

ZZZ PCB@



PCB 1G7 LA-D822P REV0 M/B UMA
DA80017E000

Compal Confidential

Dali & Astro BKA40/BKA50/BKD40/BKD50 MB Schematic Document

LA-D822P
Rev: 1.0 (A00)
2016.06.06

UC1 KBL_15W_B@



SA0000A382L
KBL U SR2VN
S IC FJ8067702739738 SR2VN H0 2.4G A311

UC1 KBL_15W_I5@



SA0000A372L
KBL U SR2VL
S IC FJ8067702739739 SR2VL H0 2.5G A311

UC1 KBL_15W_I7@



SA0000A342L
KBL U SR2VM
S IC FJ8067702739740 SR2VM H0 2.7G A311

UC1 KBL_15W_2+1@



SA00009QM0L
KBL U QKKO
S IC A3T FJ8067702739920 QKKO G0 1.7G

UC1 KBL_15W_2+2@



SA00009PJ0L
KBL U QKKS
S IC A3T FJ8067702739720 QKKS G0 2.4G

UC1 SKL_15W@



SA000092N4L
SKL U I3-6100U
S IC FJ8066201931104 SR2EU D1 2.3G A311

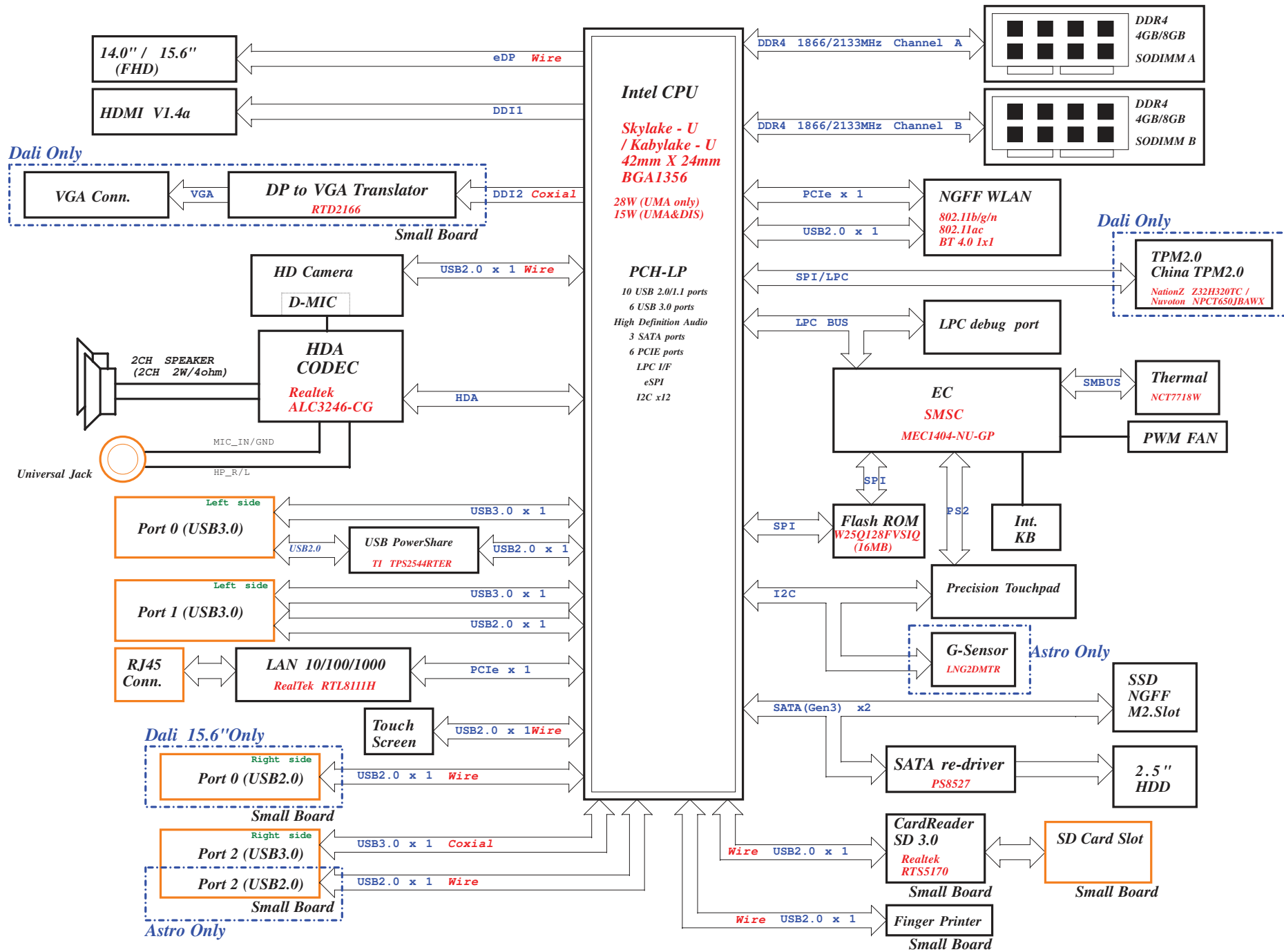
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Security Classification	Compal Secret Data		Title	
Issued Date	2014/05/19	Deciphered Date	2015/12/31	LA-D822P
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POWER STATES

Signal State	SLP S3#	SLP S4#	SLP S5#	ALWAYS PLANE	SUS PLANE	RUN PLANE	CLOCKS
S0 (Full ON) / M0	HIGH	HIGH	HIGH	ON	ON	ON	ON
S3 (Suspend to RAM) / M3	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to DISK) / M3	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (SOFT OFF) / M3	LOW	LOW	LOW	ON	OFF	OFF	OFF
G3	OFF	OFF	OFF	OFF	OFF	OFF	OFF

USB PORT#	DESTINATION
1	USB3.0 Port0
2	USB3.0 Port1
3	USB3.0 Port2 (IO Board)
4	USB2.0 Port0
5	HD CAM
6	Card Reader
7	Touch Screen
8	BT
9	Finger Printer
10	N/A

USB3.0	SSIC	PCIE	SATA	DESTINATION
USB3.0-1				USB3.0 Port0
USB3.0-2	SSIC-1			USB3.0 Port1
USB3.0-3	SSIC-2			USB3.0 Port2 (IO Board)
USB3.0-4				N/A
USB3.0-5		PCIE-1		N/A
USB3.0-6		PCIE-2		N/A
		PCIE-3		N/A
		PCIE-4		N/A
		PCIE-5		WLAN
		PCIE-6		GLAN
		PCIE-7	SATA-0	SATA HDD
		PCIE-8	SATA-1	N/A
		PCIE-9		N/A
		PCIE-10		N/A
		PCIE-11	SATA-1*	N/A
		PCIE-12	SATA-2	SATA SSD

