_PAGE_TITLE>		7	6	5	4	3	2	1	
D									D
C									C
B									B
A									A
8	7	6	5	4	3	2	1		

3nod三诺

Size

Custom

Title:TYPE-C Switch

Date:Monday, January 08, 2018

Rev

V01


Project:330S-14&15

Engineer:Luffy

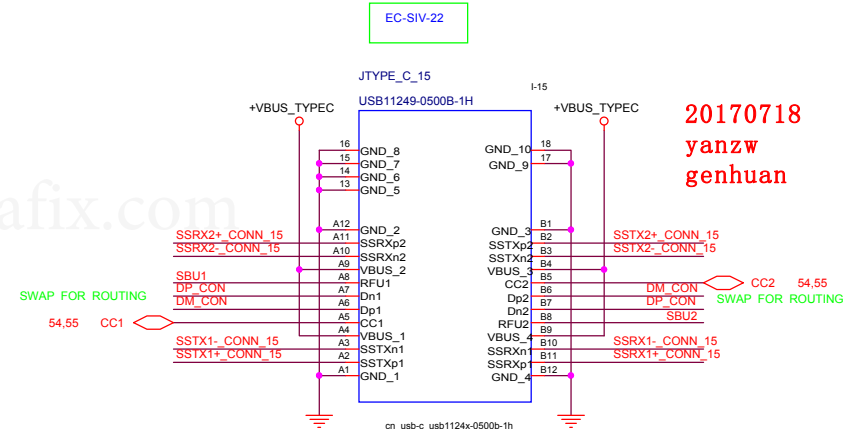
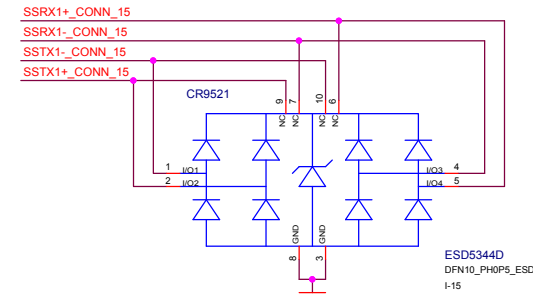
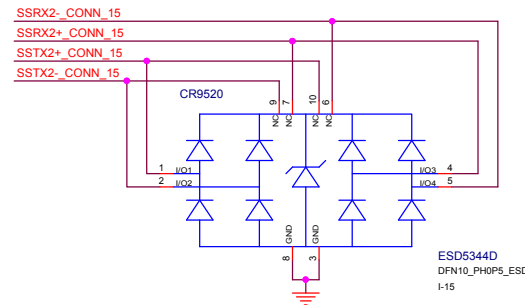
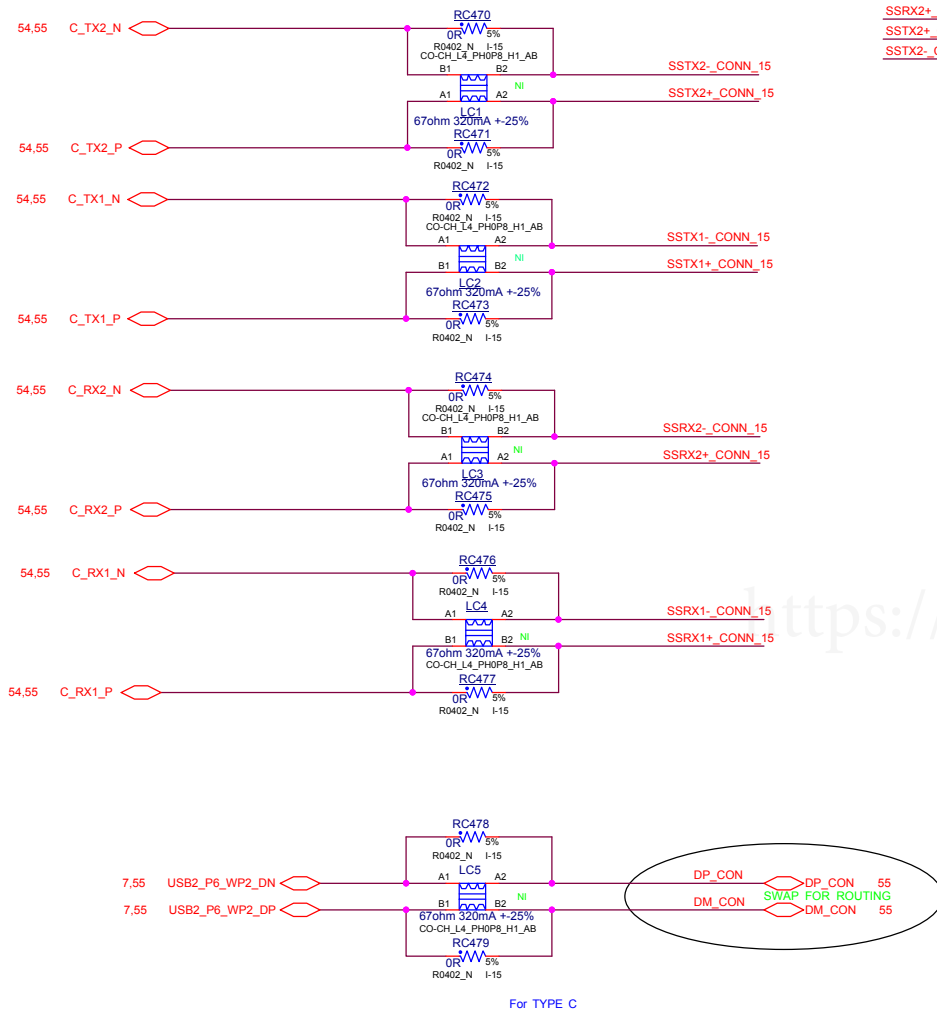
Sheet52

of81

<https://vinafix.com>

		Project: 330S-14&15	
		Engineer: Luffy	
Size	Title: TYPE-C Switch		Rev
Custom			V01
Date:	Monday, January 08, 2018	Sheet	52 of 81

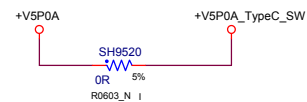
Type c connector 15"



20170718
yanzw
genhuan

3nod 三诺		Project:	330S-14&15
		Engineer:	Luffy
Size	Title: TYPE-C CONN	Rev	
Custom			V01
Date:	Monday, January 08, 2018	Sheet	53 of 81

Type c PD

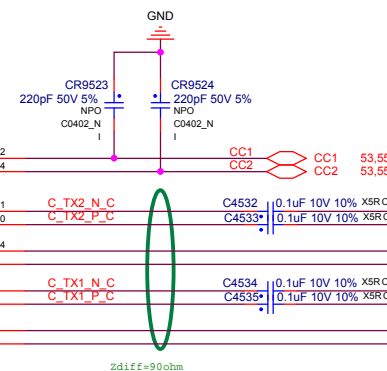
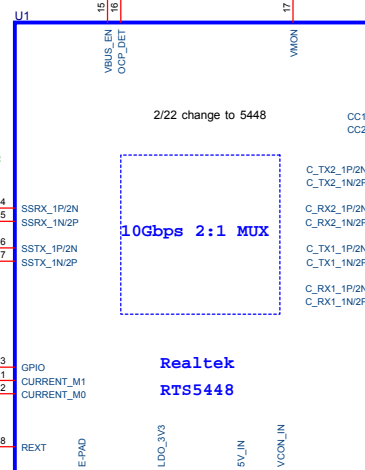
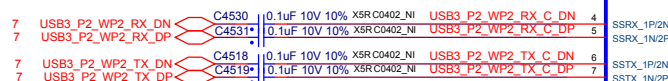


6,55 USB2_P2_WP1_OC_N R4619 0R
55 VBUS_EN R0402_N | 5%

IC 20mA

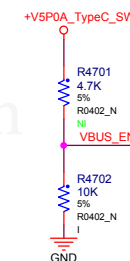
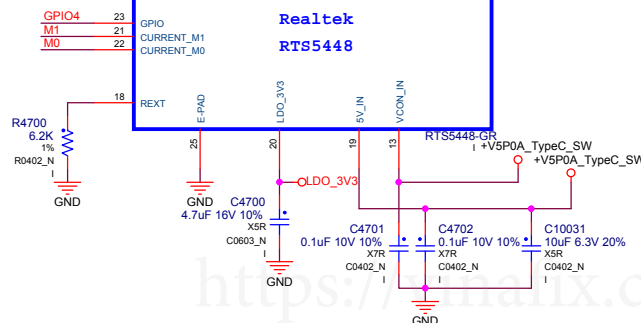
Swap P/N for USB3.1 GEN2
SSRX/TX no via layout.

```
Zdiff=90ohm
Swap P/N for USB3.1 GEN2
SSRX/TX no via layout.
```



B3
B2
A10
A11

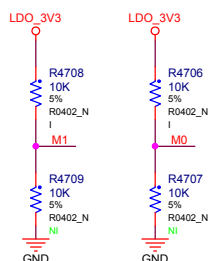
A3
A2
B10
B11



Power Switch High Enable

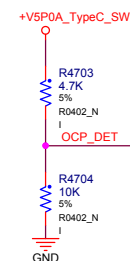
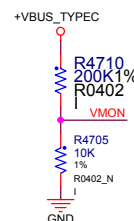
Power switch enable pin	Note
Low Active	R4701/R4702 mount
High Active	R4702 mount,R16 don't mount

Rp configuration



	M1	M0
Rp:900mA	0	1
Rp:1.5A	1	0
Rp:3.0A	1	1


Rp: 3A (now)

