

LCFC Confidential


Y530 M/B Schematics Document

Coffee Lake H-Processor with DDR4 + NV N17P-G0/G1 GPU

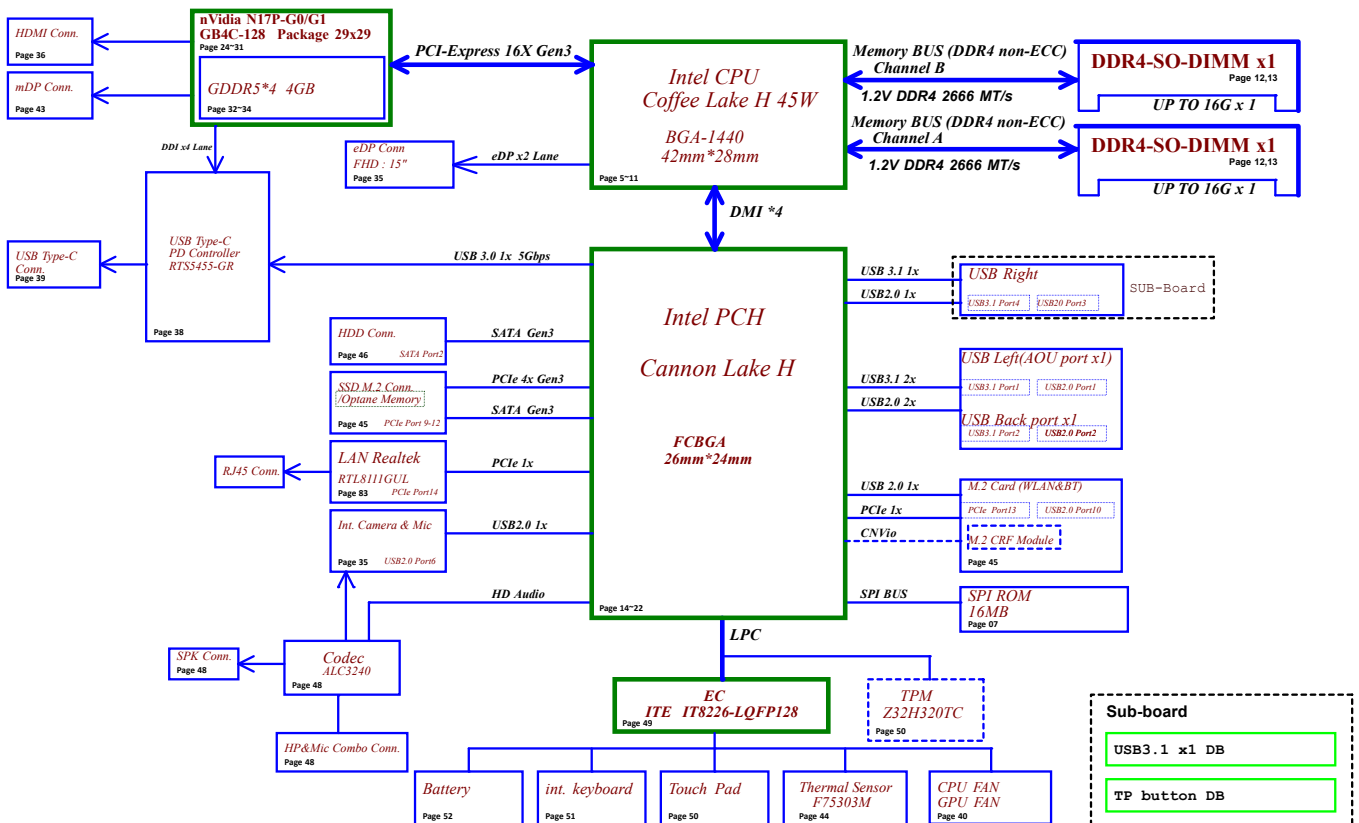
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2017-09-11

REV: 0.1

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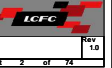


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Issued Date	2015/02/26	Deciphered Date	2016/02/28
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Block Diagram

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Voltage Rails (O -> Means ON , X -> Means OFF)

Power Plane / State	B+	+3VALW +5VALW	+3VALW_PCH	+1.2V	+5VS +3VS VCCIO VCCSA VCCSTG VCCCPUCORE VCCSFXCORE +1.8VS_AON +1.8VGS NVVDD NVVDDS +1.0VGS FBVDDQ
S0	O	O	O	O	O
S3	O	O	O	O	X
S3 Battery only	O	O	O	O	X
S5 S4/AC Only	O	O	O	X	X
S5 S4 Battery only	O	X	X	X	X
S5 S4 AC & Battery don't exist	X	X	X	X	X

STATE	SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON		HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1 (Power On Suspend)		LOW	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)		LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)		LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)		LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

BOM Structure Control Table

BOM Structure	BTO Item
@	Not stuff
AOAC@	AOAC support part
CNVI@	CNVI support part
ME@	ME part(connector, hole)
OPT@	For NV GPU part
OPTANE@	Optane memory support part
TPM@	For support TPM sku part
CD@	Cost down part

Port	Function
1	Back USB3.0
2	Left USB3.0
3	Right USB3.0
4	Type-C Port
5	NA
6	Camera
7:13	NA
14	BT

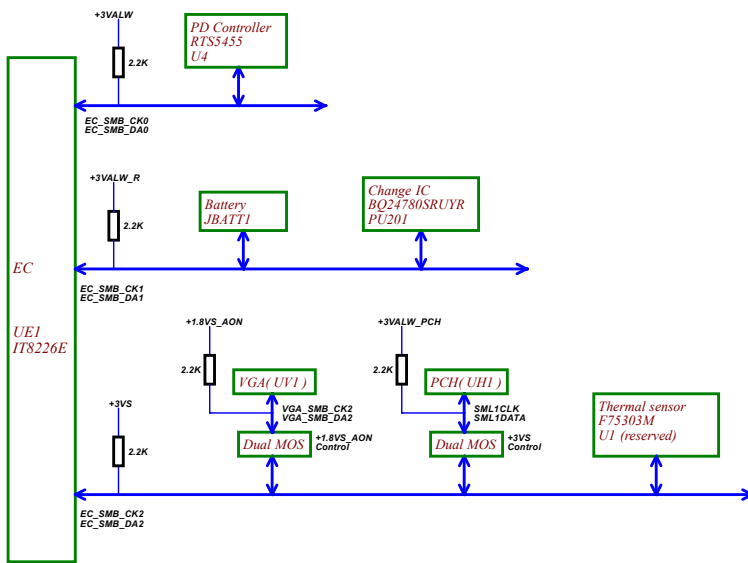
Port	Function
1	Back USB3.0
2	Type-C Port
3	Left USB3.0
4	Right USB3.0
5	NA
6	NA

Port	Function
0A	NA
0B	NA
1A	M.2 SSD Gen3
1B	NA
2	HDD Gen3
3	NA
4	NA
5	NA

Port	Function
1:8	NA
9	M.2 SSD/Optane
10	M.2 SSD/Optane
11	M.2 SSD/Optane
12	M.2 SSD/Optane
13	WLAN Gen1
14	LAN Gen1
15:24	NA

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Title		
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SMBUS Control Table

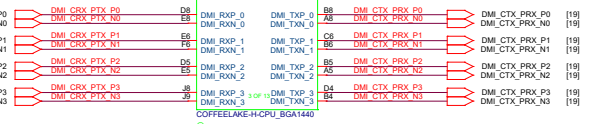
	GPIO	VGA	BATT	7792246	800206	RELAP	Thermal	PCH	TS	Charge	USB	USB-C	RFPI
	CK0	CK1	CK2	DA0	DA1	DA2	DA2	DA2	DA2	DA2	DA2	DA2	DA2
EC_SMB_CK0	7792246												
EC_SMB_DA0	+3VALW												
EC_SMB_CK1	7792246												
EC_SMB_DA1	+3VALW_R												
EC_SMB_CK2	7792246												
EC_SMB_DA2	+3VALW_PCH												
PCH_SMB_CK2													
PCH_SMB_DA2													
PCH_SMB_CK2													
PCH_SMB_DA2													
EC_SMB_CK0	7792246												
EC_SMB_DA0	+3VALW												

EC SM Bus1 address		EC SM Bus2 address		PCH SM Bus address		PCH I2C 2 Bus address	
Device	Address	Device	Address	Device	Address	Device	Address
Thermal Sensor	0000	Thermal Sensor	7792246	USB	0000	USB	0000
Charge	0000	VGA	7792246	USB	0000	USB	0000
		PCH		Reserved		Reserved	

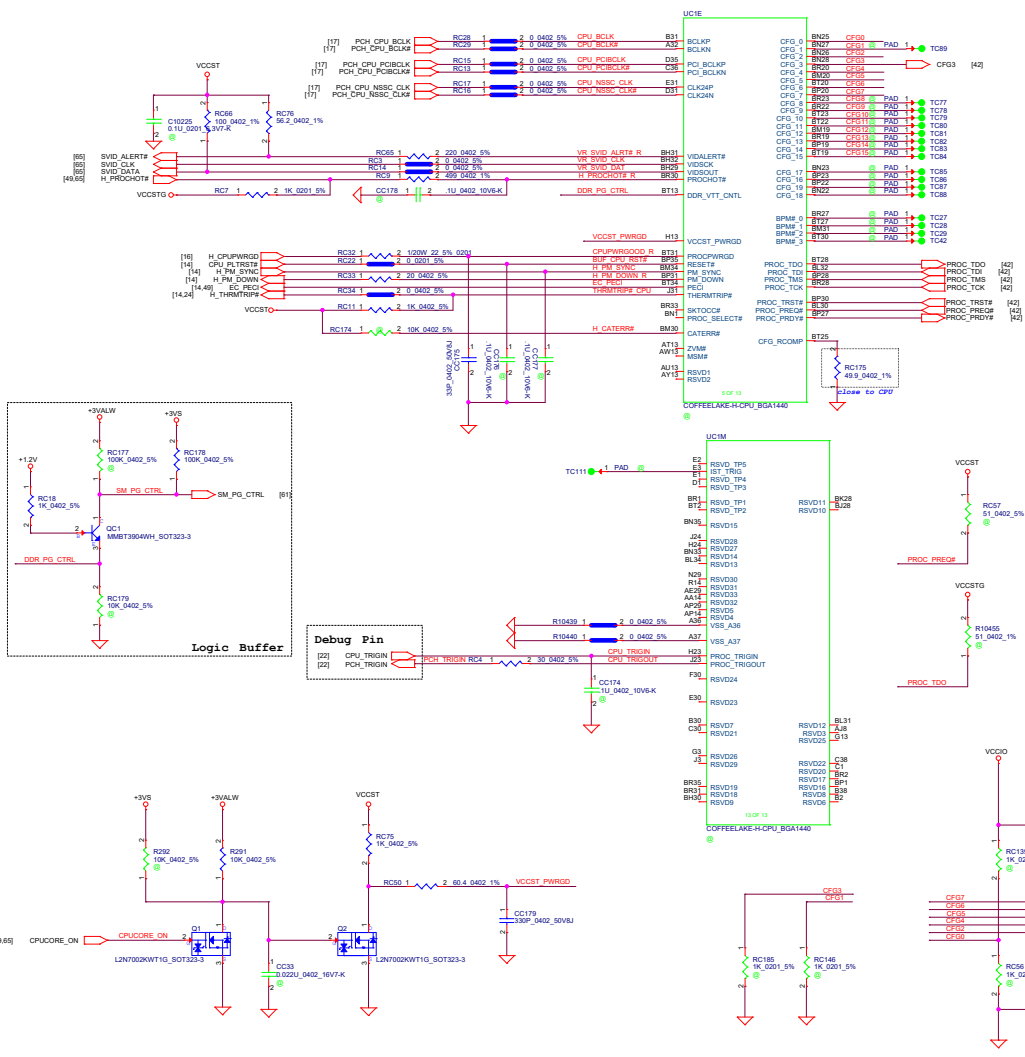
- [24] PCIe_CRX_GTX_N0..15
- [24] PCIe_CRX_GTX_P0..15
- [24] PCIe_CTX_C_GRX_N0..15
- [24] PCIe_CTX_C_GRX_P0..15



Note:
Place R_comp inside CPU cavity
Trace width=12 mils, Spacing=15mil
Max length= 400 mils.



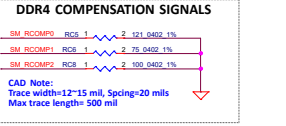
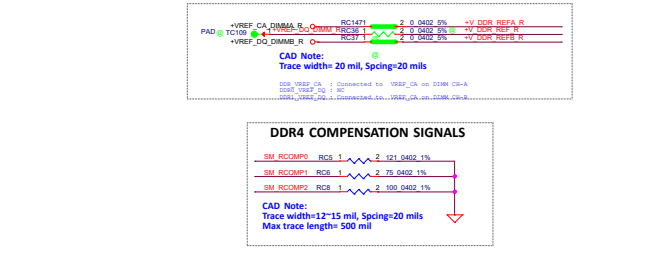
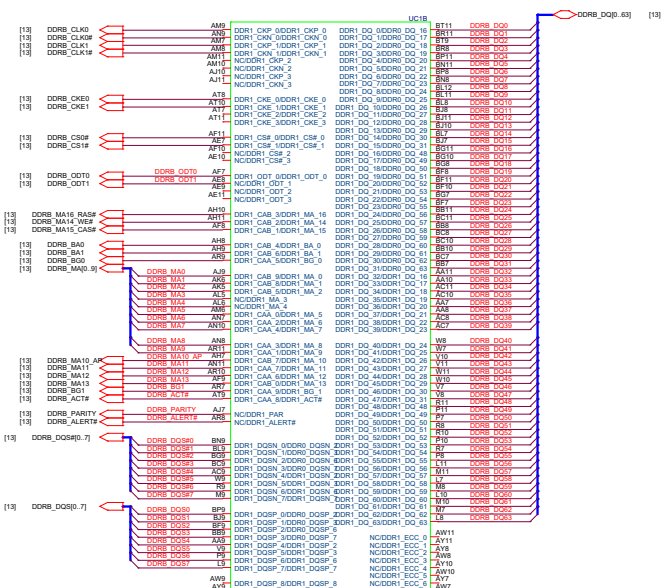
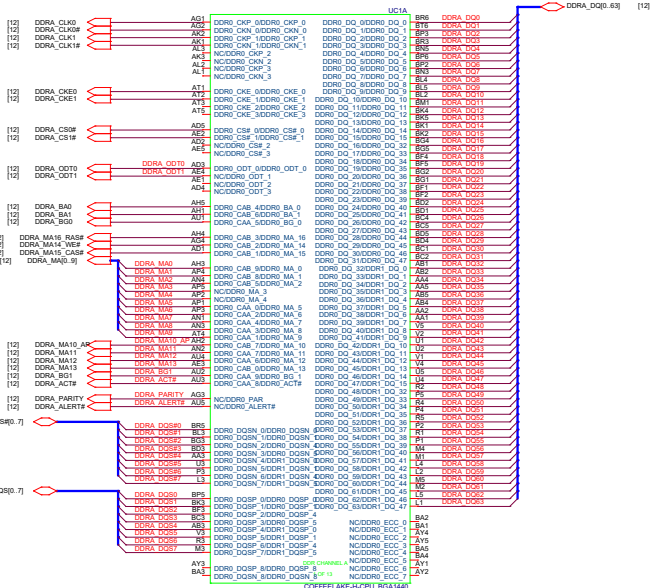
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Issued Date	2015/02/26	Deciphered Date	2016/02/26	CPU (1/7) DMI,PEG	
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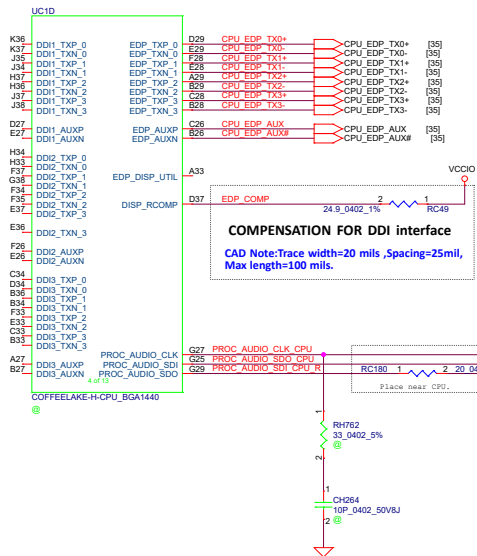
CFG STRAPS for CPU

Stall reset sequence after PCU PLL lock until de-asserted	
CFG0	1 = (Default) Normal Operation; No stall. 0 = Stall.
Reserved configuration lane	
CFG1	N/A
PCI Express* Static x16 Lane Numbering Reversal	
CFG2	1 = Normal operation 0 = Lane numbers reversed.
Reserved configuration lane	
CFG3	N/A
ADP enable	
CFG4	1 = Disabled. 0 = Enabled.
PCI Express* Bifurcation	
CFG[6:5]	00 = 1 x8, 2 x4 PCI Express* 01 = reserved 10 = 2 x8 PCI Express* 11 = 1 x16 PCI Express*
PEG Training	
CFG7	1 = (default) PEG Train immediately following RESST# deassertion. 0 = PEG Wait for BIOS for training.
Reserved configuration lane	
CFG[19:8]	N/A

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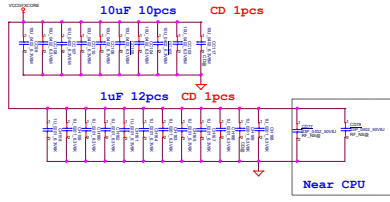
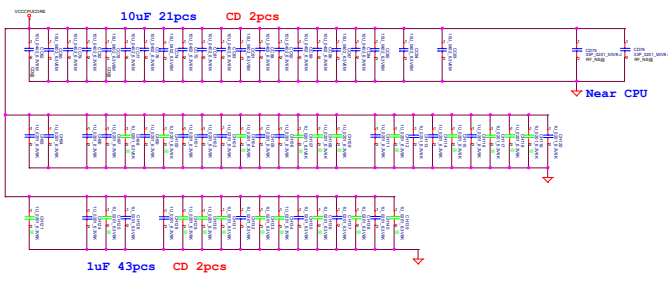
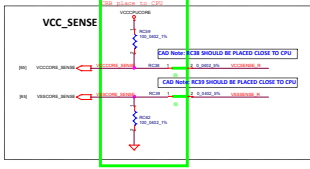
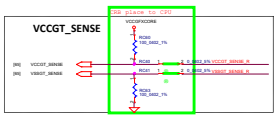
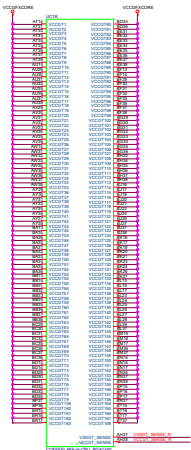
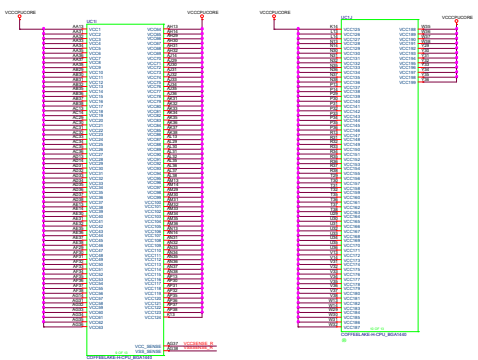


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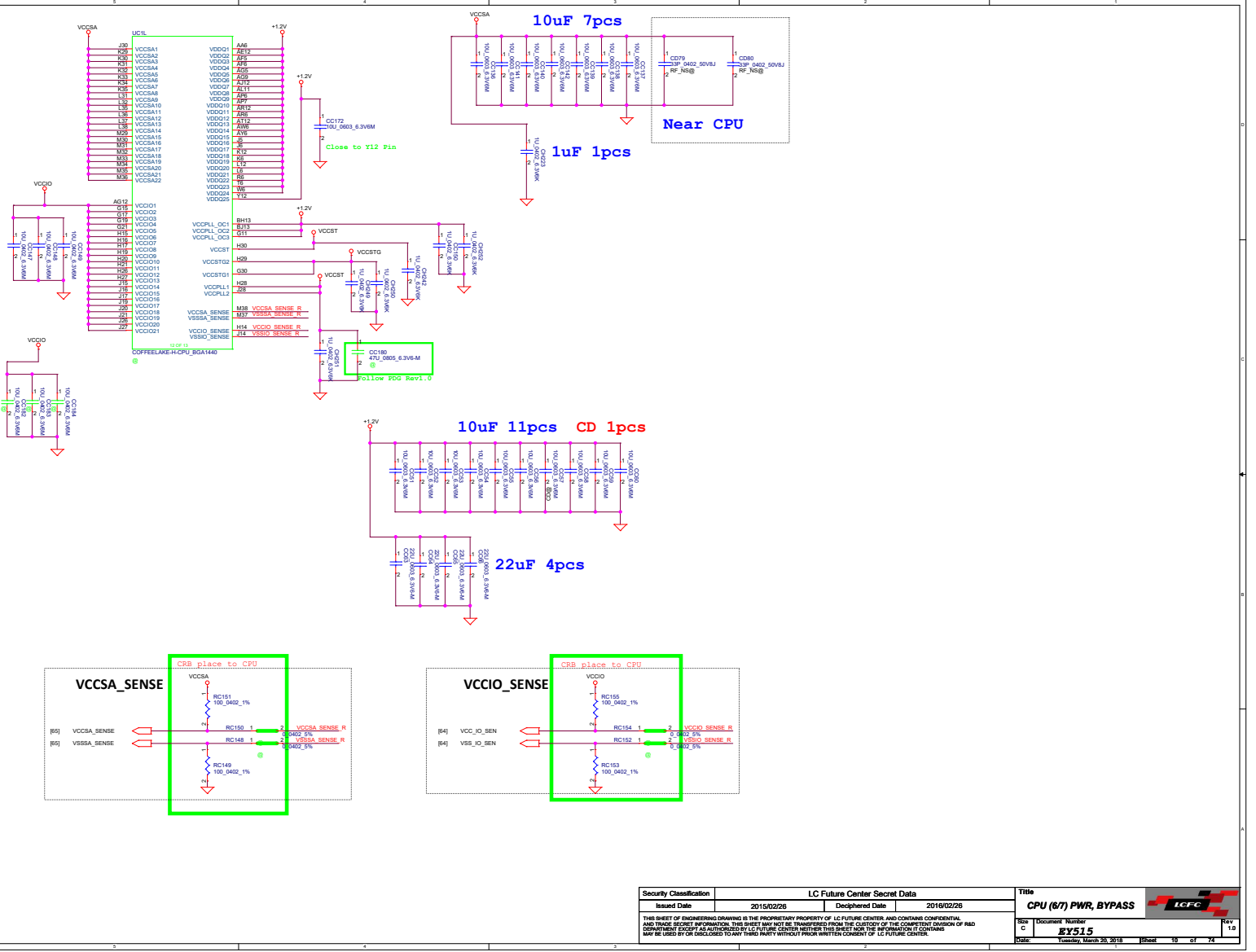


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Secret Date	20150228	Development Date
CPU (6/7) PWR, BYPASS		
Doc Control Number	87515	1.1



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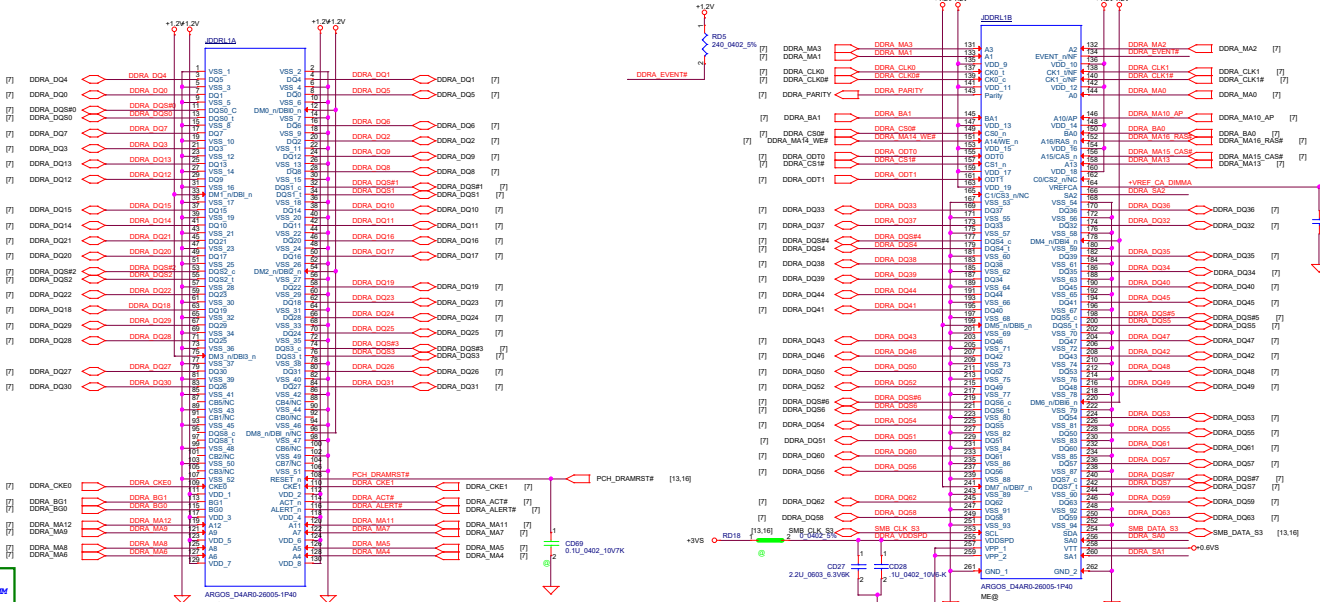
ICFH	VSS	ICG	ICIH
A10	VSS 1	AV1	BNA
A12	VSS 2	AV2	BNT
A18	VSS 3	AV3	BPT
A20	VSS 4	AV4	BPT
A22	VSS 5	AV5	BPT
A24	VSS 6	AV6	BPT
A26	VSS 7	AV7	BPT
A28	VSS 8	AV8	BPT
A30	VSS 9	AV9	BPT
A32	VSS 10	AV10	BPT
A34	VSS 11	AV11	BPT
A36	VSS 12	AV12	BPT
A38	VSS 13	AV13	BPT
A40	VSS 14	AV14	BPT
A42	VSS 15	AV15	BPT
A44	VSS 16	AV16	BPT
A46	VSS 17	AV17	BPT
A48	VSS 18	AV18	BPT
A50	VSS 19	AV19	BPT
A52	VSS 20	AV20	BPT
A54	VSS 21	AV21	BPT
A56	VSS 22	AV22	BPT
A58	VSS 23	AV23	BPT
A60	VSS 24	AV24	BPT
A62	VSS 25	AV25	BPT
A64	VSS 26	AV26	BPT
A66	VSS 27	AV27	BPT
A68	VSS 28	AV28	BPT
A70	VSS 29	AV29	BPT
A72	VSS 30	AV30	BPT
A74	VSS 31	AV31	BPT
A76	VSS 32	AV32	BPT
A78	VSS 33	AV33	BPT
A80	VSS 34	AV34	BPT
A82	VSS 35	AV35	BPT
A84	VSS 36	AV36	BPT
A86	VSS 37	AV37	BPT
A88	VSS 38	AV38	BPT
A90	VSS 39	AV39	BPT
A92	VSS 40	AV40	BPT
A94	VSS 41	AV41	BPT
A96	VSS 42	AV42	BPT
A98	VSS 43	AV43	BPT
A100	VSS 44	AV44	BPT
A102	VSS 45	AV45	BPT
A104	VSS 46	AV46	BPT
A106	VSS 47	AV47	BPT
A108	VSS 48	AV48	BPT
A110	VSS 49	AV49	BPT
A112	VSS 50	AV50	BPT
A114	VSS 51	AV51	BPT
A116	VSS 52	AV52	BPT
A118	VSS 53	AV53	BPT
A120	VSS 54	AV54	BPT
A122	VSS 55	AV55	BPT
A124	VSS 56	AV56	BPT
A126	VSS 57	AV57	BPT
A128	VSS 58	AV58	BPT
A130	VSS 59	AV59	BPT
A132	VSS 60	AV60	BPT
A134	VSS 61	AV61	BPT
A136	VSS 62	AV62	BPT
A138	VSS 63	AV63	BPT
A140	VSS 64	AV64	BPT
A142	VSS 65	AV65	BPT
A144	VSS 66	AV66	BPT
A146	VSS 67	AV67	BPT
A148	VSS 68	AV68	BPT
A150	VSS 69	AV69	BPT
A152	VSS 70	AV70	BPT
A154	VSS 71	AV71	BPT
A156	VSS 72	AV72	BPT
A158	VSS 73	AV73	BPT
A160	VSS 74	AV74	BPT
A162	VSS 75	AV75	BPT
A164	VSS 76	AV76	BPT
A166	VSS 77	AV77	BPT
A168	VSS 78	AV78	BPT
A170	VSS 79	AV79	BPT
A172	VSS 80	AV80	BPT
A174	VSS 81	AV81	BPT
A176	VSS 82	AV82	BPT