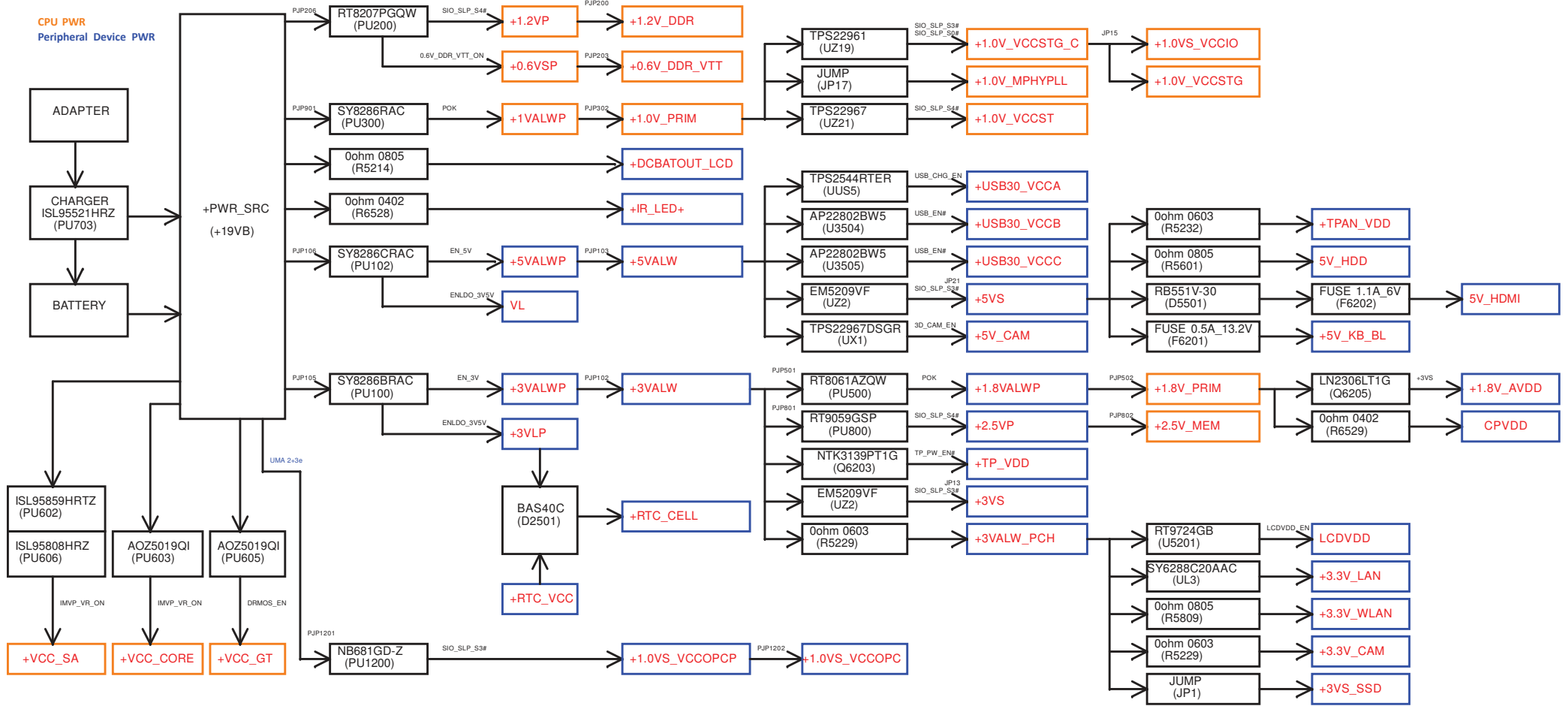
PM TABLE

State power plane	+RTC_CELL +RTC_VCC +3VLP +19VB	+1.0V_PRIM +1.0V_MPHYPLL +5VALW +3VALW +3.3V_ALW_DSW +1.8V_PRIM	+1.0V_VCCST +1.2V_DDR +2.5V_MEM +3VALW_PCH	+1.0VS_VCCIO +1.0V_VCCSTG +VCC_GT +VCC_SA +VCC_CORE +GPU_CORE +5VS +3VS +1.8VS +0.6V_DDR_VTT
S0	ON	ON	ON	ON
S3	ON	ON	ON	OFF
S4&S5 / AC	ON	ON	OFF	OFF
S4&S5 / DC	ON	OFF	OFF	OFF


Board ID & Model ID table

Item	Pull-down(K ohm)	Pull-up (K ohm)	Voltage	Board ID/Model ID
1	100	10.0	3.000	EVT(X00)
2	100	13.7	2.902	DVT1(X01)
3	100	17.8	2.801	DVT2(X02)
4	100	22.1	2.703	Pilot(A00)
5	100	27.0	2.598	
6	100	32.4	2.492	
7	100	37.4	2.402	
8	100	49.9	2.201	
9	100	57.6	2.094	
10	100	64.9	2.001	
11	100	73.2	1.905	
12	100	82.5	1.808	
13	100	93.1	1.709	
14	100	107.0	1.594	

CPU PWR
Peripheral Device PWR

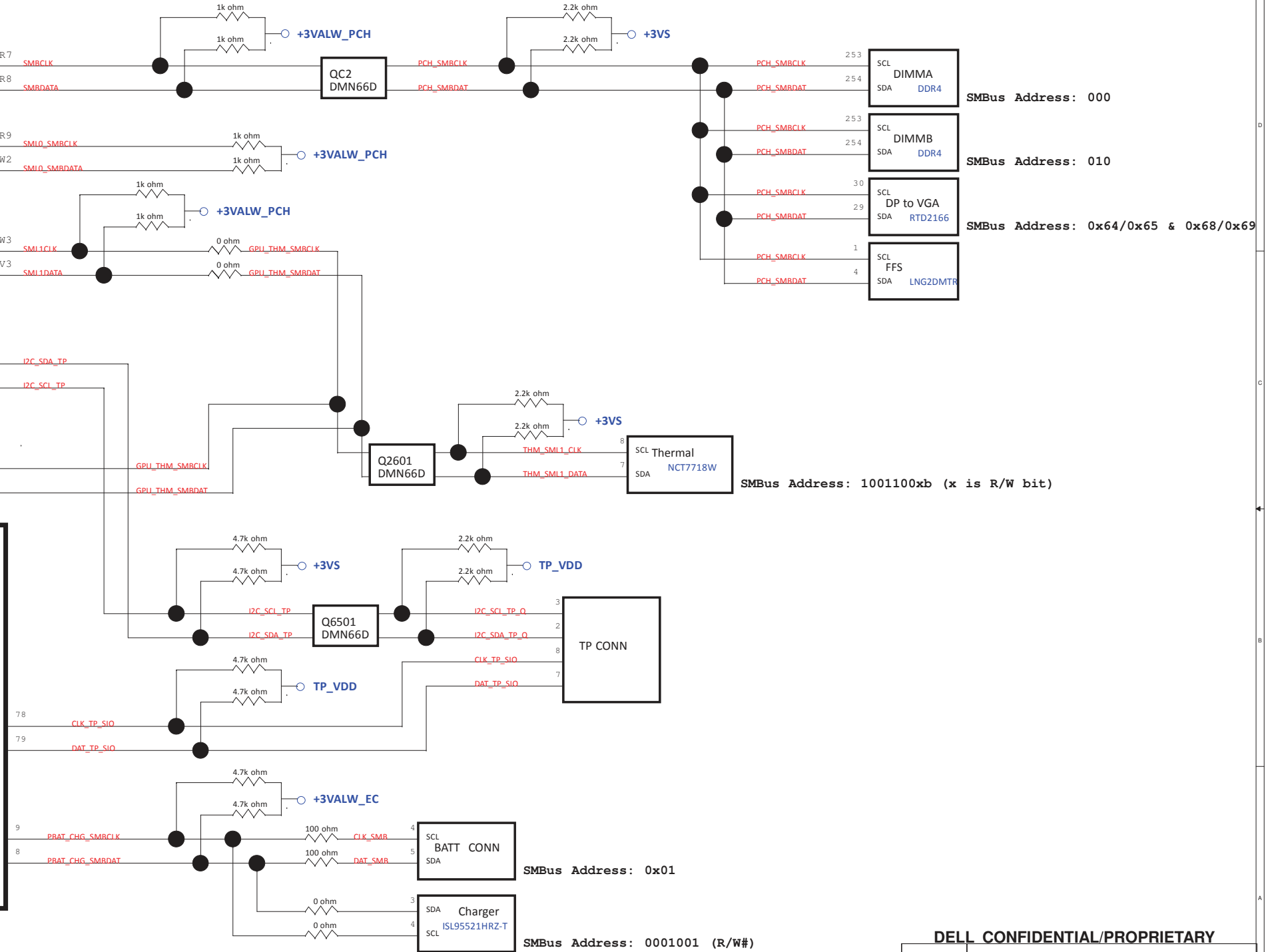
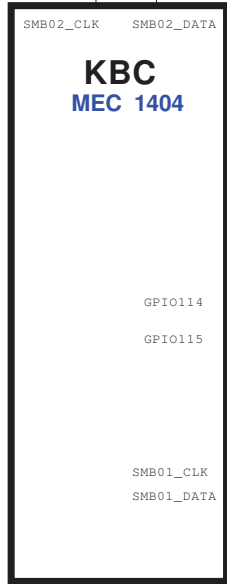
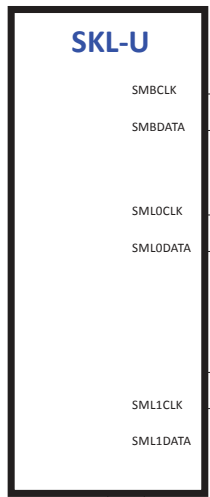


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		Compal Electronics, Inc.	
		Power Rail	
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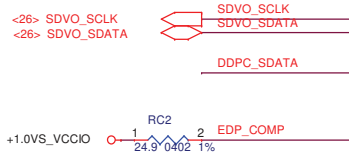
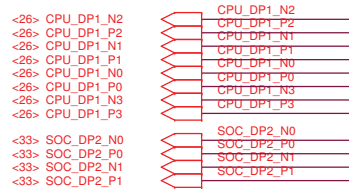
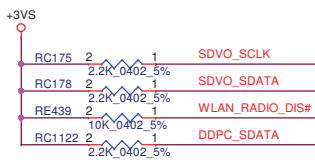
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SMBus Block Diagram