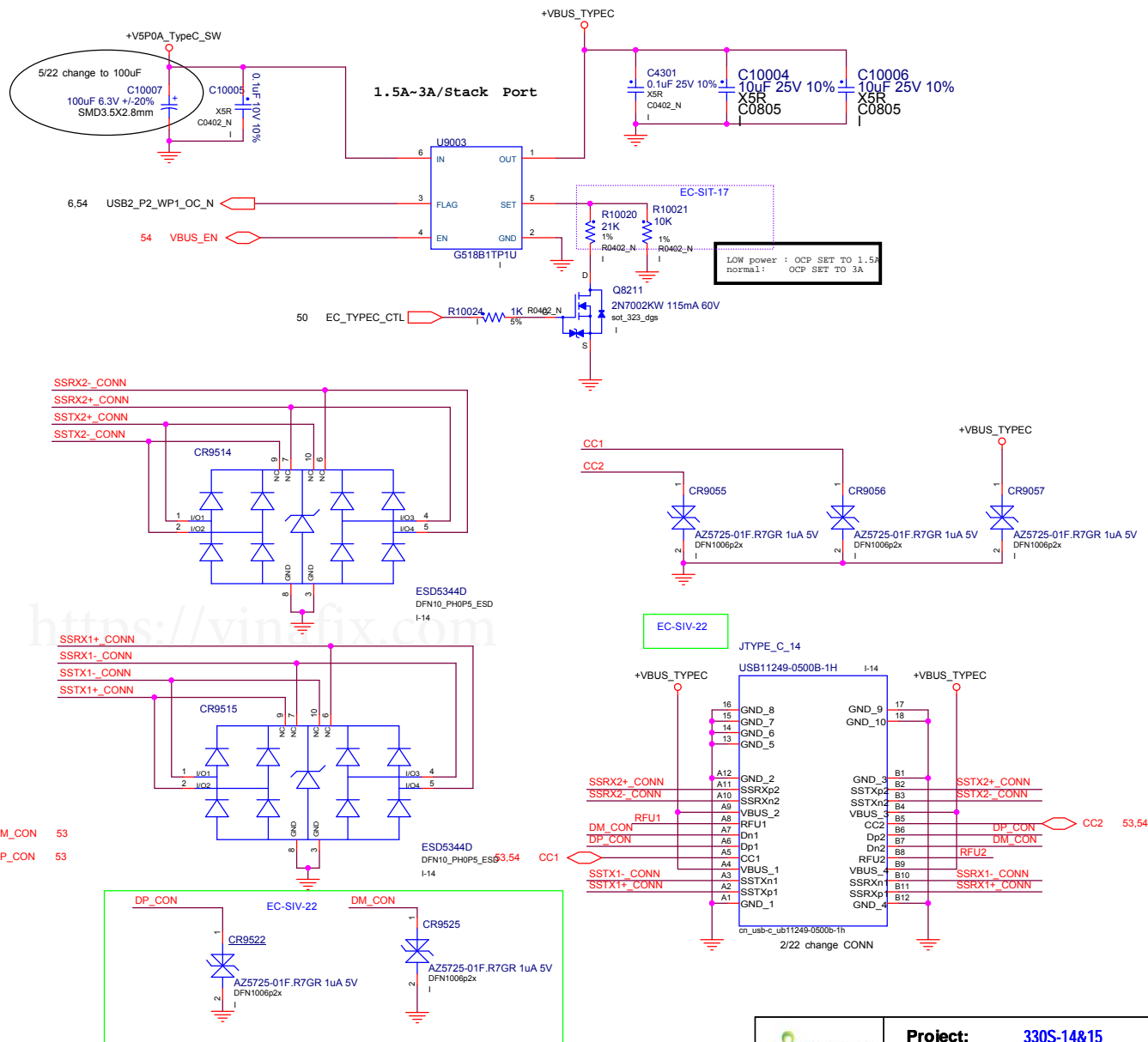
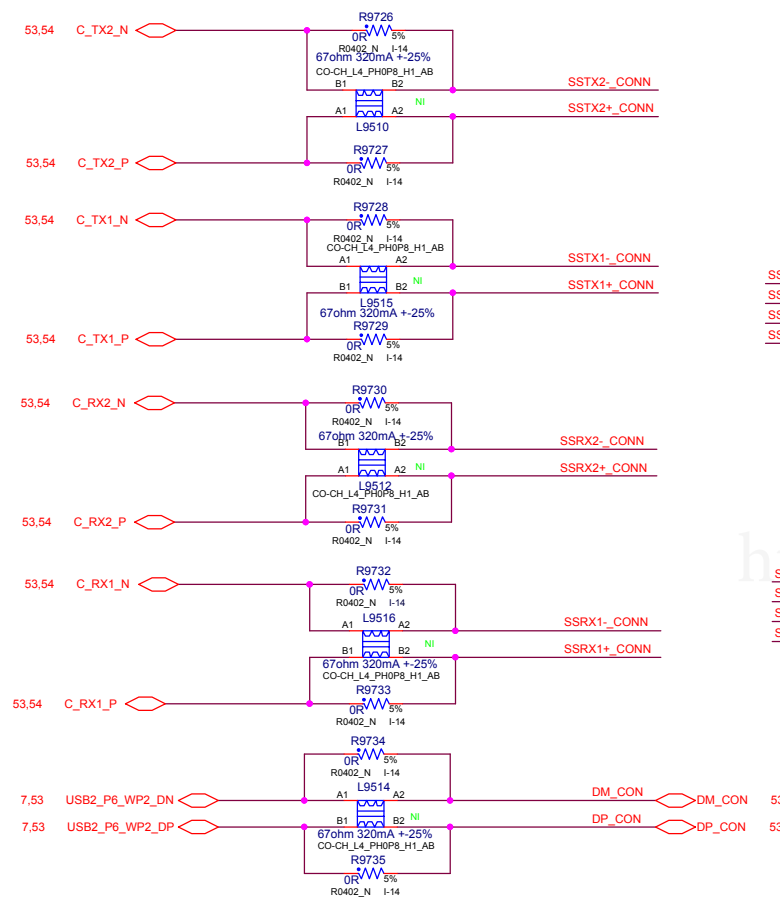


OCP Low Enable

Power switch OCP pin	Note
Low Active	R4704/R4703 mount
High Active	R4704 mount, R4703 don't mount

For C_VBUS
power switch OCP pin

 3nod 三诺	Project: 330S-14&15		
	Engineer: Luffy		
Size	Title: TYPE-C Switch		Rev
Custom			V01
Date:	Monday, January 08, 2018	Sheet	54 of 81

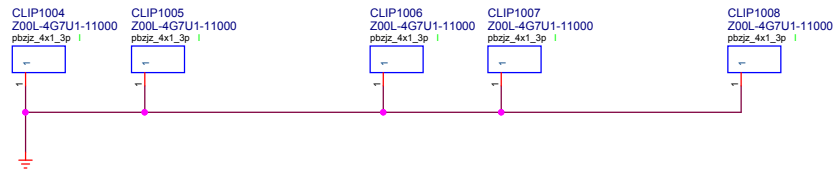
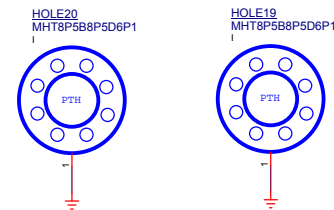
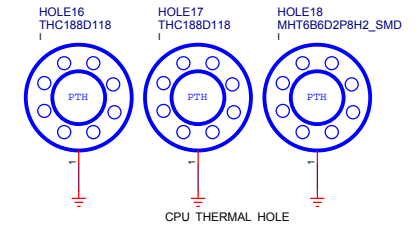
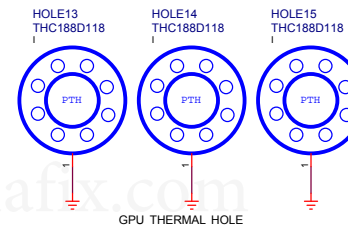
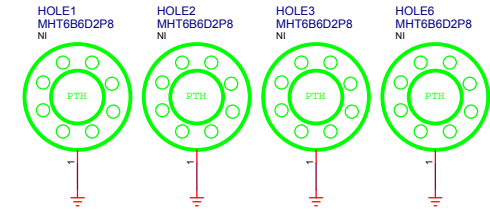
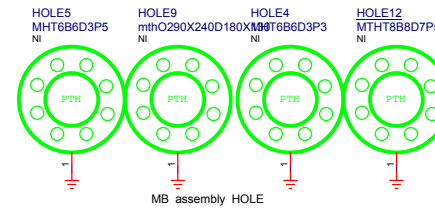



Shielding

Holes

2.8mm

3/30 chnagne screw



		Project: 330S-14&15	
		Engineer: Luffy	
Size	Title: UART CONN & HOLE & CLIP		Rev
Custom			V01
Date:	Thursday, January 11, 2018	Sheet	56 of 81