ICFH	VSS	ICG	ICIH
BNA	VSS 325	AV325	BNA
BNT	VSS 326	AV326	BNT
BPT	VSS 327	AV327	BPT
BPT	VSS 328	AV328	BPT
BPT	VSS 329	AV329	BPT
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BPT	VSS 408	AV408	BPT
BPT	VSS 409	AV409	BPT
BPT	VSS 410	AV410	BPT

ICFH	VSS	ICG	ICIH
BNA	VSS 411	AV411	BNA
BNT	VSS 412	AV412	BNT
BPT	VSS 413	AV413	BPT
BPT	VSS 414	AV414	BPT
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BPT	VSS 475	AV475	BPT
BPT	VSS 476	AV476	BPT
BPT	VSS 477	AV477	BPT
BPT	VSS 478	AV478	BPT
BPT	VSS 479	AV479	BPT
BPT	VSS 480	AV480	BPT
BPT	VSS 481	AV481	BPT
BPT	VSS 482	AV482	BPT
BPT	VSS 483	AV483	BPT
BPT	VSS 484	AV484	BPT
BPT	VSS 485	AV485	BPT
BPT	VSS 486	AV486	BPT
BPT	VSS 487	AV487	BPT
BPT	VSS 488	AV488	BPT
BPT	VSS 489	AV489	BPT
BPT	VSS 490	AV490	BPT
BPT	VSS 491	AV491	BPT
BPT	VSS 492	AV492	BPT
BPT	VSS 493	AV493	BPT
BPT	VSS 494	AV494	BPT
BPT	VSS 495	AV495	BPT
BPT	VSS 496	AV496	BPT
BPT	VSS 497	AV497	BPT
BPT	VSS 498	AV498	BPT
BPT	VSS 499	AV499	BPT
BPT	VSS 500	AV500	BPT

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Issued Date	2015/02/26	Deciphered Date	2016/02/28
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Rev	C	Document Number	EX515
Issue	1	Issue Date	March 20, 2015
Sheet	11	of	74

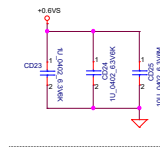
DDR4 SO-DIMM A



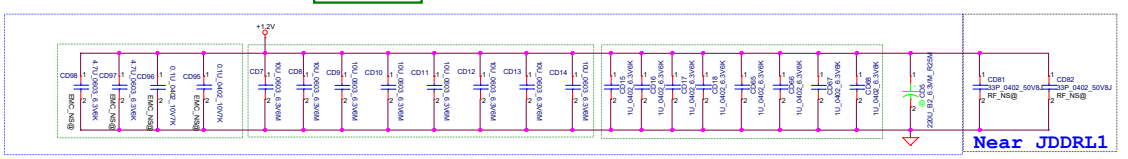
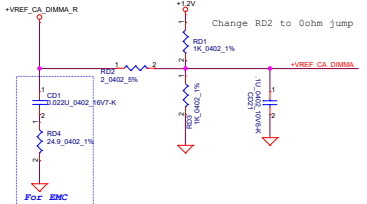
Layout Note: Place near DIMM


SPD Address = 0H

Layout Note: Place near DIMM

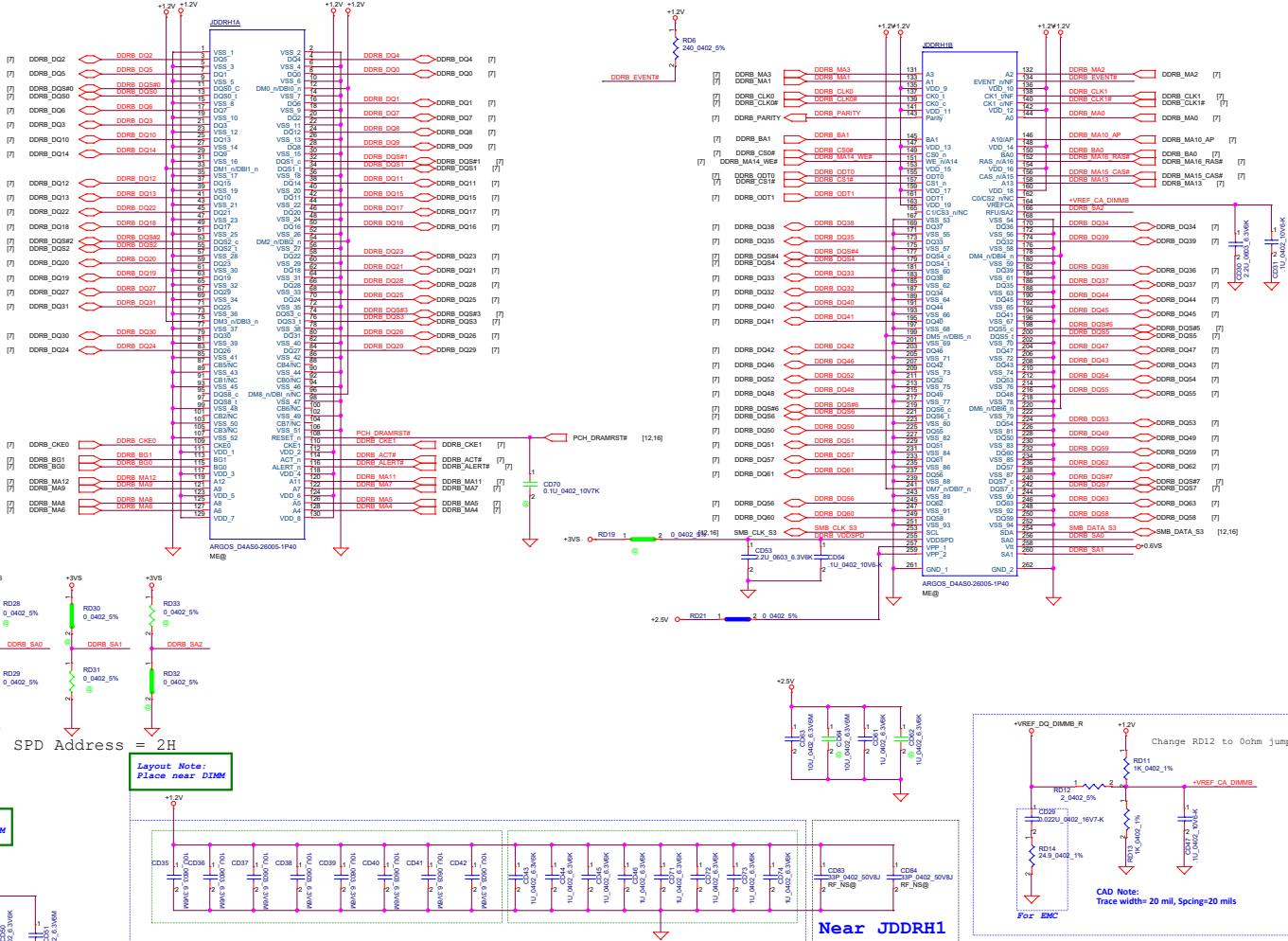


Note: VREF trace width: 20 mils at least Spacing: 20mils to other signal/planes Place near DIMM socket



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Size	C	Document Number	EX515	Rev	1.0
Date:	February, Month 26, 2016	Sheet	15	of	24

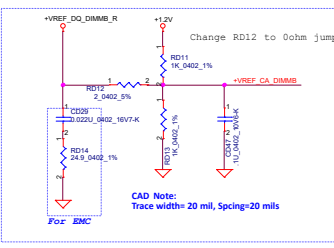
DDR4 SO-DIMM B



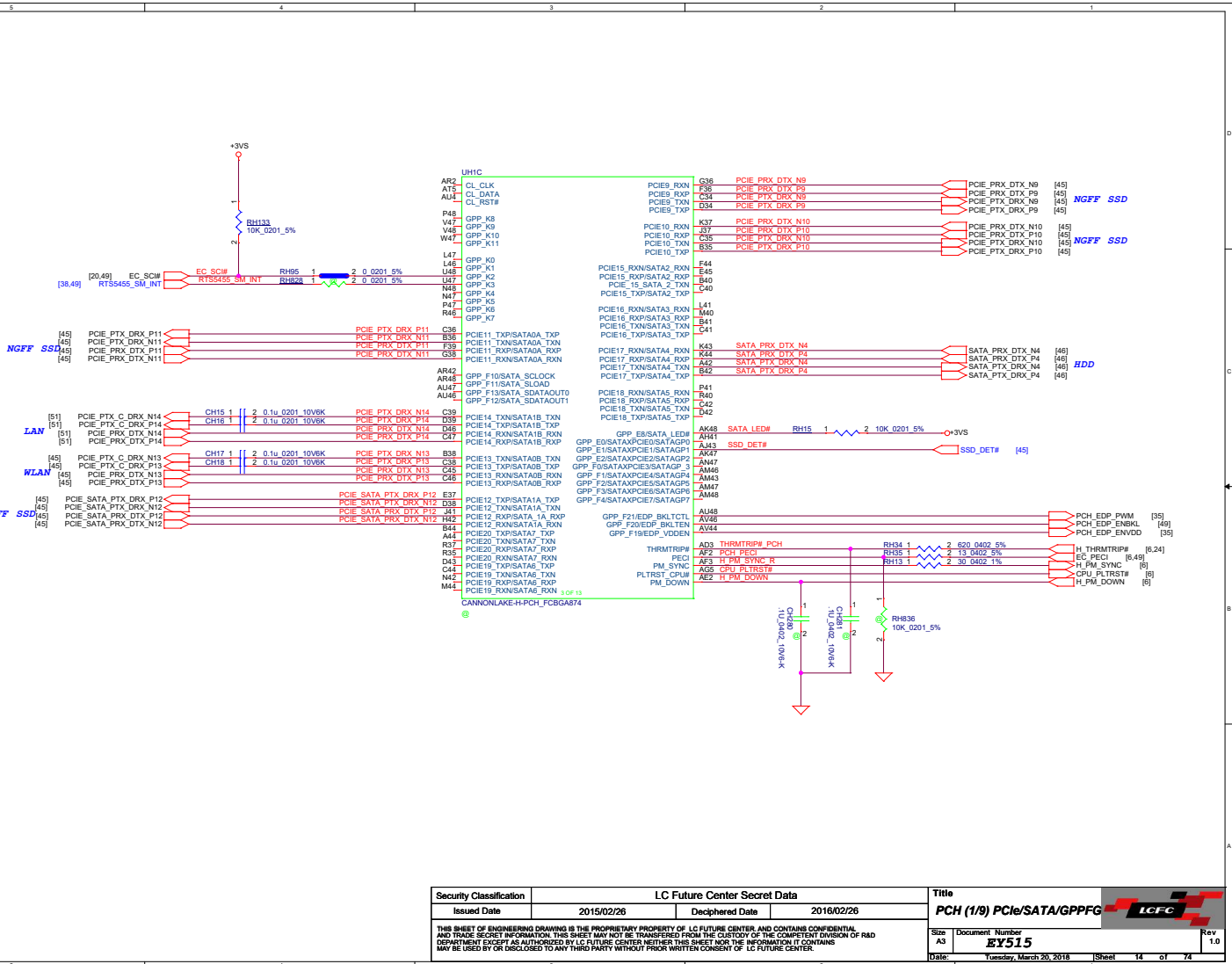
Layout Note:
Place near DIMM

Layout Note:
Place near DIMM

Near JDDRH1



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Issued Date	2015/02/26	Deciphered Date	2016/02/28		
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Doc#	C	Document Number	EX515	Rev	1.0
Date	February, March 26, 2016	Sheet	13	of	74



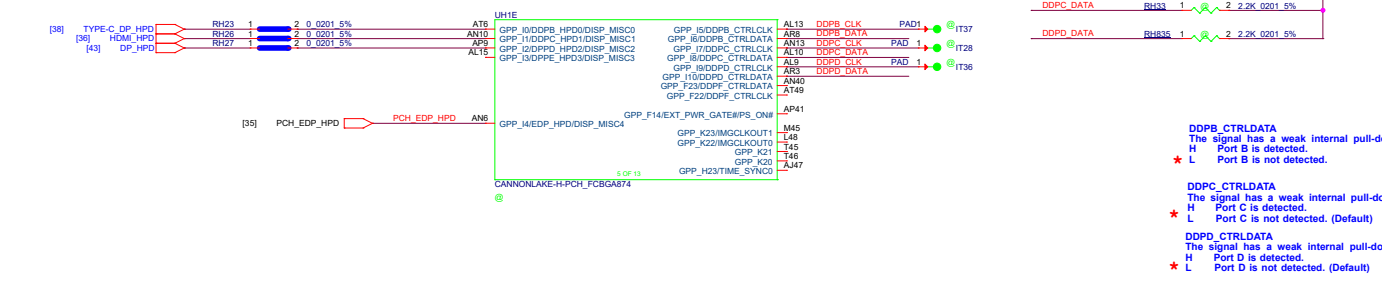
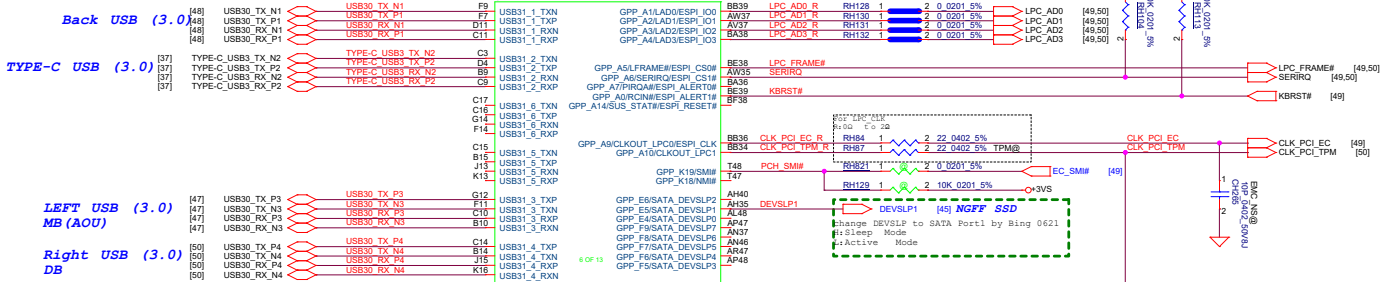
Security Classification	LC Future Center Secret Data	
Issued Date	2015/02/26	Deciphered Date
		2016/02/26

Title	
PCH (1/9) PCIe/SATA/GPP/G	
Site	Document Number
A3	EY515
Date:	Tuesday, March 20, 2018
Sheet	14 of 74

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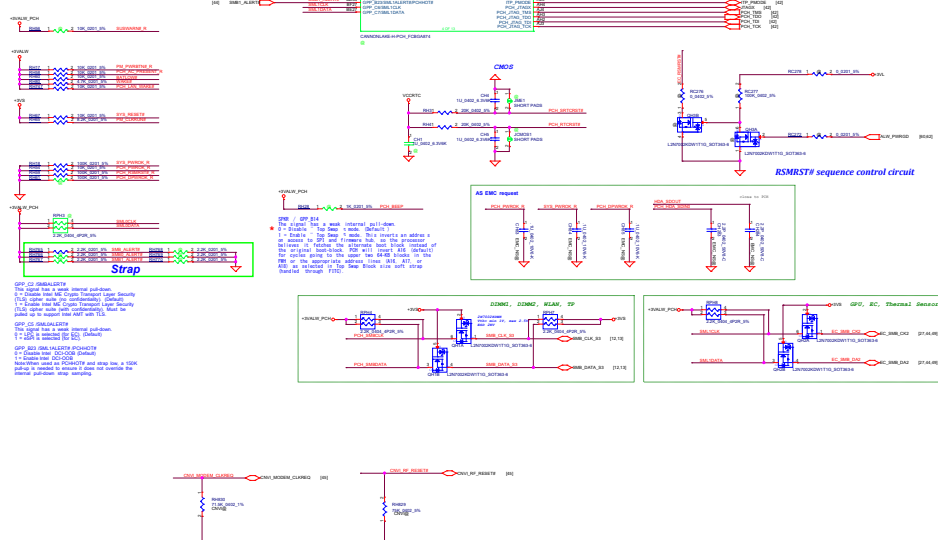
Rev 1.0
H_THRMTRIP# [6.24]
EC_PECI [6.49]
H_PM_SYNC [8]
CPU_PLTRST# [6]
H_PM_DOWN [6]

HM370 only have 4(#1-#4) USB3.1 GEN2 port



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Size	A3	Document Number	EY515		Rev	1.0	
Date	Tuesday, March 20, 2018	Sheet	15	of	74		

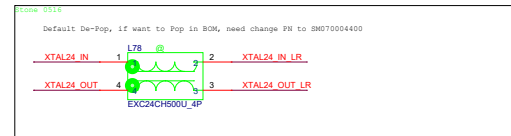
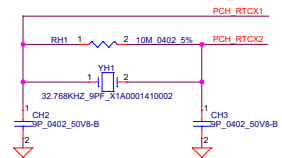
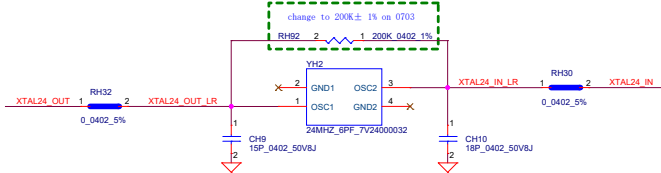
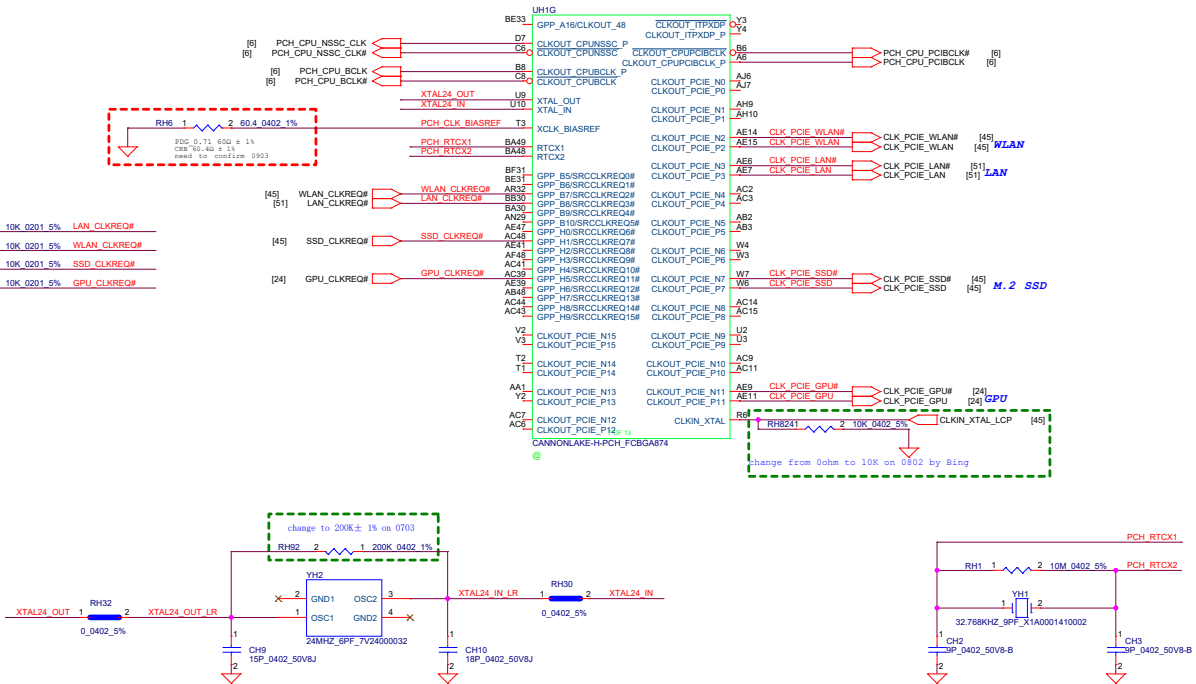
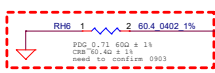
NDA_000 This signal has a weak internal pull-down.
Enable security measures defined in the Flash Descriptor
Enable flash descriptor security protection. This
 signal should only be asserted by the high-level security
 software.



Security Classification
LC Future Center Secret Data
Revision Date 20150226 **Dissemination Date** 20150226
LCFC

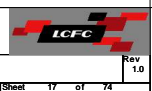
PCN (P/N) MDA, ATC, SMBUR, LCF
Rev. 1.0
1/1

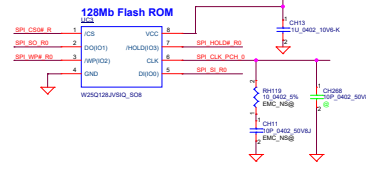
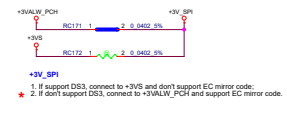
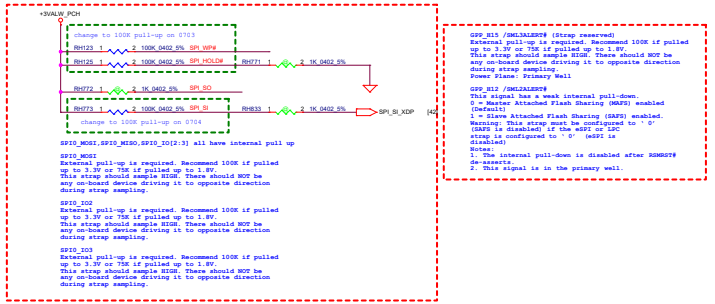
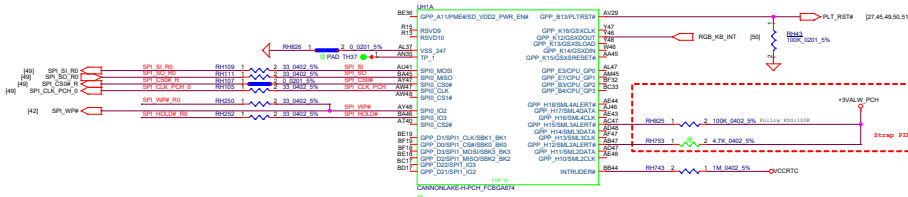
+3VS



0316
 Default De-Pop, if want to Pop in BOM, need change PN to 8M070004400

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Size	A3	Document Number	EY515	Rev	1.0
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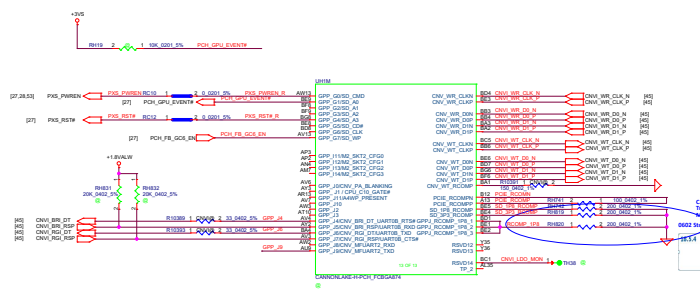
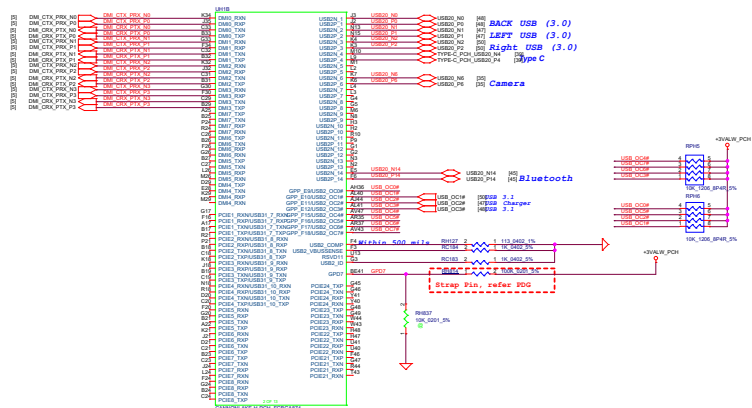




GPP_015 / JMC14L507 (Strap reserved)
 External pull-up is required. Recommended 100K if pulled up to 3.3V or 1V if pulled up to 1.8V.
 This strap should sample HIGH. There should NOT be any on-board device driving it to opposite direction during strap sampling.
 Power Plane: Primary Well

GPP_016 / JMC14L507
 This signal has a weak internal pull-down.
 0 = Master Attached Flash Sharing (MAFS) enabled (default)
 1 = Slave Attached Flash Sharing (SAFS) enabled.
 Warning: This strap must be configured to "0" (SAFS is disabled) if the SPI2 or SPI3 strap is configured to "0" (SAFS is disabled).
 Warning: Internal pull-down is disabled after ROM92929.
 Do NOT use this signal in the primary well.

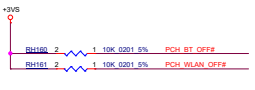
Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/02/26	Deciphered Date	2016/02/26	PCH (59) SPI, SMBUS, GPPBEG	
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Date		2016/02/26		Rev. 1	



Primary Well Group J (1.8 V Only)

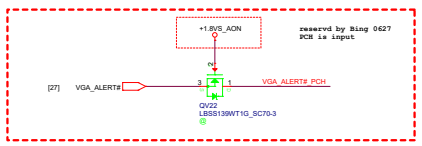
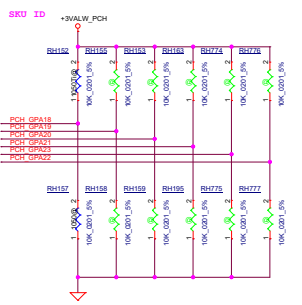
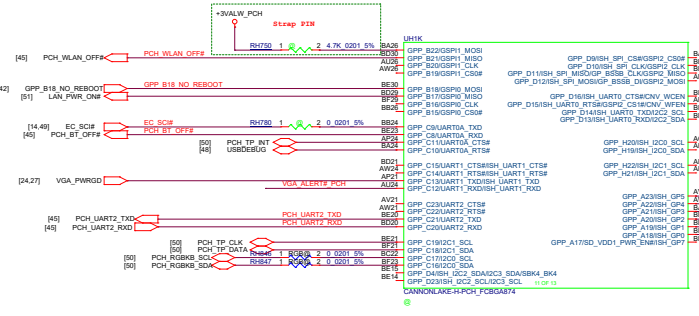
Signal	Usage	When Sampled	Comment
GPP_34 / CNV_BRI_DT / UARTB_RT5#	NTAL Frequency Select	Rising edge of RSBRST#	This signal has a weak internal pull-down. An external pull-up is required on this strap since 38.4 MHz XTAL is not supported on the PCB. 0 = 38.4 MHz XTAL, frequency selected. (Default) 1 = 24MHz XTAL, frequency selected. Notes: 1. The internal pull-down is disabled after RSMRST# de-asserts. 2. This signal is in the primary well.
GPP_36 / CNV_BRI_DT / UARTB_TXD	M.2 CNV Mode Select	Rising edge of RSBRST#	An external pull-up or pull-down is required. 0 = Integrated CNV enable. 1 = Integrated CNV disable. This signal has a weak internal pull-down. 0 = VCCSP1 is connected to 3.3V rail 1 = VCCSP1 is connected to 1.8V rail
GPP_39	1.8V VCCSP1	Rising edge of RSBRST#	Note: If VCCSP1 is connected to 1.8V rail, this pin strap must be a '1' for the proper functionality of the SPI (Flash) I/Os.

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Doc#	675715	Version	1.0	Rev#	1.0



GPP_B32 /GSP11_M0S1 (boot BIOS Strap Bit BBS)
 This signal has a weak internal pull-down.
 This field determines the destination of accesses to the BIOS memory range. Also controllable using Boot BIOS Destination bit (Bsu0, Device31, Function0, offset Dch.bit6)
 0: SPI (Default)
 1: LPC
 Note:
 1. The internal pull-down is disabled after PCH_PWRDR is high.
 4. This signal is in the primary well.