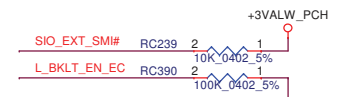
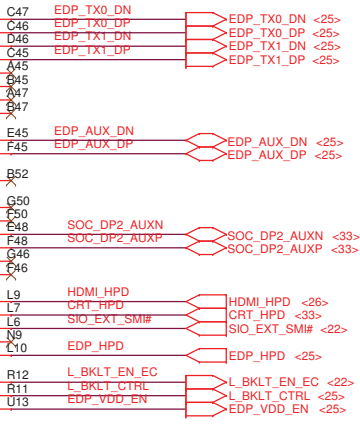
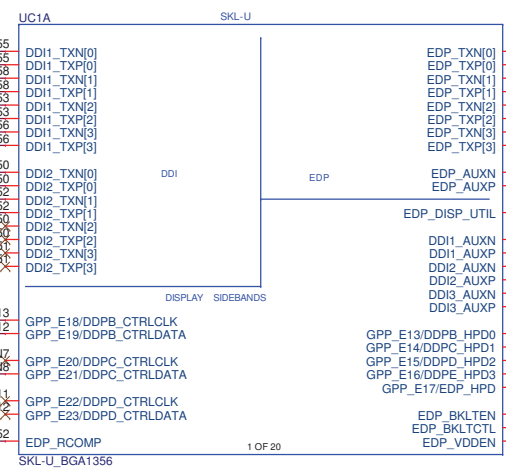
LA-D822P

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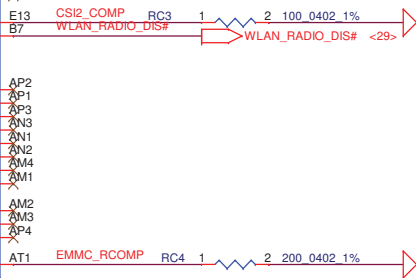
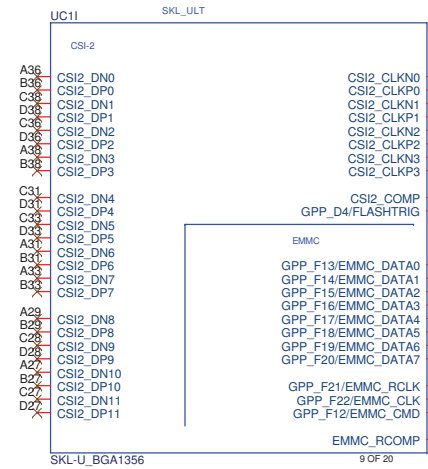
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COMPENSATION PU FOR eDP
 CAD Note: Trace width=20 mils ,Spacing=25mil,
 Max length=100 mils.



SKL-U Ballout Rev0.71 & INTEL symbol Rev1.0



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MCP(1/14)DDI,EDP,CSI2,EMMC

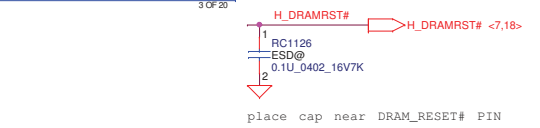
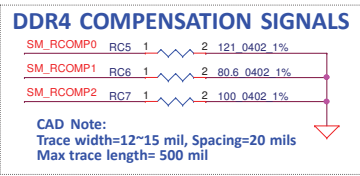
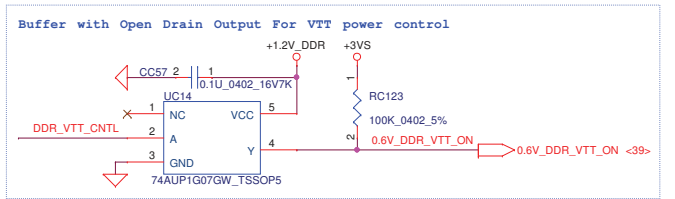
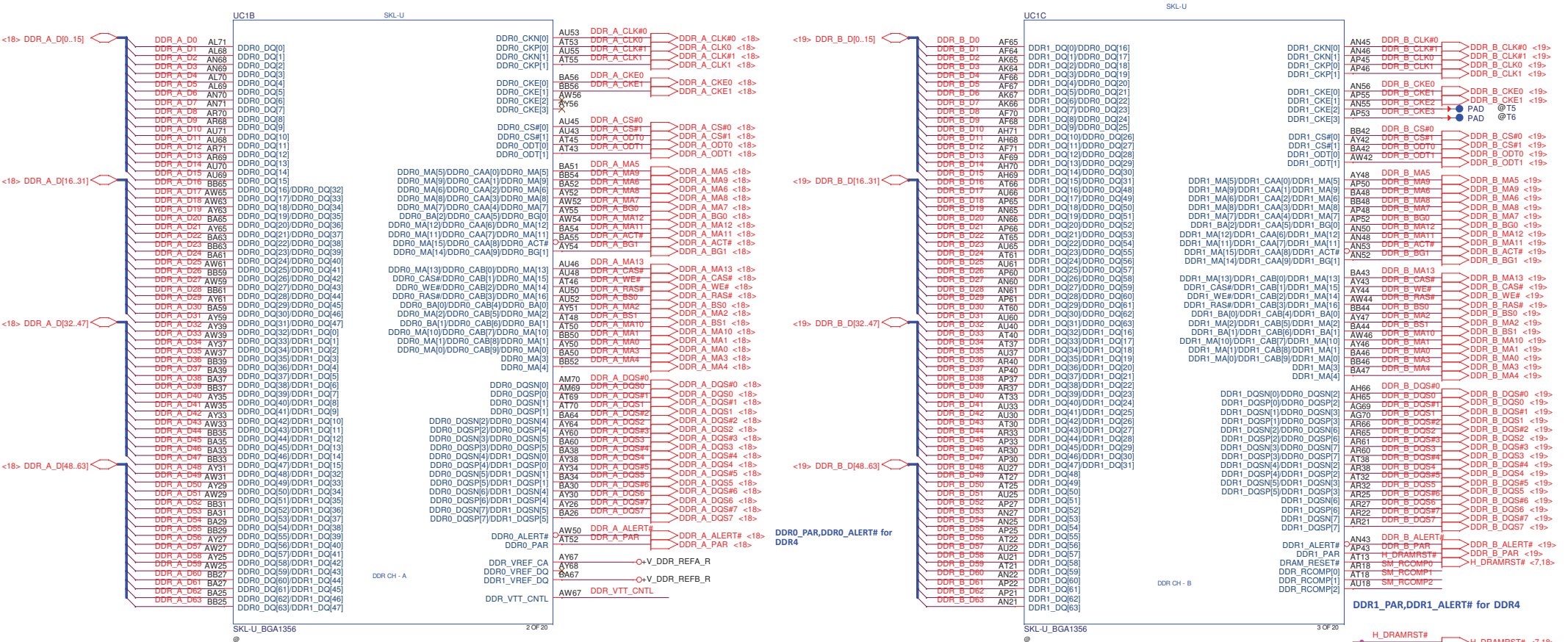
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DDR4, Ballout for B2B(Interleave)



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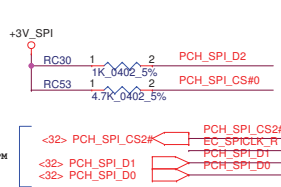
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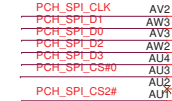
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SPI_MOSI= SPI_IO0
 SPI_MISO= SPI_IO1
 PCH ED5 R0.7 p.235~236



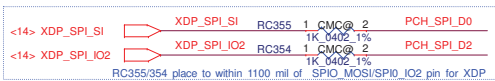
<27> FFS_INT2



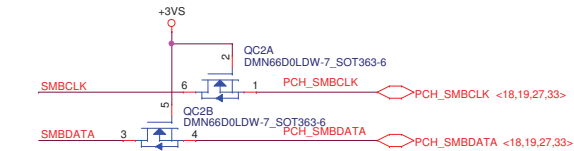
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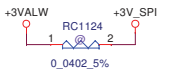
<22,32> SERIRQ



