

Project Name :NTSN1413/NTSN1423

Platform :SKYLAKE-U+N15V-GM/N16S-GT

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M/B Schematic Version Change List

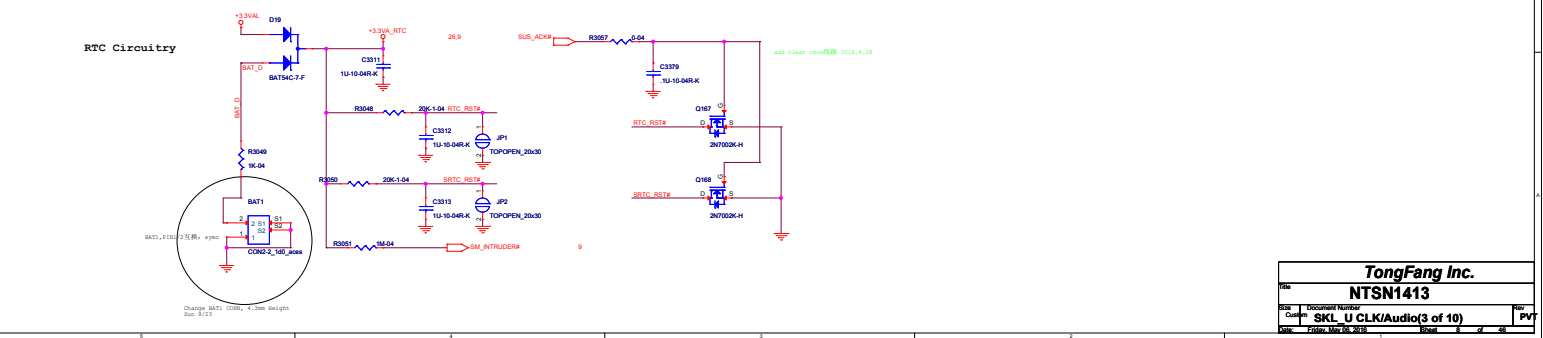
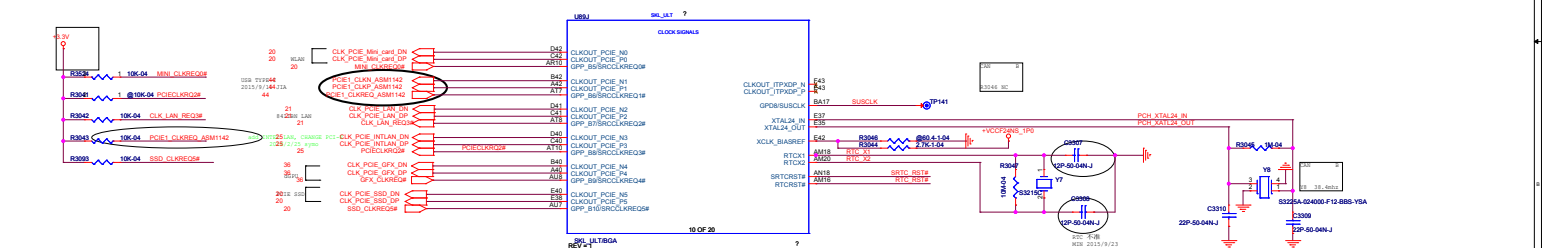
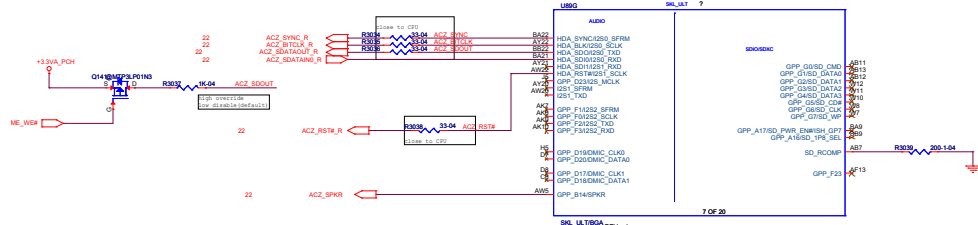
Release Date	Version	PCB P/N	PCB Description	PCBA P/N	Note

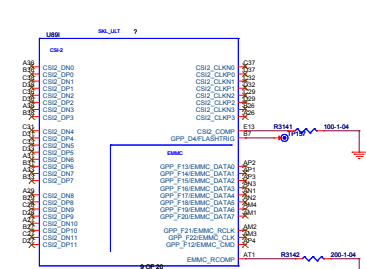
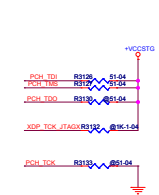
Daughter Board Schematic Version Change List

Release Date	Version	PCB P/N	PCB Description	PCBA P/N	Note

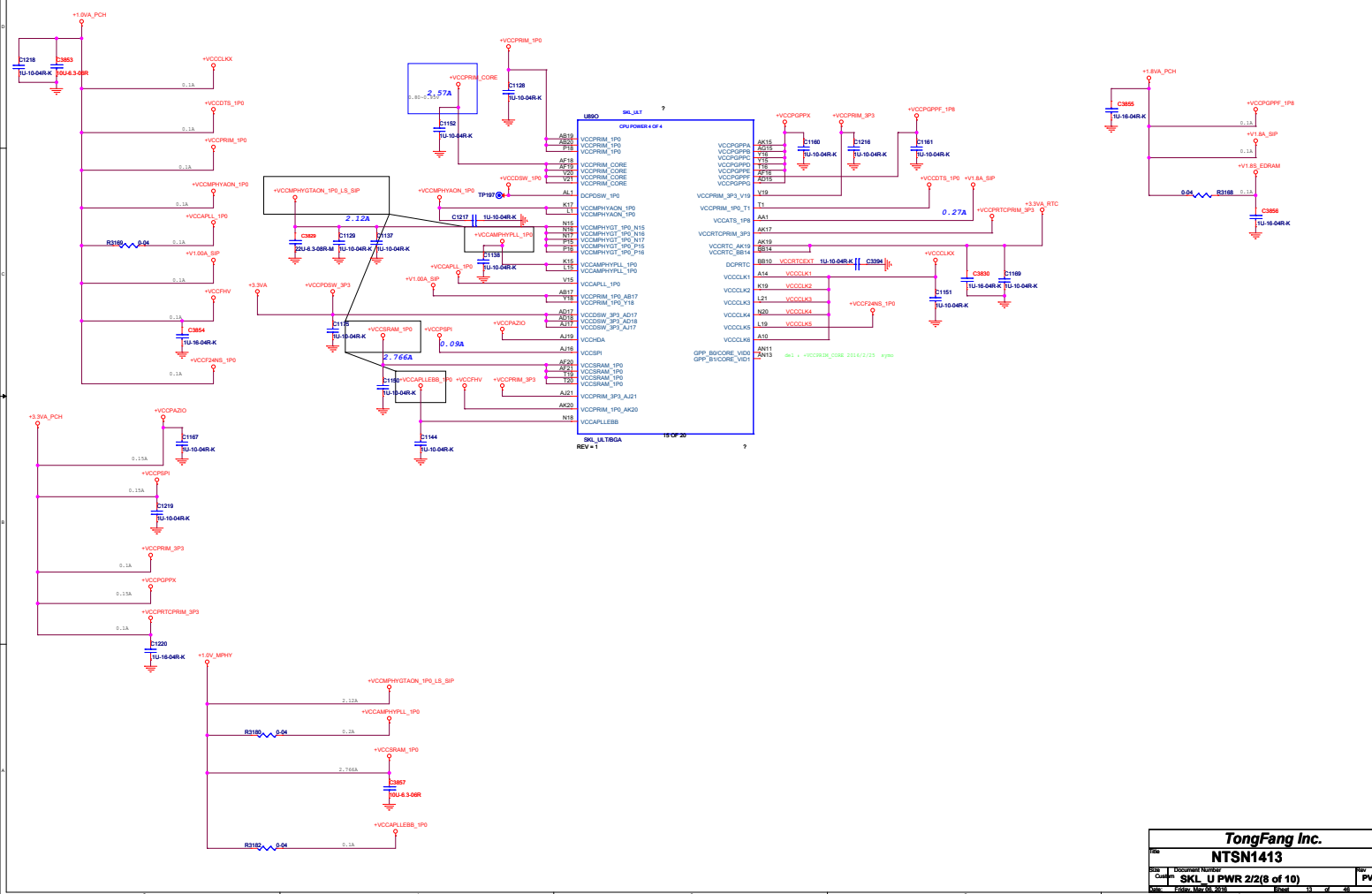
TongFang Inc.			
NTSN1413			
Site	Document Number	Rev	
Custom	SYSTEM BLOCK	PV	