Bit 6	Boot BIOS Destination
0	SPI (Default)
1	LPC

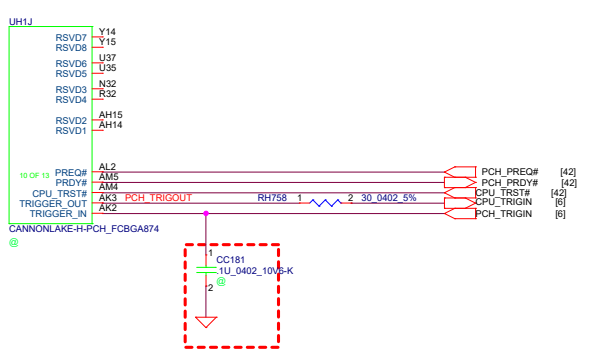


Function	PCH_GPA18	PCH_GPA19	PCH_GPA20	PCH_GPA21	PCH_GPA22	PCH_GPA23
1050	0	X	X	X	X	X
1050Ti	1	X	X	X	X	X
1160	X	0	X	X	X	X
KB BL	X	X	1	X	X	X
NO KB BL	X	X	0	X	X	X
PCIe SSD	X	X	X	1	X	X
Optane memory	X	X	X	0	X	X

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UH1L		
BG33	VSS 145	M24
BC37	VSS 146	M34
BC41	VSS 147	M49
BC45	VSS 148	M5
C12	VSS 149	N12
C25	VSS 150	N16
C30	VSS 151	N24
C4	VSS 152	N35
C46	VSS 153	N37
C5	VSS 154	N38
DT2	VSS 155	P26
D16	VSS 156	P29
D17	VSS 157	P4
D30	VSS 158	P46
D33	VSS 159	R12
D8	VSS 160	R16
E10	VSS 161	R22
E13	VSS 162	R23
E15	VSS 163	R3
E17	VSS 164	R34
E19	VSS 165	R4
E22	VSS 166	R4
E24	VSS 167	R18
E26	VSS 168	R19
E31	VSS 169	R20
E33	VSS 170	T4
E35	VSS 171	T49
E40	VSS 172	T5
E42	VSS 173	T7
E8	VSS 174	T12
F41	VSS 175	T17
F43	VSS 176	T17
F47	VSS 177	U21
G44	VSS 178	U24
G6	VSS 179	U33
H8	VSS 180	U38
J10	VSS 181	V20
J29	VSS 182	V22
J29	VSS 183	V4
J4	VSS 184	V46
J40	VSS 185	W25
J46	VSS 186	W27
J47	VSS 187	W28
J48	VSS 188	W30
J9	VSS 189	Y10
K11	VSS 190	Y12
K39	VSS 191	Y17
M16	VSS 192	Y33
M18	VSS 193	Y33
M21	VSS 194	Y38
M21	VSS 195	Y9
M21	VSS 196	Y9

UH1I		
A2	VSS 1	AL12
A28	VSS 2	AL17
A3	VSS 3	AL24
A33	VSS 4	AL26
A37	VSS 5	AL29
A4	VSS 6	AL33
A45	VSS 7	AL38
A46	VSS 8	AM1
A47	VSS 9	AM18
A48	VSS 10	AM2
A5	VSS 11	AM9
A8	VSS 12	AN12
AA19	VSS 13	AN16
AA30	VSS 14	AN34
AA25	VSS 15	AN38
AA27	VSS 16	AP4
AA30	VSS 17	AP46
AA35	VSS 18	AR2
AA31	VSS 19	AR12
AA49	VSS 20	AR16
AA5	VSS 21	AR34
AB19	VSS 22	AR38
AB25	VSS 23	AT1
AB31	VSS 24	AT18
AC12	VSS 25	AT18
AC17	VSS 26	AT21
AC33	VSS 27	AT24
AC38	VSS 28	AT26
AC1	VSS 29	AT29
AC46	VSS 30	AT32
AD1	VSS 31	AT44
AD2	VSS 32	AT45
AD22	VSS 33	AV11
AD25	VSS 34	AW10
AD49	VSS 35	AW1
AE12	VSS 36	AW10
AE33	VSS 37	AW46
AE38	VSS 38	B4
AE1	VSS 39	B46
AE46	VSS 40	B49
AF22	VSS 41	B4
AF25	VSS 42	BA14
AF28	VSS 43	BA44
AG1	VSS 44	BA5
AG22	VSS 45	BA6
AG23	VSS 46	BB41
AG25	VSS 47	BB43
AG27	VSS 48	BB9
AG28	VSS 49	BC10
AG30	VSS 50	BC12
AG49	VSS 51	BC15
AH12	VSS 52	BC19
AH17	VSS 53	BC24
AH33	VSS 54	BC26
AH38	VSS 55	BC31
AJ19	VSS 56	BC35
AJ20	VSS 57	BC40
AJ25	VSS 58	BC45
AJ27	VSS 59	BC5
AJ28	VSS 60	BD43
AJ30	VSS 61	BE44
AJ31	VSS 62	BF1
AK19	VSS 63	BF2
AK25	VSS 64	BF2
AK27	VSS 65	BF48
AK28	VSS 66	BF49
AK29	VSS 67	BF17
AK30	VSS 68	BG2
AK31	VSS 69	BG27
AK4	VSS 70	BG25
AK46	VSS 71	BG28
AK46	VSS 72	BG28



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Size	B	Sheet	22 of 74	Rev 1.0
Date:	Tuesday, March 20, 2018		Sheet	22 of 74

N17P-G1 GPIO

GPIO	I/O	ACTIVE	Function Description	I/O Termination
GPIO0	OUT	-	PWM Output to control NVVDD	
GPIO1	OUT	-	FB Enable for GC6 2.1	
GPIO2	IN	-	GPU wake signal for GC6 2.1	
GPIO3	OUT	-	PWM Output to control the SRAM power supply	
GPIO4	OUT	-	GPU power sequencing for GC6 2.1 --- 1V8_MAIN_EN	
GPIO5	IN	N/A	Active low Frame Lock	
GPIO6	OUT	-	Phase Shedding, NVVDD_PSI	
GPIO7	OUT	N/A	Panel Backlight enable	
GPIO8	OUT	-	Memory voltage Control	
GPIO9	I/O	-	Active Low Thermal Alert	
GPIO10	OUT	-	Memory VREF Control (100K pull Down)	
GPIO11	OUT	-	Panel Power enable	
GPIO12	IN	-	AC power detect or power supply overdraw input (10K pull High)	
GPIO13	OUT	N/A	LCD Panel Backlight Enable	
GPIO14	IN	N/A	Hot Plug Detect for IFPA	
GPIO15	IN	N/A	Hot Plug Detect for IFPB	
GPIO16	OUT	-	System side PCIe reset monitor	
GPIO17	IN	N/A	Hot Plug Detect for IFPD	
GPIO18	IN	N/A	Hot Plug Detect for IFPE	
GPIO19	OUT	N/A	3D Vision L/R Signal	
GPIO20	N/A	N/A	GC5_MODE	
GPIO21	I/O	N/A	UNUSED	
GPIO22	I/O	N/A	UNUSED	
GPIO23	OUT	-	GPU PCIe self-reset control	
GPIO24	IN	N/A	Hot Plug Detect for IFPF	
GPIO25	N/A	N/A	UNUSED	
GPIO26	N/A	N/A	UNUSED	
GPIO27	IN	N/A	Hot Plug Detect for IFPC	

STRAP2	STRAP1	STRAP0	RAMCFG[4:0]
L	L	L	0000
L	H	L	0001
L	H	H	00011
H	H	L	00110
H	H	H	00111

H=High: Tied to 1.8V
M=Middle: Tied to 0.9V
L=Low: Tied to 0V

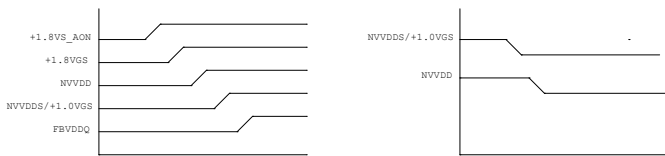
ROM_SO	ROM_SI	ROM_SCLK	SOR_EXPOSED[3:0]
L	L	L	1111 DEFAULT
L	L	H	1110
L	H	L	1101
L	H	H	1100
H	L	L	1011
H	L	H	1010
H	H	L	1001
H	H	H	1000
L	L	M	0111
L	M	L	0110
L	M	H	0101
L	H	M	0100
H	L	M	0011
H	M	L	0010
H	M	H	0001
H	H	M	0000

1=ENABLE 0=DISABLE
SOR0/1/2/3 ENABLE

STRAP5	STRAP4	STRAP3	SMB_ALT_ADDR	DEVID_SEL	PCIIE_CFG	VGA_DEVICE
M	H	H	1	1	1	1
M	H	L	1	1	1	0
M	L	H	1	1	0	1
M	L	L	1	1	0	0
L	H	M	1	0	1	1
L	M	H	1	0	1	0
L	M	L	1	0	0	1
L	L	M	1	0	0	0
H	H	H	0	1	1	1
H	H	L	0	1	1	0
H	L	H	0	1	0	1
H	L	L	0	1	0	0
L	H	H	0	0	1	1
L	H	L	0	0	1	0
L	H	L	0	0	0	1
L	L	L	0	0	0	0

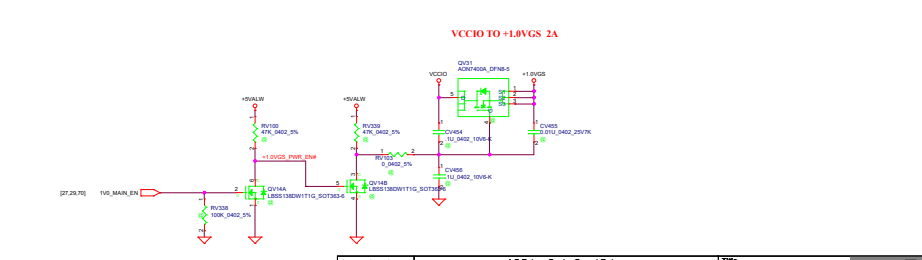
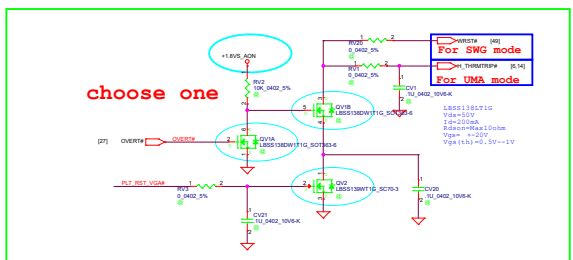
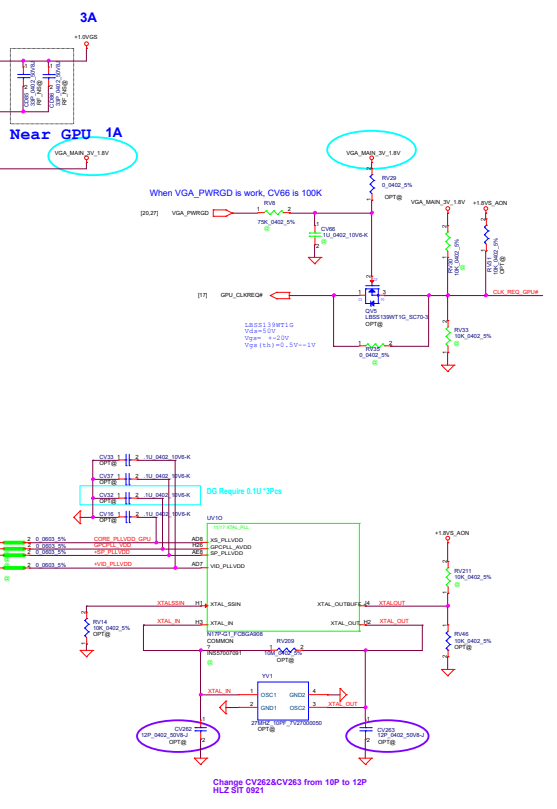
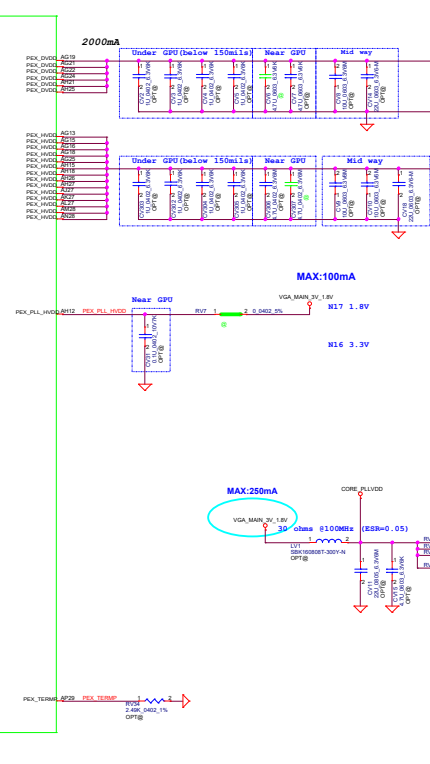
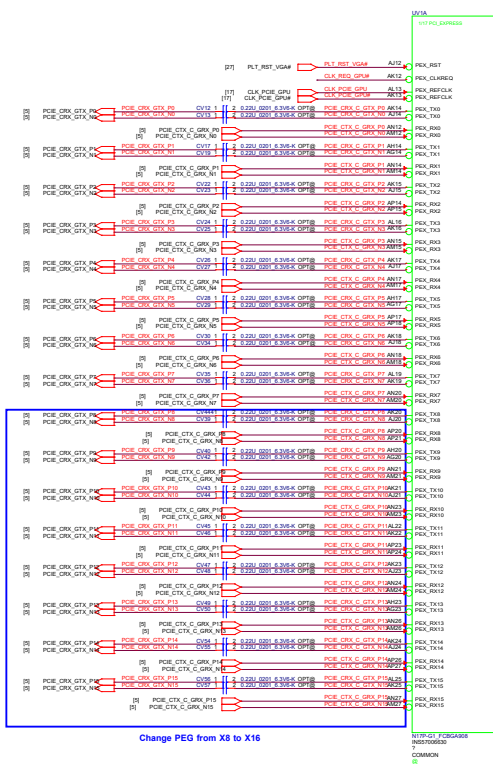
1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE
1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGINAL
1:PCIIE_CFG LOW POWER
0:PCIIE_CFG HIGH POWER
1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE

N17P-G1 Power Sequence

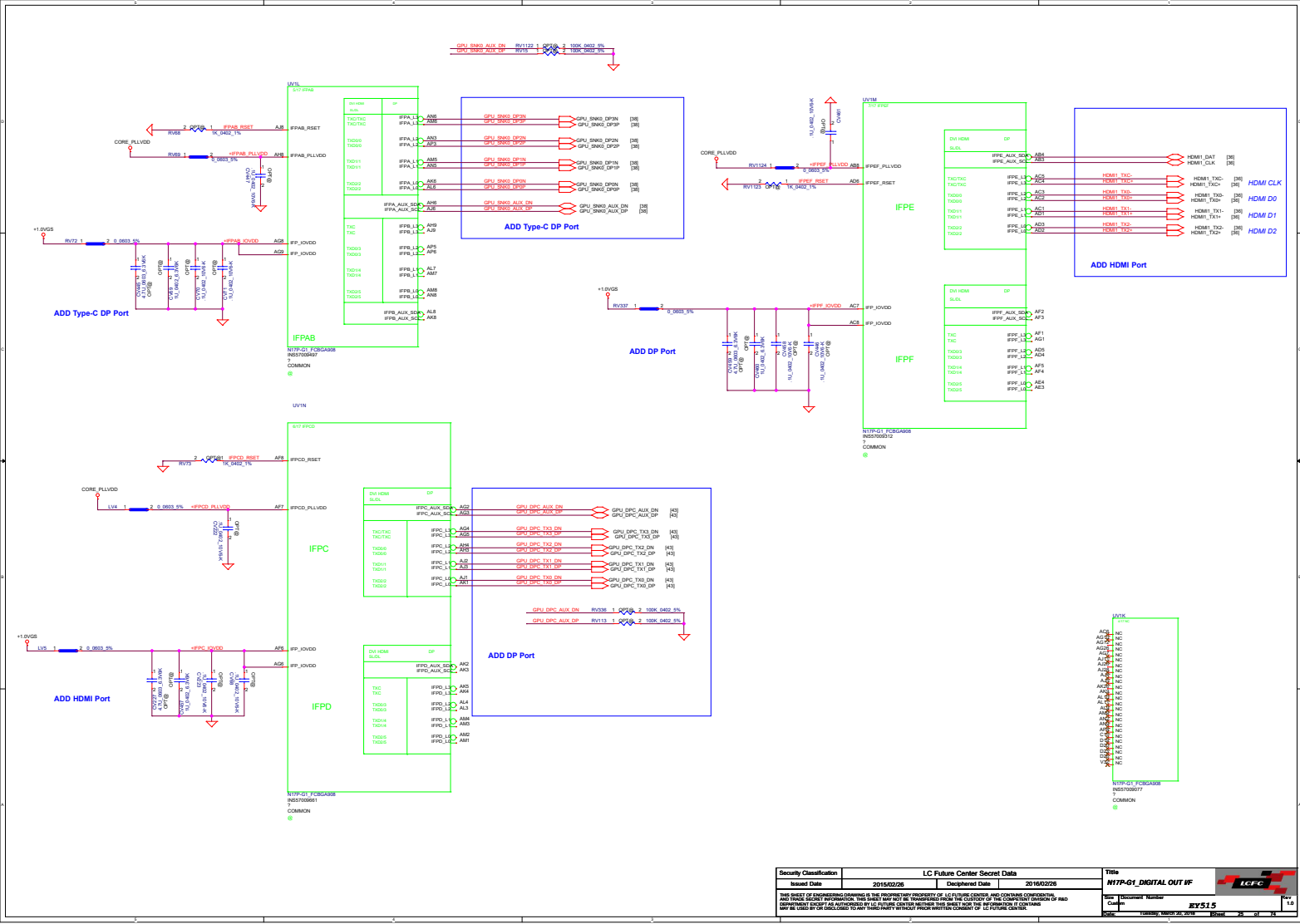


- All power rail ramp up time should be larger than 40us and is recommended to be less than 2ms.
- V (from 1V8_MAIN_EN to PEK_DVDD/NVVDD_Pgood) must NOT exceed 5ms.
- All 3.3V devices that connect to the GPU must be powered after 1V8_AON; GPU can NOT have any 3.3V leakage path before 1V8_AON present.
- The previous power rail must ramp up to 90% before the next power rail can start ramping up.

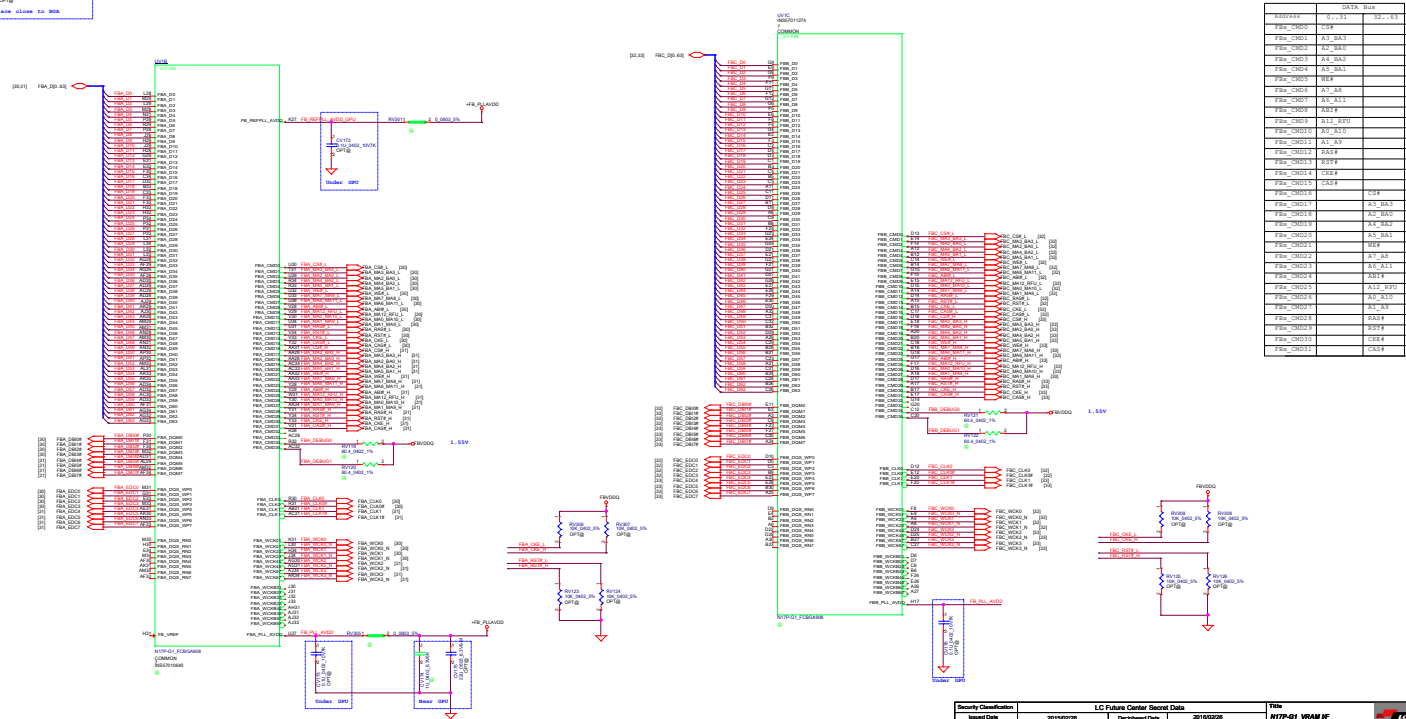
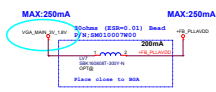
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Rev	Document Number	Rev	1.0
1.0	51515	1.0	
DATE	Thursday, March 20, 2015	ISSUED	23 of 24



Security Classification	LC Future Center Secret Data	Date	Rev
Issued Date	20160226	Deciphered Date	2016/02/26
Title		N77-G1_PEG_1F	
Revision		1.0	
Drawn		REV 1.0	

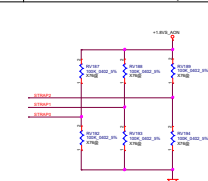
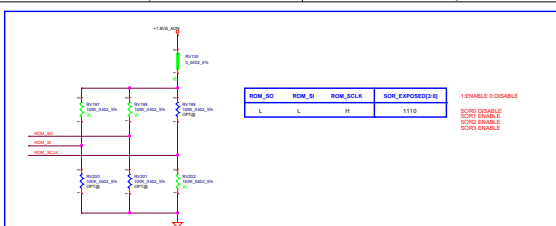
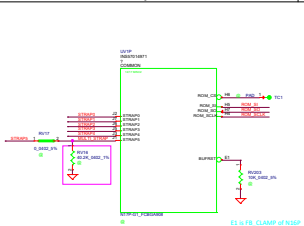


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Doc No	Doc Rev	Doc Date	Doc Rev	Rev
7				1.1
Doc No	Doc Rev	Doc Date	Doc Rev	Rev
7				1.1

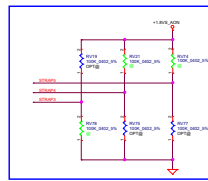
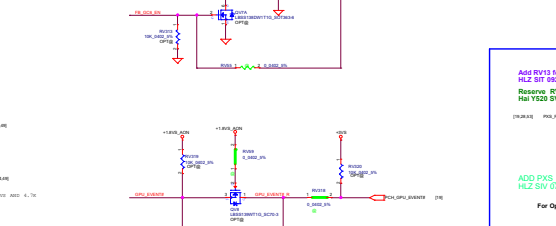
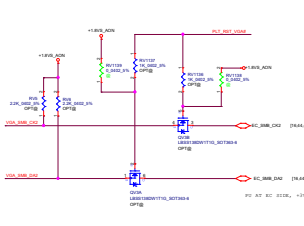


**QDDR5
Mode II - Mirror Mode Mapping**

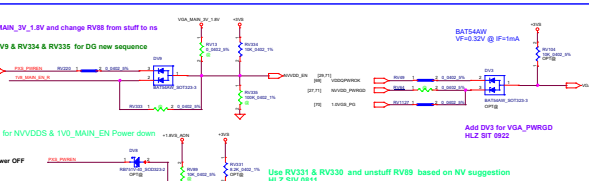
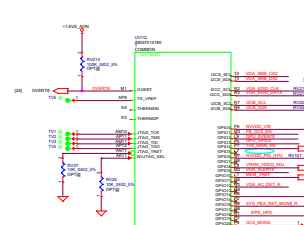
QDDR5	DATA Bus
QDDR5[0]	Q[0]
QDDR5[1]	Q[1]
QDDR5[2]	Q[2]
QDDR5[3]	Q[3]
QDDR5[4]	Q[4]
QDDR5[5]	Q[5]
QDDR5[6]	Q[6]
QDDR5[7]	Q[7]
QDDR5[8]	Q[8]
QDDR5[9]	Q[9]
QDDR5[10]	Q[10]
QDDR5[11]	Q[11]
QDDR5[12]	Q[12]
QDDR5[13]	Q[13]
QDDR5[14]	Q[14]
QDDR5[15]	Q[15]
QDDR5[16]	Q[16]
QDDR5[17]	Q[17]
QDDR5[18]	Q[18]
QDDR5[19]	Q[19]
QDDR5[20]	Q[20]
QDDR5[21]	Q[21]
QDDR5[22]	Q[22]
QDDR5[23]	Q[23]
QDDR5[24]	Q[24]
QDDR5[25]	Q[25]
QDDR5[26]	Q[26]
QDDR5[27]	Q[27]
QDDR5[28]	Q[28]
QDDR5[29]	Q[29]
QDDR5[30]	Q[30]
QDDR5[31]	Q[31]
QDDR5[32]	Q[32]
QDDR5[33]	Q[33]
QDDR5[34]	Q[34]
QDDR5[35]	Q[35]
QDDR5[36]	Q[36]
QDDR5[37]	Q[37]
QDDR5[38]	Q[38]
QDDR5[39]	Q[39]
QDDR5[40]	Q[40]
QDDR5[41]	Q[41]
QDDR5[42]	Q[42]
QDDR5[43]	Q[43]
QDDR5[44]	Q[44]
QDDR5[45]	Q[45]
QDDR5[46]	Q[46]
QDDR5[47]	Q[47]
QDDR5[48]	Q[48]
QDDR5[49]	Q[49]
QDDR5[50]	Q[50]
QDDR5[51]	Q[51]
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QDDR5[64]	Q[64]
QDDR5[65]	Q[65]
QDDR5[66]	Q[66]
QDDR5[67]	Q[67]
QDDR5[68]	Q[68]
QDDR5[69]	Q[69]
QDDR5[70]	Q[70]
QDDR5[71]	Q[71]
QDDR5[72]	Q[72]
QDDR5[73]	Q[73]
QDDR5[74]	Q[74]
QDDR5[75]	Q[75]
QDDR5[76]	Q[76]
QDDR5[77]	Q[77]
QDDR5[78]	Q[78]
QDDR5[79]	Q[79]
QDDR5[80]	Q[80]
QDDR5[81]	Q[81]
QDDR5[82]	Q[82]
QDDR5[83]	Q[83]
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QDDR5[91]	Q[91]
QDDR5[92]	Q[92]
QDDR5[93]	Q[93]
QDDR5[94]	Q[94]
QDDR5[95]	Q[95]
QDDR5[96]	Q[96]
QDDR5[97]	Q[97]
QDDR5[98]	Q[98]
QDDR5[99]	Q[99]



GPIO	IO Memory (0000)	GPIO[0:4] Pin	STRAP2	STRAP1	STRAP0
Strapping 4b0	0x00000000	0 (0x000000)	L	L	L
Strapping 4b1	0x00000001	1 (0x000001)	L	L	L
Strapping 4b2	0x00000002	2 (0x000002)	L	L	L
Strapping 4b3	0x00000003	3 (0x000003)	L	L	L