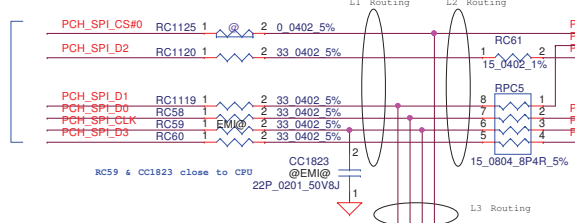
SML1 -> EC,DGPU,THM



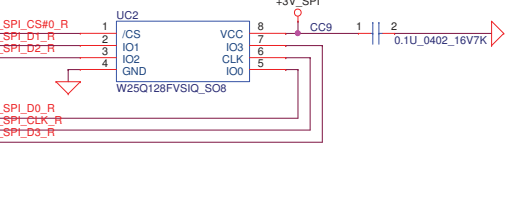
SMB -> DDR,CRT,FFS



Single SPI ROM_CS#0



16M SPI ROM (Confirmed by BIOS RD)



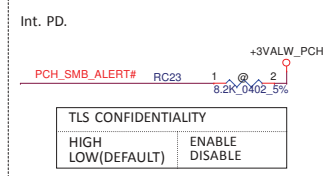
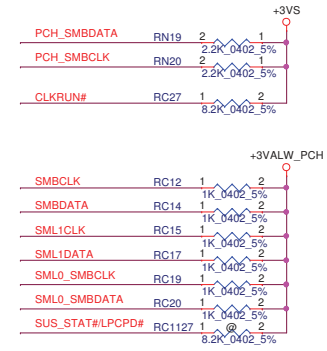
<22> EC_MISO_R

<22> EC_MOSI_R

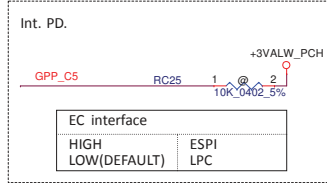
<22,32> EC_SPICLK_R

<22> EC_SPICS#_R

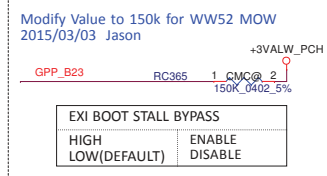
Layout need meet L1 = L2 = L3



TLS CONFIDENTIALITY	
HIGH	ENABLE
LOW(DEFAULT)	DISABLE



EC interface	
HIGH	ESPI
LOW(DEFAULT)	LPC



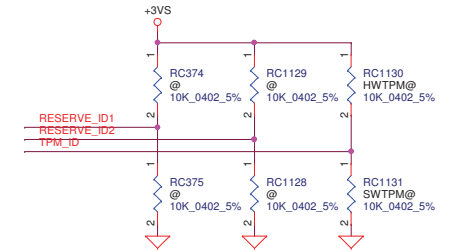
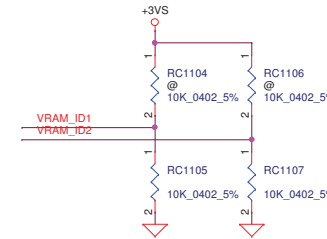
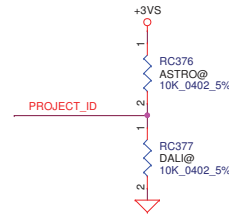
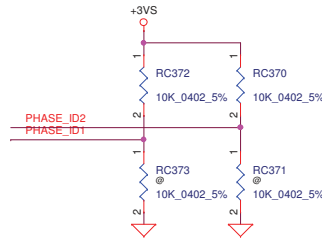
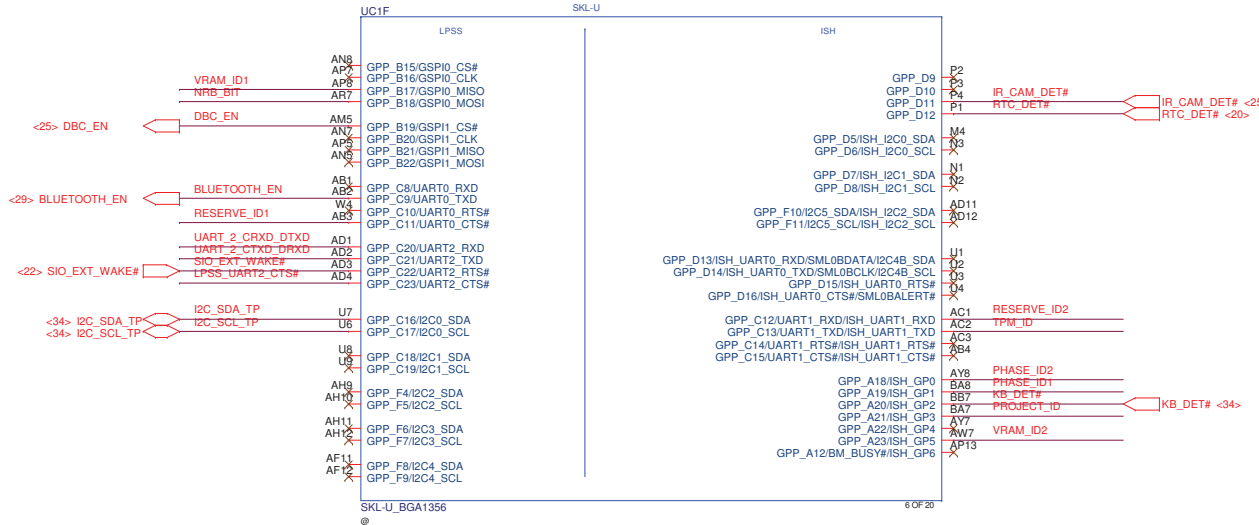
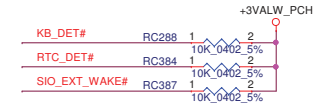
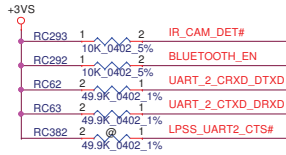
EXI BOOT STALL BYPASS	
HIGH	ENABLE
LOW(DEFAULT)	DISABLE

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Title MCP(3/14)SPI,SMB,LPC		
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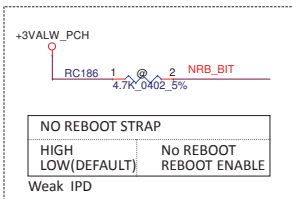
PHASE ID	PHASE ID1 (GPP_A19)	PHASE ID2 (GPP_A18)
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DVT1	0	1
DVT2	1	0
Pilot	1	1

PROJECT ID	PROJECT ID (GPP_A21)
Dali	0
Astro	1

VRAM ID (PCBA VRAM Size Config.)	VRAM ID2 (GPP_A23)	VRAM ID1 (GPP_B17)
UMA	0	0
2G	0	1
4G	1	0
Reserved	1	1

PROJECT ID	TPM ID (GPP_C13)
SW_TPM	0
HW_TPM	1

RESERVE ID	RESERVE ID1 (GPP_C11)	RESERVE ID2 (GPP_C12)



Win7 Debug solution

Option 2 : For Open Chassis Platforms

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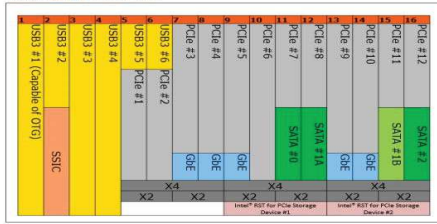
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Size: Document Number **LA-D822P** Rev 1.0

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3.4.1 SKL PCH U Flexible I/O

Figure 3-1. HSIO Muxing on SKL PCH U



- There are 16 HSIO lanes on SKL PCH-LP U Series, supporting the following port configurations:
- Up to 12 PCIe* lanes (multiplexed with USB 3.0 ports, SATA Ports)
 - Only a maximum of 6 PCIe* ports (or devices) can be enabled at any time.
 - Ports 1-4, Ports 5-8, and Ports 9-12, can each be individually configured as 4x1, 2x2, 1x2 + 2x1, or 1x4.
 - Up to 3 SATA ports (multiplexed with PCIe*)
 - SATA Port 1 has the flexibility to be mapped to either PCIe* Port 8 or Port 11.
 - USB Dual Role (OTG) capability is available on USB 3.0 Port 1
 - One SSIC x1 port is multiplexed with USB 3.0 Port 2
 - One GbE lane
 - GbE can be mapped into one of the PCIe* Ports 3-5 and Ports 9-10
 - When GbE is enabled, there can be at most up to 5 PCIe* ports enabled.
 - Devices can be x2 or x4
 - Devices can be implemented on PCIe Ports 5-8 and Ports 9-12
 - Up to 2 Intel RST for PCIe* storage devices supported