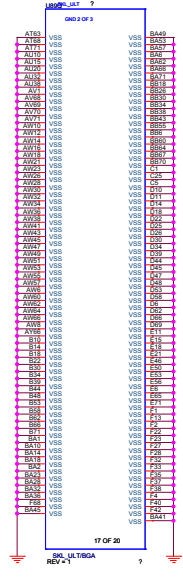
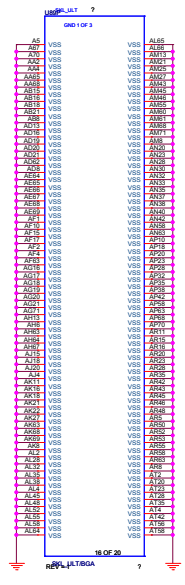
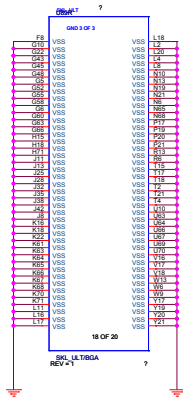
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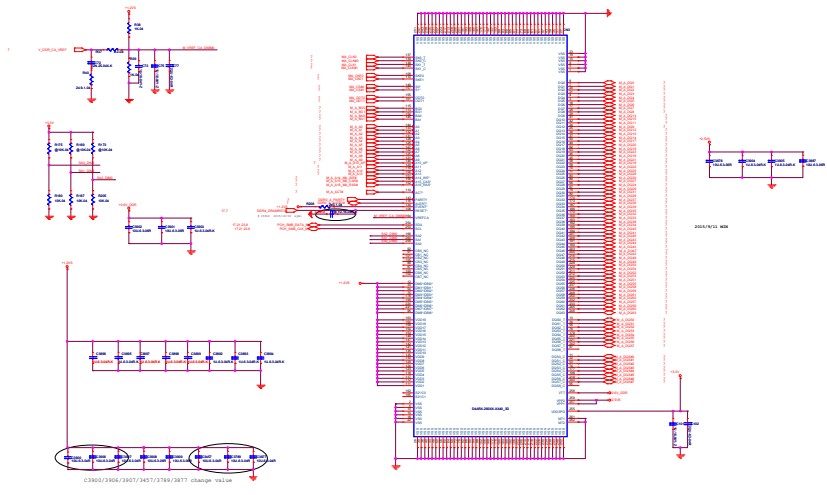




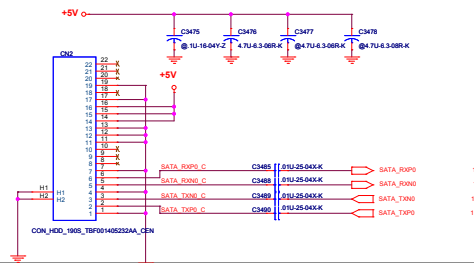




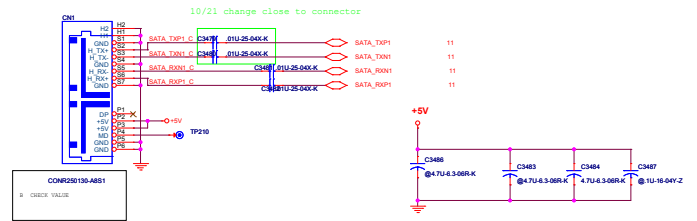




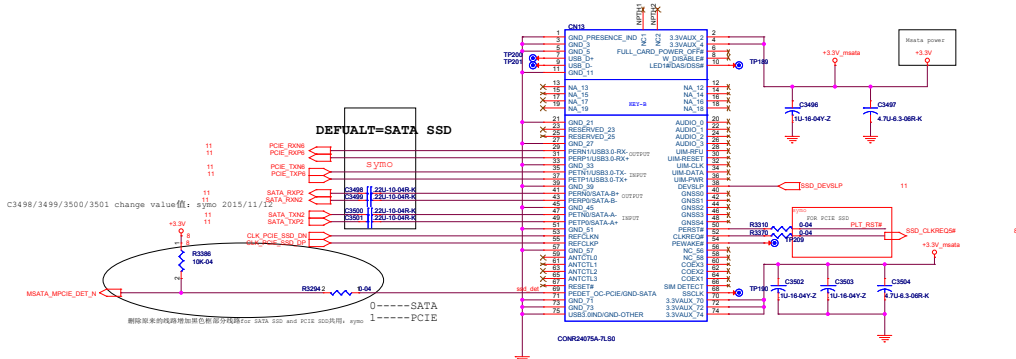
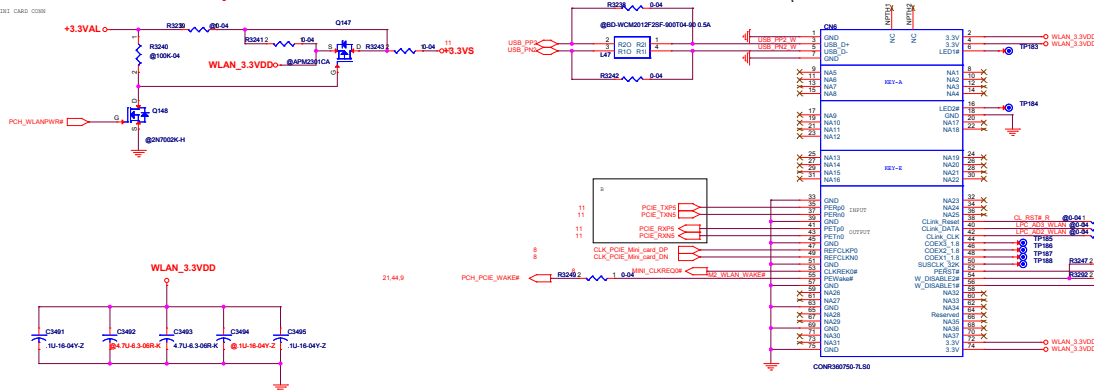
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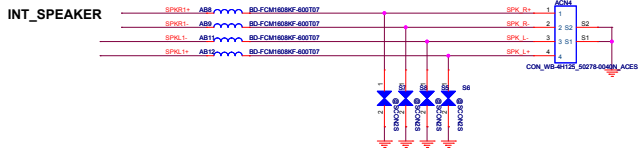
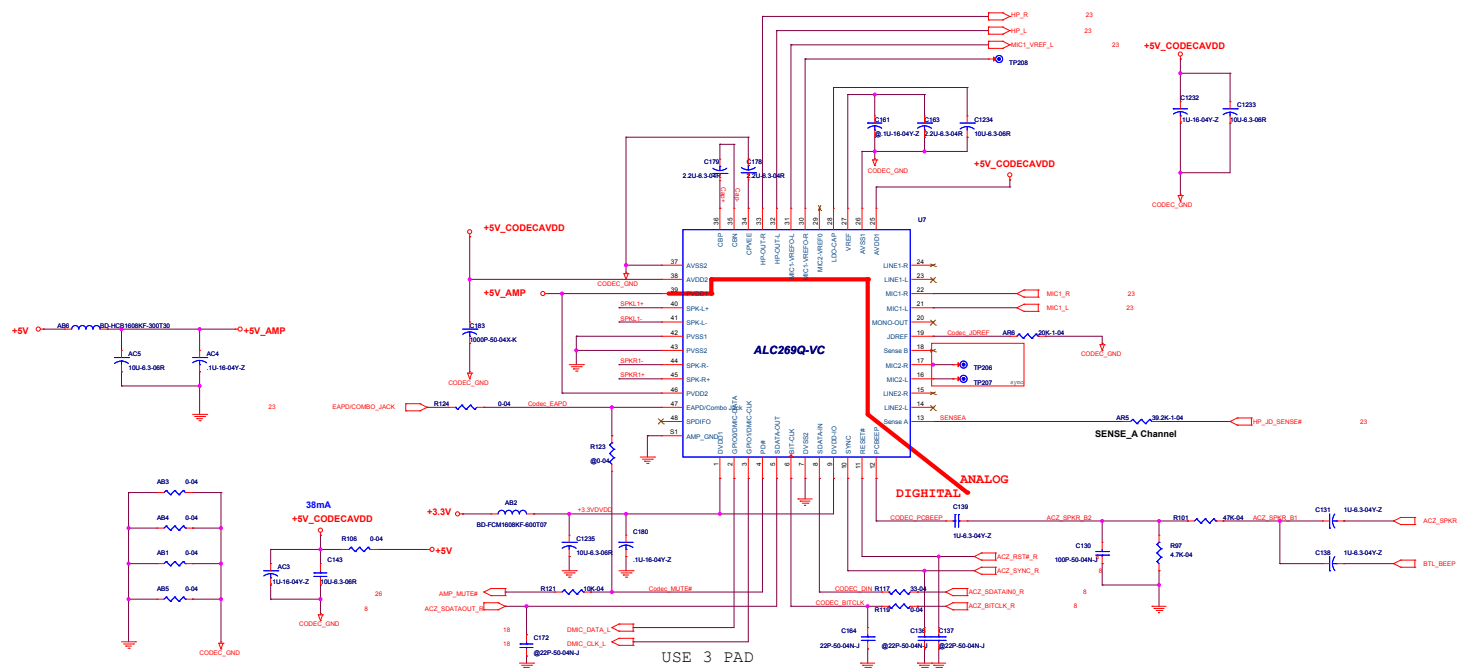
CD-ROM