5V BATT_ID#

50

R5804 100K

R0402 10K

+V3.3AL

50 SMB3_BAT_CLK

50 SMB3_BAT_DATA

D5801 1N4148WS 200mA 100V SOD_323

R5803 100R 5%

R0402

BATT_CLK

BATT_DAT

R5802 100R 5%

R0402

BATT_TS

R5801 100R 5%

R0402

BATT+

5A

1 2 3 4 5 6 7 8

SH

TS

CN5801 VVVAA1208-1D00 ytb_8p_1d25_h2d0_dip

W1251-0401BN
cn_wb_w1251-0401-cn_1p05_14

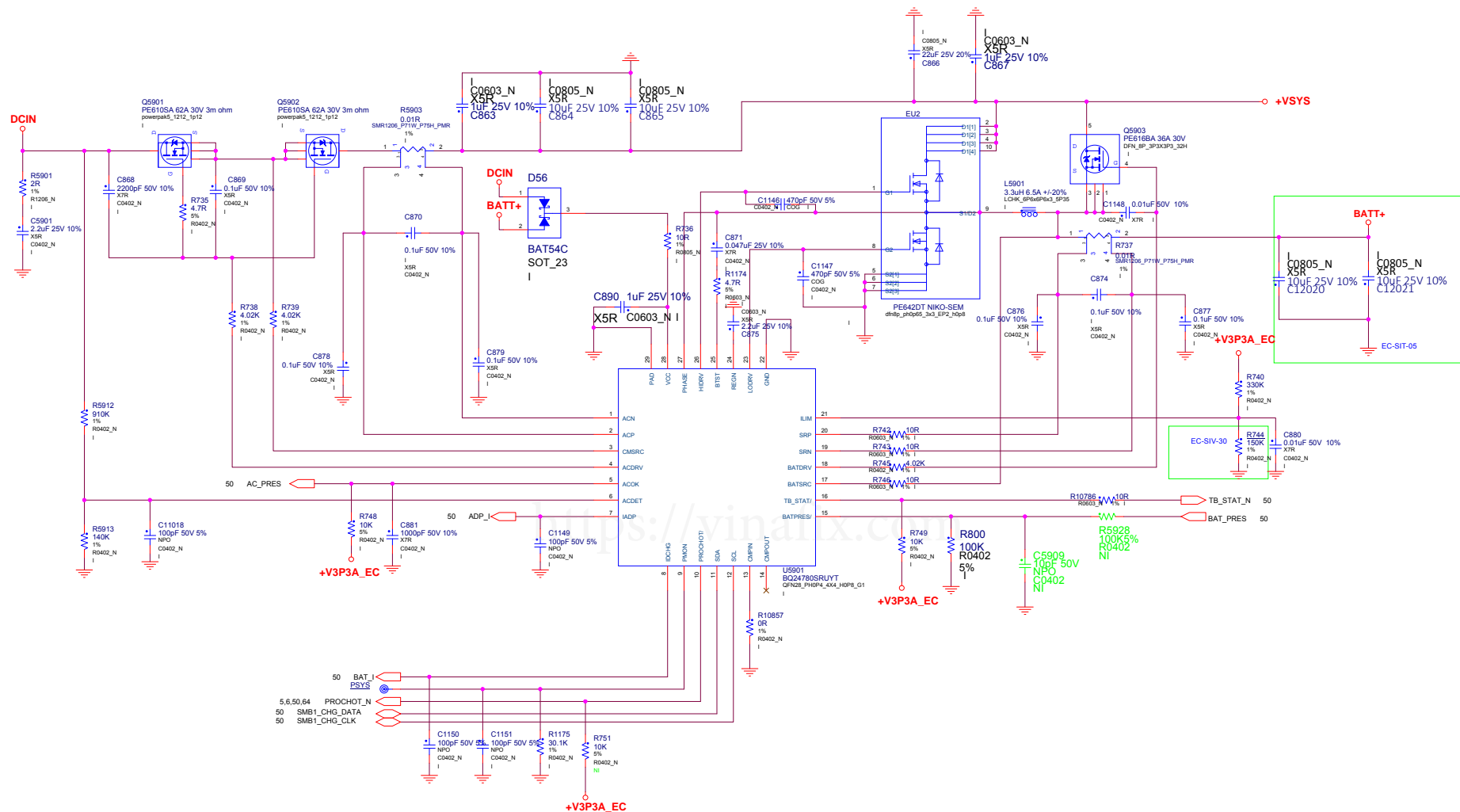
4A

DCIN

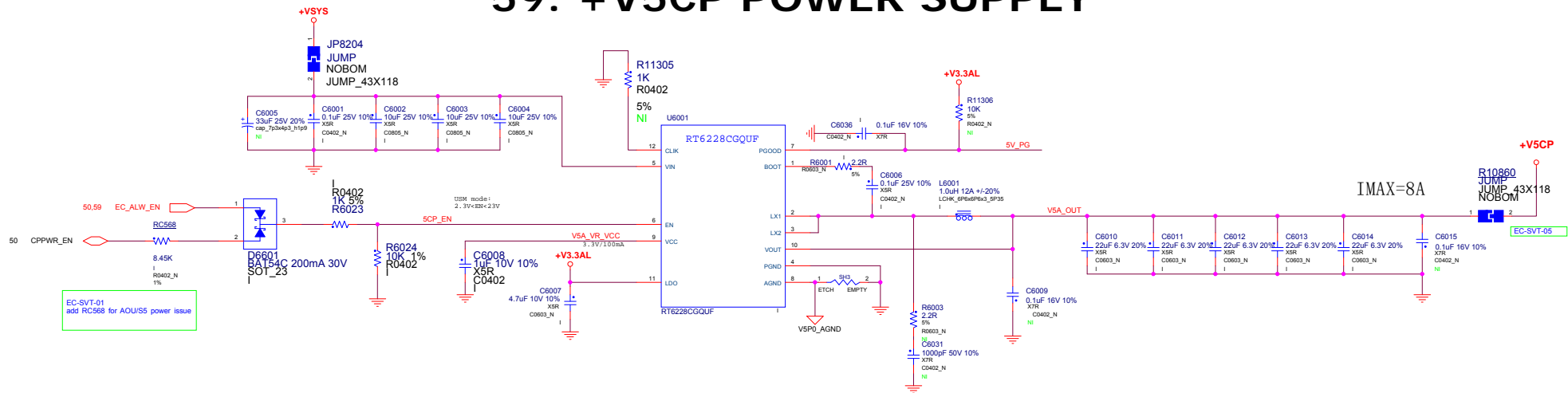
C5801
0.1µF 25V 10%

47R
C6003