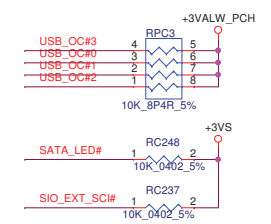
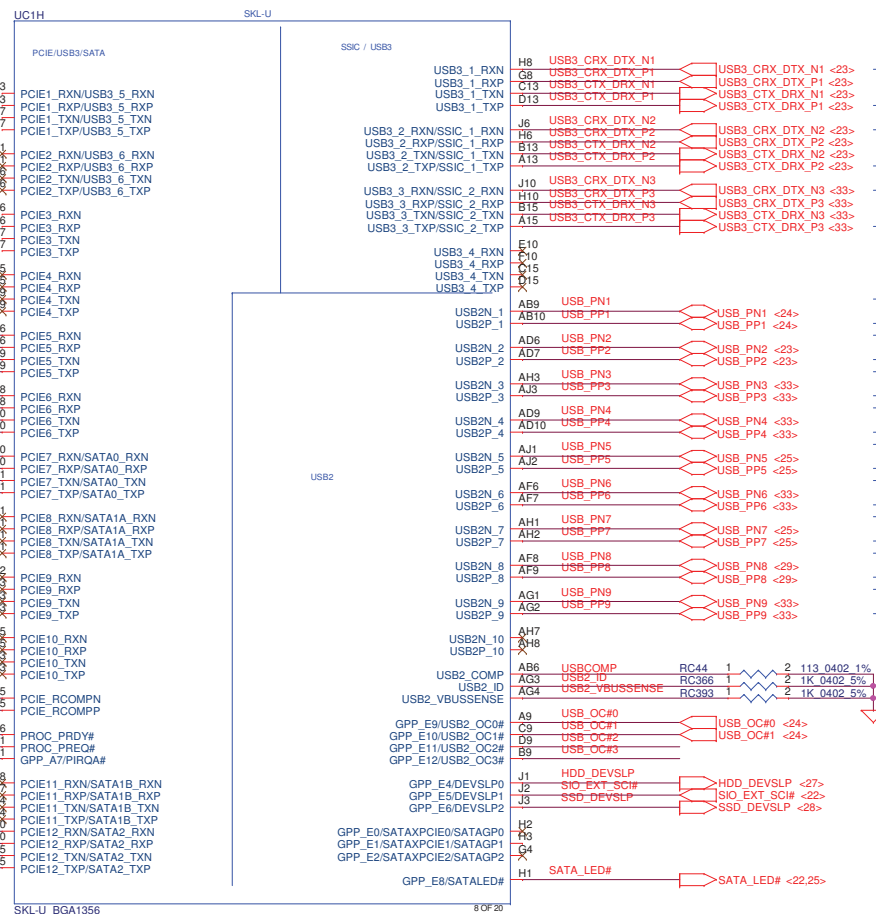
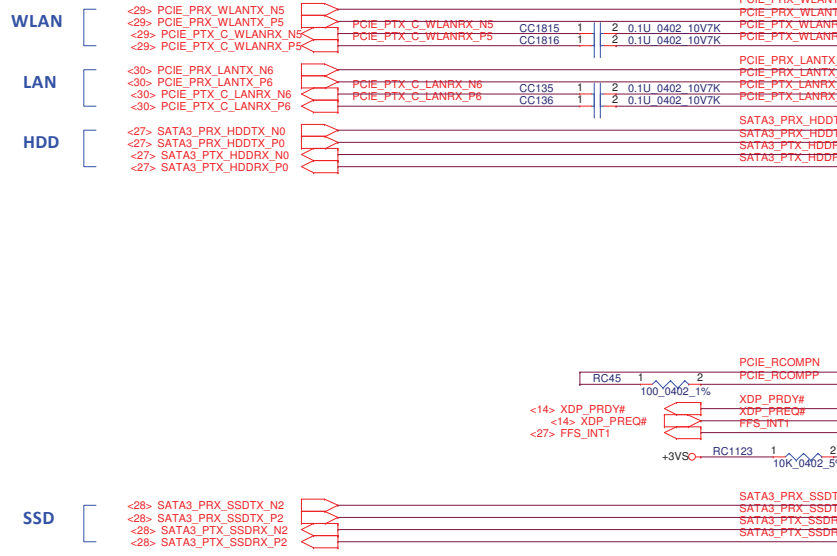


Table 1-3. PCH-LP HSIO Detail

SKU	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Base-U	USB 3.0/OTG	USB 3.0/SSIC	USB 3.0	USB 3.0	PCIe	PCIe	PCIe/LAN	PCIe/LAN	PCIe/LAN	PCIe	SATA	SATA	PCIe/LAN	PCIe/LAN	N/A	N/A
Premium-U	USB 3.0/OTG	USB 3.0/SSIC	USB 3.0	USB 3.0	PCIe/USB 3.0	PCIe/USB 3.0	PCIe/LAN	PCIe/LAN	PCIe/LAN	PCIe	PCIe/SATA	PCIe/SATA	PCIe/LAN	PCIe/LAN	PCIe/SATA	PCIe/SATA
Premium-Y	USB 3.0/OTG	USB 3.0/SSIC	USB 3.0	USB 3.0	PCIe/USB 3.0	PCIe/USB 3.0	PCIe/LAN	PCIe/LAN	PCIe/LAN	PCIe	PCIe/SATA	PCIe/SATA	PCIe/LAN	PCIe/LAN	N/A	N/A