STRAP4	STRAP4	STRAP3	STRAP2	STRAP1	STRAP0
L	L	H	D	D	D



Add RV13 for VGA_MAIN_3V_1.8V and change RV88 from stuff to ns
HLZ BIT 0802

Reserve RV331 & DV9 & RV334 & RV335 for DG new sequence
HLZ BIT 0802

ADD PXS PWREN for NVVDD5 & 1V0_MAIN_EN Power down
HLZ BIT 0725

For Optima Power OFF

For GCE Power OFF

For Power On:

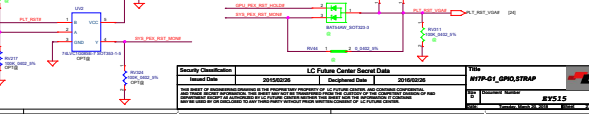
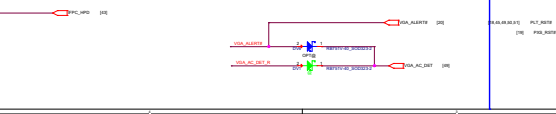
Delete RV40 & RV97 (ohm) & RV54 (ns)
HLZ BIT 0725

Delete RV96(ns)
HLZ BIT 0822

ADD DNG for VGA_PWROD
HLZ BIT 0822

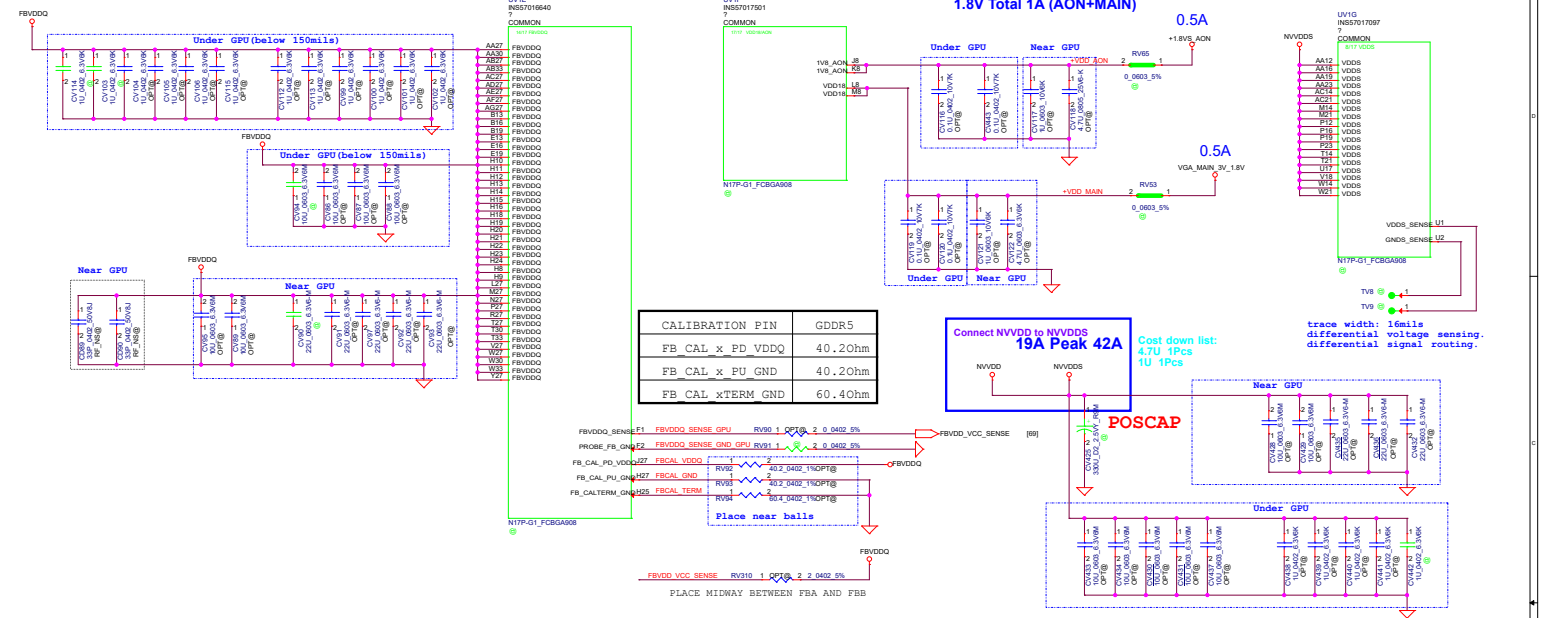
Use RV331 & RV330 and unstuff RV88 based on NV suggestion
HLZ BIT 0811

Security Classification: LC Future Center Secret Data
Rev: 20150228
Doc: 20150228
Rev: 20150228
Doc: 20150228



Security Classification	LC Future Center Secret Data	Rev	20150228
Doc	20150228	Doc	20150228
Rev	20150228	Doc	20150228
Doc	20150228	Doc	20150228

5A Peak 8A



CALIBRATION PIN	GDDR5
FB CAL x PD VDDQ	40.2Ohm
FB CAL x PU GND	40.2Ohm
FB CAL x TERM GND	60.4Ohm

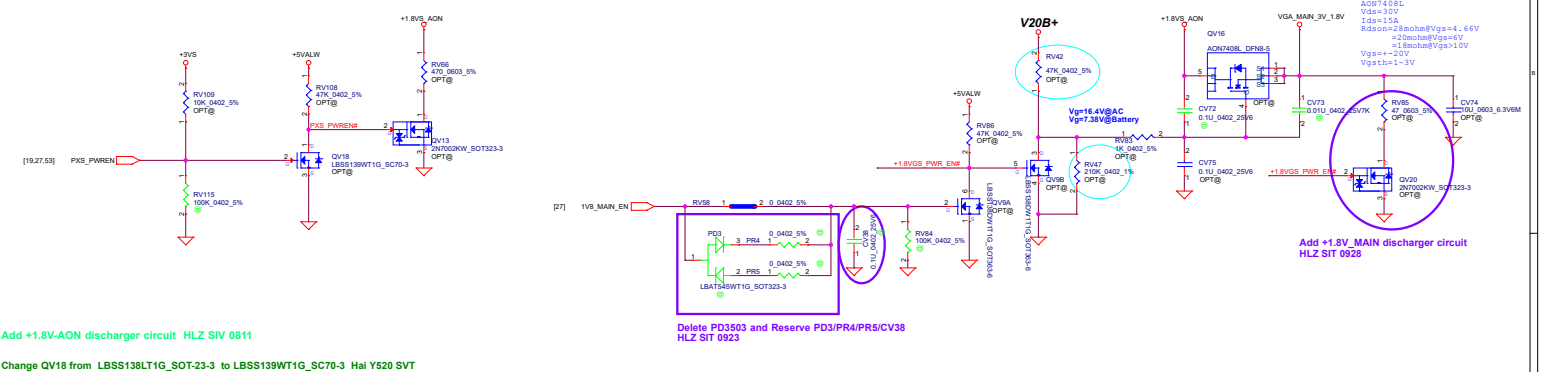
FEVDDQ_SENSE_F1 FEVDDQ_SENSE_GPU RV99 1 0.0402 5%
 FEVDDQ_SENSE_F2 FEVDDQ_SENSE_GND_GPU RV99 1 2.0 0.0402 5%
 FB_CAL_PU_VDDQ_F1 FBICAL_VDDQ RV99 1 402.0402 1%OPT®
 FB_CAL_PU_GND_F1 FBICAL_GND RV99 1 402.0402 1%OPT®
 FB_CAL_TERM_GND_F1 FBICAL_TERM RV99 1 604.0402 1%OPT®

Place near balls

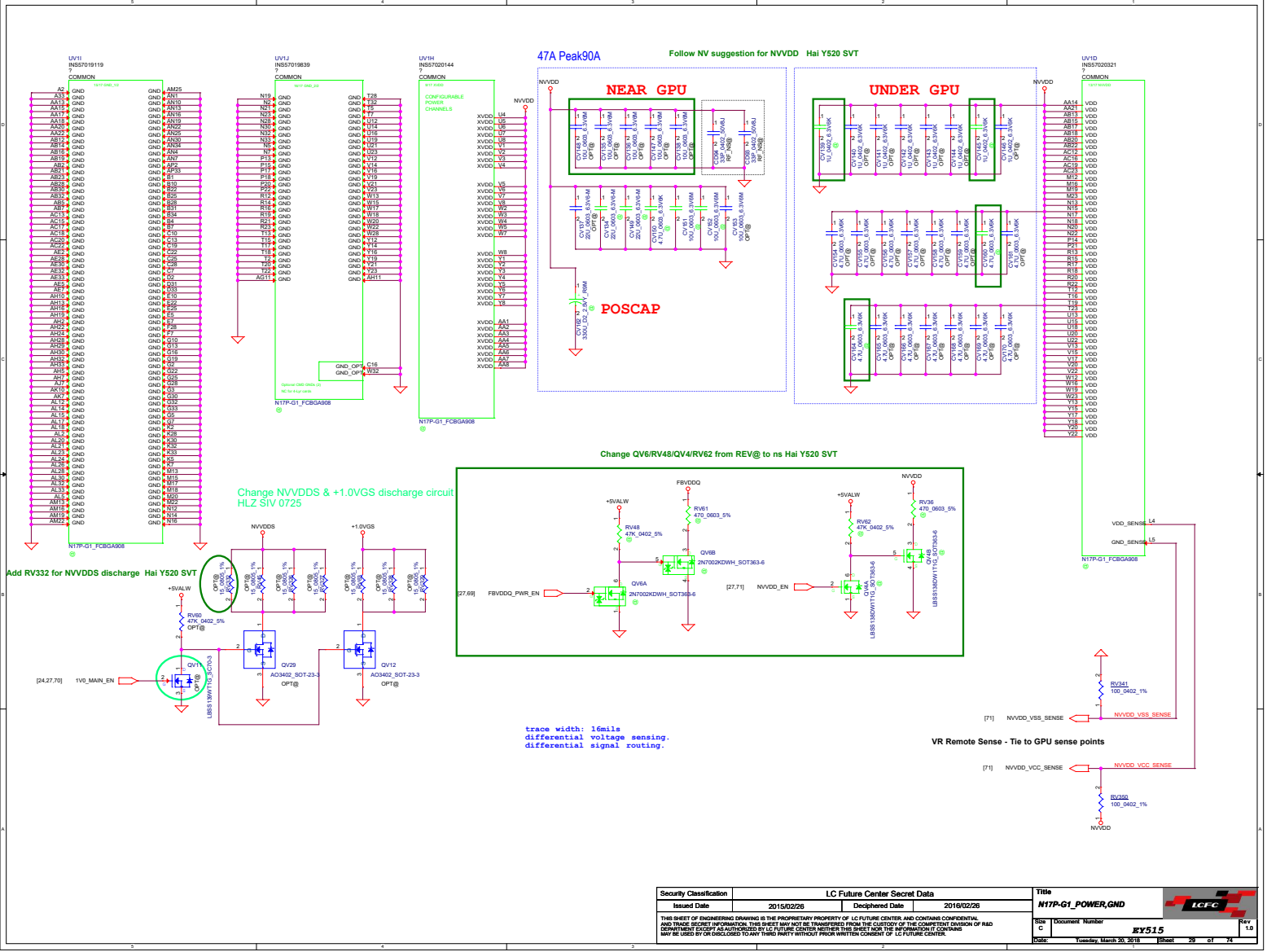
FEVDDQ_VCC_SENSE RV99 1 0.0402 5%
 PLACE MIDWAY BETWEEN FBA AND FBB

Connect NVVDD to NVVDD5
19A Peak 42A
 Cost down list:
 4.7U 1Pcs
 1U 1Pcs

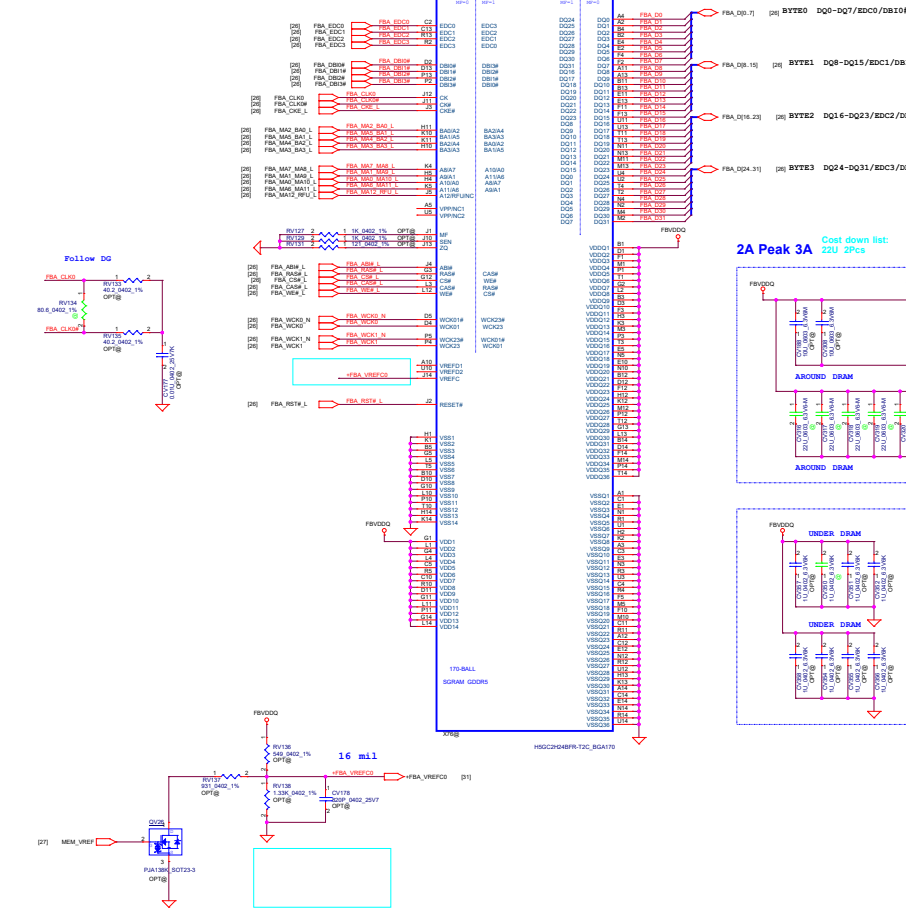
trace width: 1emils
 differential voltage sensing.
 differential signal routing.



Add +1.8V-AON discharger circuit. HZL SIV 0811
 Change QV18 from LBSS138LT1G_SOT-23-3 to LBSS139WT1G_SC70-3 Hai Y520 SVT



Memory Partition A - Lower 64 bits (MF=0)



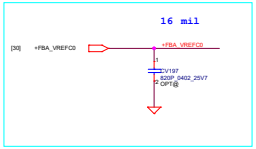
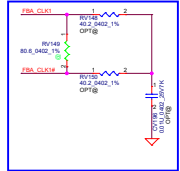
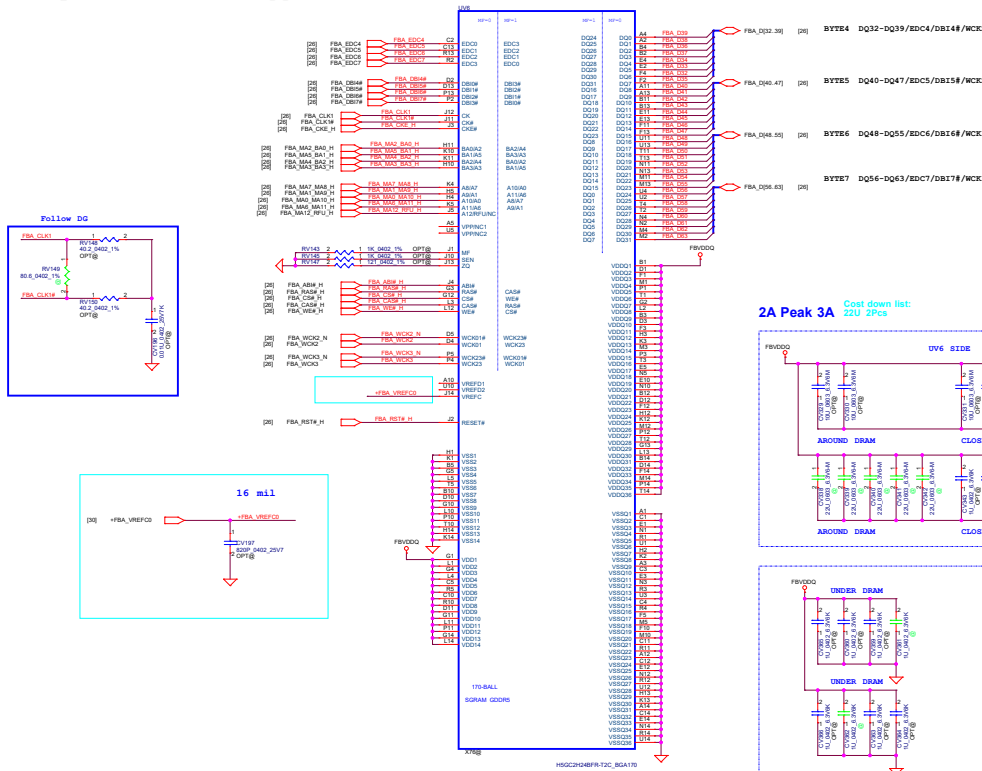
2A Peak 3A Cost down list:
22U 2Pcs

GDDR5 Mode H - Mirror Mode Mapping

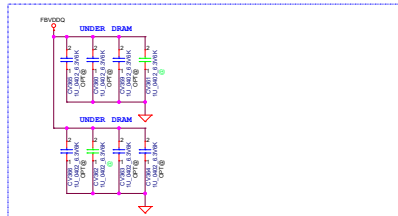
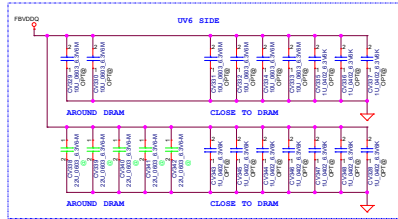
ADDRESS	DATA BUS
FBx_CHD0	CS#
FBx_CHD1	A3_BA3
FBx_CHD2	A3_BA0
FBx_CHD3	A4_BA2
FBx_CHD4	A3_BA2
FBx_CHD5	WE#
FBx_CHD6	A7_A8
FBx_CHD7	A8_A11
FBx_CHD8	ABIF
FBx_CHD9	A12_RFU
FBx_CHD10	A9_A10
FBx_CHD11	A1_A8
FBx_CHD12	RA#
FBx_CHD13	REF#
FBx_CHD14	CAS#
FBx_CHD15	CS#
FBx_CHD17	A3_BA3
FBx_CHD18	A2_BA0
FBx_CHD19	A4_BA2
FBx_CHD20	A3_BA2
FBx_CHD21	WE#
FBx_CHD22	A7_A8
FBx_CHD23	A8_A11
FBx_CHD24	ABIF
FBx_CHD25	A12_RFU
FBx_CHD26	A9_A10
FBx_CHD27	A1_A8
FBx_CHD28	RA#
FBx_CHD29	REF#
FBx_CHD30	CAS#
FBx_CHD31	CAS#

Security Classification	LC Future Center Secret Data	Title	H17P-01_VRAM A Lower
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177-01	177-01	1.0	1.0

Memory Partition A- Upper 64 bits (MF=0)



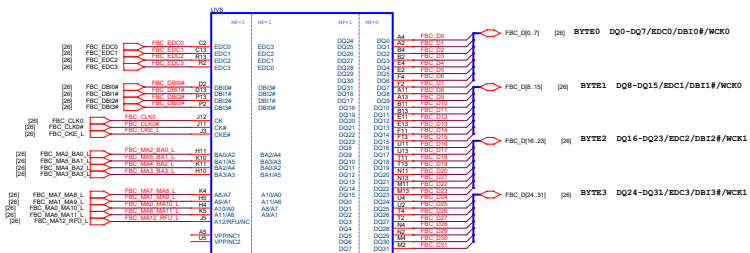
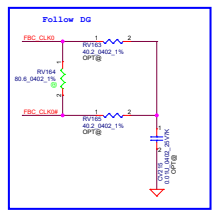
2A Peak 3A Cost down list:
22U 2Pcs



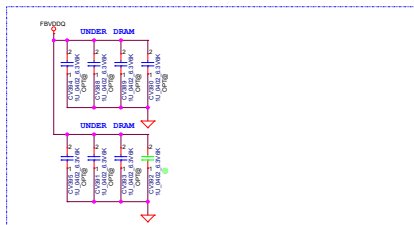
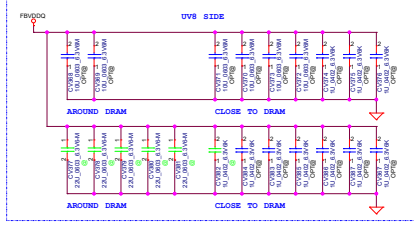
GDDR5 Mode H - Mirror Mode Mapping

Address	U...A1	A2...A5
Fbx_CMD0	CS#	
Fbx_CMD1	A3_BA3	
Fbx_CMD2	A3_BA0	
Fbx_CMD3	A4_BA2	
Fbx_CMD4	A3_BA1	
Fbx_CMD5	WE#	
Fbx_CMD6	A1_A8	
Fbx_CMD7	A6_A11	
Fbx_CMD8	AB1#	
Fbx_CMD9	A12_RFU	
Fbx_CMD10	A4_A10	
Fbx_CMD11	A1_A9	
Fbx_CMD12	RAS#	
Fbx_CMD13	KE#	
Fbx_CMD14	CRE#	
Fbx_CMD15	CAS#	
Fbx_CMD16	CS#	
Fbx_CMD17	A3_BA3	
Fbx_CMD18	A3_BA0	
Fbx_CMD19	A4_BA2	
Fbx_CMD20	A3_BA1	
Fbx_CMD21	WE#	
Fbx_CMD22	A1_A8	
Fbx_CMD23	A6_A11	
Fbx_CMD24	AB1#	
Fbx_CMD25	A12_RFU	
Fbx_CMD26	A4_A10	
Fbx_CMD27	A1_A9	
Fbx_CMD28	RAS#	
Fbx_CMD29	KE#	
Fbx_CMD30	CRE#	
Fbx_CMD31	CAS#	

Memory Partition B - Lower 32 bits(MF=0)

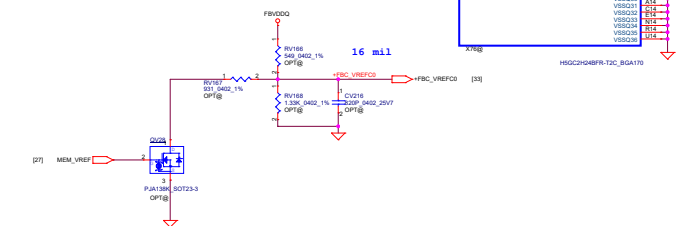


2A Peak 3A Cost down list 22U 2Pcs



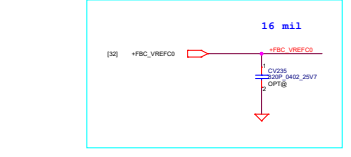
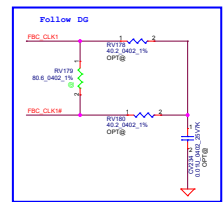
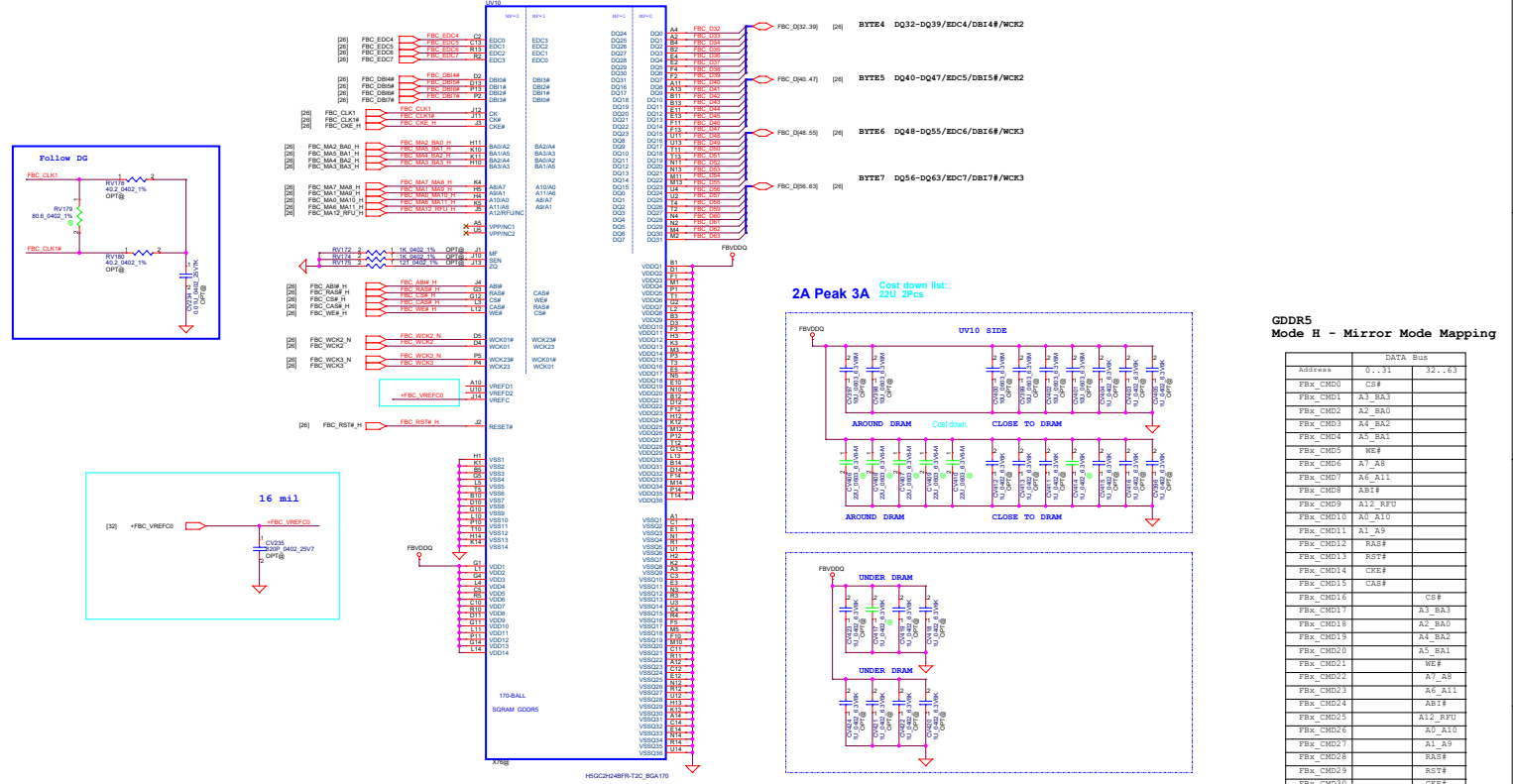
GDDR5 Mode H - Mirror Mode Mapping

Address	DATA Bus
0...31	32...63
FXM_CMD0	CS#
FXM_CMD1	A1_BA3
FXM_CMD2	A2_BA0
FXM_CMD3	A4_BA2
FXM_CMD4	A3_BA1
FXM_CMD5	WE#
FXM_CMD6	A7_A8
FXM_CMD7	A6_A11
FXM_CMD8	ABT#
FXM_CMD9	A12_RFU
FXM_CMD10	A9_A10
FXM_CMD11	A1_A9
FXM_CMD12	RAS#
FXM_CMD13	RES#
FXM_CMD14	CRE#
FXM_CMD15	CAS#
FXM_CMD16	CS#
FXM_CMD17	A1_BA3
FXM_CMD18	A2_BA0
FXM_CMD19	A4_BA2
FXM_CMD20	A3_BA1
FXM_CMD21	WE#
FXM_CMD22	A7_A8
FXM_CMD23	A6_A11
FXM_CMD24	ABT#
FXM_CMD25	A12_RFU
FXM_CMD26	A9_A10
FXM_CMD27	A1_A9
FXM_CMD28	RAS#
FXM_CMD29	RES#
FXM_CMD30	CRE#
FXM_CMD31	CAS#



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Memory Partition B - Upper 32 bits (MF=0)