WLAN_CARD_0300

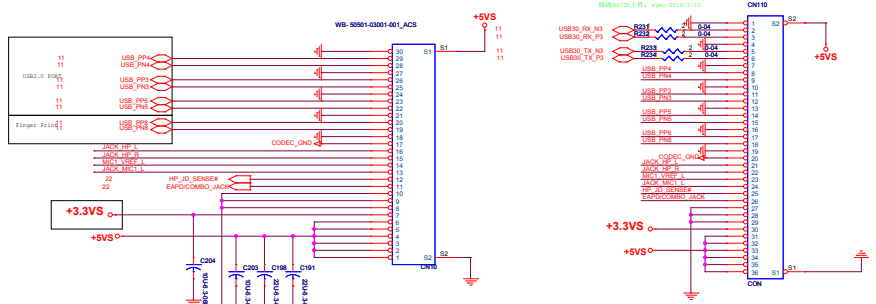
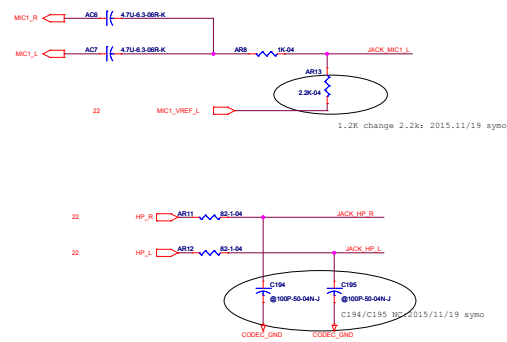


ALC269Q

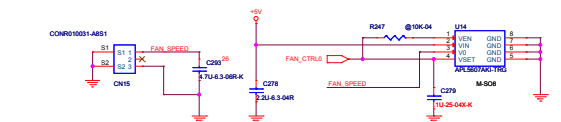


TongFang Inc.			
NTSN1413			
Size	Document Number	Rev	
Custom	CODEC(ALC269Q-VC3)	PVT	
Date:	Friday, May 08, 2015	Sheet	22 of 45

EXT MIC / EXT LINE IN / EXT USB JACK

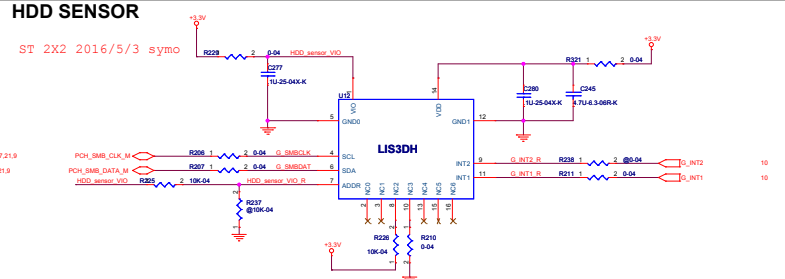


FAN CONTROLLER



HDD SENSOR

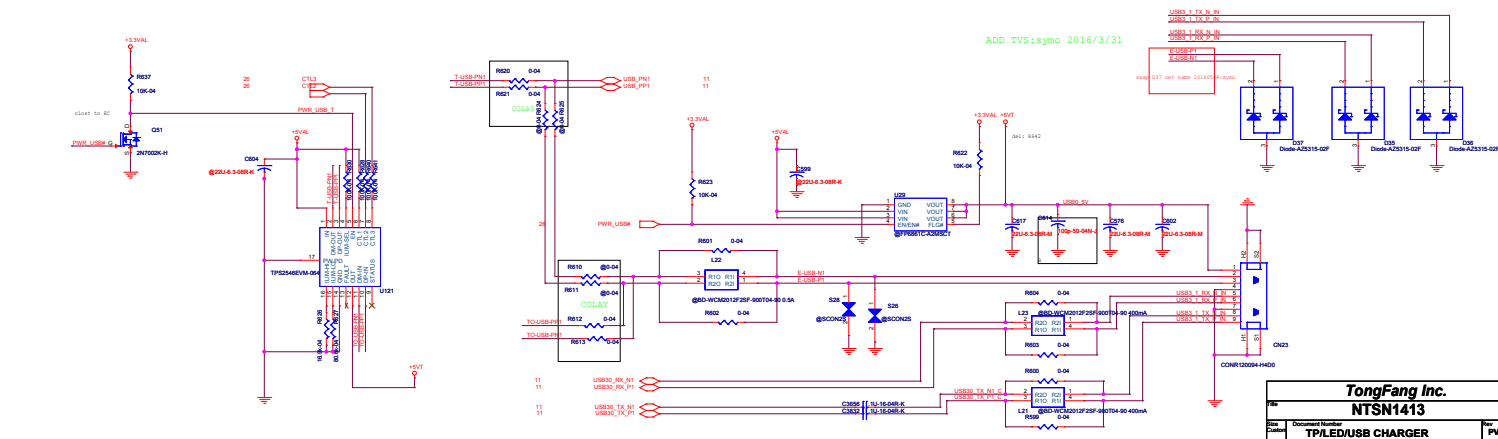
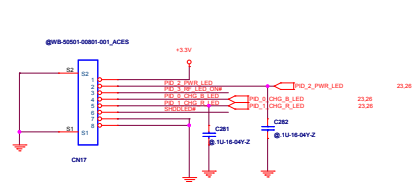
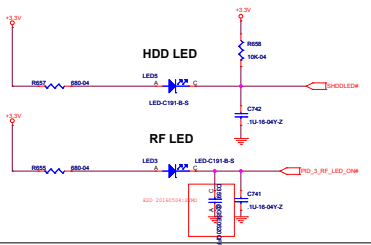
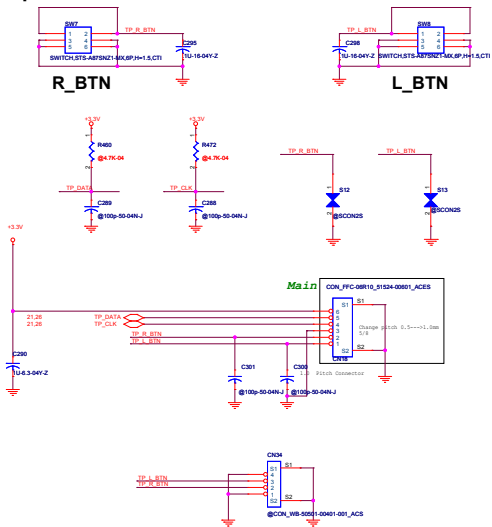
ST 2X2 1616/5/3 symo