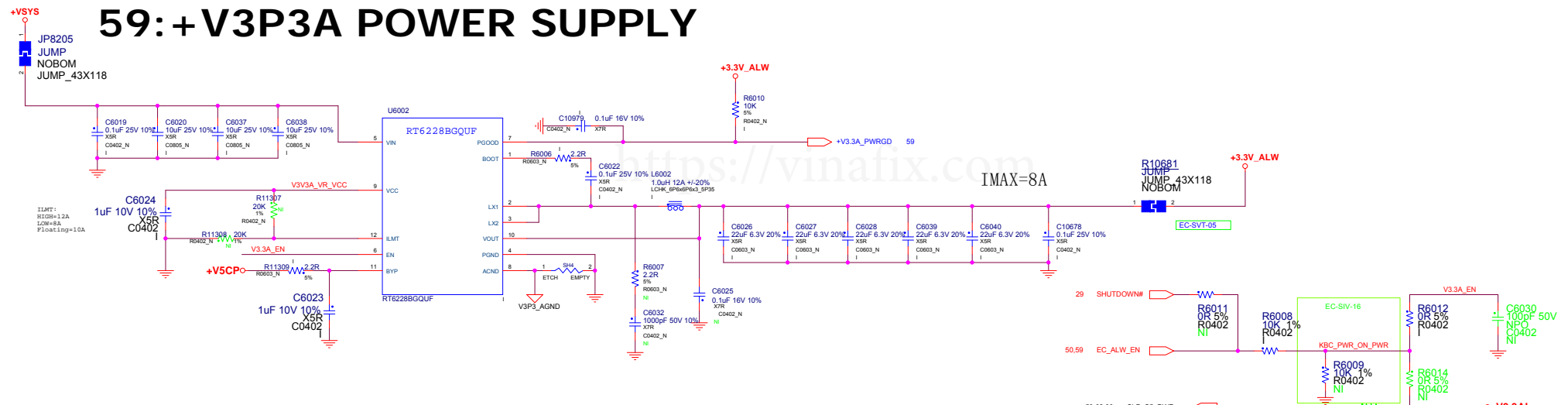
58: BATTERY CHARGER



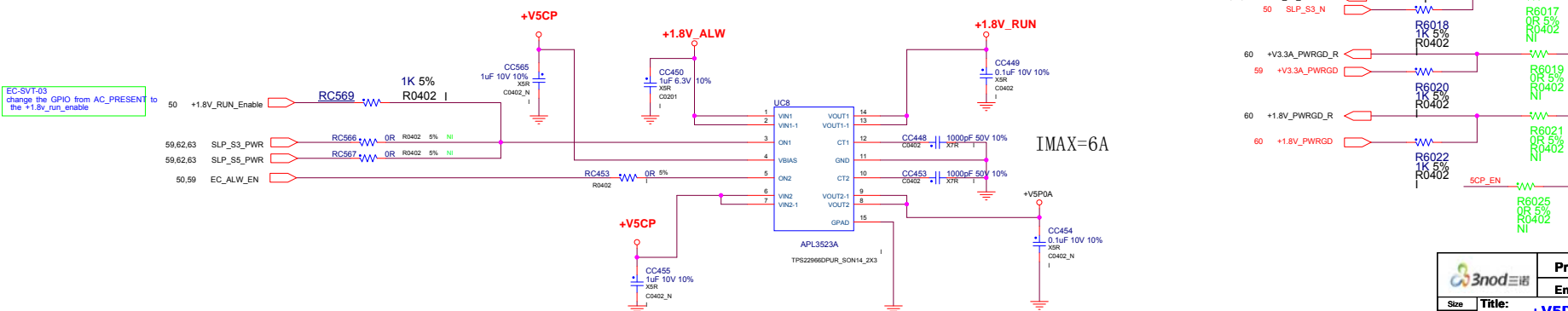
59: +V5CP POWER SUPPLY



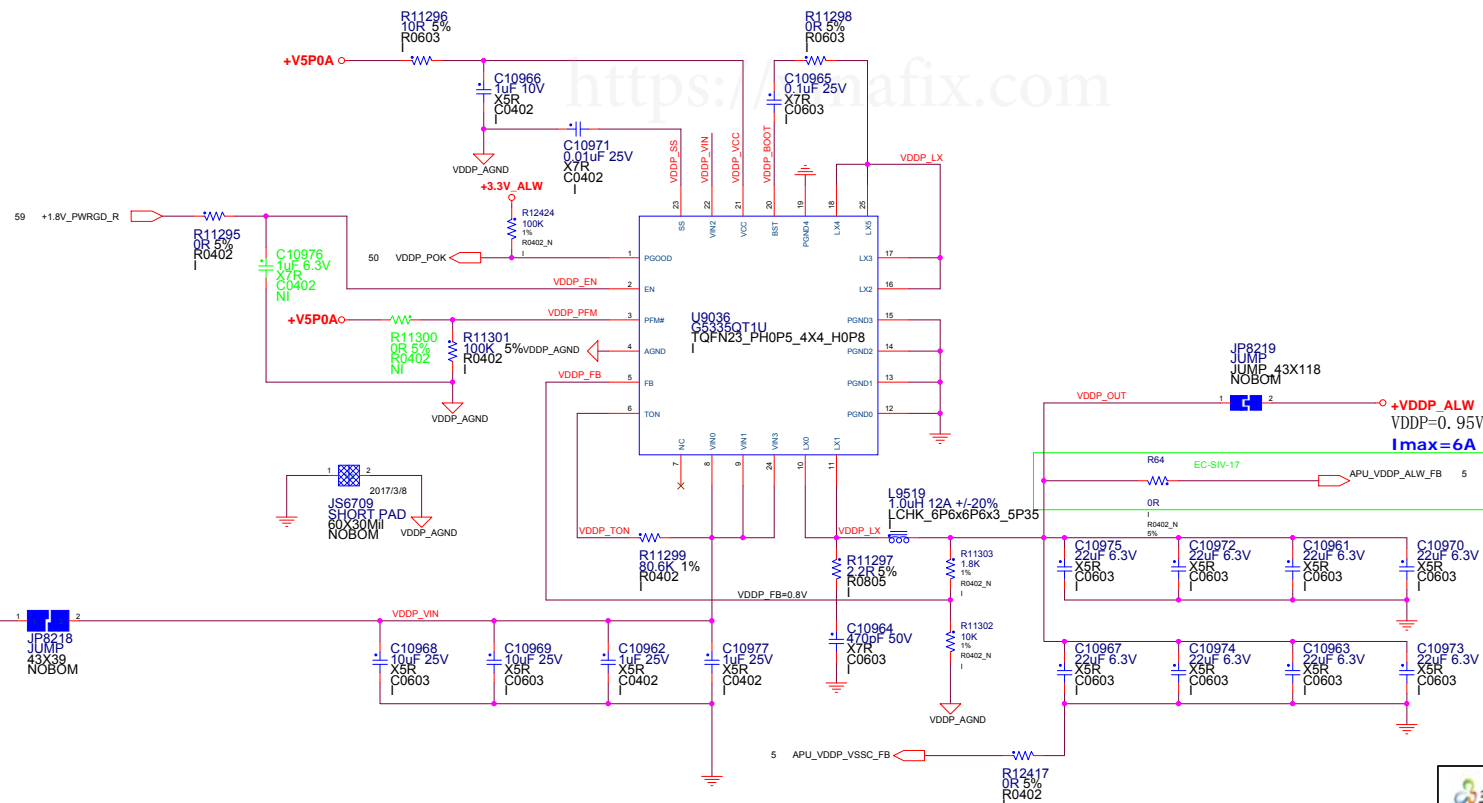
59:+V3P3A POWER SUPPLY



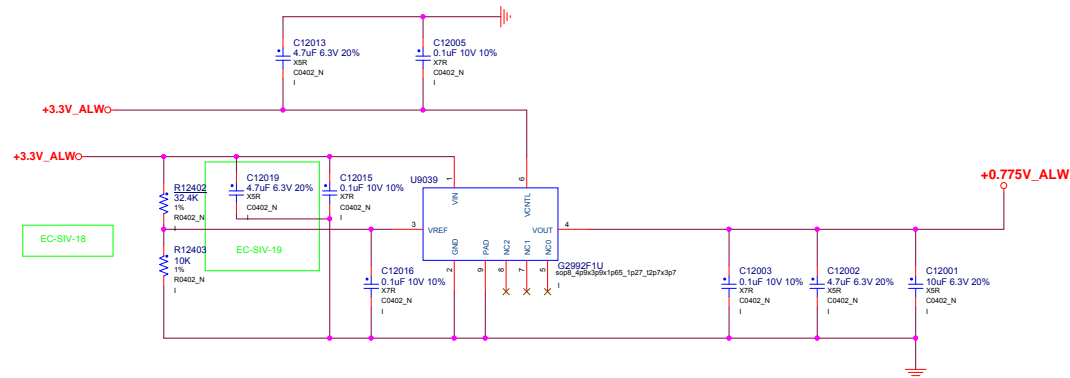
59: +V5P0A / +1.8V_RUN POWER SUPPLY



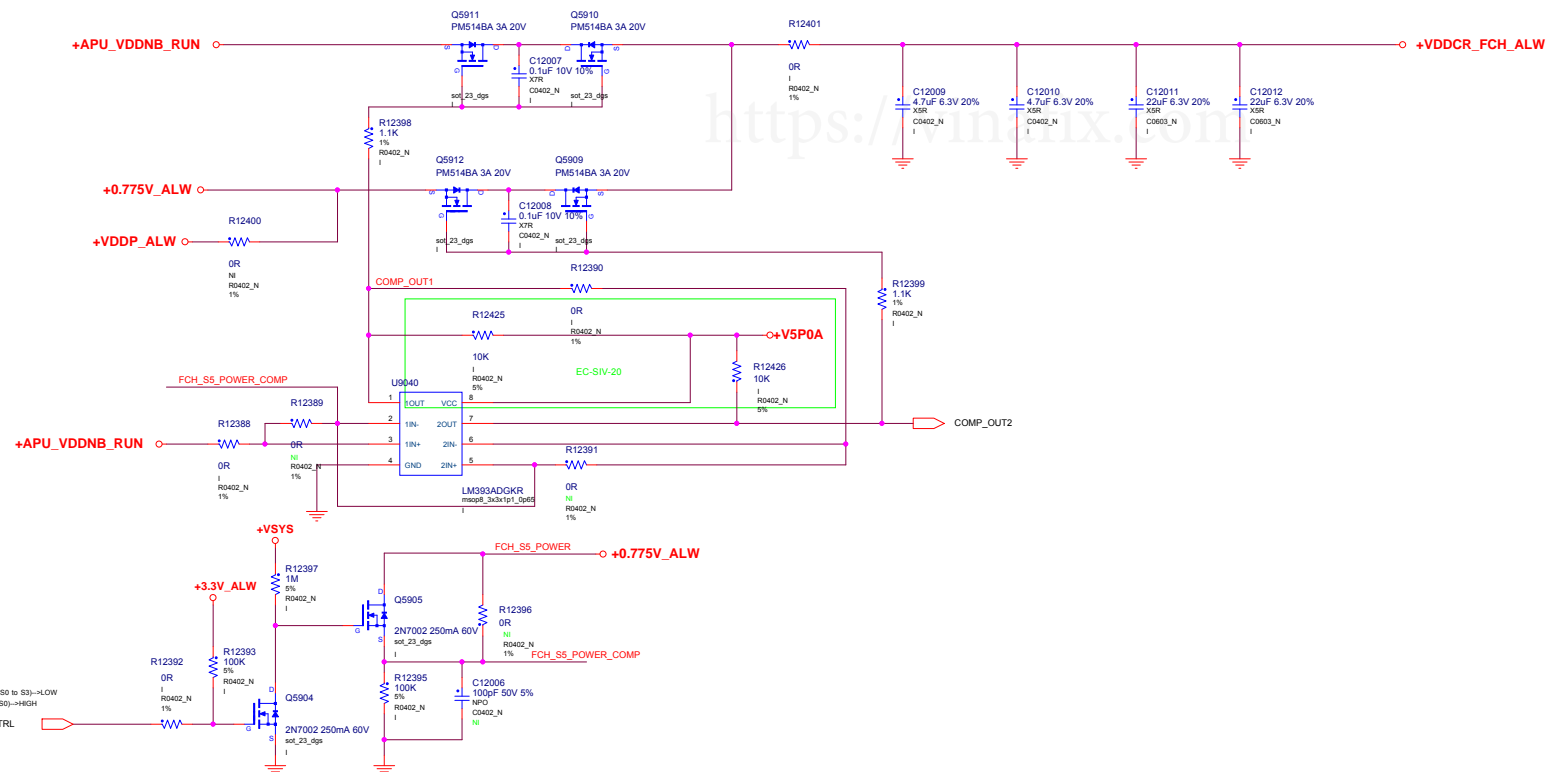
60:VDDP POWER SUPPLY



61: +0.775V_ALW POWER SUPPLY



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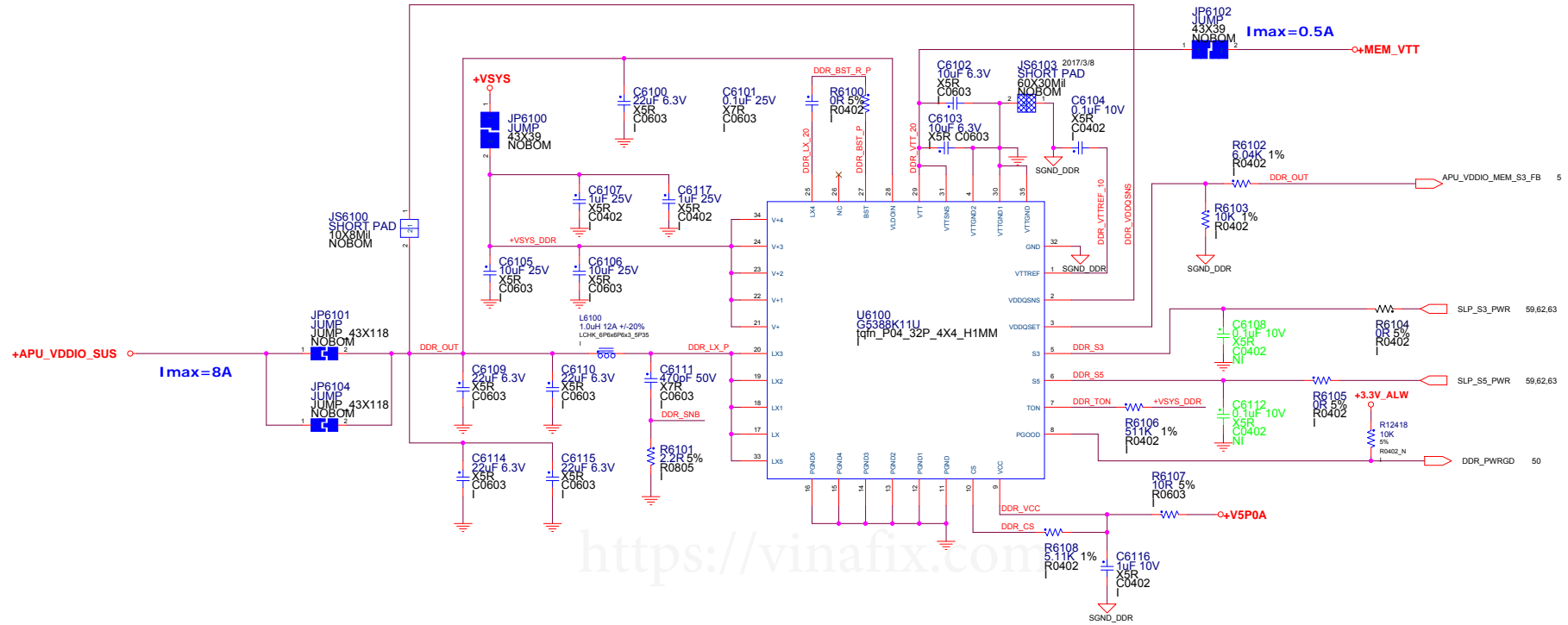