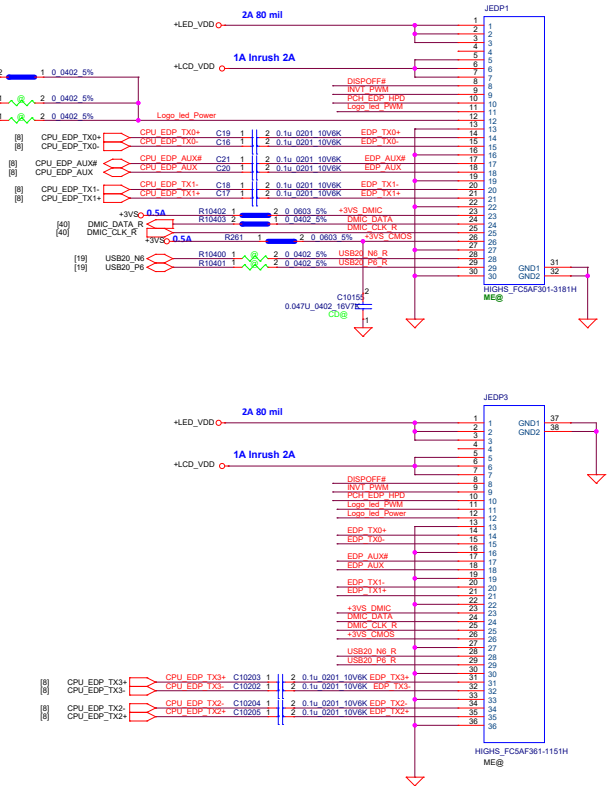
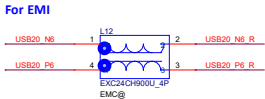
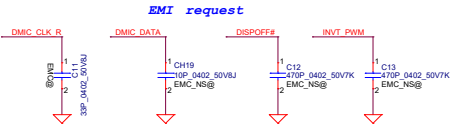
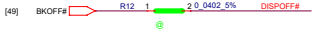
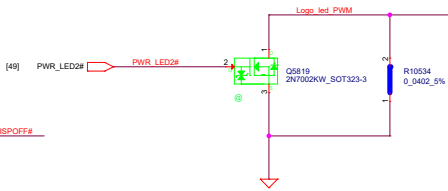
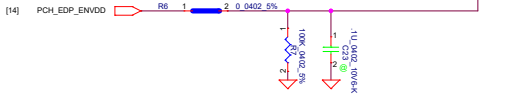
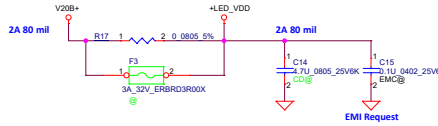
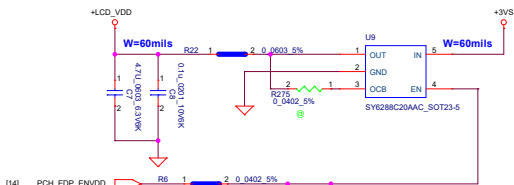


GDDR5 Mode H - Mirror Mode Mapping

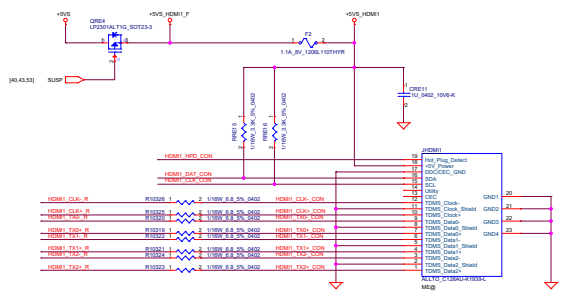
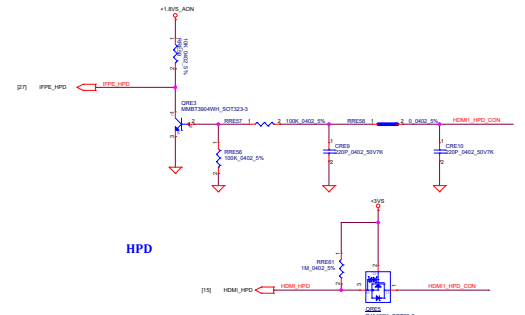
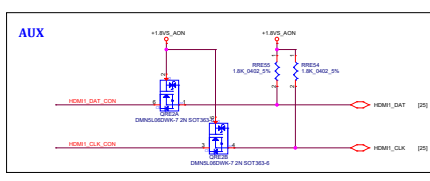
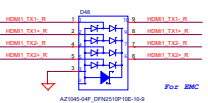
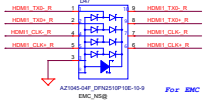
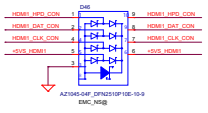
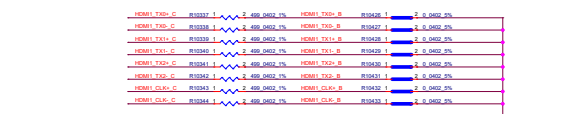
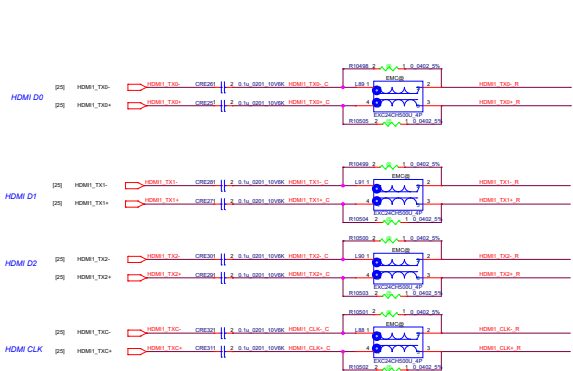
Address	DATA Bus
FBx_CMD0	CS#
FBx_CMD1	A3_BA3
FBx_CMD2	A2_BA0
FBx_CMD3	A4_S3
FBx_CMD4	A5_BA1
FBx_CMD5	WE#
FBx_CMD6	A1_A8
FBx_CMD7	A6_A11
FBx_CMD8	AB#
FBx_CMD9	A12_RFU
FBx_CMD10	A0_A10
FBx_CMD11	A1_A9
FBx_CMD12	RAS#
FBx_CMD13	RST#
FBx_CMD14	CRE#
FBx_CMD15	CAS#
FBx_CMD16	CS#
FBx_CMD17	A3_BA3
FBx_CMD18	A2_BA0
FBx_CMD19	A4_BA4
FBx_CMD20	A5_BA1
FBx_CMD21	WE#
FBx_CMD22	A1_A8
FBx_CMD23	A6_A11
FBx_CMD24	AB#
FBx_CMD25	A12_RFU
FBx_CMD26	A0_A10
FBx_CMD27	A1_A9
FBx_CMD28	RAS#
FBx_CMD29	RST#
FBx_CMD30	CRE#
FBx_CMD31	CAS#

Security Classification	L-1 Public Center Social Data	Title	HTFP-01, WRAH B Upper
Issue Date	20160205	Disposal Date	20160205
<small>For more information, please refer to the document's metadata. For details on security classification, please refer to the document's metadata. For details on disposal, please refer to the document's metadata.</small>			
			HTFP-01, WRAH B Upper
			#9515

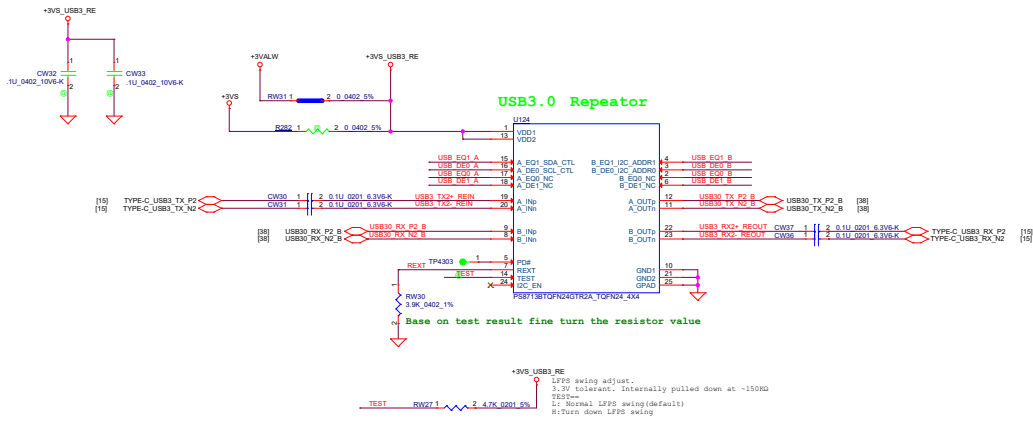
LCD POWER CIRCUIT



Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/02/26	Deciphered Date	2016/02/26	eDP/CMOS/Touch screen	
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Size	Document Number	Rev		1.0	
Count	87515	Date:		Tuesday, March 25, 2018 Sheet 35 of 74	



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Doc No	HDMI_CONN		Rev
Doc Title	HDMI_CONN		Rev
Doc No	Y00000_0000_0000	Doc Rev	00



USB 3.0 Repeater

Base on test result fine turn the resistor value

+3V5_USB3_RE
 IFFP swing adjust.
 3.3V tolerant. Internally pulled down at ~150K
 TEST= 1: Normal IFFP swing(default)
 0:Turn down IFFP swing

+3V5_USB3_RE
 Equalizer control and program for channel A
 3.3V tolerant. Internally pulled down at ~150K
 [A_SQ1, A_SQ2] =
 LH: program EQ for channel loss up to 9.5dB(default)
 HL: program EQ for channel loss up to 13dB
 HH: program EQ for channel loss up to 4.5dB
 HH: program EQ for channel loss up to 7.5dB

+3V5_USB3_RE
 USB EQ1 A RW19 1 2 4.7K 0201 5%
 USB EQ0 A RW20 1 2 4.7K 0201 5%
 USB EQ1 B RW23 1 2 4.7K 0201 5%
 USB EQ0 B RW24 1 2 4.7K 0201 5%

+3V5_USB3_RE
 Equalizer control and program for channel B
 3.3V tolerant. Internally pulled down at ~150K
 [B_SQ1, B_SQ2] =
 LH: program EQ for channel loss up to 9.5dB(default)
 HL: program EQ for channel loss up to 13dB
 HH: program EQ for channel loss up to 4.5dB
 HH: program EQ for channel loss up to 7.5dB

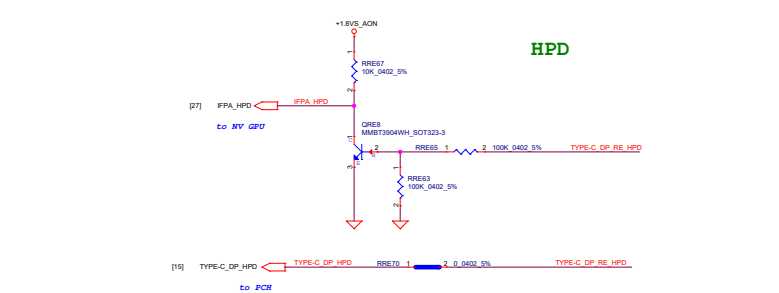
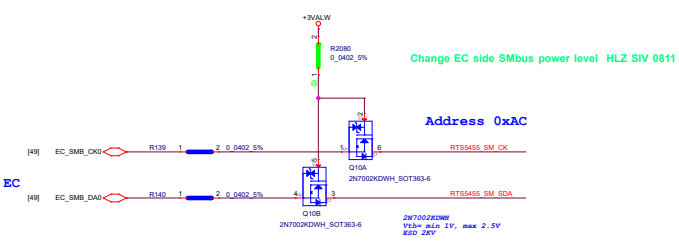
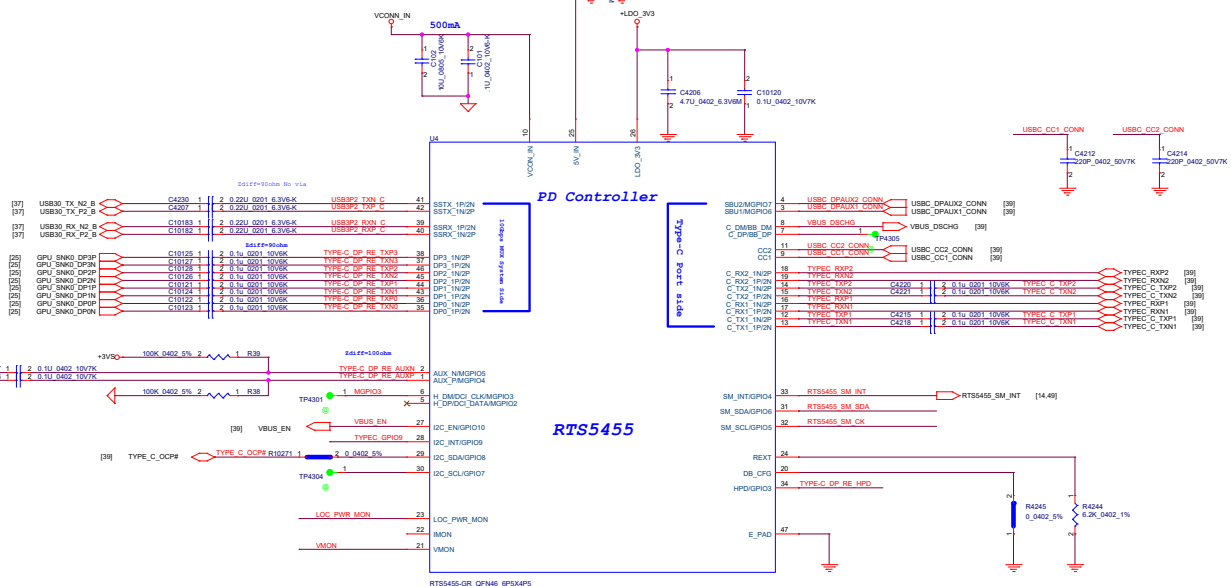
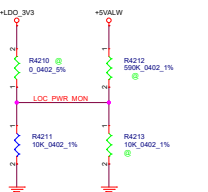
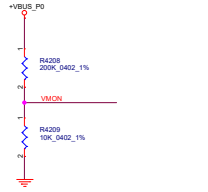
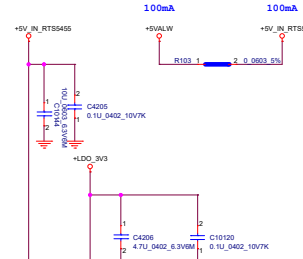
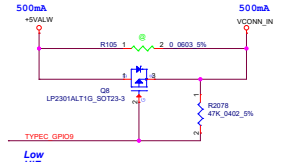
+3V5_USB3_RE
 Programmable output de-emphasis level setting for channel A
 3.3V tolerant. Internally pulled down at ~150K
 [A_DE1, A_DE0] =
 LH: 3.5dB de-emphasis (default)
 HL: 0dB de-emphasis
 HL: 2.7dB de-emphasis
 HL: 5dB de-emphasis

+3V5_USB3_RE
 USB DE0 A RW21 1 2 4.7K 0201 5%
 USB DE1 A RW22 1 2 4.7K 0201 5%
 USB DE0 B RW25 1 2 4.7K 0201 5%
 USB DE1 B RW26 1 2 4.7K 0201 5%

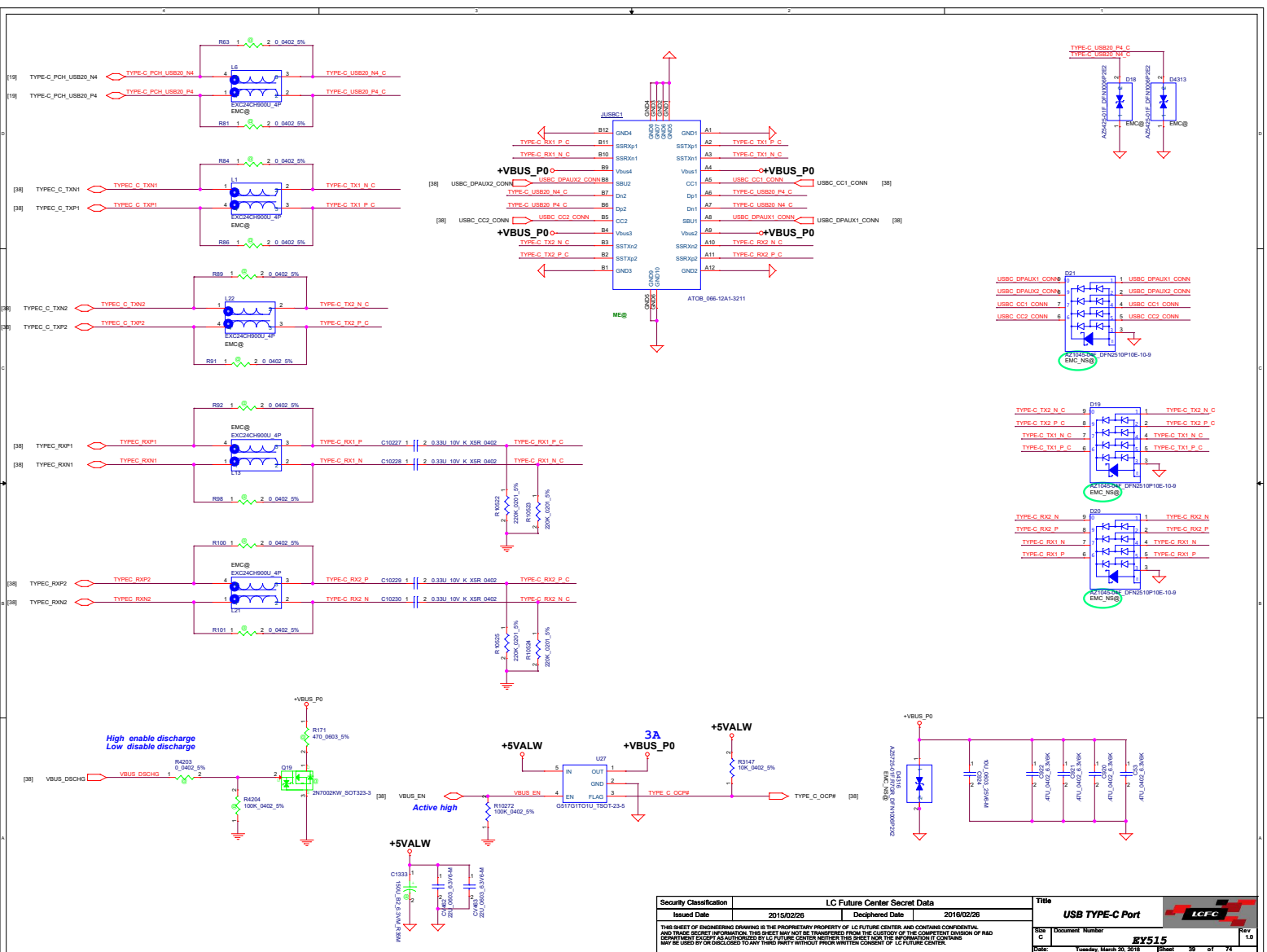
+3V5_USB3_RE
 Programmable output de-emphasis level setting for channel B
 3.3V tolerant. Internally pulled down at ~150K
 [B_DE1, B_DE0] =
 LH: 3.5dB de-emphasis (default)
 HL: 0dB de-emphasis
 HL: 2.7dB de-emphasis
 HL: 5dB de-emphasis

Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/02/26	Deciphered Date	2016/02/28	DDI Redriver PS8330	
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Size	C	Document Number	8515	Rev	1.0
Issue		Version	March 20, 2015	Sheet	37 of 74

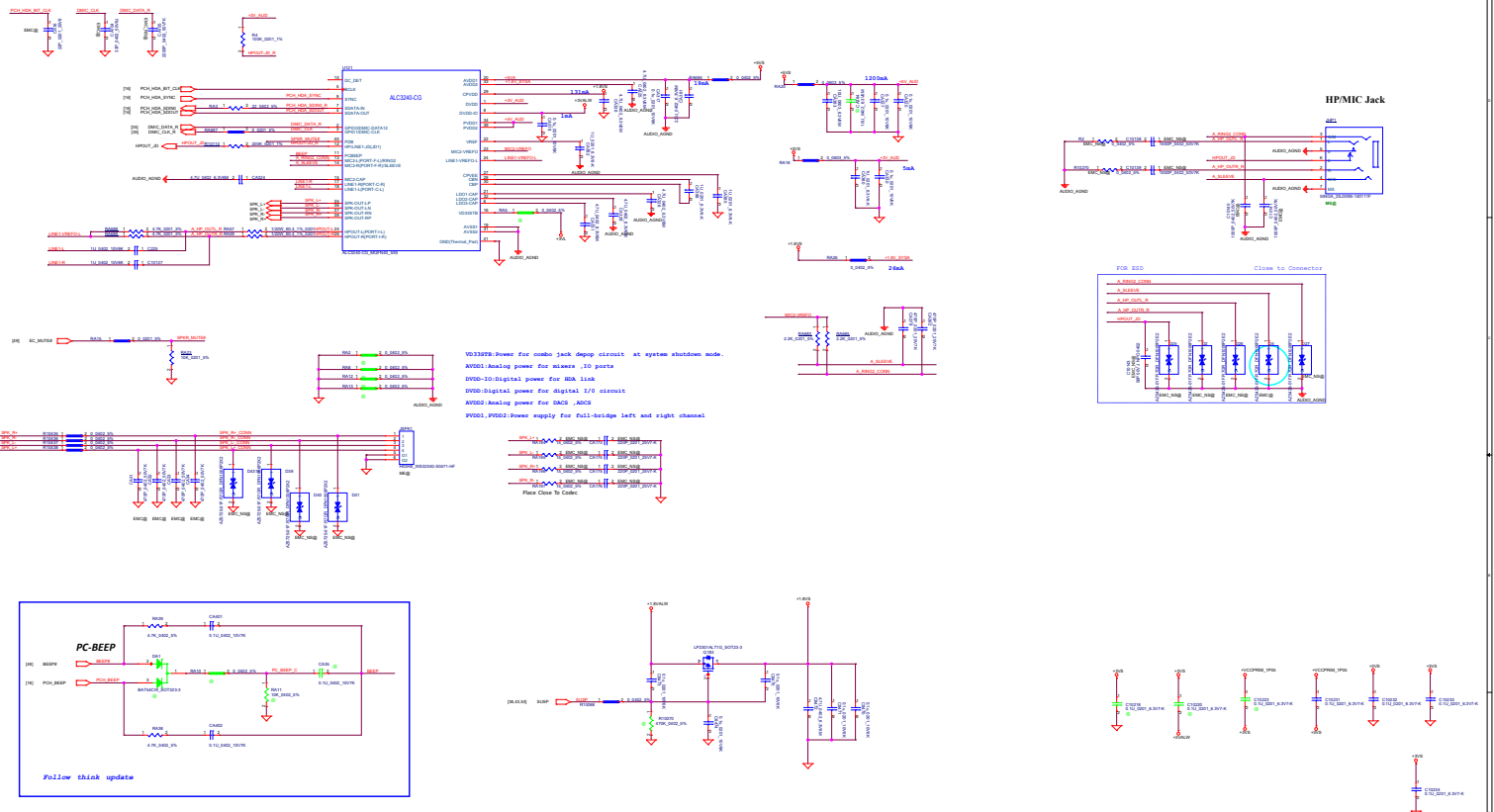
Slave Addr	Ra 1%	Rb 1%
addr0	NC	10K
addr1	54.9K	12.1K
addr2	27.4K	15.8K
addr3	18.2K	22.1K



Security Classification	LC Future Center Secret Data	Title	USB TYPE-C Controller
Issued Date	2015/02/26	Deciphered Date	2016/02/26
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Rev	1.0	Document Number	EY515
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Security Classification		LC Future Center Secret Data		Title	
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Doc. C	Document Number	EY515		Rev.	1.0
DATE:	Thursday, March 26, 2015	Sheet	39	of	74



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Size	C	Date	Wednesday, March 20 2018	Rev 1.0 Sheet 41 of 74

TABLE : CPU ITP DEBUG REPORT

	No use	Individual Port	DCI 2.0 w/o connector
R591	NO ASM	NO ASM	ASM
R593	NO ASM	NO ASM	ASM
R594	NO ASM	NO ASM	ASM
R595	NO ASM	NO ASM	ASM
R596	NO ASM	NO ASM	ASM
R657	NO ASM	NO ASM	ASM
R658	NO ASM	NO ASM	ASM
R102	NO ASM	ASM	NO ASM
R597	NO ASM	ASM	NO ASM
R9907	NO ASM	ASM	ASM
JXDP1	NO ASM	ASM	NO ASM
C70	NO ASM	ASM	NO ASM
R96	NO ASM	ASM	NO ASM
R101	NO ASM	ASM	NO ASM
R9909	NO ASM	ASM	ASM
R9910	NO ASM	ASM	ASM
R9916	NO ASM	ASM	ASM
R99	NO ASM	ASM	ASM
R9912	NO ASM	ASM	ASM
R9934	NO ASM	ASM	ASM
R9930	NO ASM	ASM	ASM
R9931	NO ASM	ASM	ASM
R9932	NO ASM	ASM	ASM
R9933	NO ASM	ASM	ASM

LOGIC

TABLE : PCH ITP DEBUG REPORT

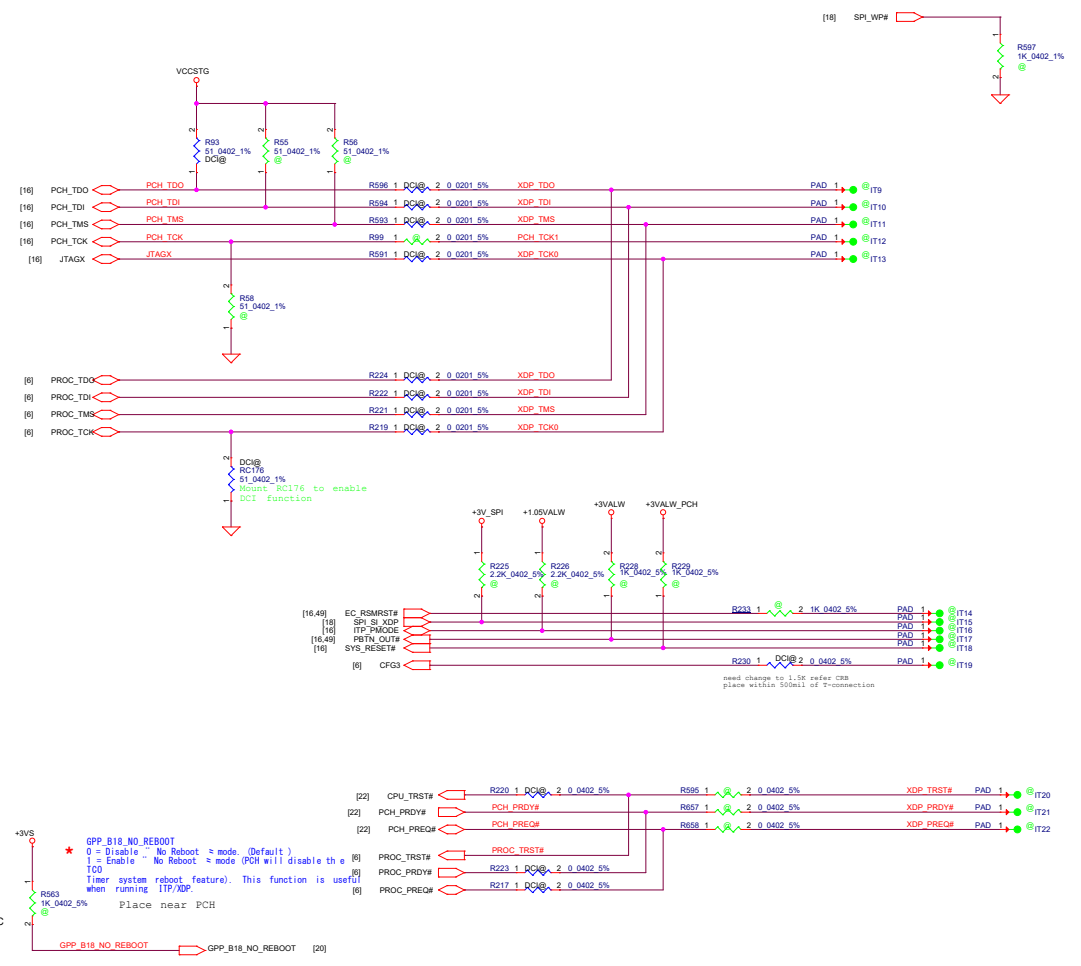
	No use	Individual Port	DCI 2.0 w/o connector
R93	NO ASM	ASM	NO ASM
JXDP1	NO ASM	ASM	NO ASM
R9917	NO ASM	ASM	NO ASM
R101	NO ASM	ASM	NO ASM
R9908	NO ASM	ASM	NO ASM
R9911	NO ASM	ASM	NO ASM
R9913	NO ASM	ASM	NO ASM
R9915	NO ASM	ASM	NO ASM