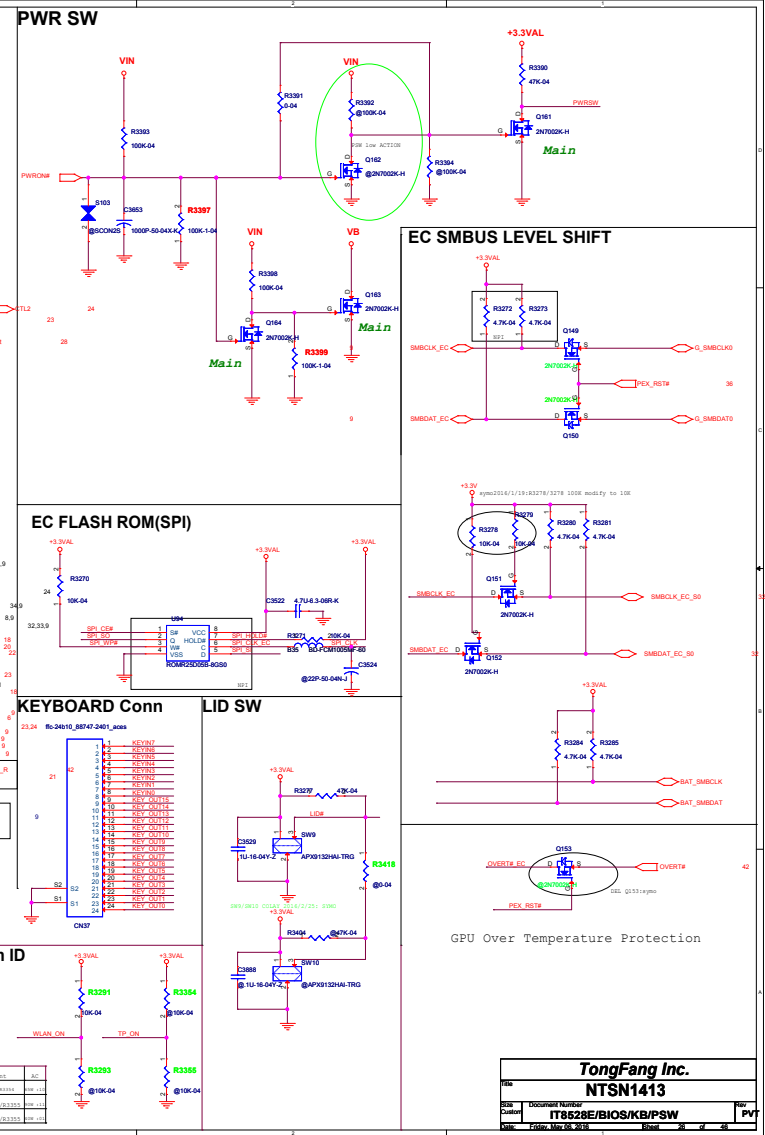
Touch-pad

LED

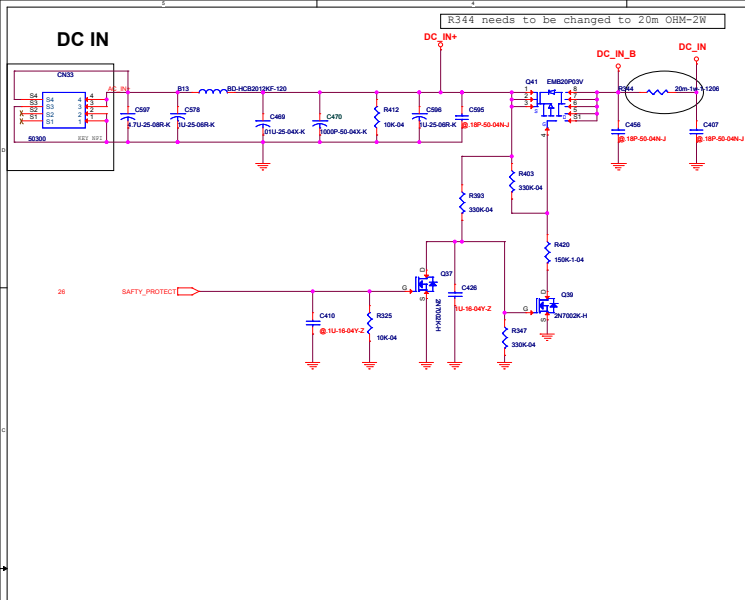
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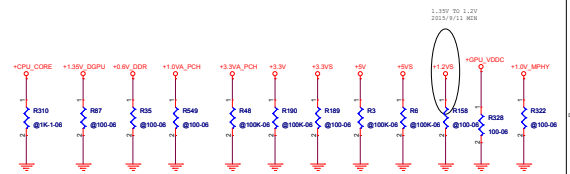
TongFang Inc.		
NTSN1413		
Doc	Document	
Rev	1.0	
Model	TPALEDUSB CHARGER	PV
Rev	1.0	
Model	NTSN1413	
Rev	1.0	



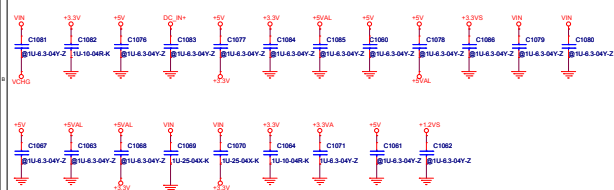
DC IN



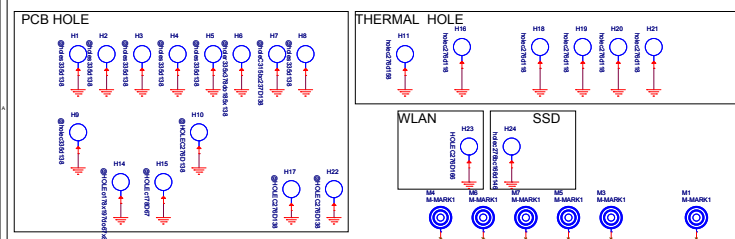
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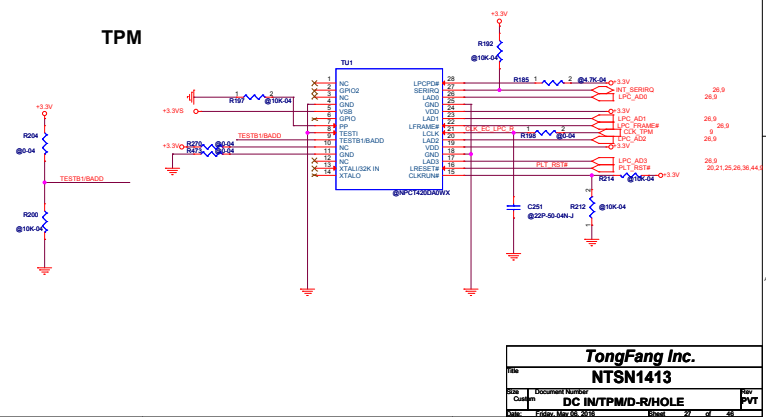
HIGH-SPEED CAP



HOLE / MARK	
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TPM



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26.29.9

PM_SLP_SUS#_R

R3356

1

2

10K04

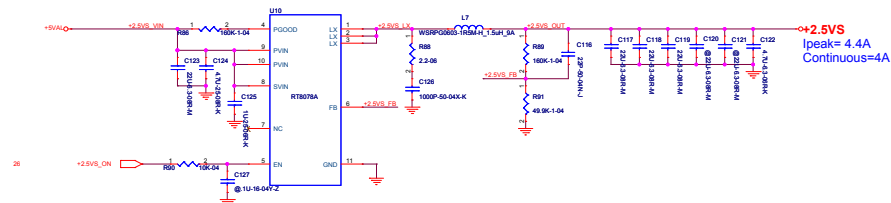
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C3504

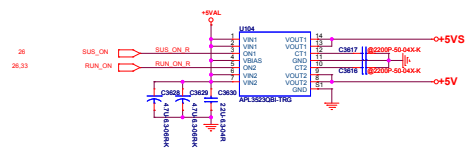
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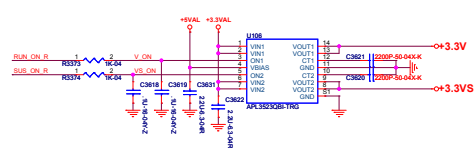
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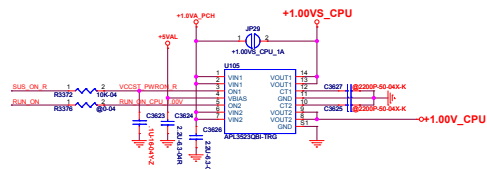
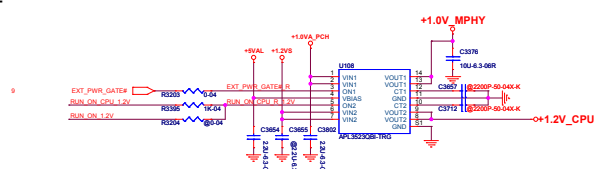
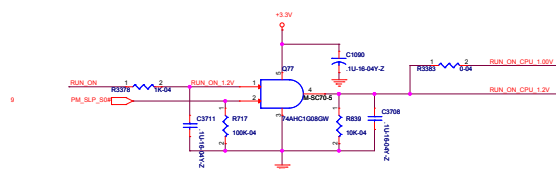
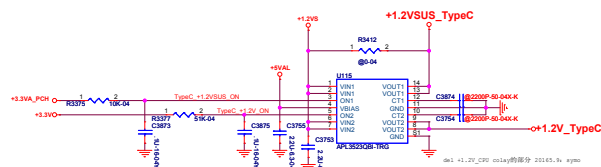
+5VS/+5V