S5_MUX_CTRL: Enable MUX(S0 to S3)---LOW
Disable MUX(S3 to S0)---HIGH

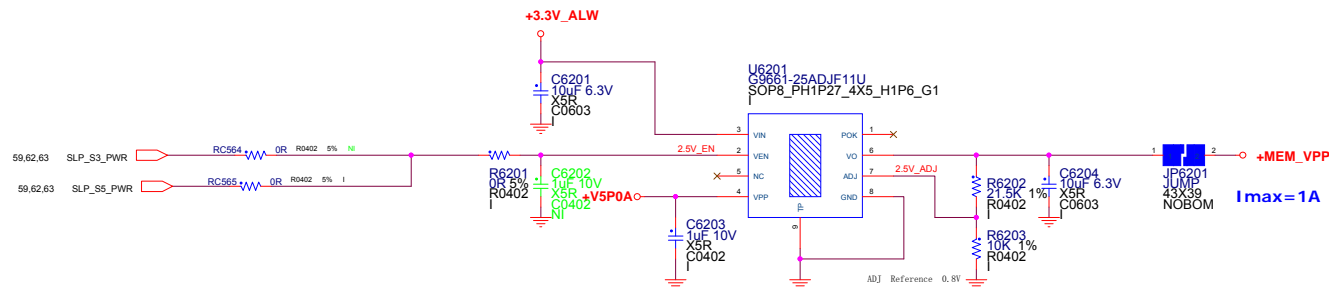
6 APU_S5_MUX_CTRL

Project: 330S		Rev: V01	
Engineer: GGS		Date: Monday, January 08, 2018	
Title: +0.775V_ALW		Sheet: 61 of 81	