LOGIC

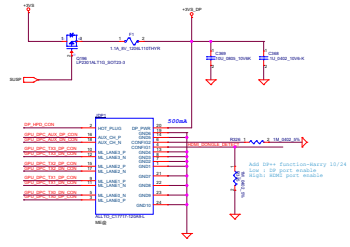
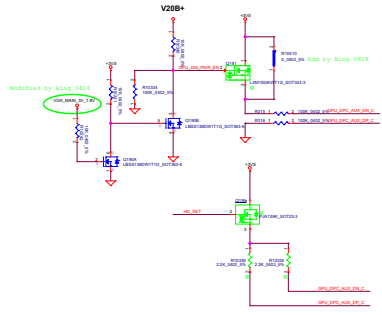
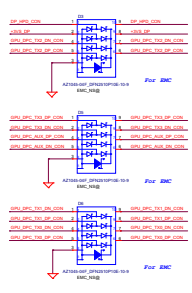
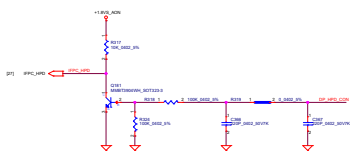
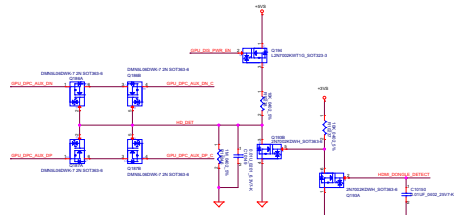
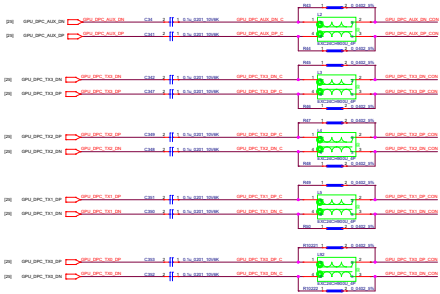
TABLE : Functional Strap

GPP_B18/GSPI0_MOSI (No Reboot)	R563
HIGH Enable "No Reboot" Mode	ASM
LOW Disable "No Reboot" Mode (Default)	NO ASM

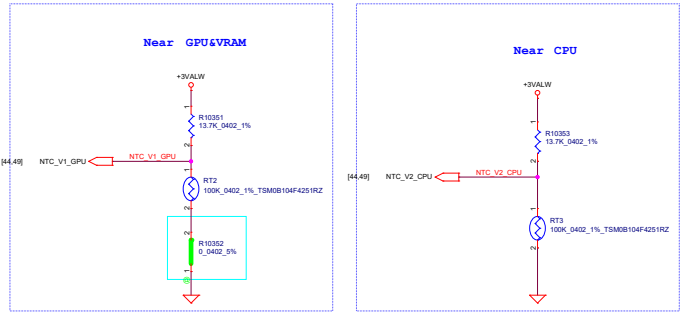
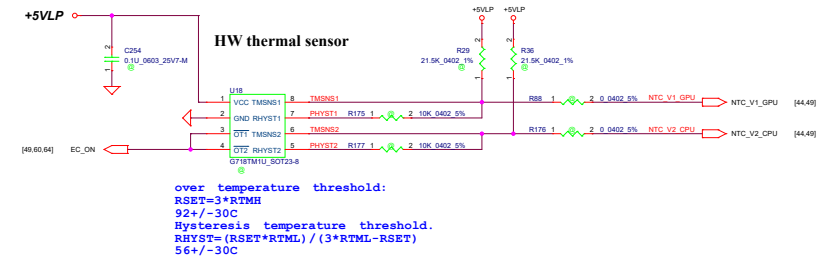
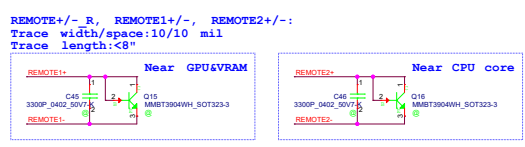
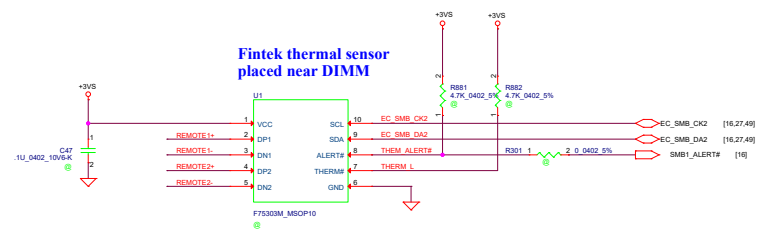
LOGIC



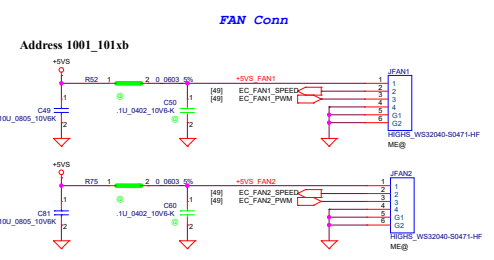
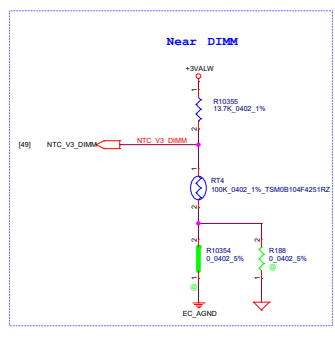
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Issued Date	2015/02/26	Deciphered Date	2016/02/26
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Customer	#515		
Date	Thursday, March 26, 2016	Sheet	42 of 74



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Secret Date	20130808	20130808
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Doc No	87215	13
<small>ICFC</small>		

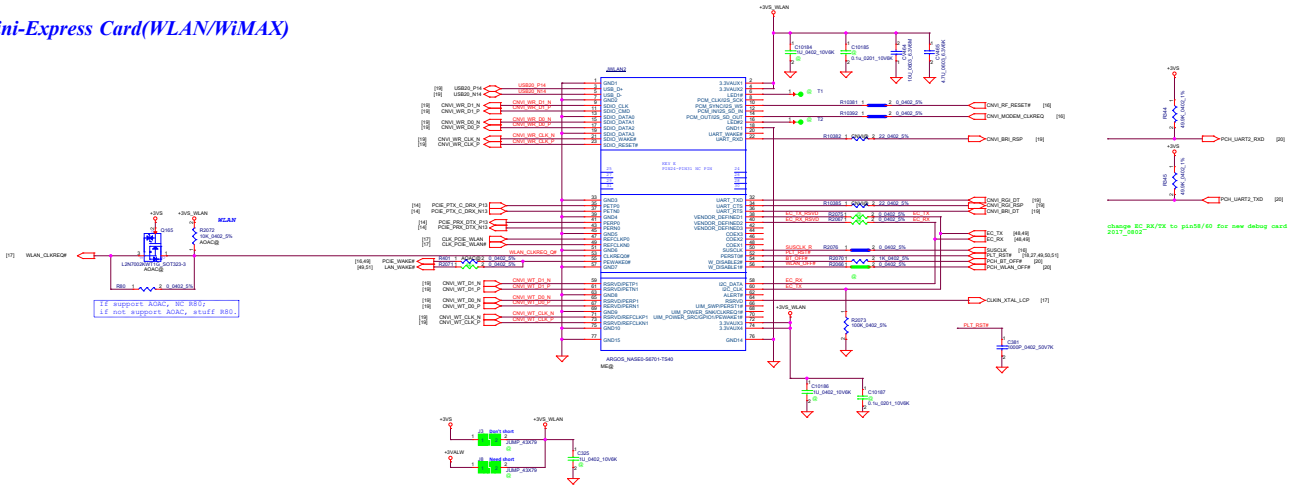


for layout optimized, change the EC_AGND to GND

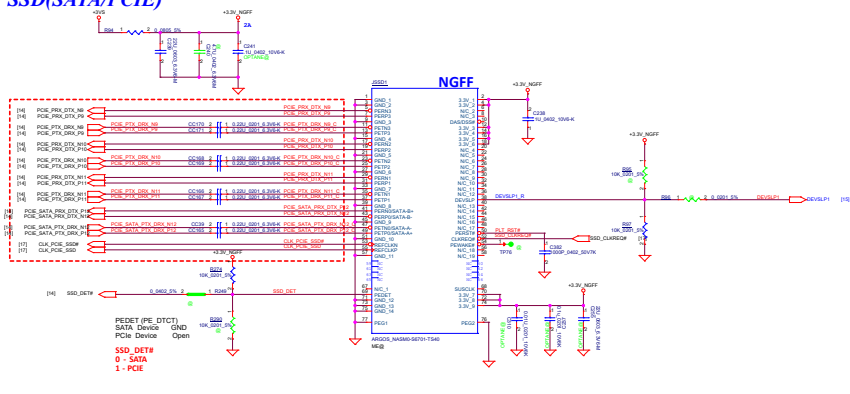


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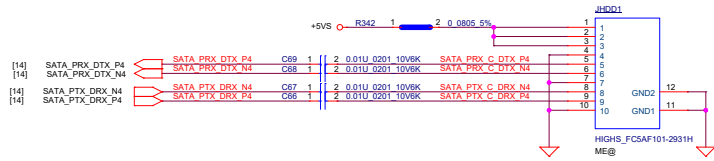
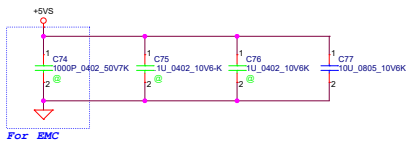
Mini-Express Card(WLAN/WiMAX)



M.2 SSD(SATA/PCIE)

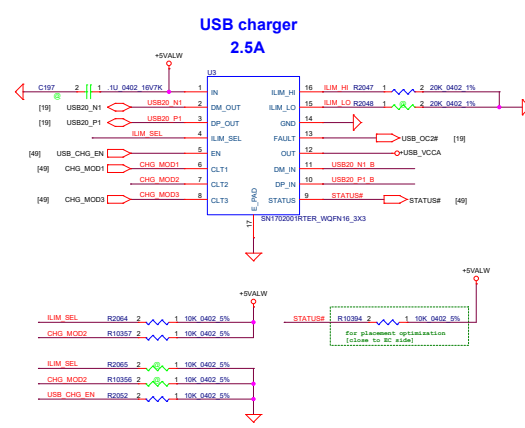
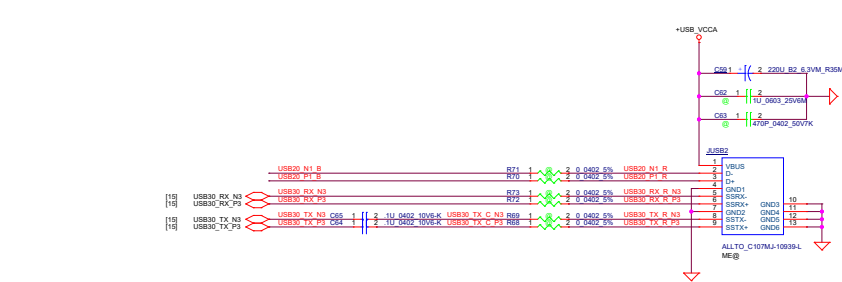
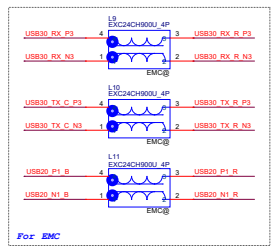
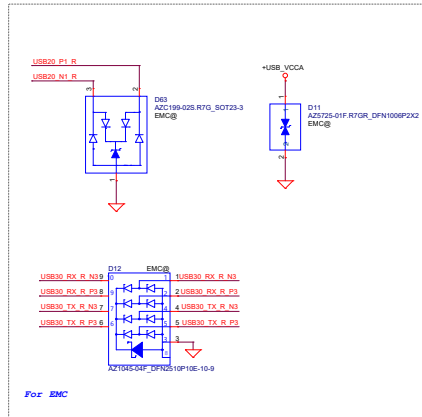


SATA HDD Conn.

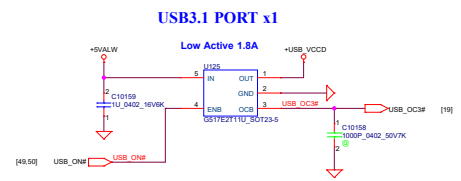
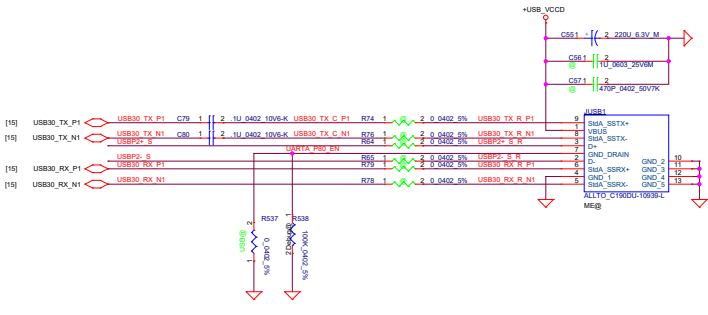


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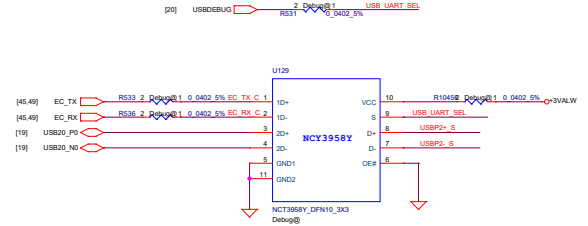
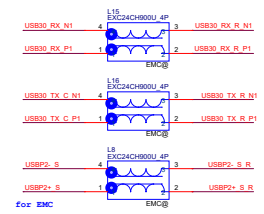
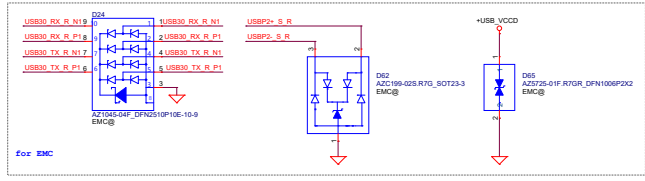




CLT1	CLT2	CLT3	ILIM_SEL	MOD
0	0	0	X	DCR OUT held low
1	1	1	1	CDP Data Connected and Port Power Mgt. Function Active
1	1	1	0	SDP2 Data Connected
1	1	0	X	BDP1 Data Connected
0	1	0	X	BDP1 Data Connected
1	0	0	X	DCP_Short Device Forced to stay in DCP BC 1.2 charging mode
1	0	1	X	DCP_Divider Device Forced to stay in DCP Divider 1 Charging Mode
0	1	1	X	DCP_Auto Data Disconnected and Port Power Mgt. Function Active
0	0	1	X	DCP_Auto Data Disconnected and Power Wake Function Active



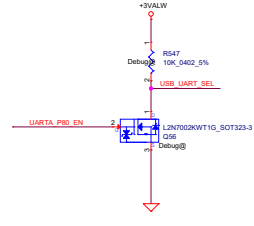
For USB Debug Function



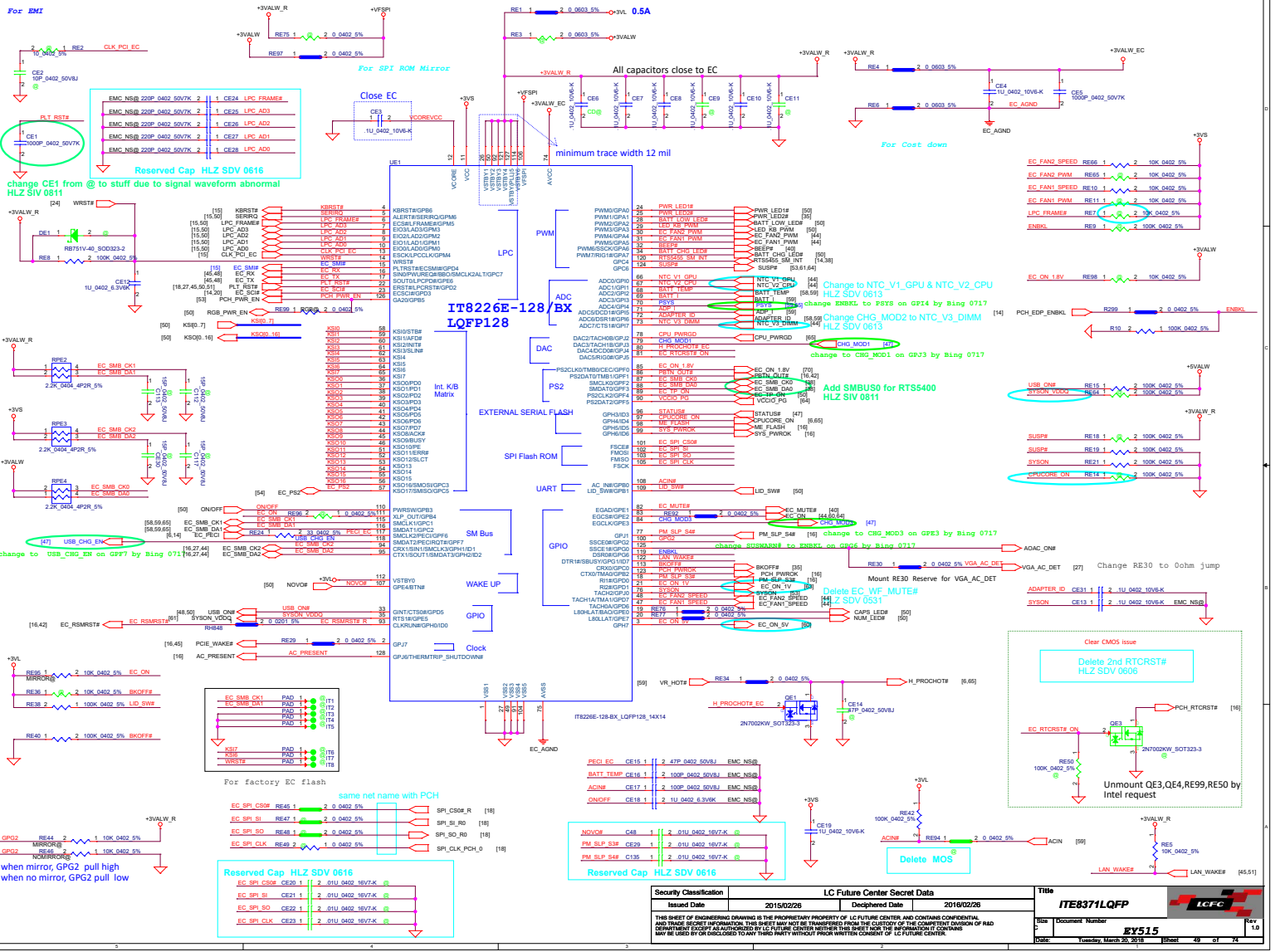
DE#	S	FUNCTION
1	X	DISABLE
2	1	D(1/-) to D(1+/-)
3	0	D(1/-) to D(1+/-)

DE#	S	FUNCTION
1	X	DISABLE
2	1	D(1/-) to D(1+/-)
3	0	D(1/-) to D(1+/-)

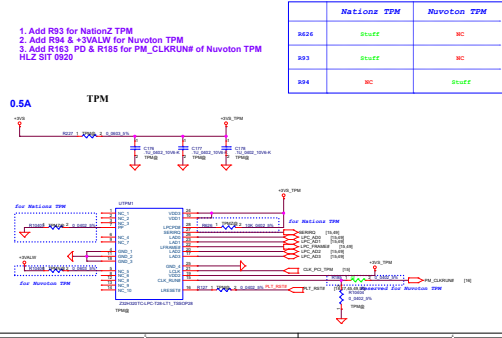
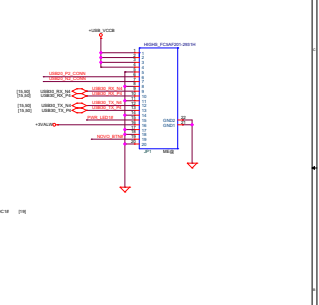
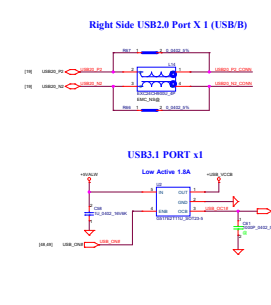
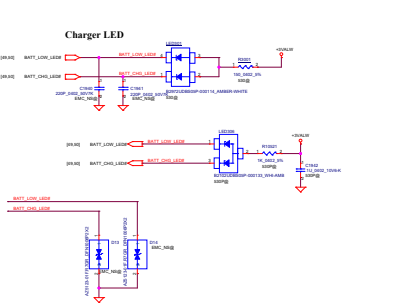
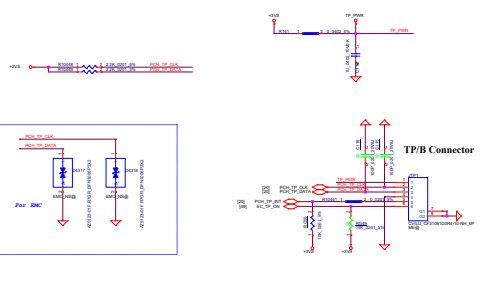
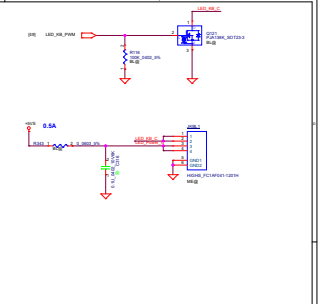
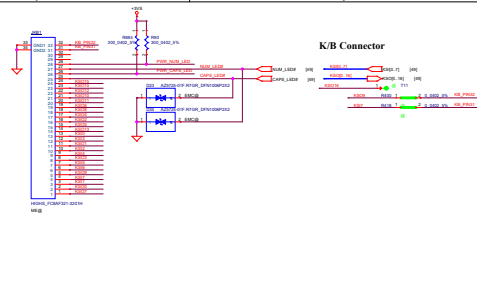
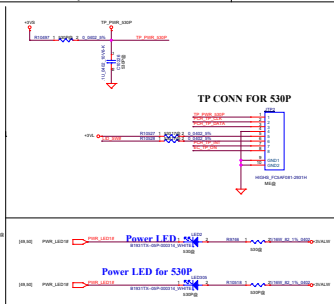
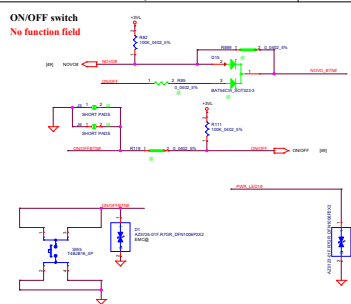
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2	1	D(1/-) to D(1+/-)
3	0	D(1/-) to D(1+/-)



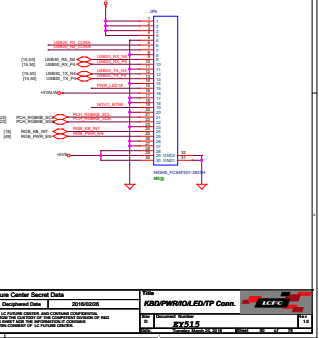
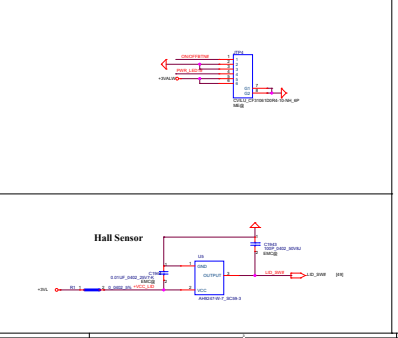
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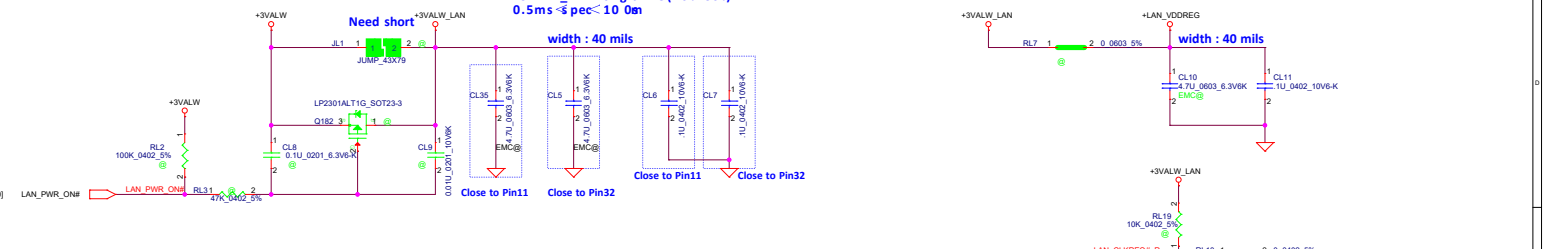
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	NationZ TPM	NuvoTon TPM
R82K	SLUEE	MC
R83	SLUEE	MC
R84	MC	SLUEE



+3VALW TO +3VALW_LAN



**+3VALW_LAN rising time (10%~90%)
0.5ms - spec < 100mA**

width : 40 mils

width : 40 mils

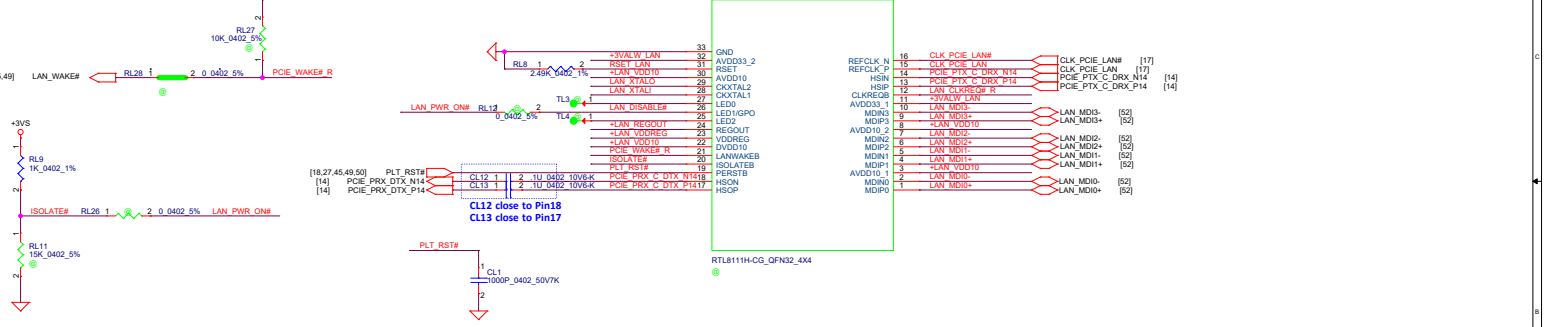
Close to Pin11
Close to Pin32

Close to Pin11
Close to Pin32

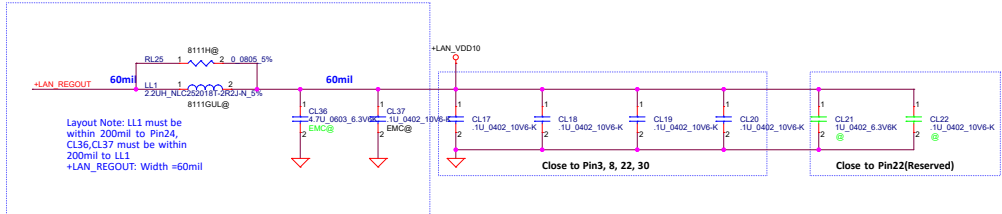
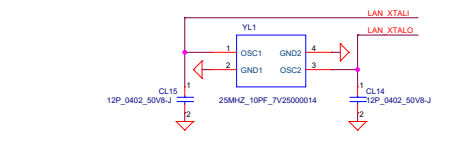
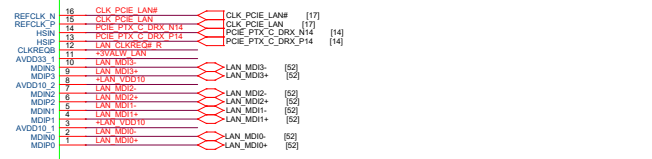
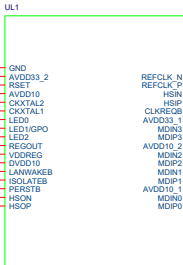
Close to Pin11
Close to Pin32