+3.3VS/+3.3V

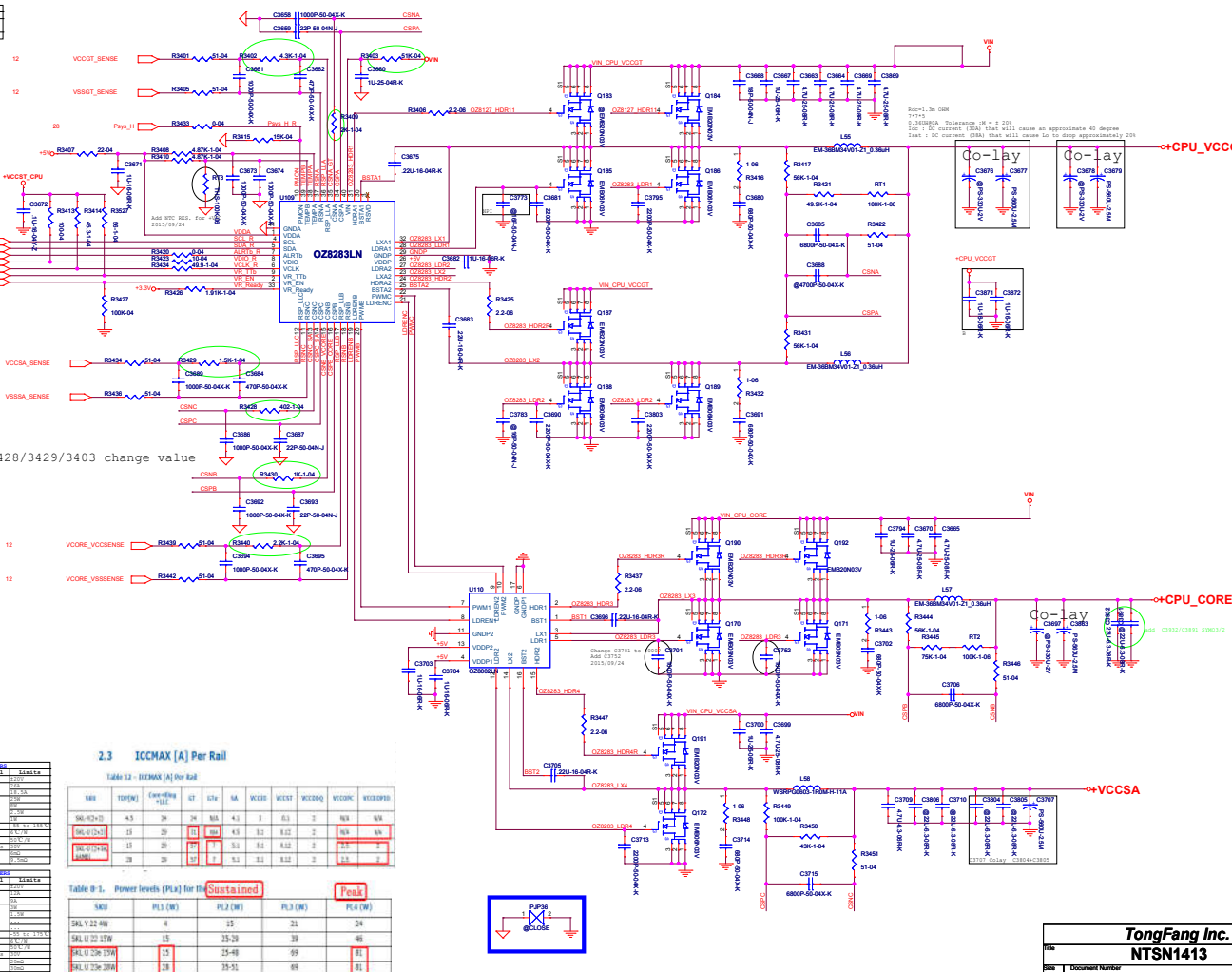


+1.00VS_CPU
+1.00V_CPU

+1.0V_MPHY
+1.2V_CPU+1.2V_TypeC
+1.2VS_TypeC

Power Rail	Type	Vol	Range/V	IMAX/A
HCPU CORE	DVFS		0.55 to 1.52	12
HCPU VCOGT	DVFS		0.55 to 1.5	17
HCPU VCOGT2	DVFS		0.55 to 1.5	19
VCCSA	DVFS		0.55 to 1.25	1.1

Power Rail	Type	Vol	Range/V	IMAX/A
HCPU CORE	DVFS		0.55 to 1.52	12
HCPU VCOGT	DVFS		0.55 to 1.5	17
HCPU VCOGT3	DVFS		0.55 to 1.5	19
VCCSA	DVFS		0.55 to 1.25	1.1



NON-5000 HIGH-IMPEDANCE/INDUCTIVE PARAMETERS				
Parameter/Power Condition	Symbol	Units	Min	Max
Continuous Drain Current	$I_{DS(on)}$	A	0.5	1.0
Power Dissipation	$P_{D(on)}$	W	0.5	1.0
Operating Temp. Range	$T_{J(ON)}$	°C	-55	+150
Thermal Resistance	$R_{JA(ON)}$	°C/W	25	35
On-Resistance	$R_{DS(on)}$	Ω	0.05	0.1
On-State Resistance	$R_{DS(on)}$	Ω	0.05	0.1

5000 HIGH-IMPEDANCE/INDUCTIVE PARAMETERS				
Parameter/Power Condition	Symbol	Units	Min	Max
Continuous Drain Current	$I_{DS(on)}$	A	0.5	1.0
Power Dissipation	$P_{D(on)}$	W	0.5	1.0
Operating Temp. Range	$T_{J(ON)}$	°C	-55	+150
Thermal Resistance	$R_{JA(ON)}$	°C/W	25	35
On-Resistance	$R_{DS(on)}$	Ω	0.05	0.1
On-State Resistance	$R_{DS(on)}$	Ω	0.05	0.1

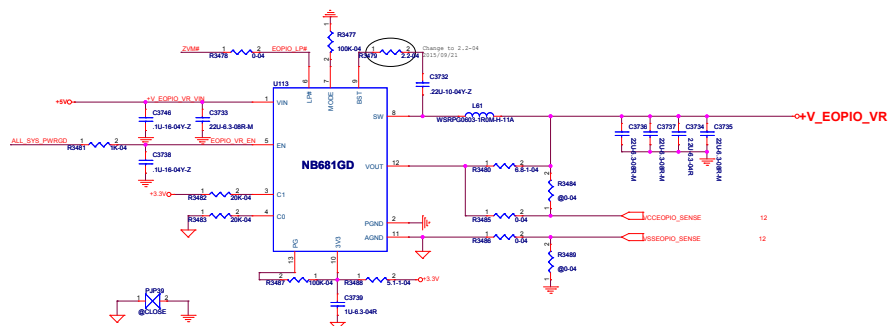
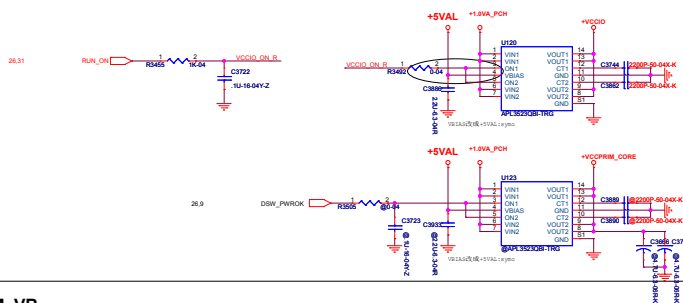
2.3 ICCMAX [A] Per Rail

Seq	Time(s)	Coefficient 11.1	CT	CTA	SA	WCTD	WCTAT	WCTDQ	WCTCON	WCTEOPD
ISO-02071	8.5	28	28	NA	4.1	1	0.1	2	NA	NA
ISO-02071	15	29	31	NA	4.3	1.2	0.12	2	NA	NA
ISO-02071 (1080p)	15	29	37	1	5.1	1.1	0.12	2	2.3	2
	28	29	37	1	5.1	1.1	0.12	2	2.3	2

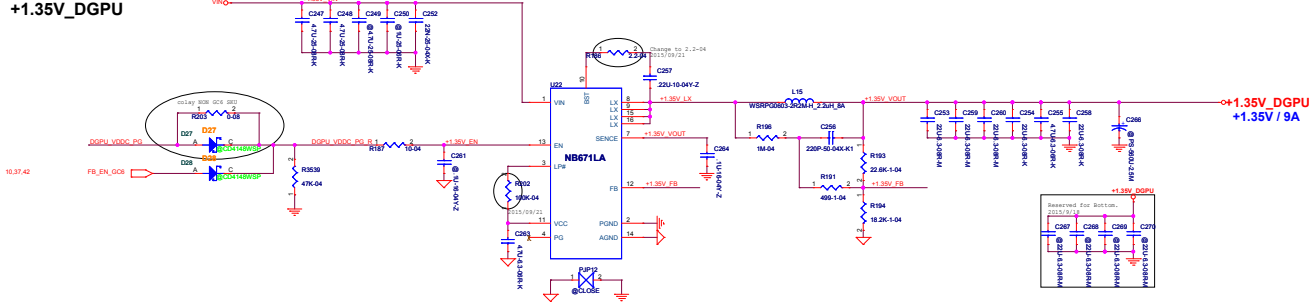
Table 8-1. Power levels (PLx) for the Sustained Peak

SKU	PL1 (W)	PL2 (W)	PL3 (W)	PL4 (W)
SAL Y 22 400	4	15	21	24
SAL U 22 15W	15	35-39	39	46
SAL U 236 15W	15	25-40	69	81
SAL U 236 20W	19	35-51	69	81

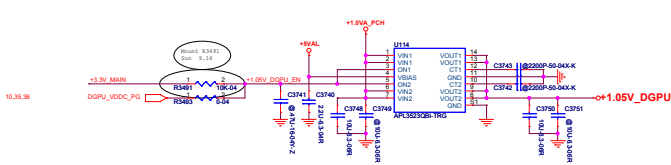
+V_EDRAM_VR



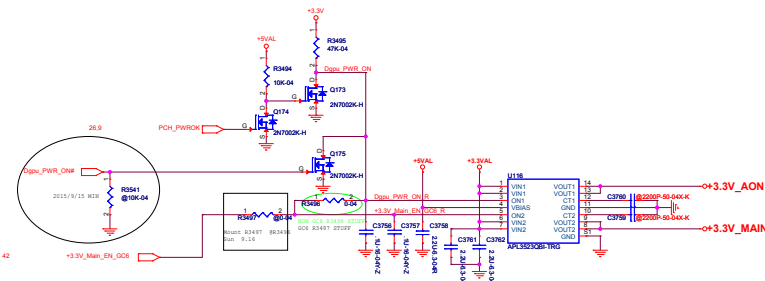
10,37,42



10,35,36



42



+GPU_VDDC

Table 4. Boosted and Rated TDP Power 1,7

Products	VRAM Type	Boosted GPU Total (W)	Rated GPU Total (W)	VRAM Total (W)	Minimum Core Clock (MHz)	Memory Clock (MHz)
H165-GT	DDR3/L	23	18	0.75	1000	1001/900