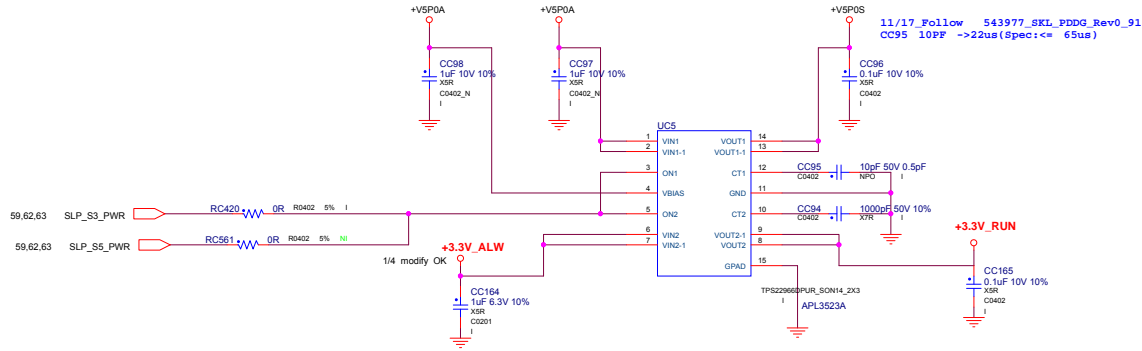
62: DDR POWER SUPPLY



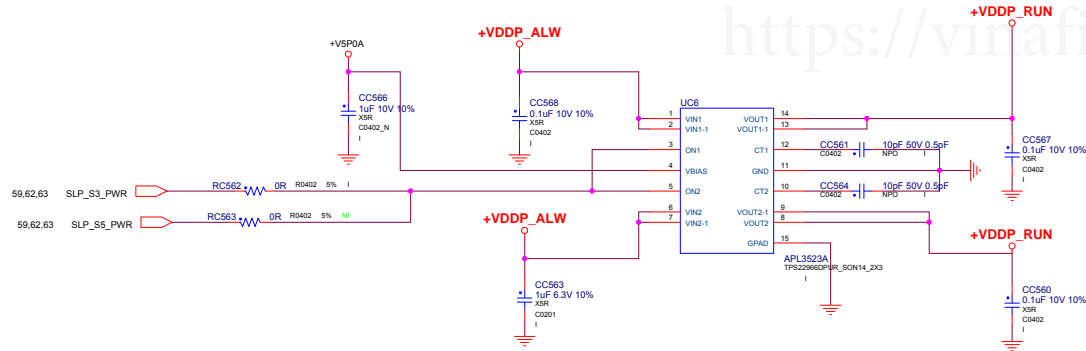
62 +MEM_VPP POWER SUPPLY



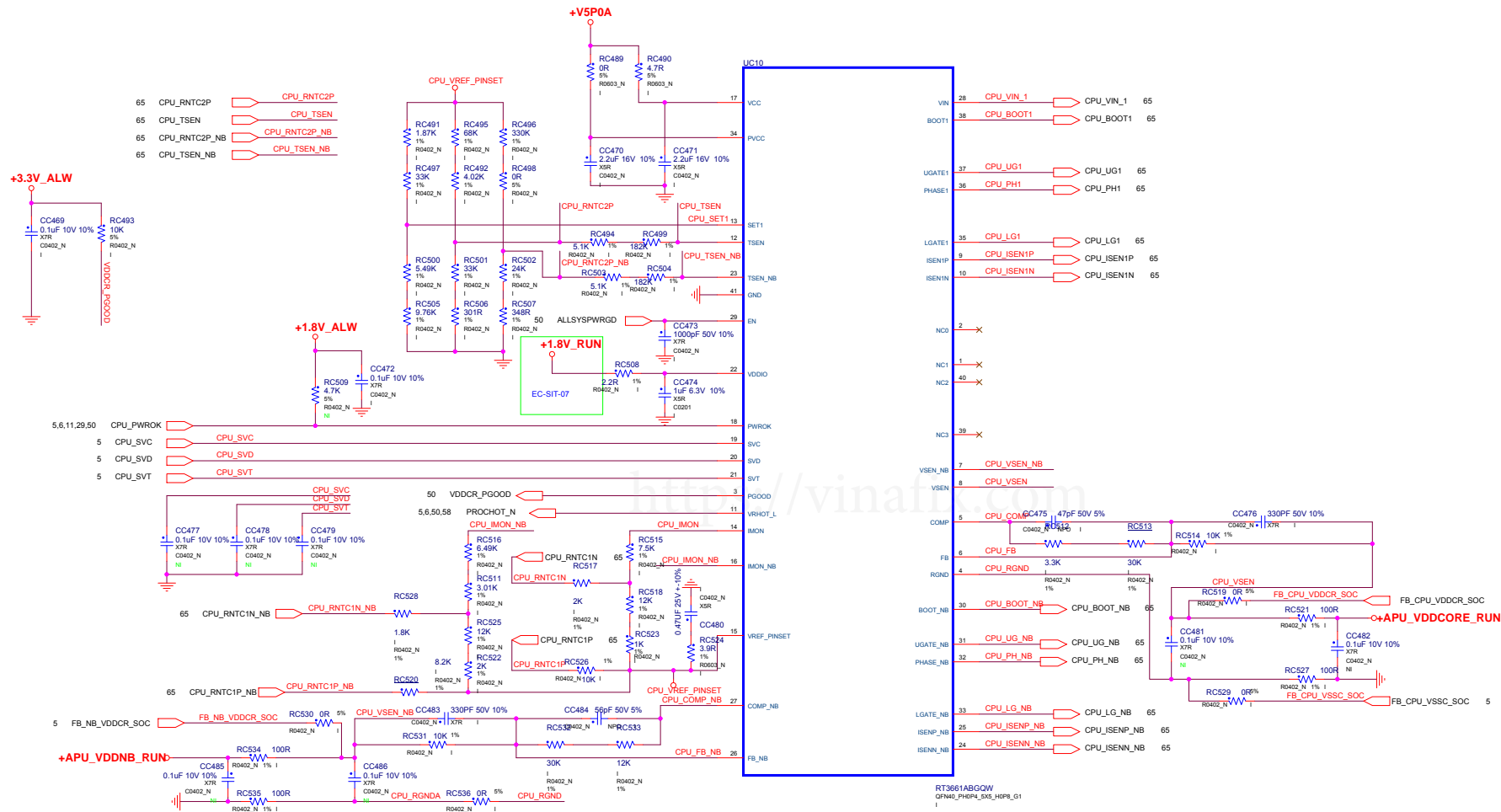
62: +V5POS/+3.3V_RUN POWER SUPPLY

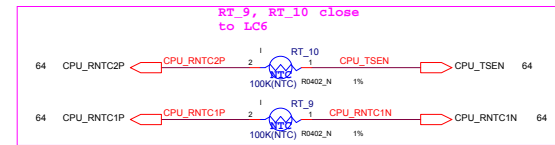
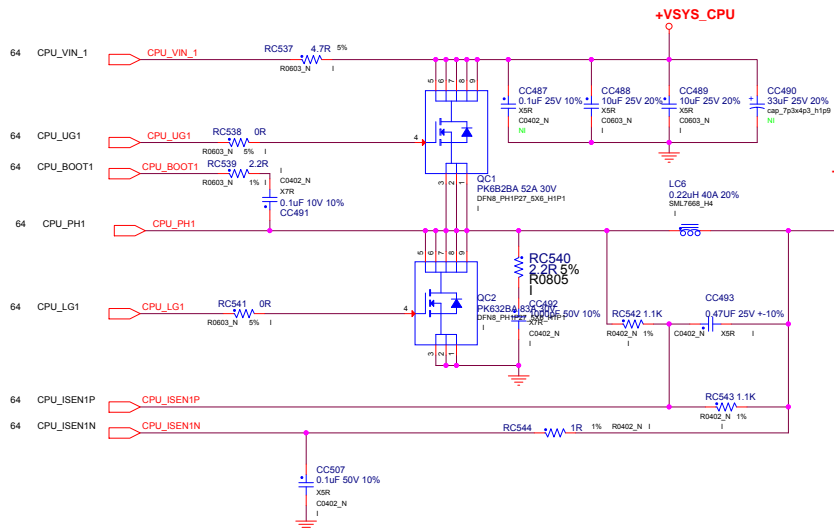
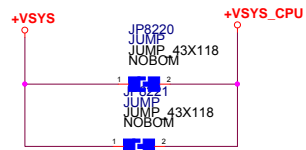


62: +VDDP_RUN POWER SUPPLY

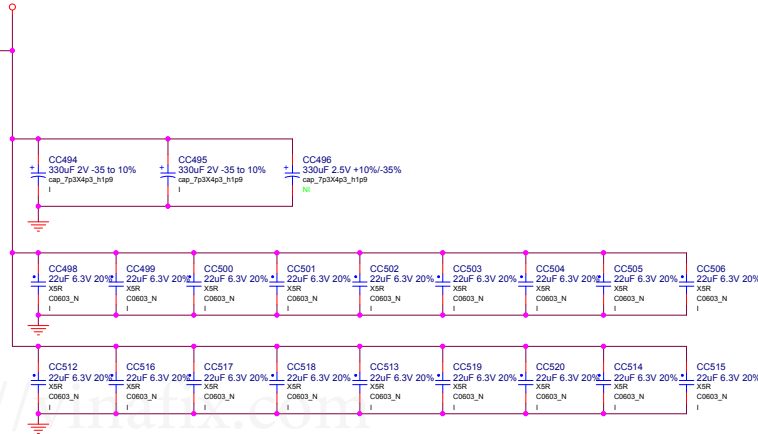


64: CPU POWER

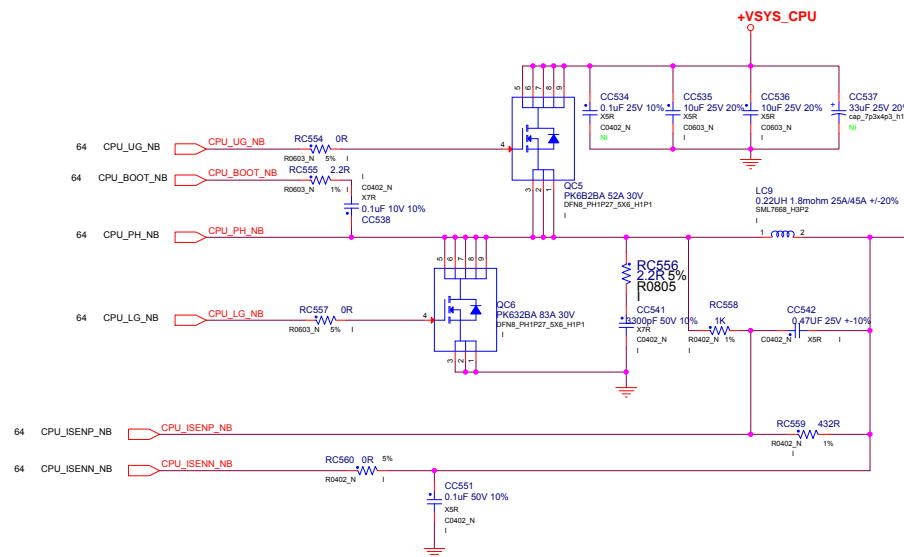
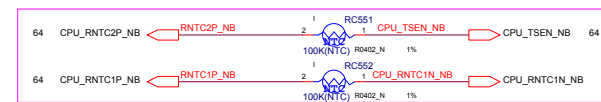




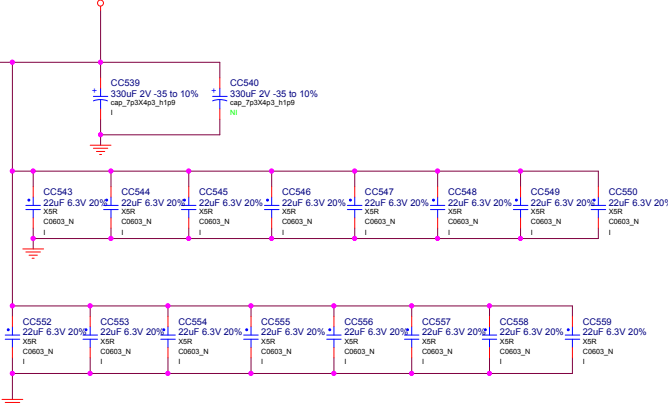
+APU_VDDCORE_RUN




RT_11, RT_12 close to LC9.




+APU_VDDNB_RUN



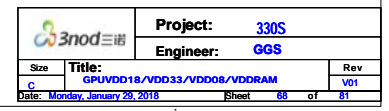
<https://vinafix.com>

		Project: 330S	
		Engineer: GGS	
Size	Title: VDDP		Rev
C			V01
Date: Monday, January 08, 2018		Sheet 66 of 81	

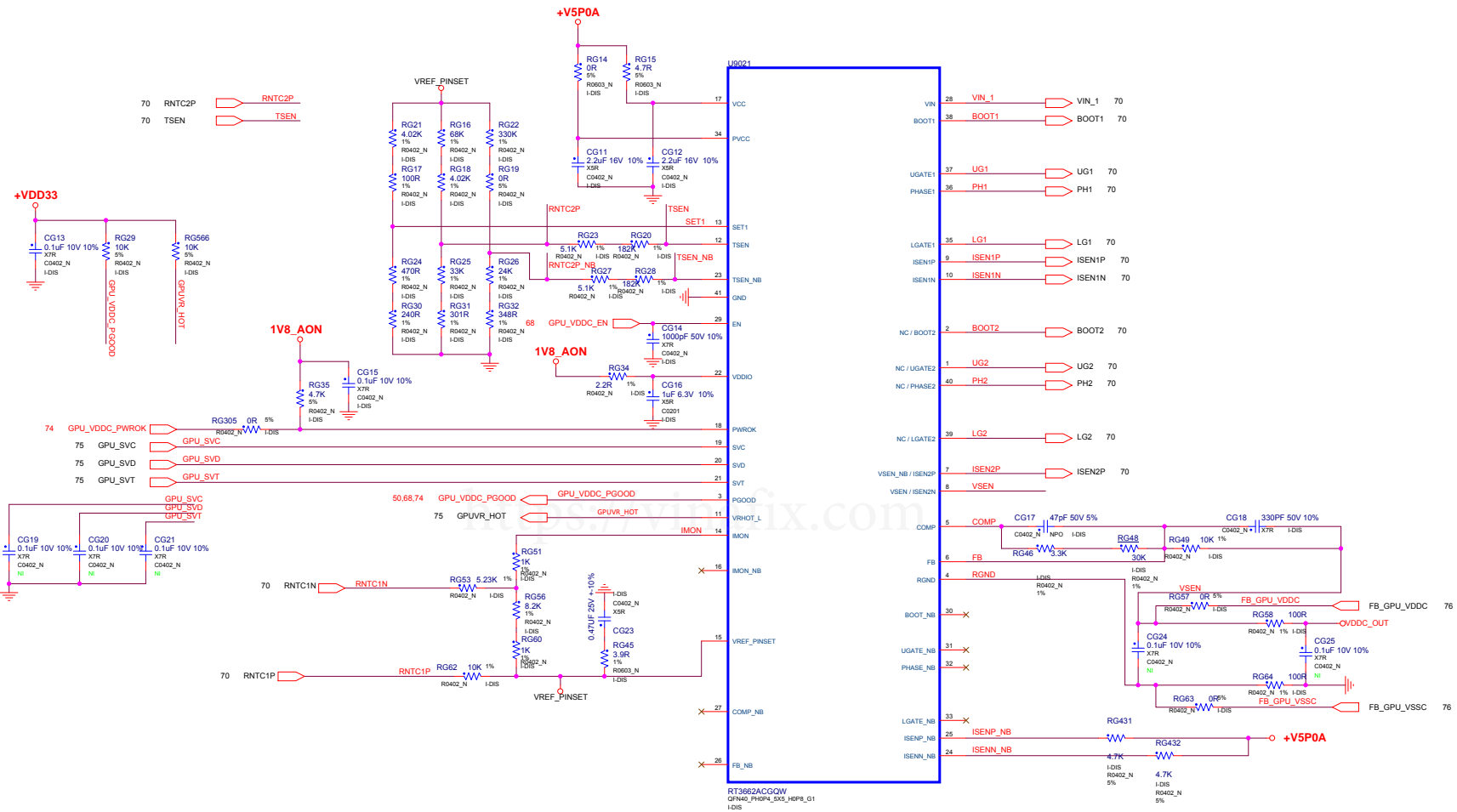
<https://vinafix.com>

		Project: 330S	
		Engineer: GGS	
Size	Title:		Rev
C			V01
Date: Monday, January 08, 2018		Sheet 67	of 81