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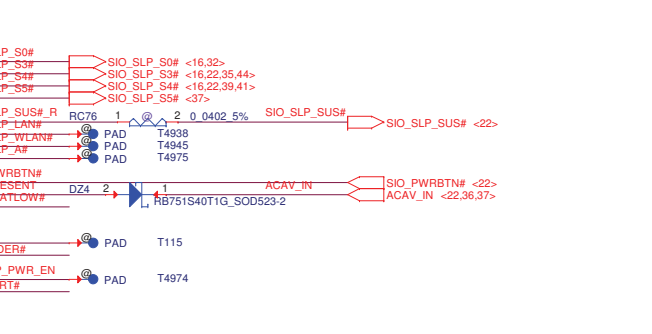
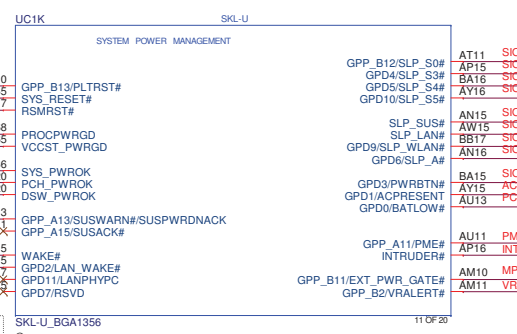
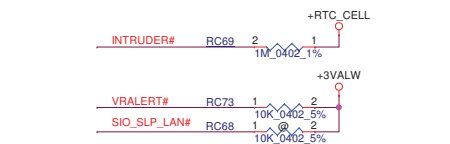
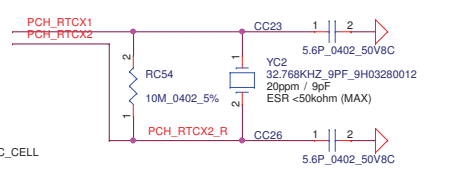
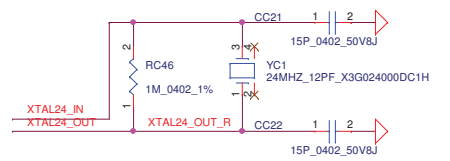
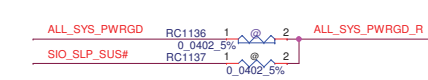
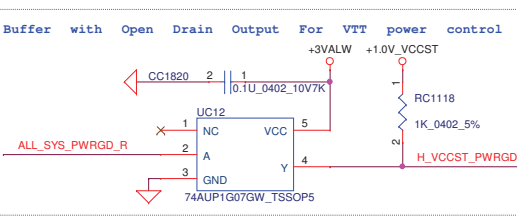
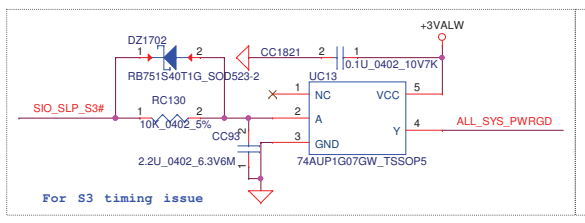
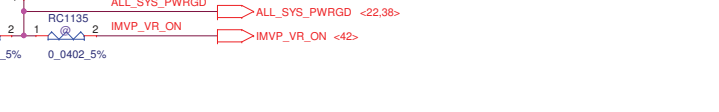
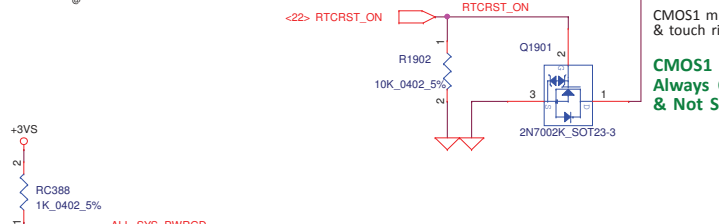
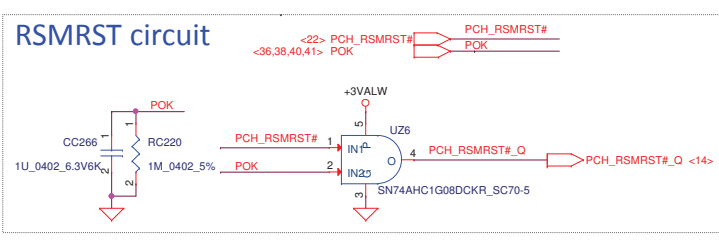
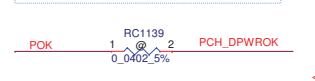
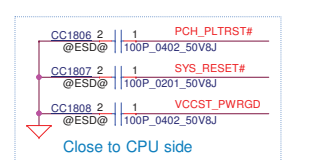
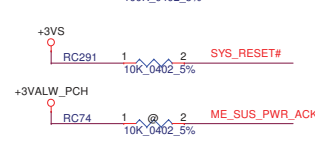
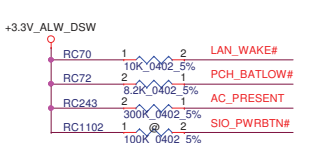
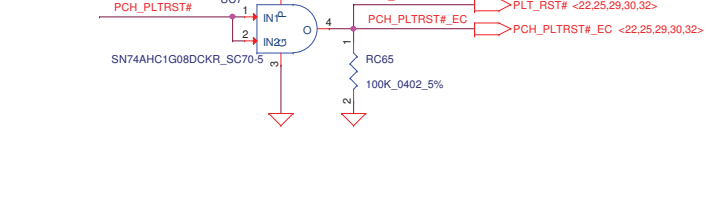
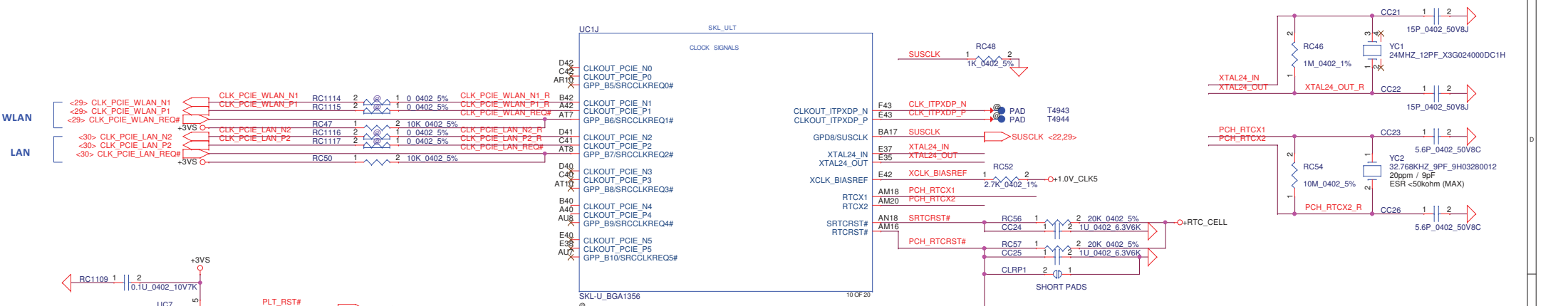
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Size: LA-D822P

Date: Monday, June 06, 2016

Sheet 10 of 46

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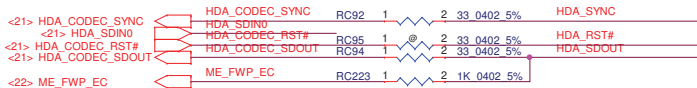
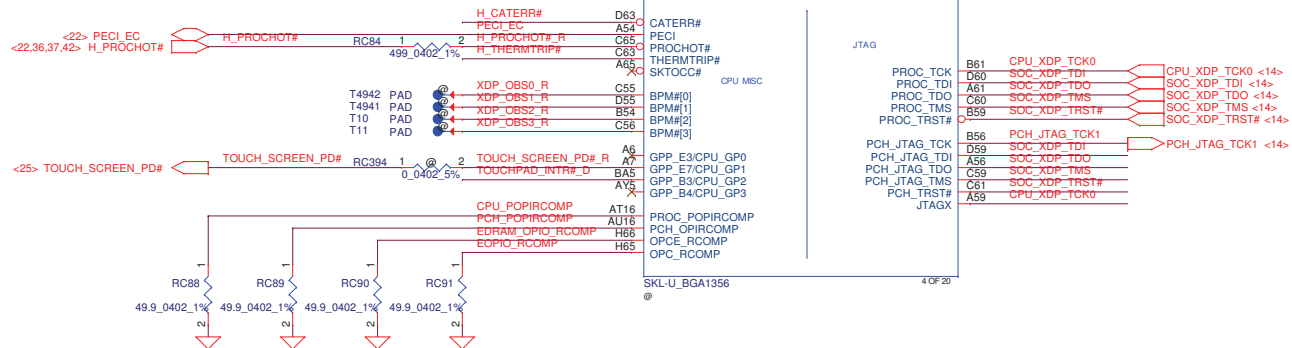
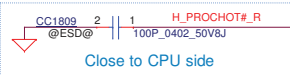
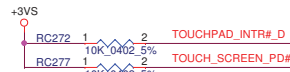
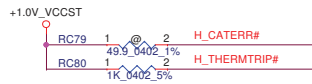
MCP(6/14)CLK,PM,RTC

LA-D822P

Monday, June 06, 2016

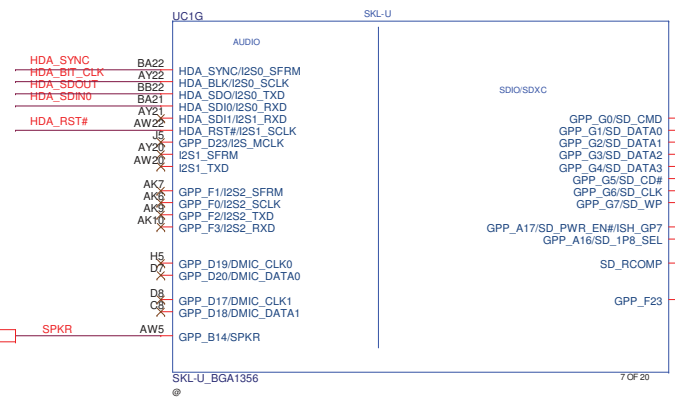
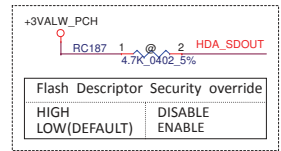
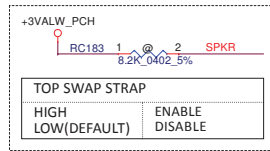
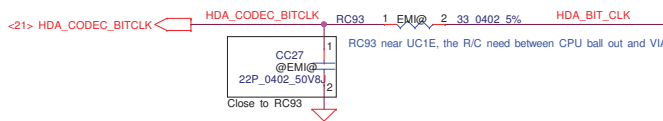
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ME_FWP_EC

- LO W= ENABLE--> ME lock can't update ME
- H GH = I] SABLE--> ME unlock can update ME