Table 5. Power Consumption at TDP Point Tj = 102°C

Products	GPU Core	GPU VRAM	PC	GPU+VRAM	Other
H165-GT	75W	18.0W	3.31W	17.0W	0.62W

Table 6. Power Consumption at Max Point Tj = 102°C

Products	GPU Core	GPU VRAM	PC	GPU+VRAM	Other
H165-GT	75W	18.0W	3.31W	17.0W	0.62W

Table 5. EDP-Continuous 1

Products	VRAM Type	GPU Core	GPU VRAM	FB Total 1,7	1.05V Total 1	3.3V Total
H165-GT	DDR3/L	1.37	1.46	2.32	0.32	0.76

Table 6. EDP-Continuous at Tj = 102°C 1

Products	VRAM Type	GPU Core	GPU VRAM	FB Total 1,7	1.05V Total 1	3.3V Total
H165-GT	DDR3/L	1.37	1.46	2.32	0.32	0.76

Table 6. EDP-Peak 1

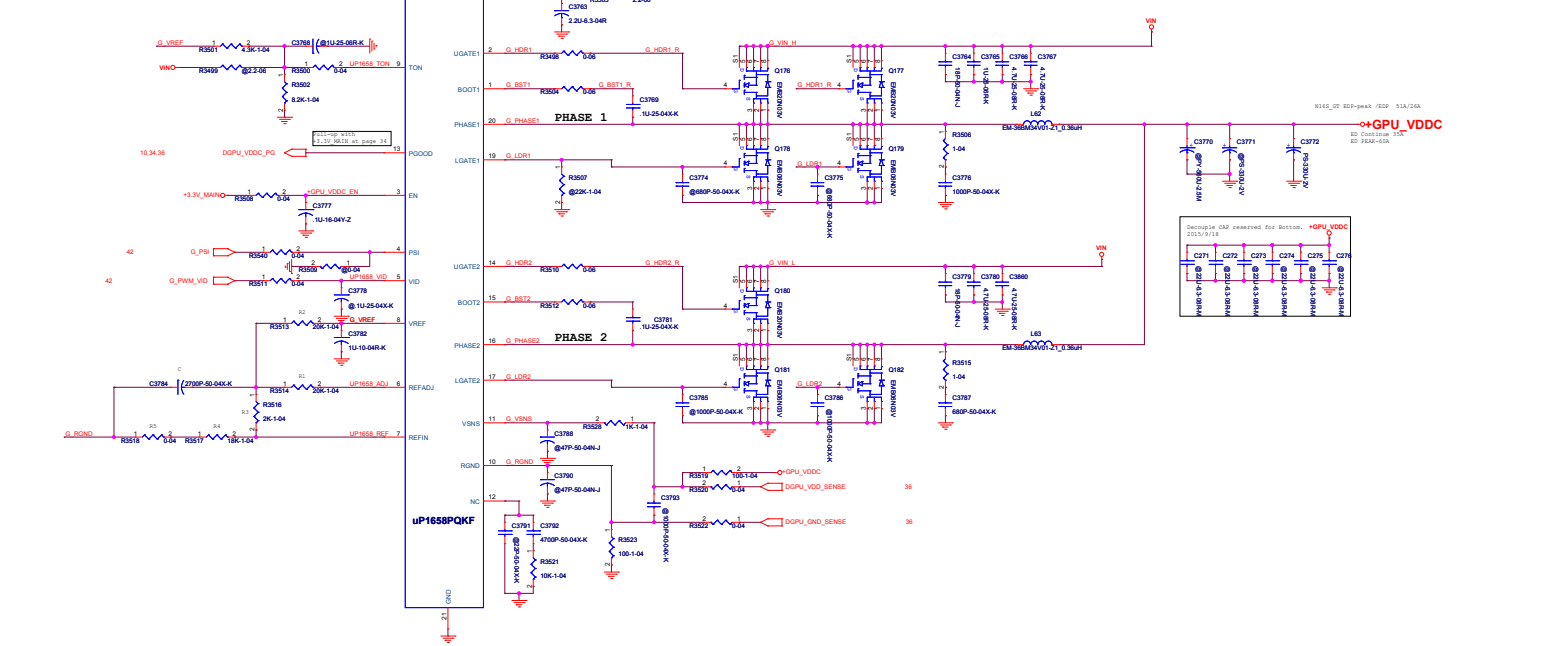
Products	VRAM Type	GPU Core	GPU VRAM	FB Total 1,7	1.05V Total 1	3.3V Total
H165-GT	DDR3/L	1.37	1.46	2.32	0.32	0.76

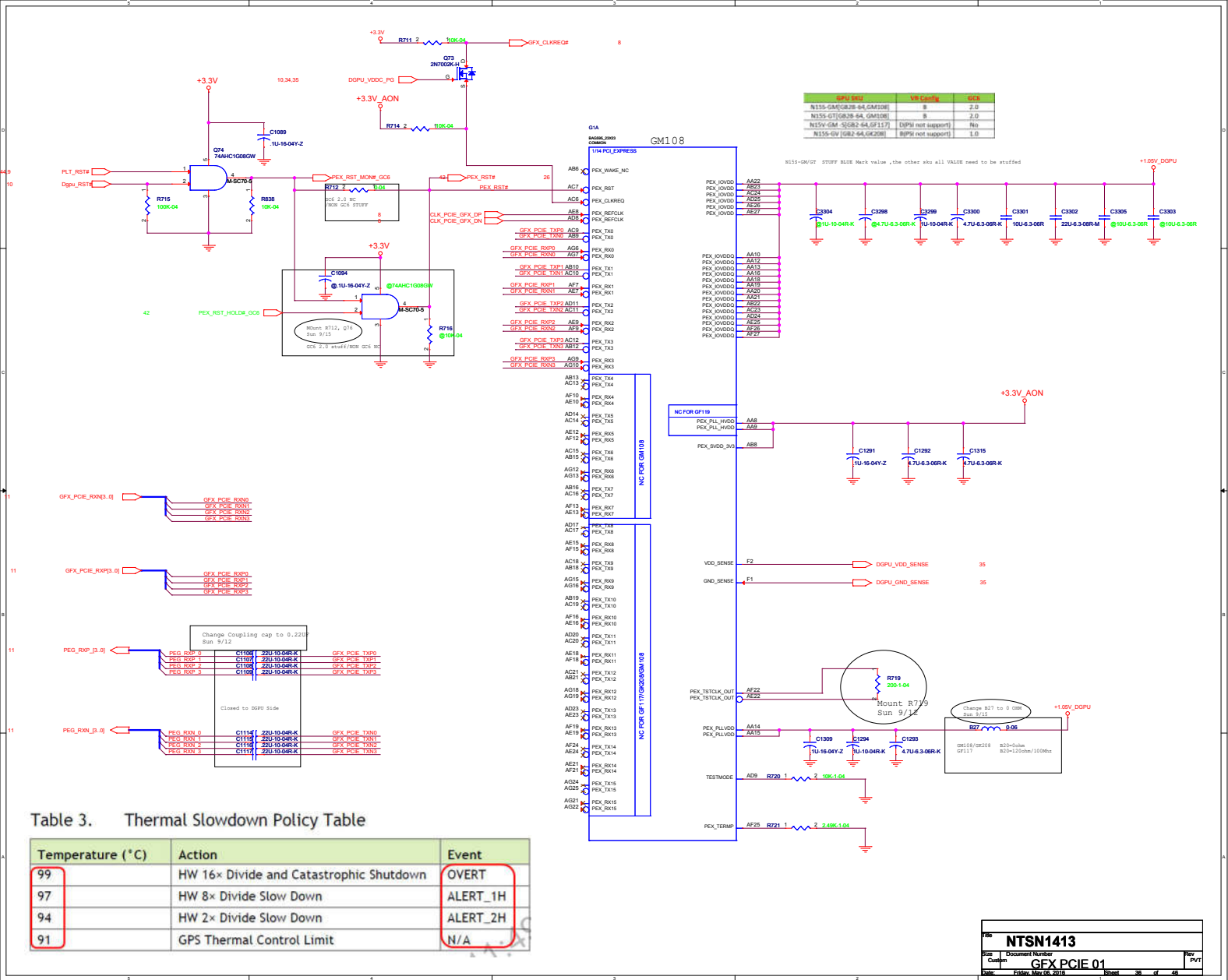
Table 7. EDP-Peak at Tj = 102°C 1

Products	VRAM Type	GPU Core	GPU VRAM	FB Total 1,7	1.05V Total 1	3.3V Total
H165-GT	DDR3/L	1.37	1.46	2.32	0.32	0.76