GPU_VDD08 POWER SUPPLY for GPU




70: GPU POWER



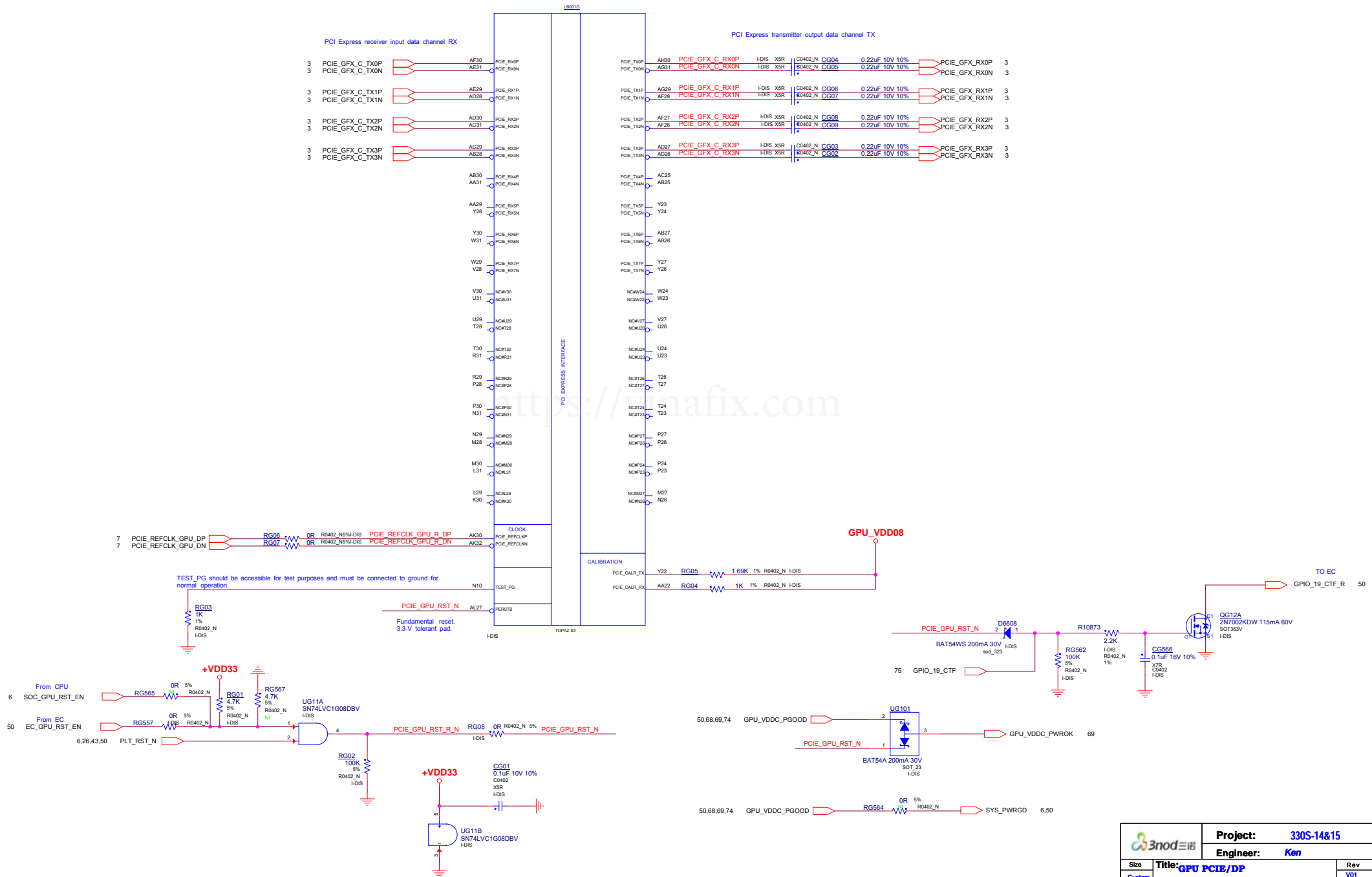
<https://vinafix.com>

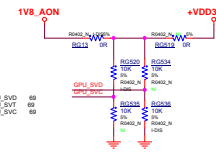
		Project: 330S-14&15	
		Engineer: Luffy	
Size	Title: VDDCI		Rev
C			V01
Date: Monday, January 08, 2018		Sheet 71 of	81

<https://vinafix.com>

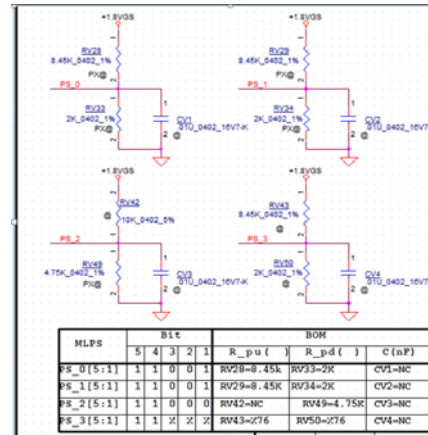
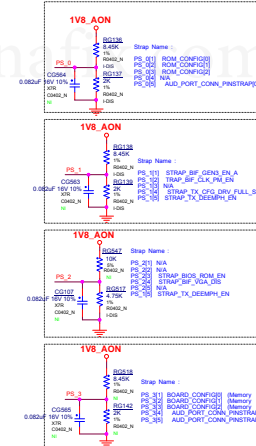
		Project: 330S-14&15	
		Engineer: Luffy	
Size	Title: VDDCI		Rev
C			V01
Date: Monday, January 08, 2018		Sheet 72 of	81

GPU/PCIE

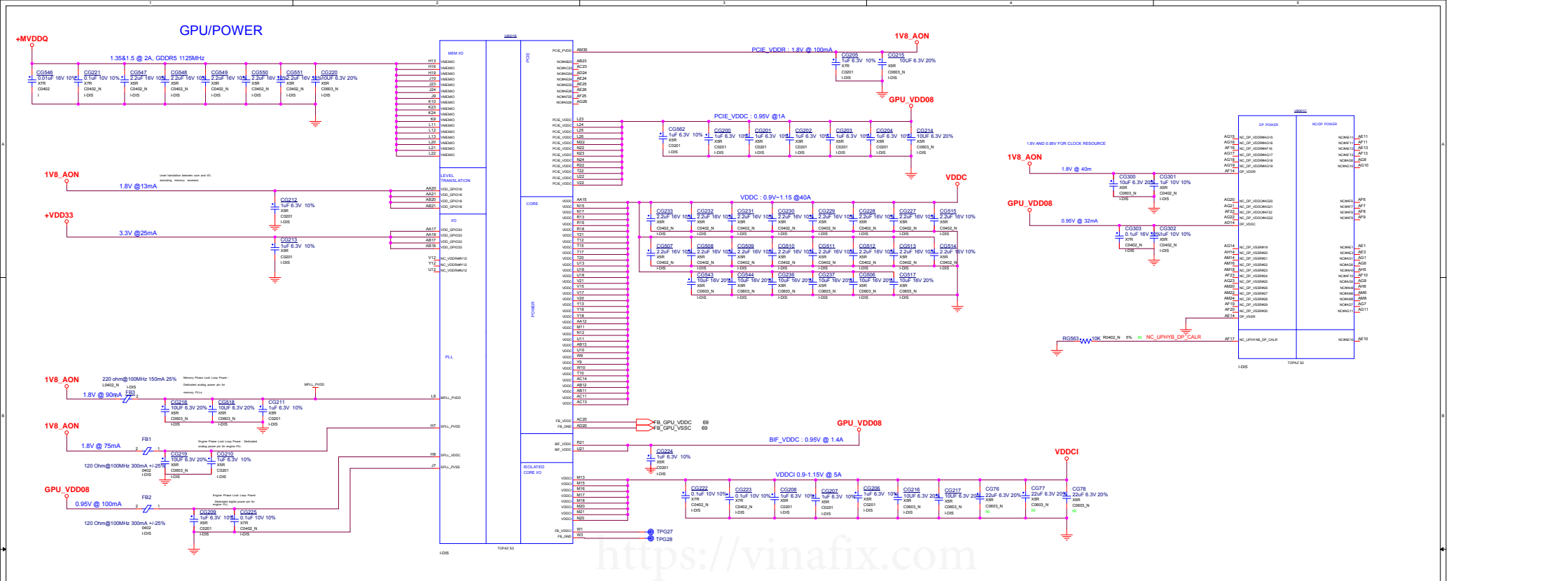




SVC	SVD	V
0	0	1.1
0	1	1.0
1	0	0.9
1	1	0.8

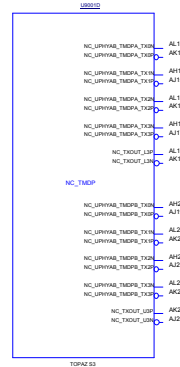
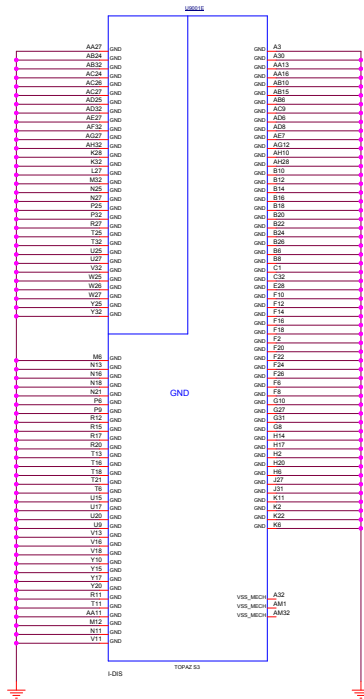