Close to Pin11
Close to Pin32


+3VALW_LAN



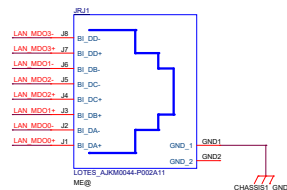
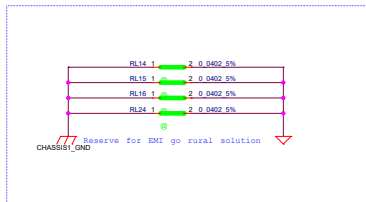
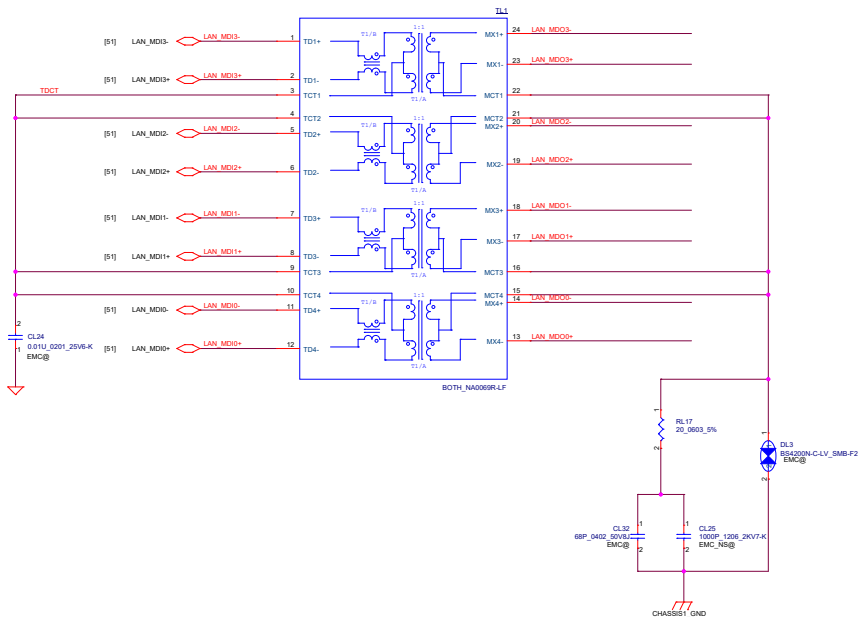
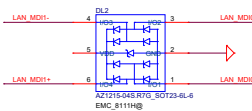
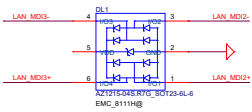
CL12 close to Pin18
CL13 close to Pin17



Layout Note: LL1 must be within 200mil to Pin24
CL36, CL37 must be within 200mil to LL1
+LAN_REGOUT: Width = 60mil

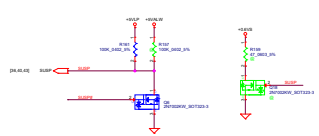
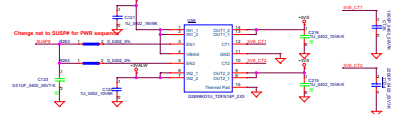
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DL1/DL2
1'S PN:SC300005900
Place Close to T11

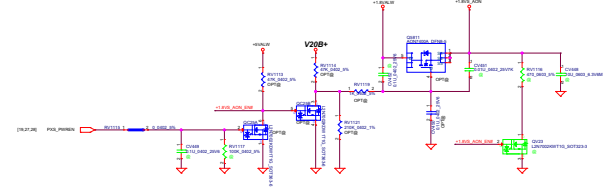


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5	BY515	1.0	
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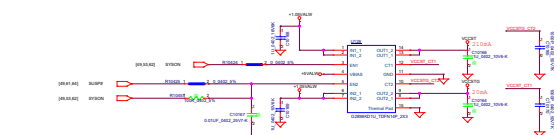
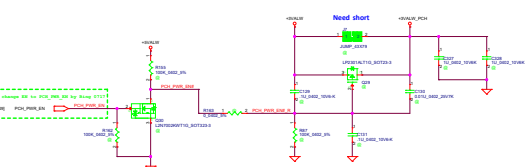
No function field **+5VALM to +5VS**



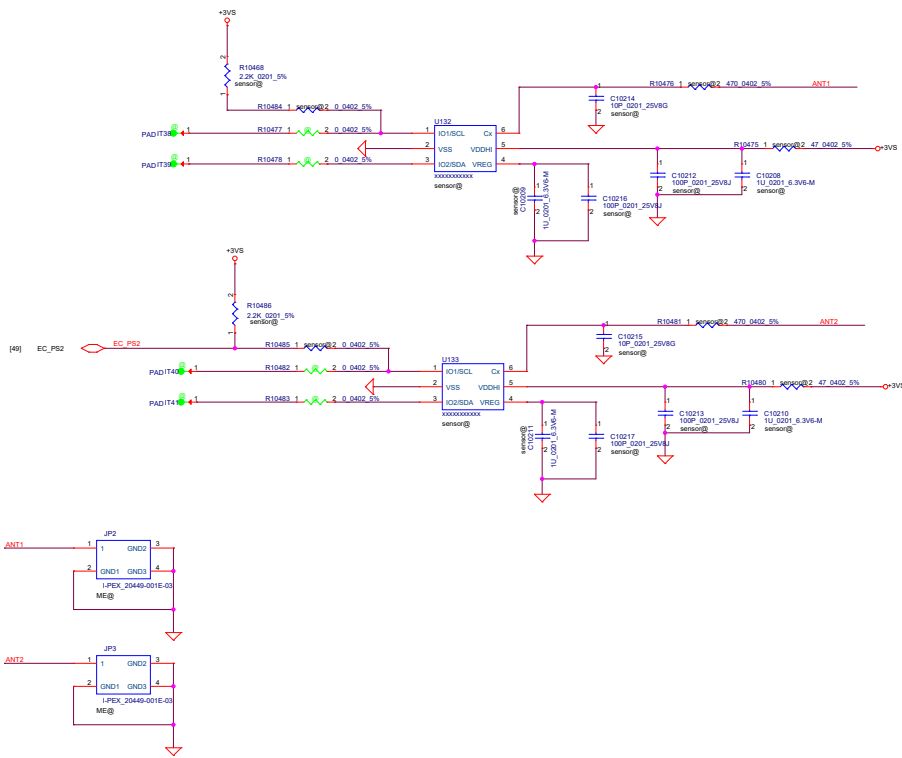
+1.8VALM to +1.8VDC_ACM




Need short

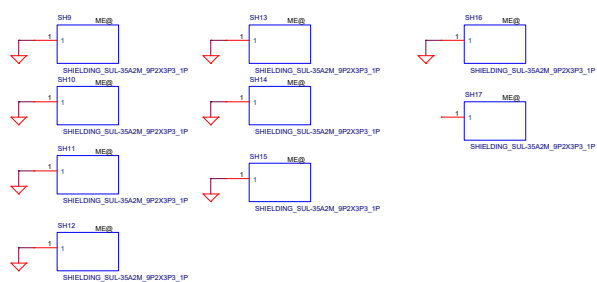
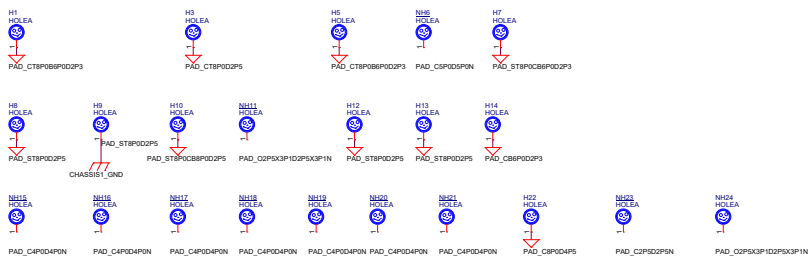


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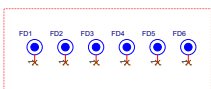


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C	8515		1.0
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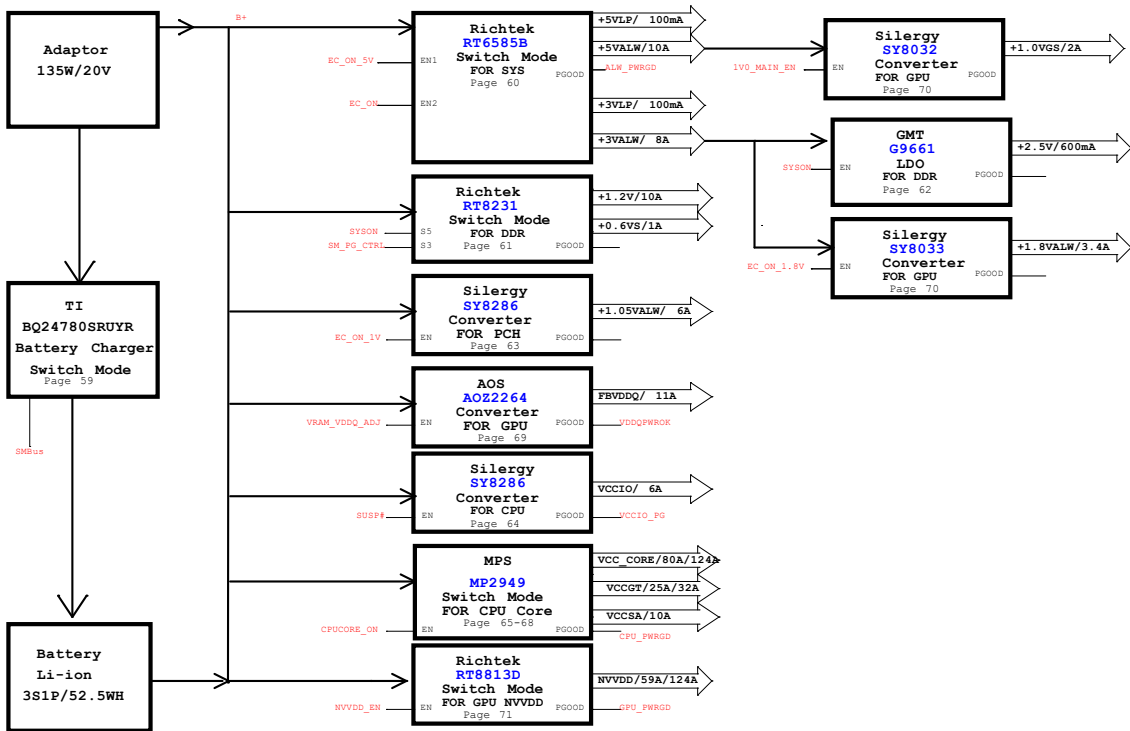
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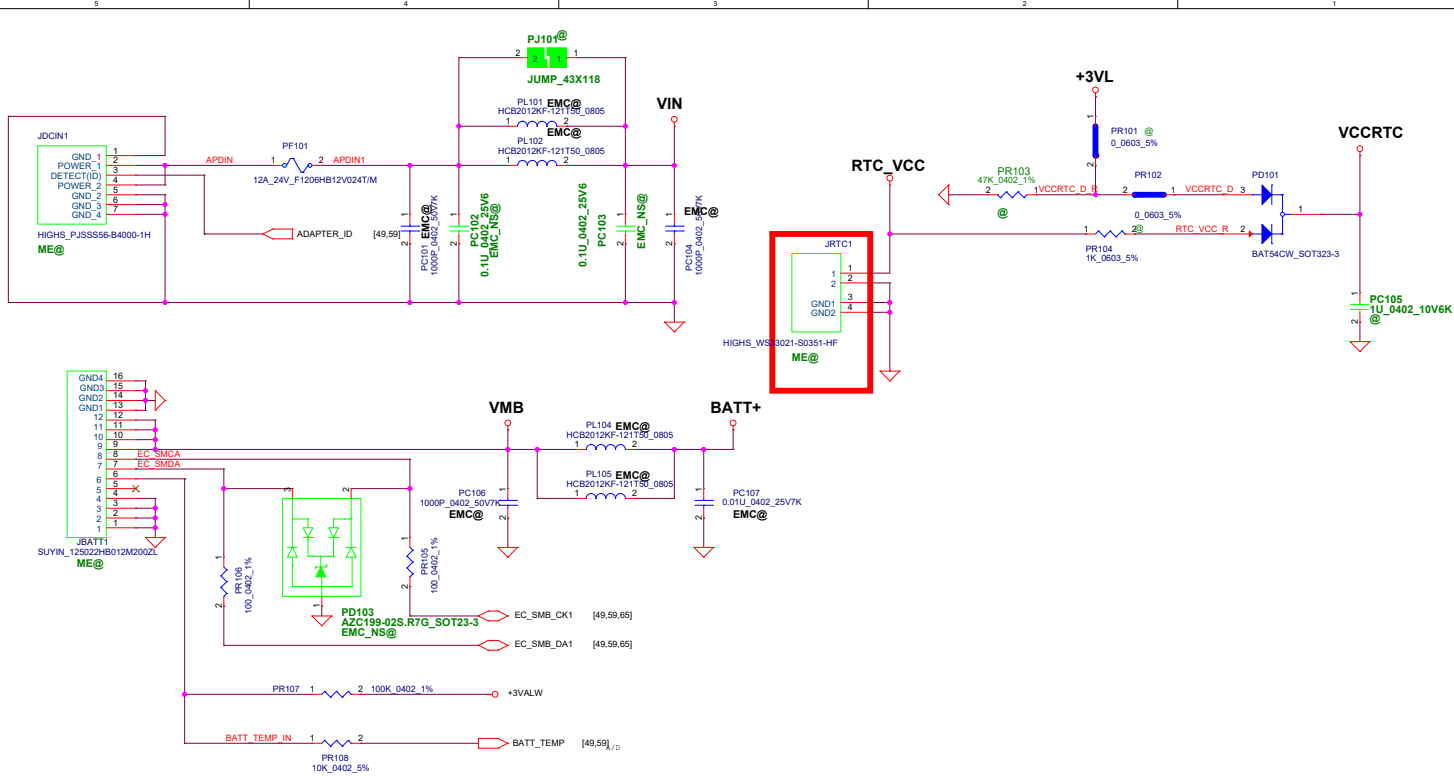
SO-DIMM Shielding



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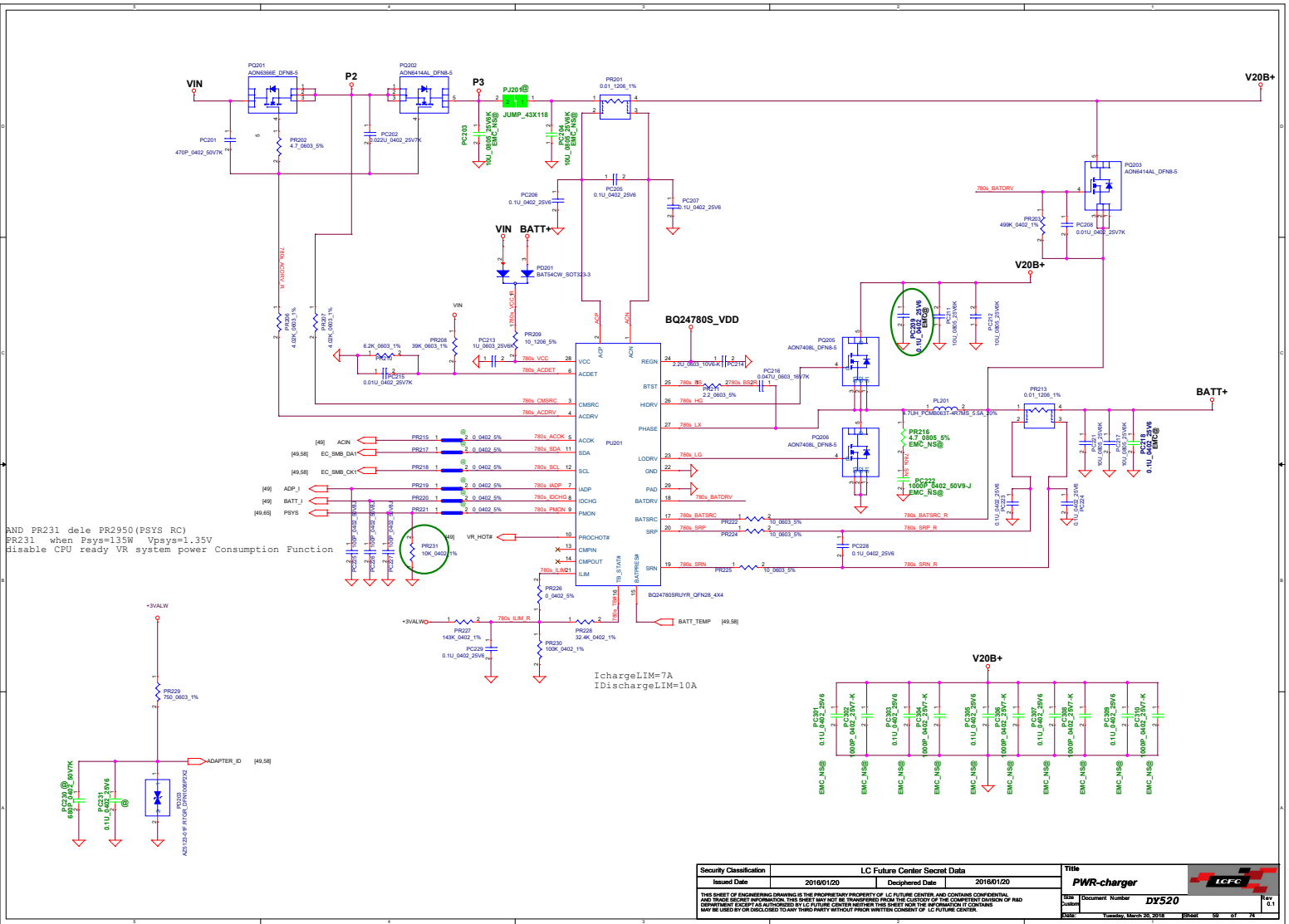


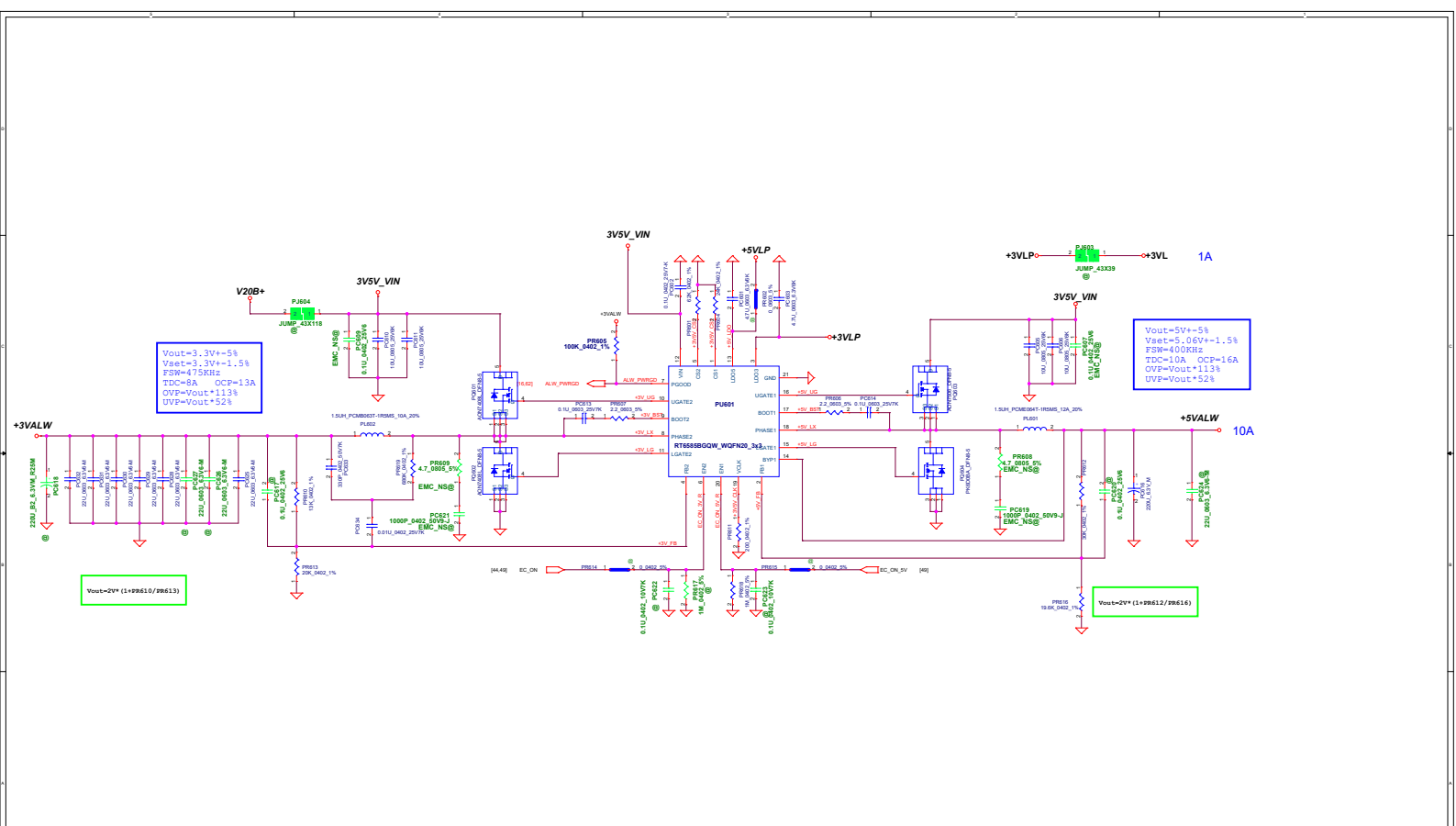
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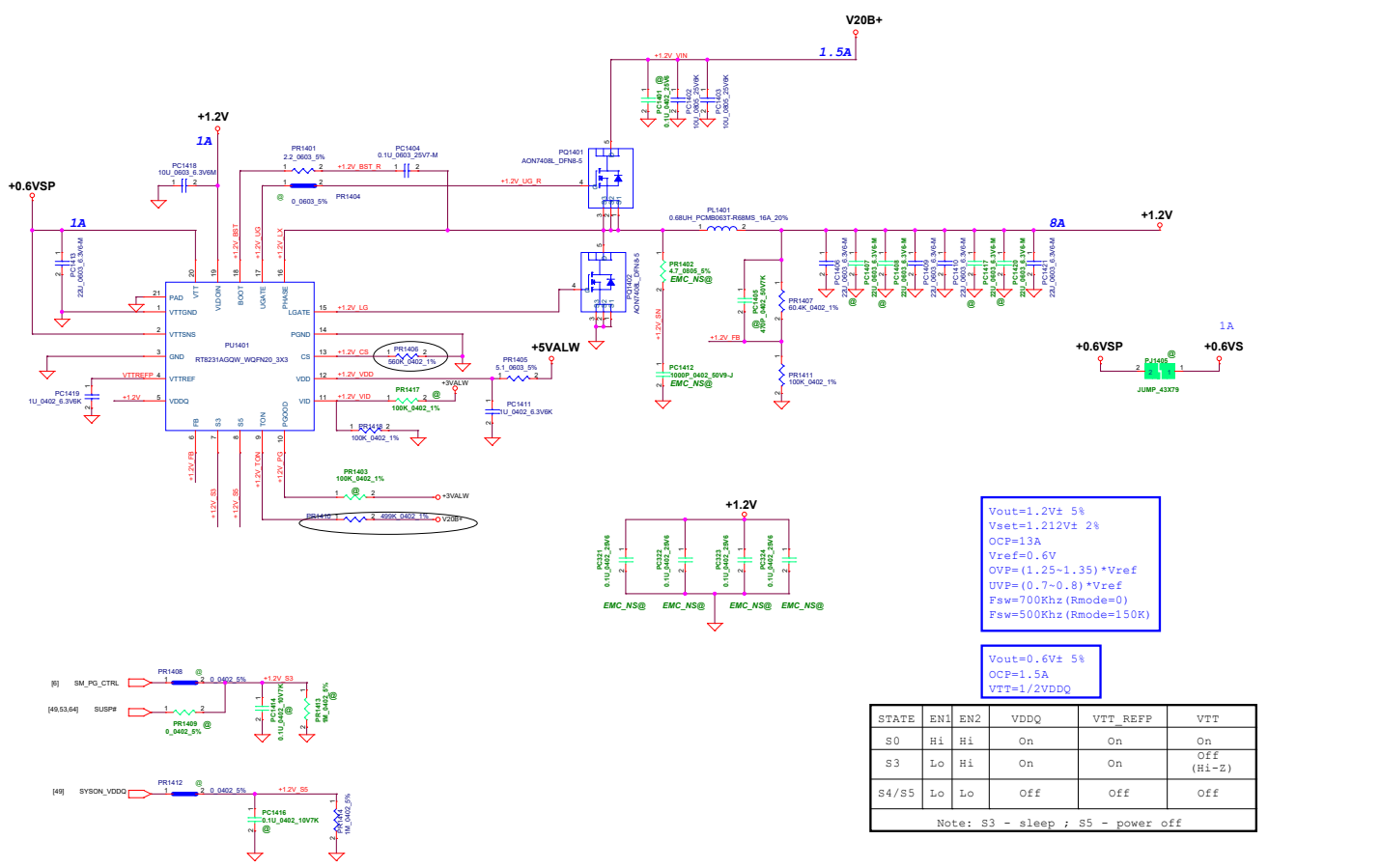
Vout=3.20V±5%
 Vset=3.3V±1.5%
 FSW=475KHz
 TDC=5A OCP=13A
 OVP=Vout+11%
 UVP=Vout+52%

Vout=5V±5%
 Vset=5.08V±1.5%
 FSW=400KHz
 TDC=10A OCP=16A
 OVP=Vout+13%
 UVP=Vout+52%

Vout=2V* (1+PR610/PR613)

Vout=2V* (1+PR612/PR616)

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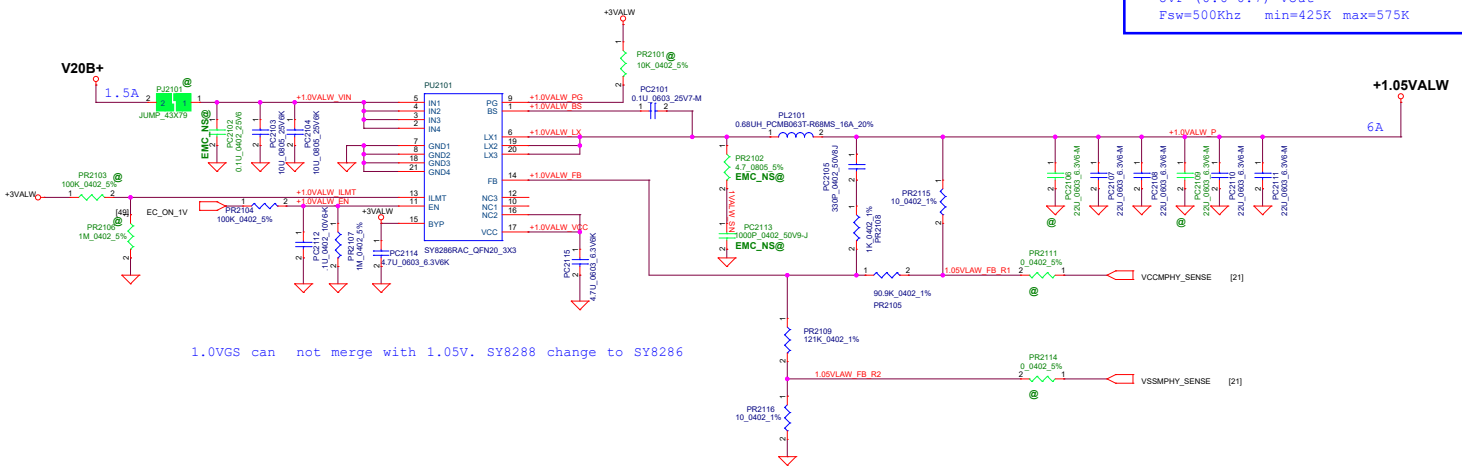
$V_{out}=1.2V \pm 5\%$
 $V_{set}=1.212V \pm 2\%$
 $OCP=13A$
 $V_{ref}=0.6V$
 $OVP=(1.25-1.35) \cdot V_{ref}$
 $UVF=(0.7-0.8) \cdot V_{ref}$
 $F_{sw}=700KHz (R_{mode}=0)$
 $F_{sw}=500KHz (R_{mode}=150K)$