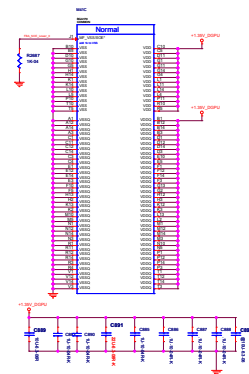
Component	Value	Config A	Config B	Config C	Config D
Vmin	V	0.6	0.6	0.65	0.9
Vmax	V	1.2	1.2	1.15	1.15
Vboot	V	0.875	0.9	0.9	1.025
Voltage Step Vstep	mV	8.25	8.25	25	12.5
Number of Voltage Levels N	level	96	96	20	20
PWM Frequency Fpw	Hz	1.125	1.125	0.676	0.676
PWM Minimum Pulse Width Tpw	ns	17.26	17.26	74	74
VID Transient Time T	ns	-100	-100	-100	-100
Component Value					
R1 (1K)	KΩ	39	20	39	27
R2 (1K)	KΩ	39	20	30	7.5
R3 (1K)	KΩ	1.5	2	3	0
R4 (1K)	KΩ	30	18	24	8.2
R5 (1K)	KΩ	1.5	0	3	1.74
C	nF	1.5	2.7	1.8	5.6

Boosted TDP





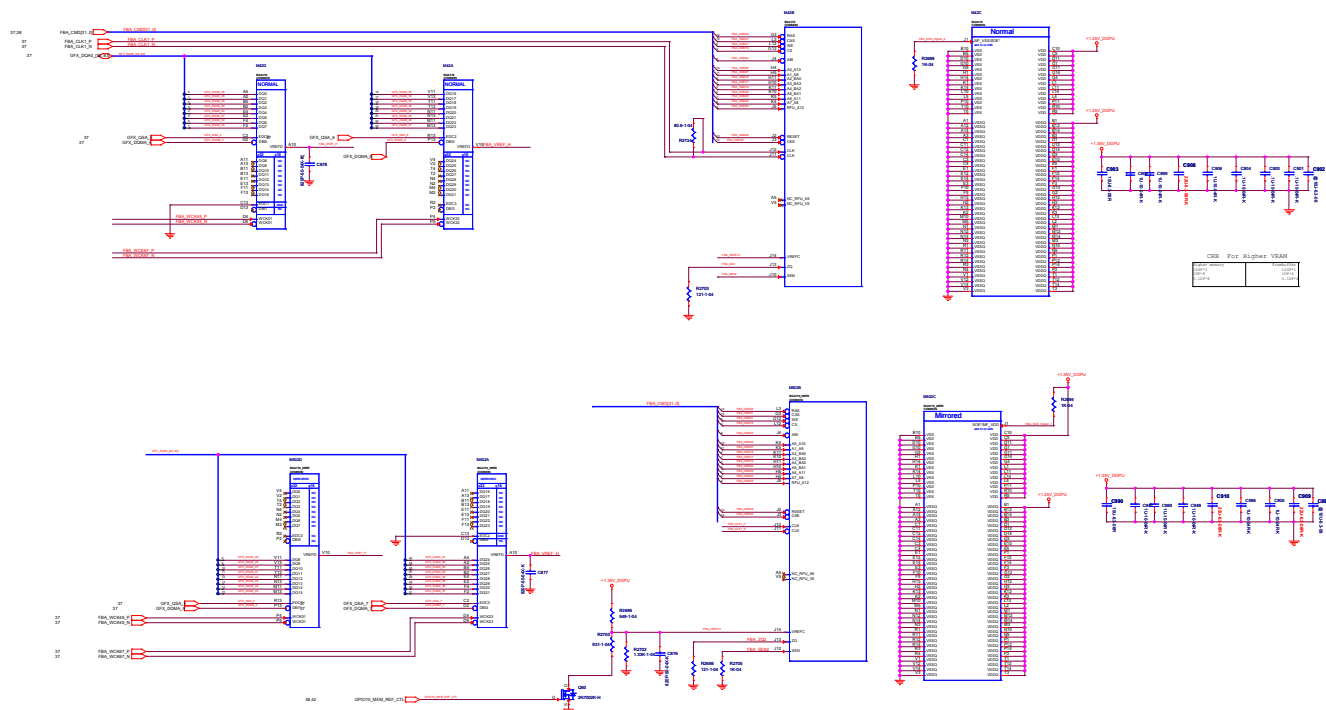
Frame Buffer Lower Half



<0.3> <0.43> MEMORY		
12	28	RAM?
16	31	CAS?
8	21	W8?
0	16	CD?
4	24	AS?
10	26	AL_A10
11	27	A1_A8
2	18	A2_A8A0
1	17	A3_A8A0
3	19	A4_A8A2
4	20	A6_A8A1
7	23	A6_A11
6	22	A7_A8
8	26	A10_RPU?
13	28	MEM?
16	30	EXP?