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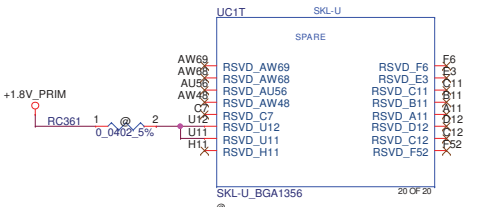
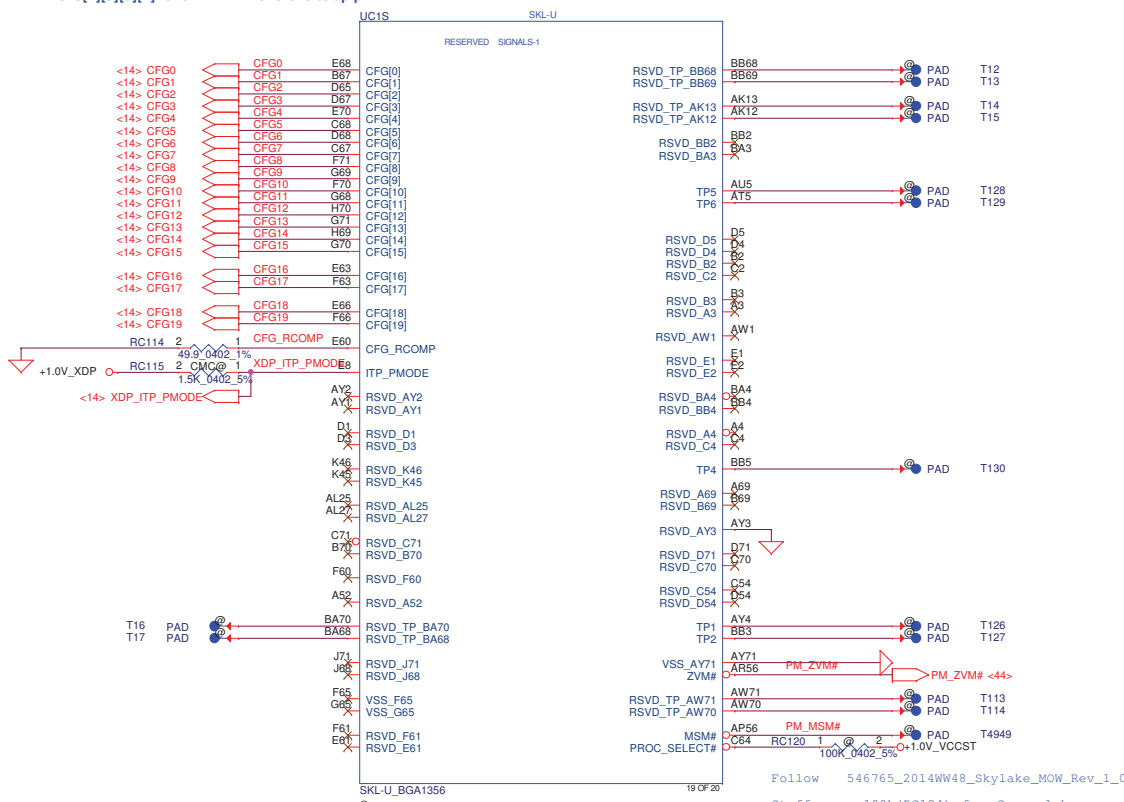
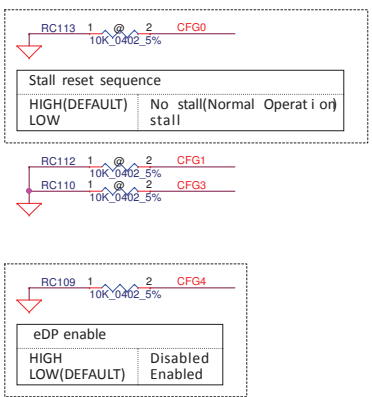
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Title		MCP(7/14)MISC,JTAG,HDA,SDIO	
Size	Document Number	Rev 1.0	
Date: Monday, June 06, 2016		Sheet 12	of 46

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CFG2[5][6][7] for SKYLAKE-H CPU CFG strap pin



For 2+3e Solut i on

PM_ZVM#
Zero Voltage Mode: Control Signal to OPC VR, when low OPC VR output is 0V.

PM_MSM#
Minimum Speed Mode: Control signal to VccEPIO VR (connected only in 2 VR solut i onf or OPQ).

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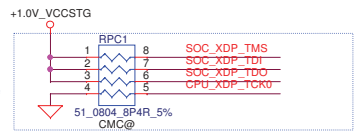
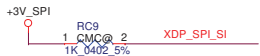
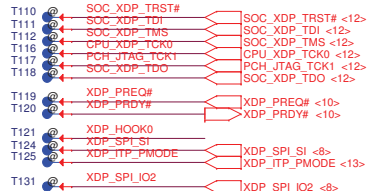
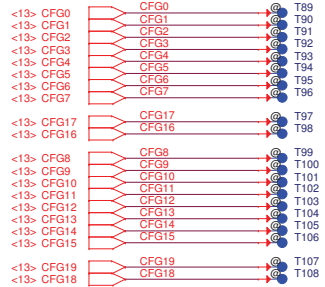
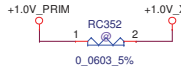
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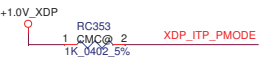
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Size	Document Number	Rev		1.0	
Date			Monday, June 06, 2016		
Sheet			13 of 46		

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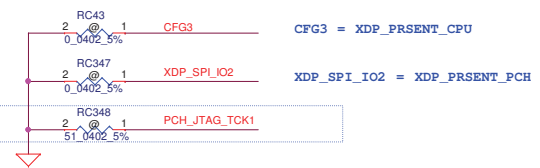
PRIMARY CMC CONN



Place to CPU side



Place to CPU side



UC1P SKL-U		UC1Q SKL-U		UC1R SKL-U	
GND 1 OF 3		GND 2 OF 3		GND 3 OF 3	
A5	VSS	AL65	VSS	BA49	VSS
A67	VSS	AL66	VSS	BA53	VSS
AA1	VSS	AM13	VSS	BA57	VSS
AA2	VSS	AM21	VSS	BA6	VSS
AA4	VSS	AM25	VSS	BA62	VSS
AA65	VSS	AM27	VSS	BA66	VSS
AA68	VSS	AU343	VSS	BA71	VSS
AB15	VSS	AM45	VSS	G52	VSS
AB16	VSS	AM46	VSS	G55	VSS
AB18	VSS	AM55	VSS	BB30	VSS
AB21	VSS	AM60	VSS	BB34	VSS
AB9	VSS	AM61	VSS	BB38	VSS
AD13	VSS	AM68	VSS	BB43	VSS
AD16	VSS	AM71	VSS	BB55	VSS
AD19	VSS	AM8	VSS	BB6	VSS
AD20	VSS	AM9	VSS	BB66	VSS
AD21	VSS	AN20	VSS	H15	VSS
AD62	VSS	AN23	VSS	H18	VSS
AD9	VSS	AN28	VSS	H71	VSS
AE64	VSS	AN30	VSS	J11	VSS
AE65	VSS	AW23	VSS	J13	VSS
AE66	VSS	AW26	VSS	J25	VSS
AE67	VSS	AW28	VSS	J28	VSS
AE68	VSS	AW30	VSS	C5	VSS
AE69	VSS	AW33	VSS	J32	VSS
AF1	VSS	AW36	VSS	J35	VSS
AF10	VSS	AW38	VSS	D11	VSS
AF15	VSS	AW41	VSS	D14	VSS
AF17	VSS	AW43	VSS	J42	VSS
AF2	VSS	AW45	VSS	D18	VSS
AF4	VSS	AW47	VSS	J8	VSS
AF63	VSS	AW49	VSS	D22	VSS
AG16	VSS	AW51	VSS	K16	VSS
AG17	VSS	AW53	VSS	K18	VSS
AG18	VSS	AW55	VSS	K22	VSS
AG19	VSS	AW57	VSS	D30	VSS
AG20	VSS	AW6	VSS	D34	VSS
AG21	VSS	AW66	VSS	D39	VSS
AG71	VSS	AW68	VSS	D44	VSS
AH13	VSS	AW70	VSS	D45	VSS
AH6	VSS	AR11	VSS	D47	VSS
AH64	VSS	AR15	VSS	D48	VSS
AH67	VSS	AR16	VSS	D53	VSS
AJ15	VSS	AR20	VSS	D58	VSS
AJ18	VSS	AR23	VSS	D6	VSS
AJ20	VSS	AR28	VSS	D62	VSS
AJ4	VSS	AR35	VSS	D64	VSS
AK11	VSS	AR42	VSS	D66	VSS
AK16	VSS	AR43	VSS	D69	VSS
AK18	VSS	AR45	VSS	E11	VSS
AK21	VSS	AR46	VSS	E15	VSS
AK22	VSS	AR48	VSS	E18	VSS
AK27	VSS	AR5	VSS	E21	VSS
AK63	VSS	AR50	VSS	E46	VSS
AK88	VSS	AR52	VSS	E50	VSS
AK69	VSS	AR53	VSS	E53	VSS
AK8	VSS	AR55	VSS	E56	VSS
AL2	VSS	AR58	VSS	E6	VSS
AL28	VSS	BA1	VSS	E65	VSS
AL32	VSS	BA10	VSS	E71	VSS
AL35	VSS	BA14	VSS	F1	VSS
AL38	VSS	BA18	VSS	F13	VSS
AL4	VSS	BA2	VSS	F2	VSS
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				F95	VSS
				F96	VSS
				F97	VSS
				F98	VSS
				F99	VSS
				F100	VSS

For Pre-ES Parts: Disconnect PCH CORE_VID[1:0] to the VR and fix PCH VCCPRIM_CORE voltage at 1.00 V.