MLPS	Bit				BOM		
	5	4	3	2	R _{pu} ()	R _{pd} ()	C(nP)
PS ₀ [5:1]	1	1	0	0	RV28=0.45K	RV33=2K	CV1=NC
PS ₁ [5:1]	1	1	0	0	RV29=0.45K	RV34=2K	CV2=NC
PS ₂ [5:1]	1	1	0	0	RV42=NC	RV49=4.75K	CV3=NC





Signal Name	Nominal Set Voltage	DC Tolerance	AC Tolerance	Maximum Current
VDDC + VDDCI	"R17M-M2-50": 0.806 V to 1.225 V	VID_VDDC - 1_VDDC × 1.0 mΩ ± 15 mV	Max: VID_VDDC + 50 mV	40 A (TDC)
	"R17M-M1-70": 0.806 V to 1.218 V			28 A (TDC)
VMEMIO	1.35 V or 1.50 V	±3%	±3%	2 A (TDC)
Signal Name	Nominal Set Voltage	DC Tolerance	AC Tolerance	Maximum Current
VDD_GPIO18	1.80 V	±3%	±3%	13 mA
DP_VDDC	0.95 V	±3%	±3%	Crystal Pad Digital Supply 50 mA
DP_VDDR	1.8 V	±3%	±3%	Crystal Pad Analog Supply 40 mA
SPLL_VDDC	0.95 V	±3%	±3%	100 mA
SPLL_PVDD	1.80 V	±3%	±3%	75 mA
MPLL_PVDD	1.80 V	±3%	±3%	90 mA
BIF_VDDC	0.95 V	±3%	±3%	0.8 A
PCIE_VDDC	0.95 V	±3%	±3%	1.0 A
PCIE_PVDD	1.80 V	±3%	±3%	100 mA
TSVDD	1.80 V	±3%	±3%	13 mA
VDD_GPIO33	3.30 V	±9%	±9%	25 mA

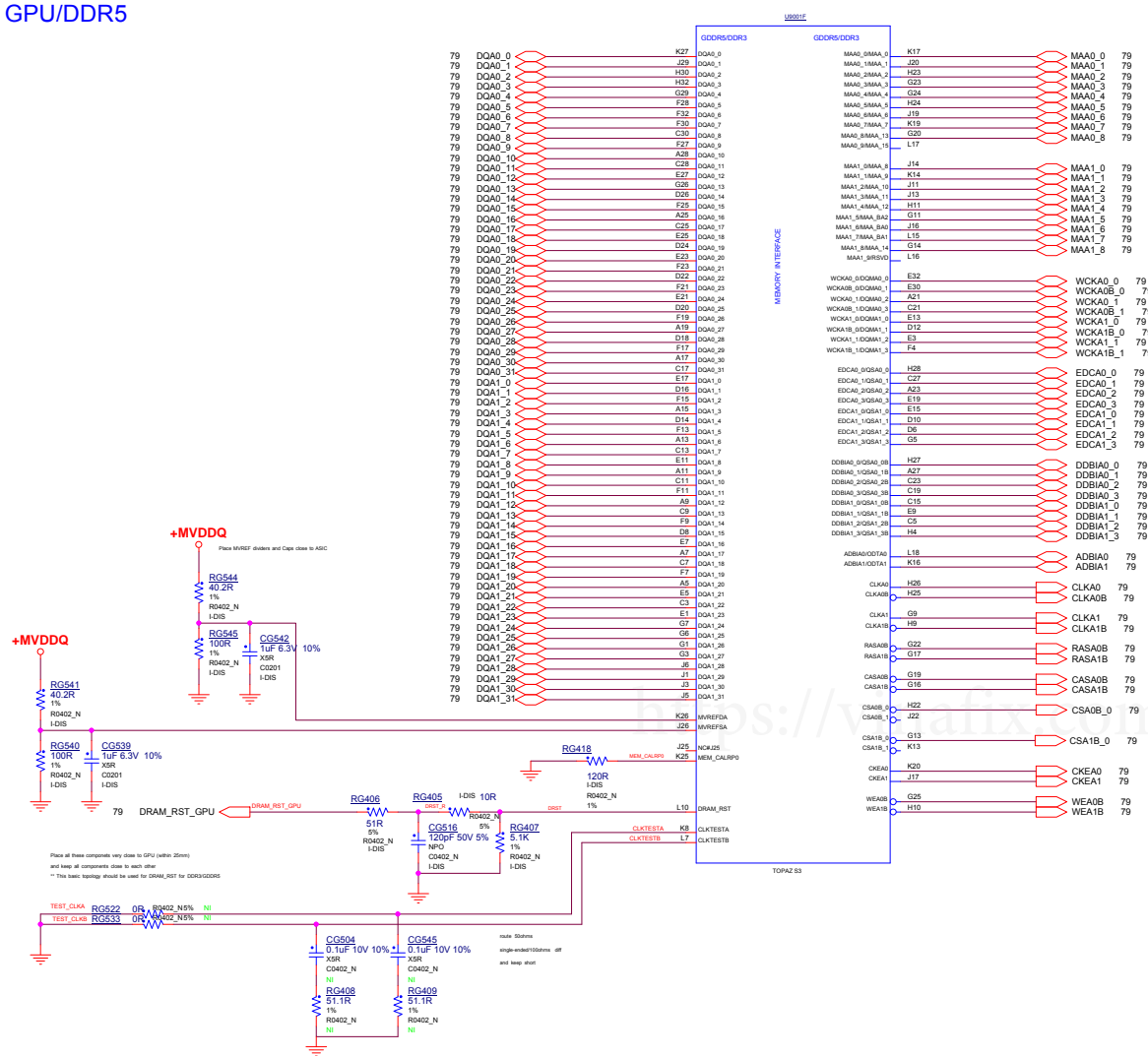
GPU/GND

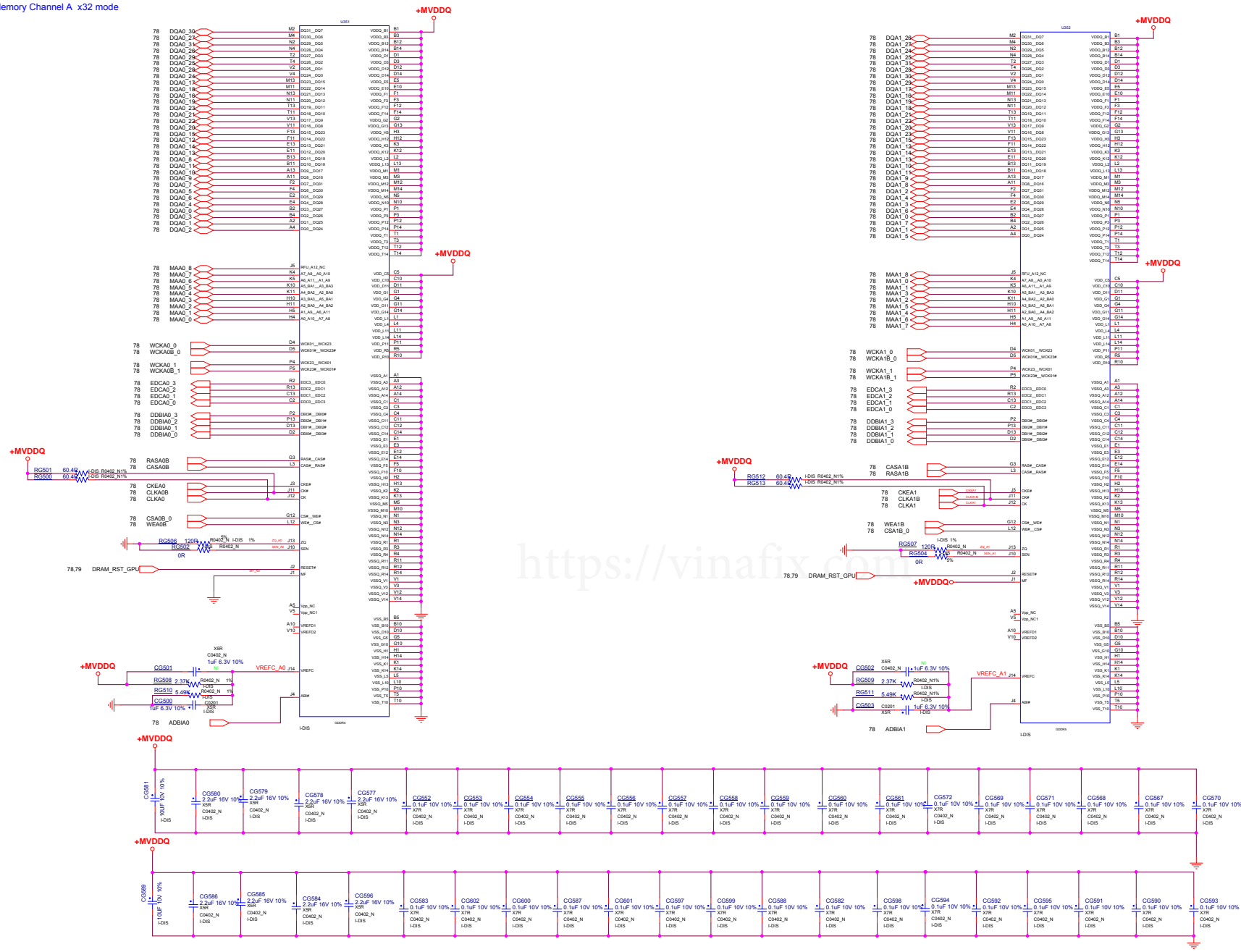


<https://vinafix.com>

		Project: 330S-14&15
		Engineer: Ken
Size	Title: GPU Power/GND	Rev
Version	Monday, January 08, 2018	Rev
Date	Monday, January 08, 2018	Sheet 77 of 81

GPU/DDR5





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		Project: 330S-14615	
Title: RSVD		Engineer: Ken	
Size: 0			Rev: 01
Date: Monday, January 16, 2018		Sheet: 01	of 01

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Power Map