$V_{out}=0.6V \pm 5\%$
 $OCP=1.5A$
 $V_{IT}=1/2V_{DDQ}$

STATE	EN1	EN2	VDDQ	VTT_REFF	VTT
S0	Hi	Hi	On	On	On
S3	Lo	Hi	On	On	Off (Hi-Z)
S4/S5	Lo	Lo	Off	Off	Off

Note: S3 - sleep ; S5 - power off

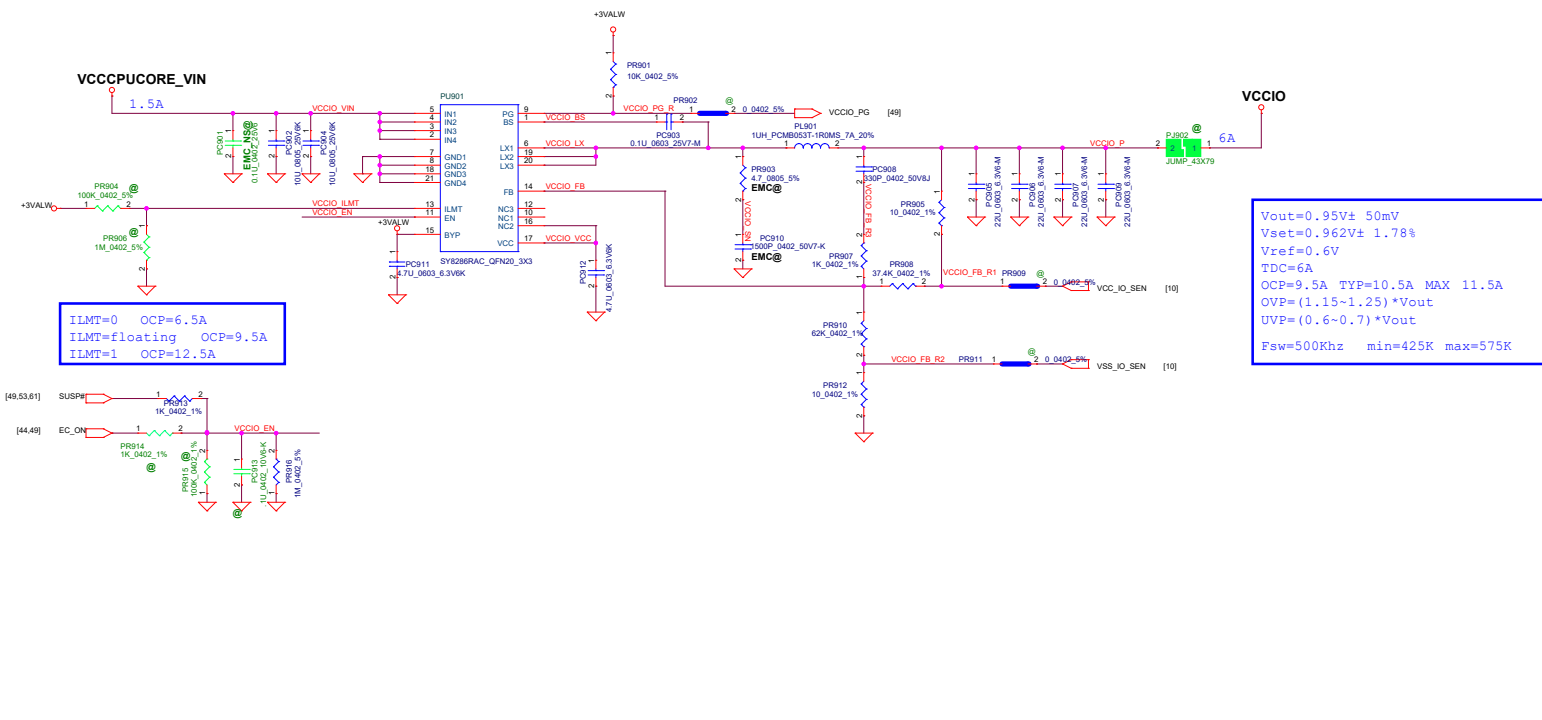
$V_{out}=1.05V \pm 5\%$
 $V_{set}=1.051V \pm 1.81\%$
 $V_{ref}=0.6V (+-1\%)$
 $TDC=8A$
 $OCp=12A$
 $OVp=(1.15-1.25) * V_{out}$
 $UVp=(0.6-0.7) * V_{out}$
 $F_{sw}=500Khz \text{ min}=425K \text{ max}=575K$



1.0VGS can not merge with 1.05V. SY8288 change to SY8286

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Rev	1.0	Document Number	DY510/DY511		Rev
Date:	Tuesday, March 20, 2016	ISheet	63	of	74

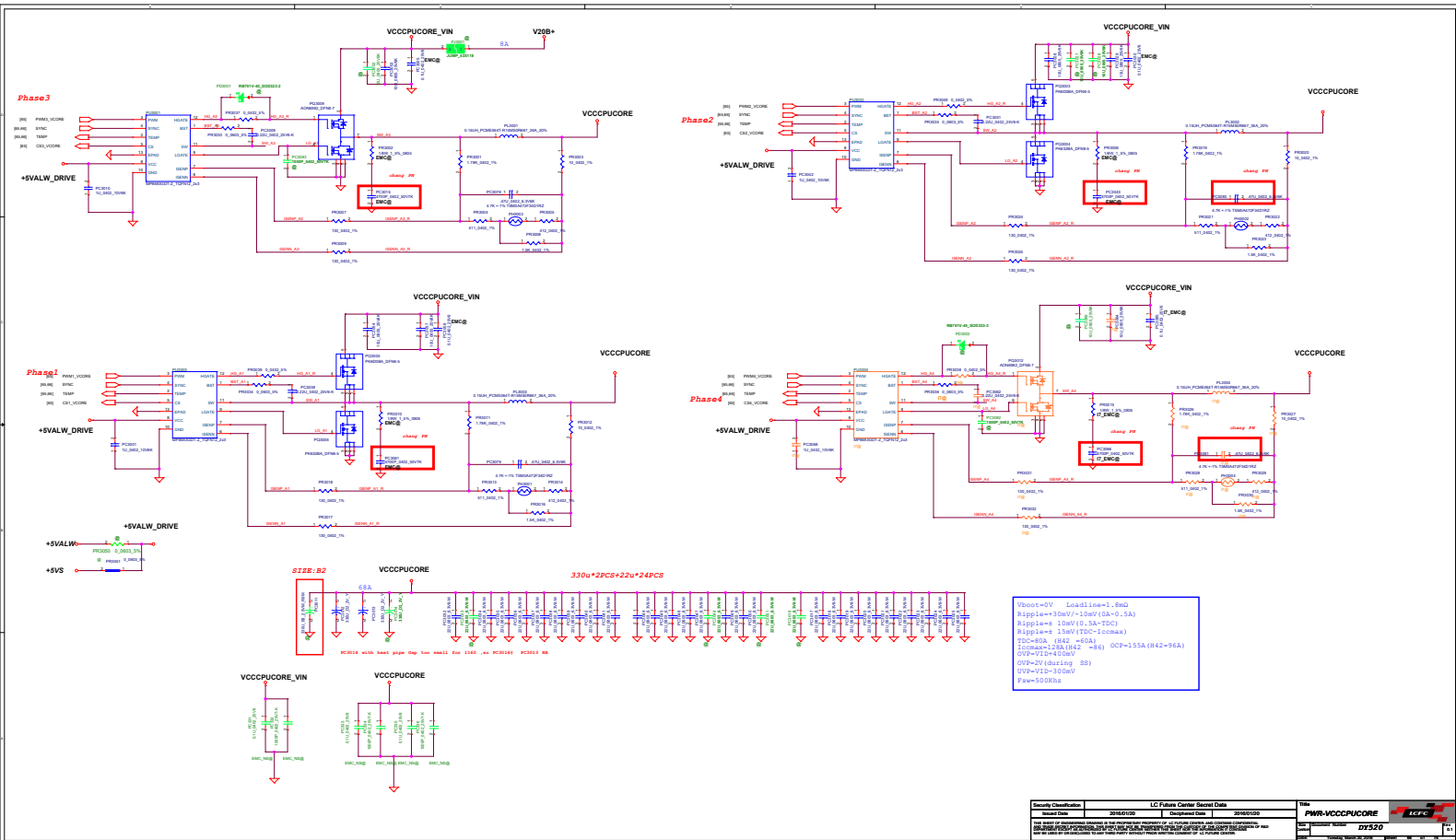
VCCIO 20VB+ change to Core VIN for layout



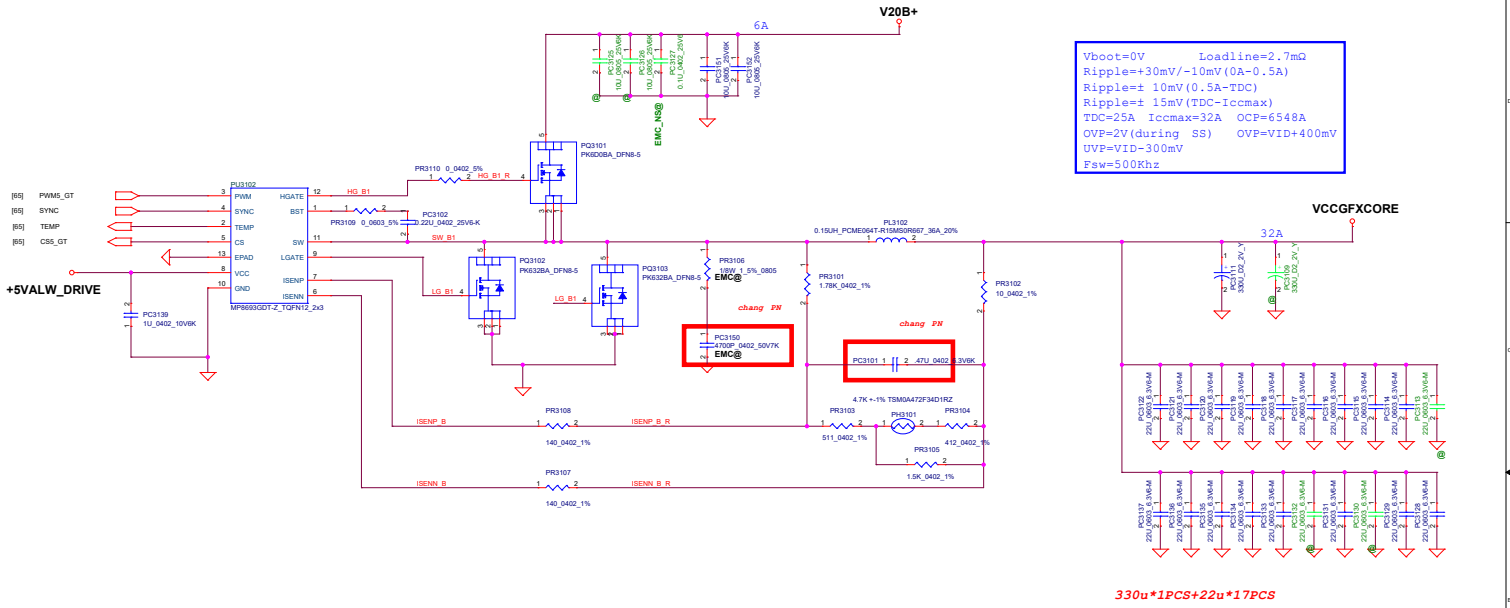
ILMT=0 OCP=6.5A
 ILMT=floating OCP=9.5A
 ILMT=1 OCP=12.5A

Vout=0.95V± 50mV
 Vset=0.962V± 1.78%
 Vref=0.6V
 TDC=6A
 OCP=9.5A TYP=10.5A MAX 11.5A
 OVP=(1.15-1.25)*Vout
 UVP=(0.6-0.7)*Vout
 Fsw=500Khz min=425K max=575K

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Rev	1	Document Number	DY510/DY511		Rev
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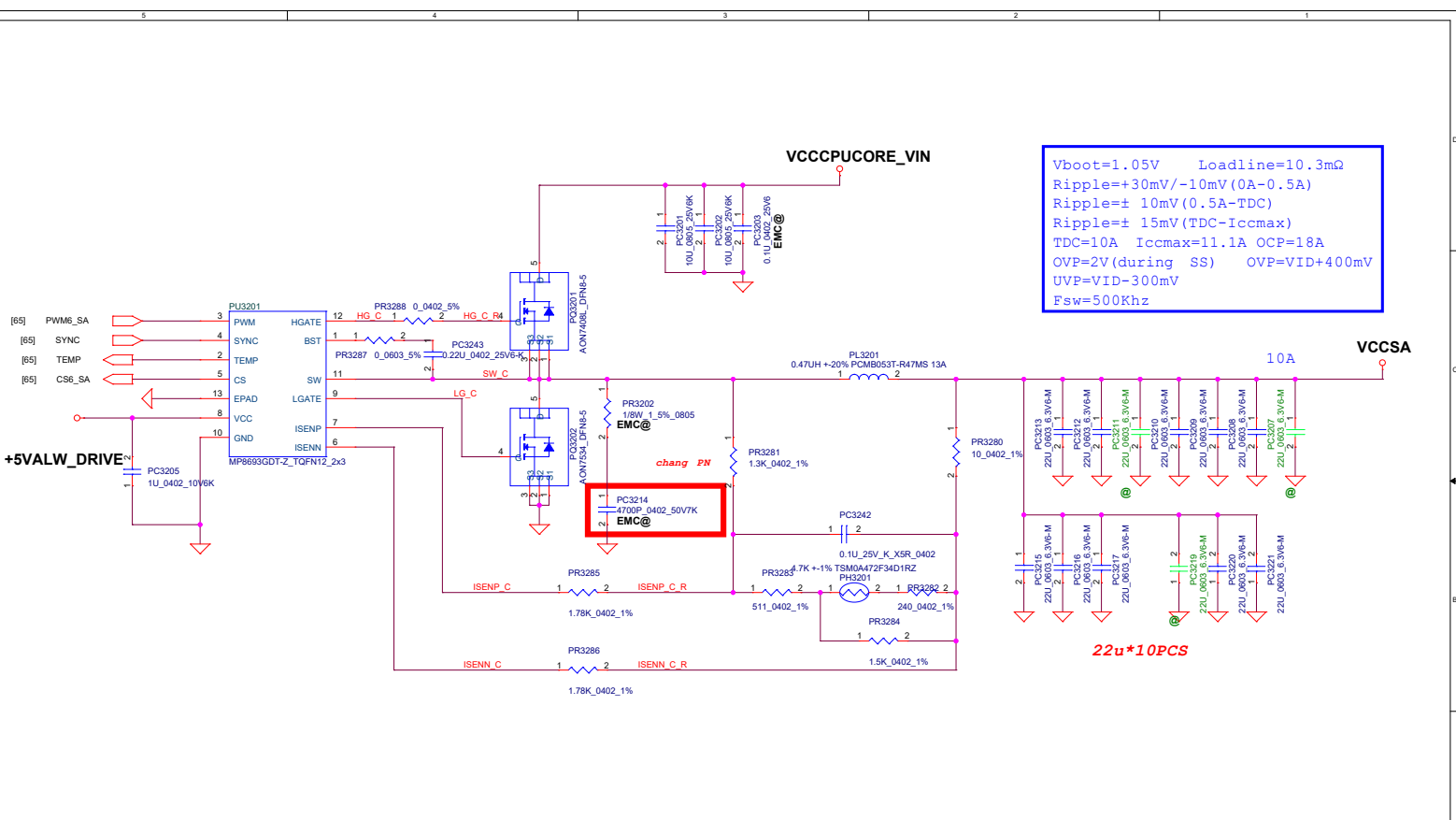
Security Classification	LC Filter Center Board Data	Date
Secret Data	20180720	20180720
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Doc No.	PWR-VCCPUCORE	ICFC
Rev.	01	01
Doc Title	DVS20	



Vboot=0V Loadline=2.7mΩ
 Ripple=+30mV/-10mV (0A-0.5A)
 Ripple=± 10mV (0.5A-TDC)
 Ripple=± 15mV (TDC-Iccmax)
 TDC=25A Iccmax=32A OCP=6548A
 OVP=2V (during SS) OVP=VID+400mV
 UVF=VID-300mV
 Fsw=500Khz

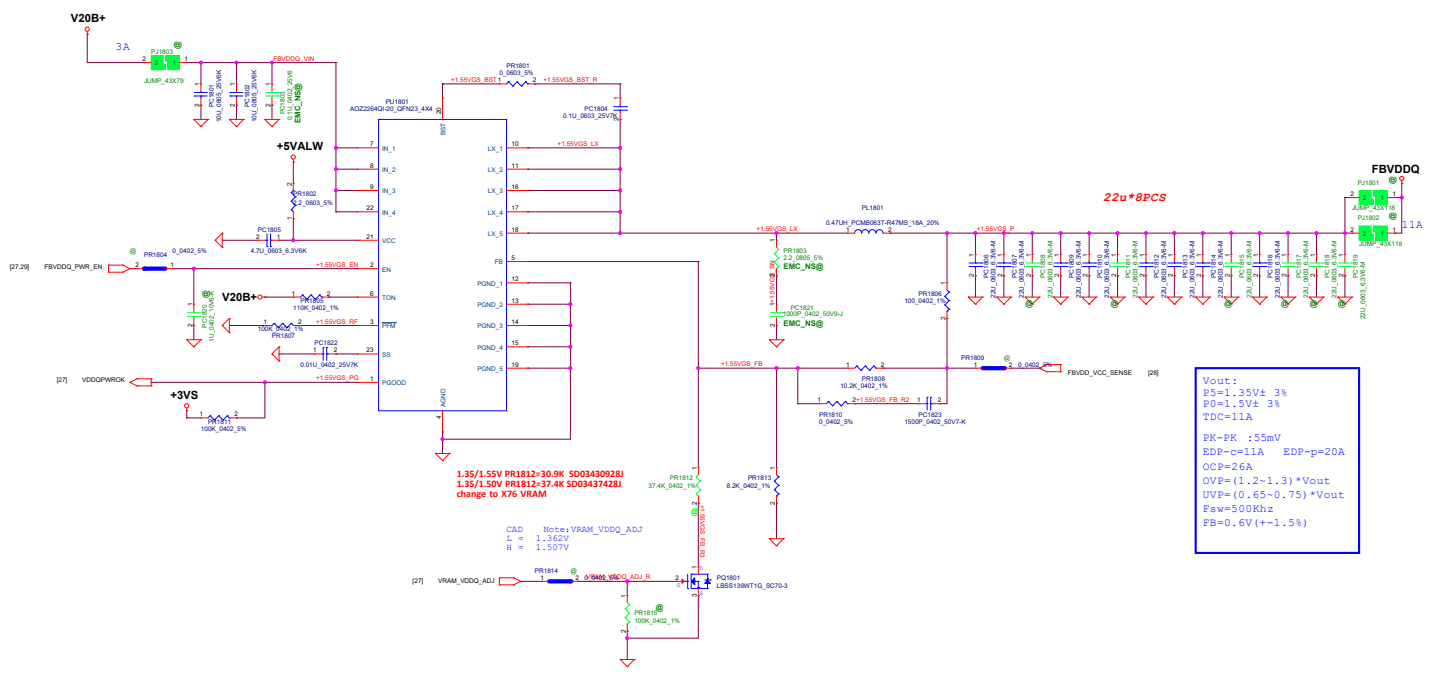
330u*1PCS+22u*17PCS

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Title		
PWR-VCCSA		
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	DY520	0.1
Date:	Tuesday, March 20, 2018	Sheet 68 of 74



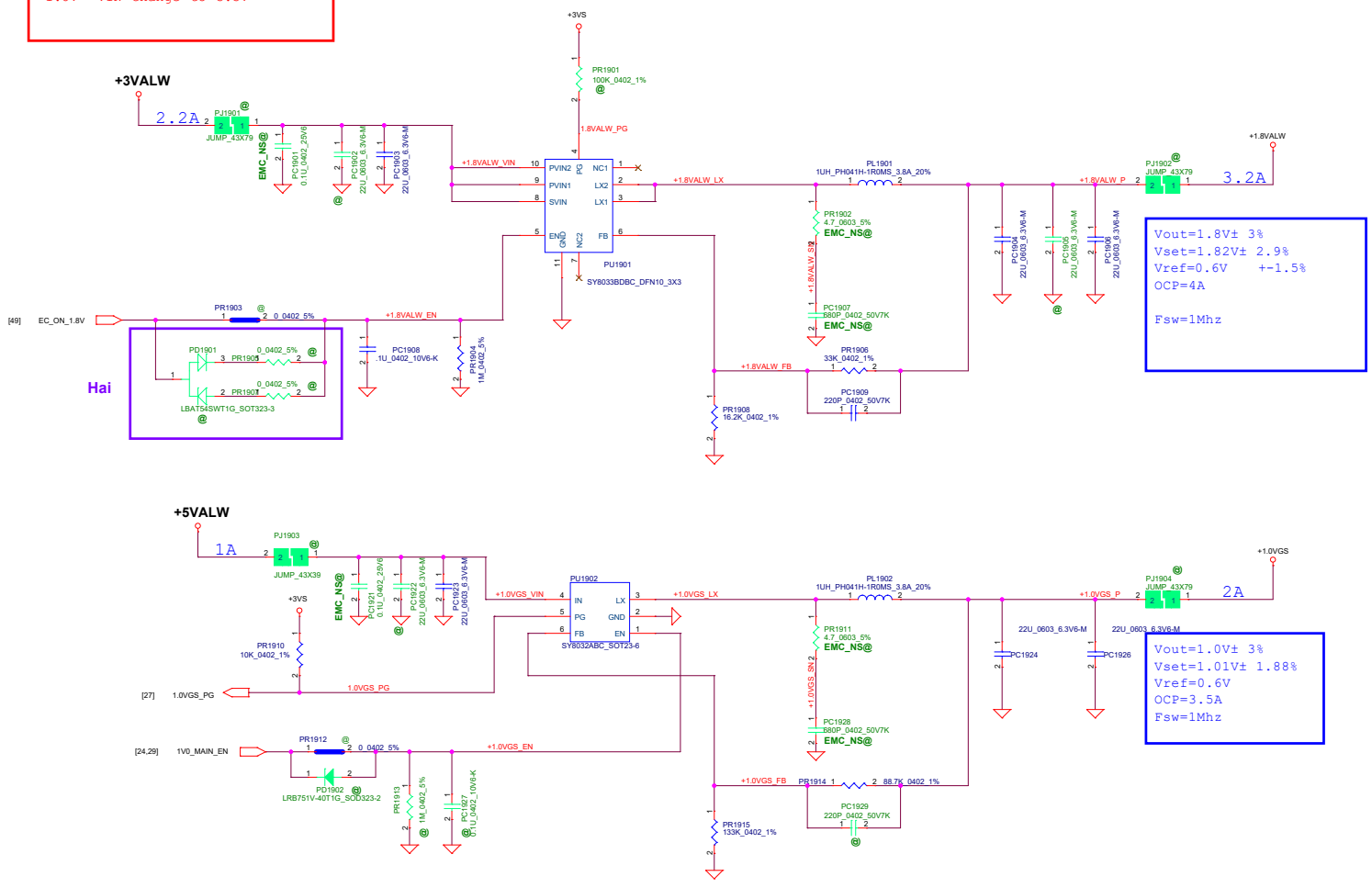
1.35/1.55V PR1812=30.9K SD03430928J
 1.35/1.50V PR1812=37.4K SD09347428J
 change to X75 VRAM

CAD Note: VRAM_VDDQ_ADJ
 L = 1.362V
 H = 1.507V

Vout:
 P5=1.35V± 3%
 P0=1.5V± 3%
 TDC=11A
 FK-PK :55mV
 EDP-c=11A EDP-p=20A
 OCP=26A
 OVP=(1.2-1.3)*Vout
 UVB=(0.65-0.75)*Vout
 Fsw=500KHz
 FB=0.6V(+/-1.5%)

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1.8V VIN change to 3.3V



Vout=1.8V± 3%
 Vset=1.82V± 2.9%
 Vref=0.6V ±1.5%
 OCP=4A
 Fsw=1Mhz

Vout=1.0V± 3%
 Vset=1.01V± 1.88%
 Vref=0.6V
 OCP=3.5A
 Fsw=1Mhz

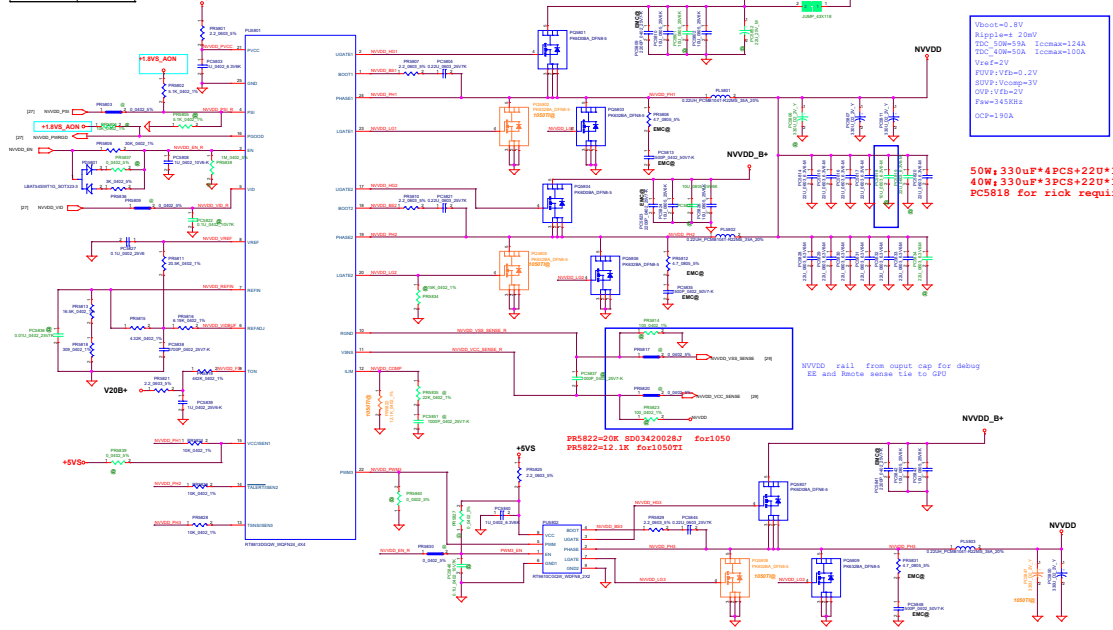
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PWR-1.8/1.0VGS

DY520

Rev 0.1

PRM-VID Specification		Component Value		PSI Level Power Mode Phase Configuration		
Mode	Config	Part No.	Value	PSI Level	Power Mode	Phase Configuration
Vaux1(V)	0.9	PS182	10K	0.9V	0.9V	3Phase_F00M
Vaux2(V)	1.1	PS182	10K	1.1V	1.1V	3Phase_F00M
Vaux3(V)	0.8	PS182	10K	0.8V	0.8V	3Phase_F00M
Vaux4(V)	1.2	PS182	10K	1.2V	1.2V	3Phase_F00M
Vaux5(V)	1.0	PS182	10K	1.0V	1.0V	3Phase_F00M
Vaux6(V)	0.9	PS182	10K	0.9V	0.9V	3Phase_F00M
Vaux7(V)	1.2	PS182	10K	1.2V	1.2V	3Phase_F00M
Vaux8(V)	1.0	PS182	10K	1.0V	1.0V	3Phase_F00M
Vaux9(V)	1.2	PS182	10K	1.2V	1.2V	3Phase_F00M
Vaux10(V)	1.0	PS182	10K	1.0V	1.0V	3Phase_F00M



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File Name	Document Number	Rev	1.0
DocID	D8510/DX512		
Date	Thursday, March 20, 2015	Sheet	21 of 74

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