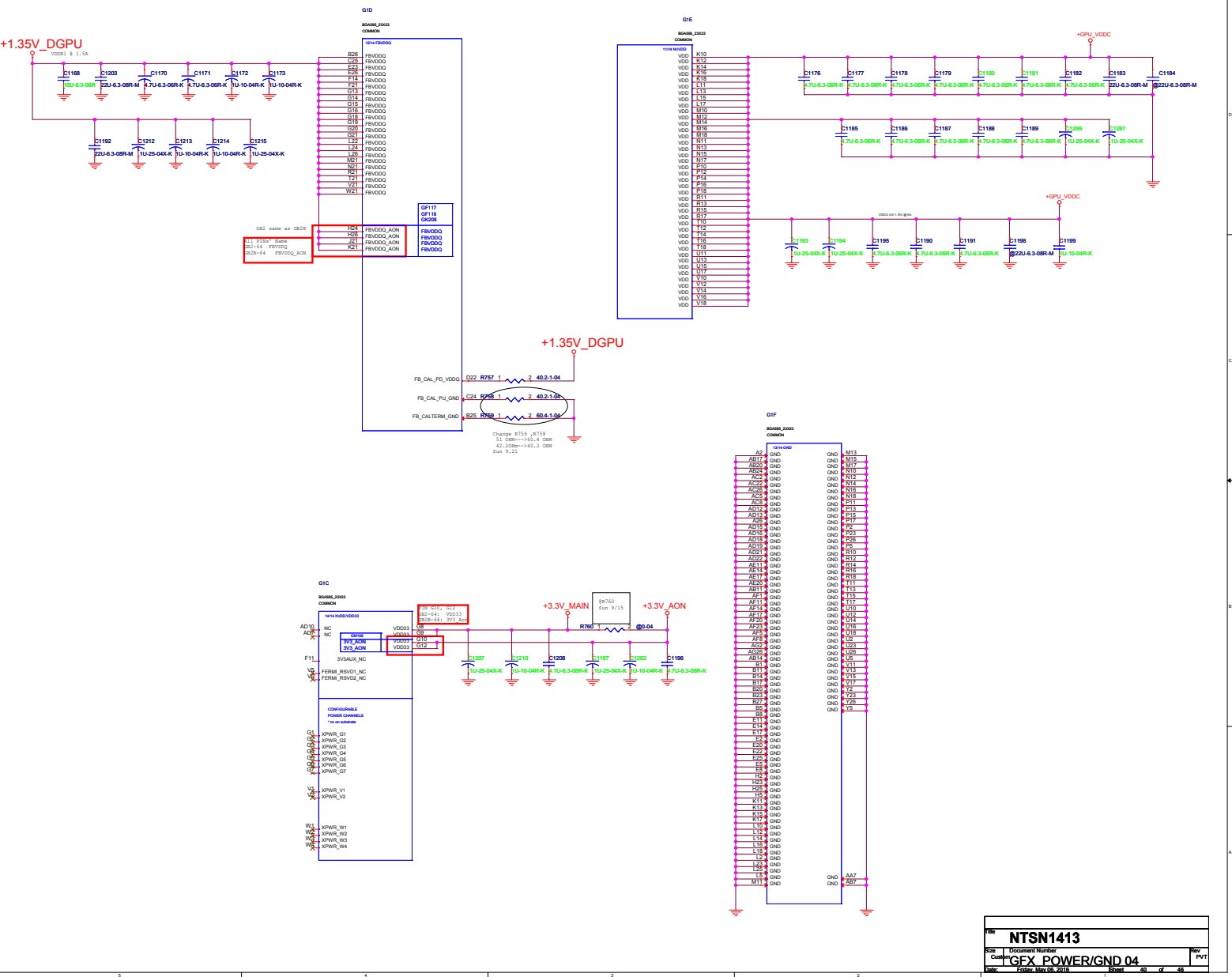


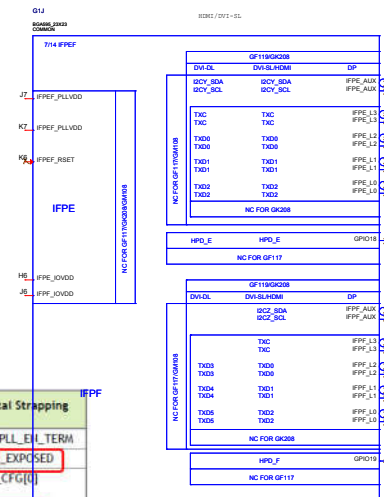
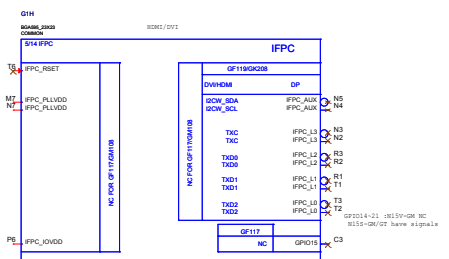
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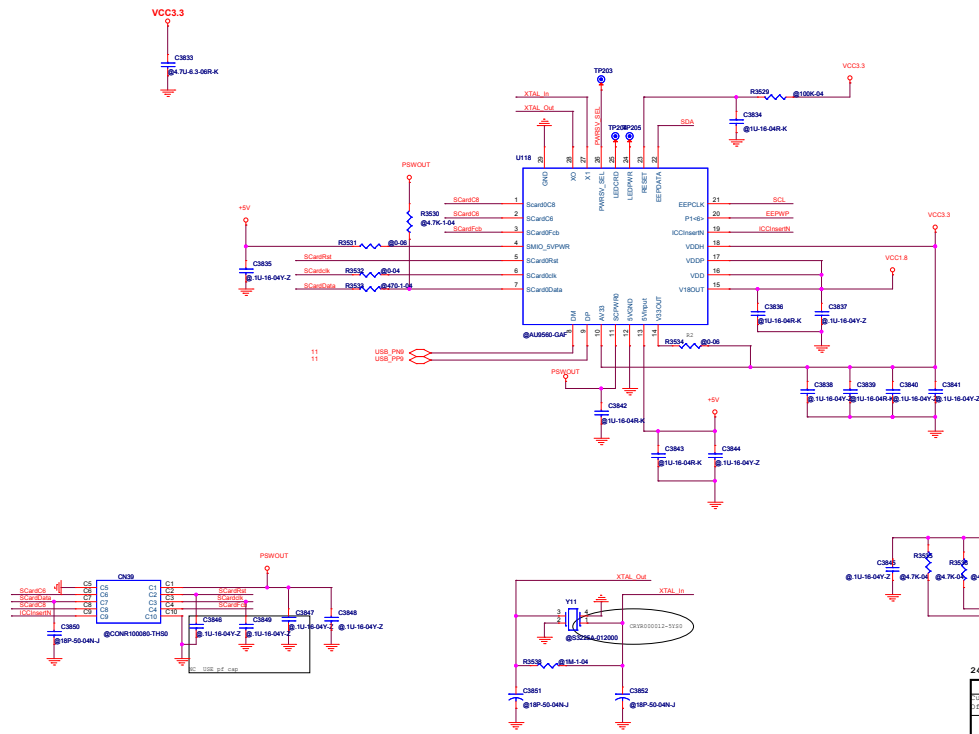
Higher memory	Lowest cost
1024*2	1024*1
1024*8	1024*4
0.1024*8	0.1024*4

Title					
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ID	Document Number				Rev
<ID>	<Doc>				<Rev>
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Physical Strapping Pin	GPU	Logical Strapping Bit 3	Logical Strapping Bit 2	Logical Strapping Bit 1	Logical Strapping Bit 0	UP
ROM_SCLK	H116V-GM H116S-GM/LP/-GT	PCI_DEVID[4] S0R3_EXPOSED	SUB_VENIDOR S0R2_EXPOSED	PCI_DEVID[5] S0R1_EXPOSED	PEX_PLL_ELT_TERM S0R0_EXPOSED	
ROM_SI	All H116 G2-64 and GB28-64	RAM_CFG[3]	RAM_CFG[2]	RAM_CFG[1]	RAM_CFG[0]	
ROM_SO	H116V-GM H116S-GM/LP/-GT	FB[1] DEVID_SEL	FB[0] PCIE_CFG	SMB_ALT_ADDR	IGA_DEVICE	
STRAP0	H116V-GM H116S-GM/LP/-GT	USER[3] Reserved (Keep pull-up and pull-down footprints and stuff 49.9 kΩ pull-up)	USER[2]	USER[1]	USER[0]	
STRAP1	H116V-GM H116S-GM/LP/-GT	3GIO_PADCFG[3] Reserved (Keep pull-up and pull-down footprints. Do not stuff by default)	3GIO_PADCFG[2]	3GIO_PADCFG[1]	3GIO_PADCFG[0]	
STRAP2	H116V-GM	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]	

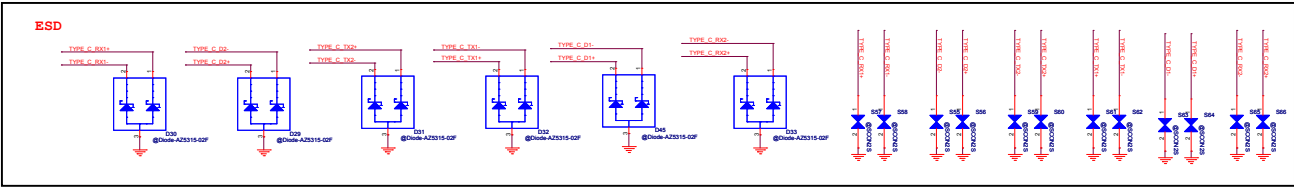
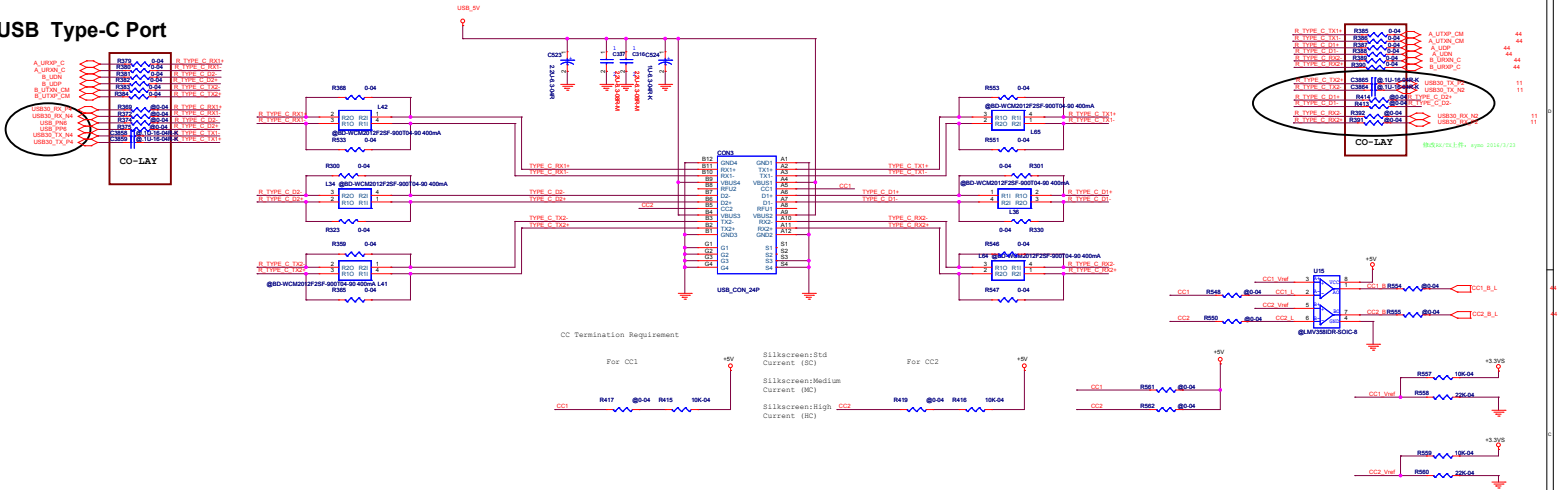


24CXX EEPROM Type Option As Below:

Application	EEPROM Size
Custom USB Descriptor or Address or Direct Web Page Link	24C02 or 24C04
Memory Card FW Module	24C16 or 24C32

Part	NT20H410	Rev	PVT
Doc	Document Number	Rev	
Comment	Comment	Rev	
Date	2023.05.26	Sheet	48 of 48

USB Type-C Port



- 1、@C3910 2015/10/30 symo
 - 2、add c3931 2015/10/30 symo
 - 3、945 R808 5K
 - 4、BAT1,PIN1/2互换
 - 5、U120 VBIAS PIN改成+5VAL
 - 6、删除原来的线路增加黑色框部分线路for SATA SSD and PCIE SDD共用
 - 7、C3377/3378上件 change value值 for PCIE SSD: symo 2015/11/12
 - 8、C3498/3499/3500/3501 change value值: symo 2015/11/12
 - 9、DEL Q153: symo
 - 10、DEL D18:symo
 - 11、R226/R210上件: symo
 - 12、R3409/3402/3430/3440/3428/3429/3403 change value
 - 13、C3900/3906/3907/3457/3789/3877 change value
 - 14、R3143 modify to 147
 - 15、DEL R3088
 - 16、add R3103
 - 17、add R3161:SYMO
 - 18 ADD R3310/3370 FOR PCIE SSD
- NPI modify如下:
- 1、取消JP点
 - 2、Q42 D板增加net 名 (VIN_LCD)
 - 3、增加Gt的电容
 - 4、R3143 147 modify to 115
 - 5、:R3278/3279 100K modify to 10K