- R1: not populated
- R2, R3: populated to set VCCPRIM_CORE to 1.00V. Consult with VR vendor for appropriate values.
- R4, R5 (feedback resistor): populated if needed. Some VRs only support up to 0.95V natively with VID options. 1.00 V should be created by selecting 0.95V option and using feedback resistors to shift voltage up 50 mV. Consult with VR vendor for appropriate values for proper VR operation while minimizing power consumption

For ES and Later Parts: Connect PCH CORE_VID[1:0] to the VR.

- R1: populated
- R2, R3: not populated
- R4, R5 (feedback resistors): populated if needed to obtain appropriate voltage per the updated PCH VID encoding table above. Consult with VR vendor for appropriate values

For VRs that only support up to 0.95V natively with VID options, using R4 and R5 to shift the voltage table up 50mV will result in the LPM voltage output being shifted up slightly. If the VR supports LPM voltage, the specified, lowest supportable voltage is 0.70V for optimized power consumption. With R4, R5 configured to shift from 0.95V to 1.00V, the LPM voltage will effectively be shifted from 0.70V to ~0.75V. This will not be a functional issue for the platforms, but will slightly de-optimize power consumption. It is recommended that customers work with their VR vendors to adjust to the new voltage table.

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Title: MCP(9,14)XDP/VSS

Size: LA-D822P

Date: Monday, June 06, 2016

Rev: 1.0

Sheet: 14 of 46

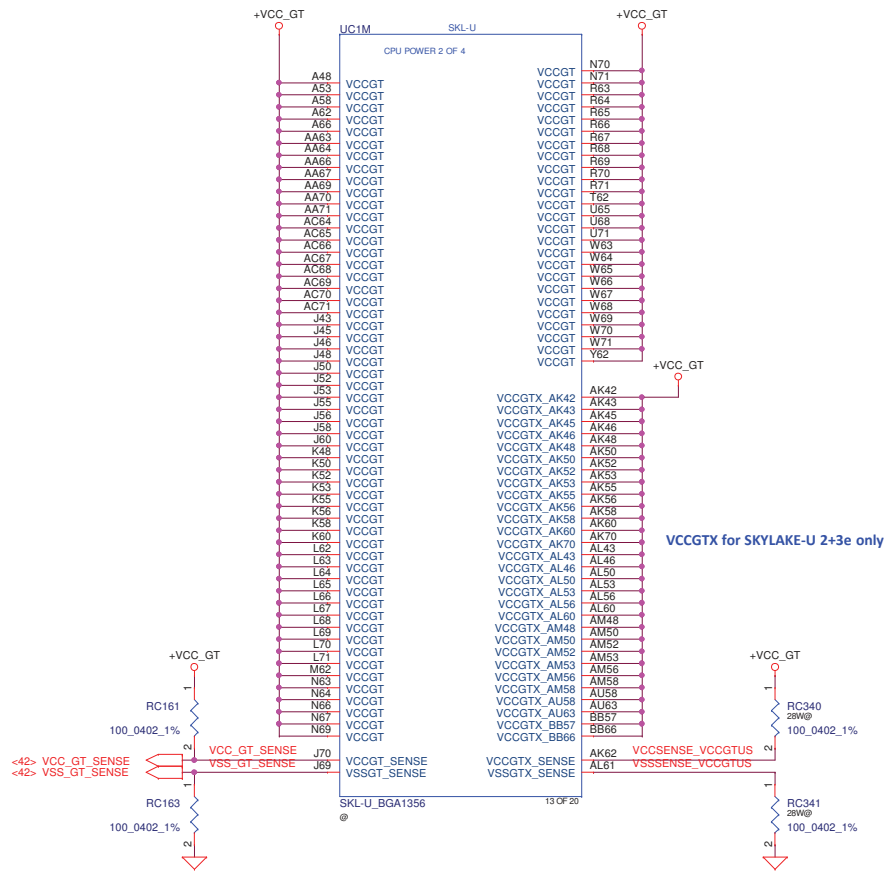
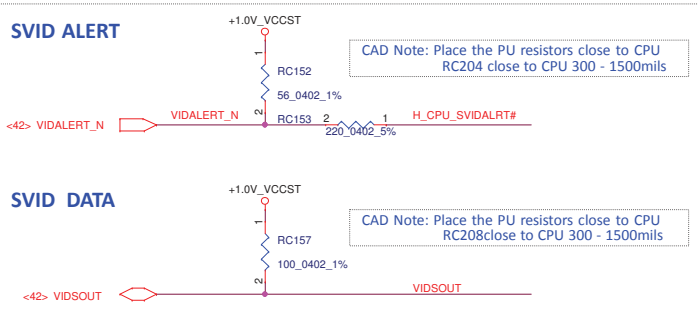
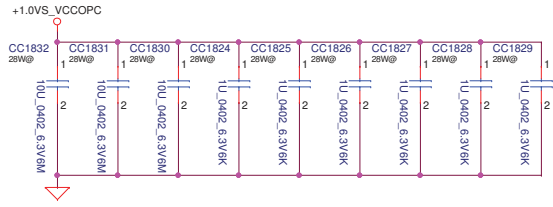
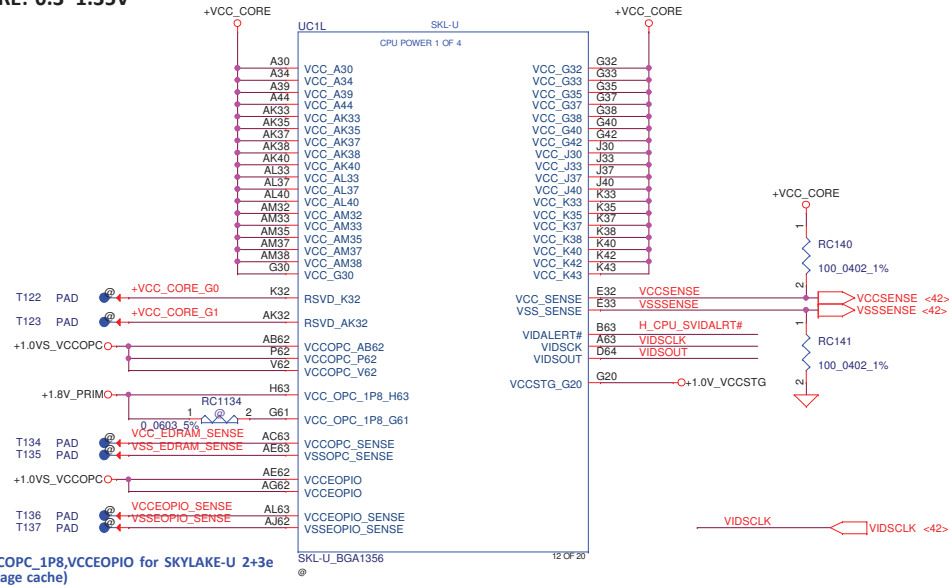
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PSC(Primary side cap) : Place as close to the package as possible
 BSC(Backside cap) : Place on secondary side, underneath the package

Component placement order:
 Package edge > D402 caps > 0805 caps > Bulk caps > Power source

+VCC_CORE: 0.3~1.35V

+VCCGT: 0.3~1.35V
+VCCGTx : 0.3~1.35V



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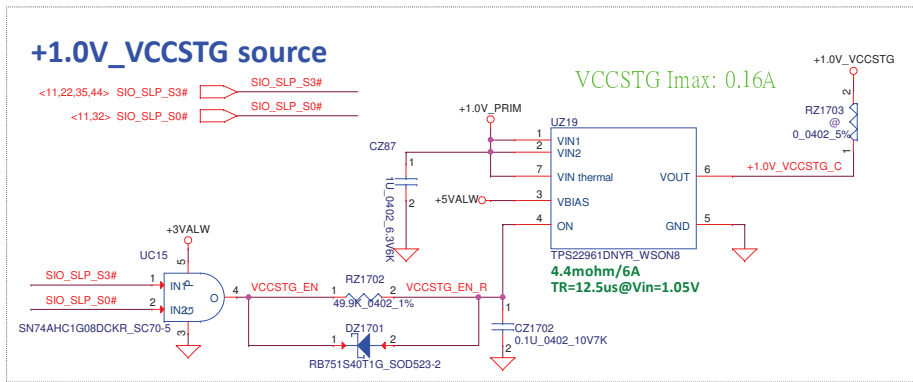
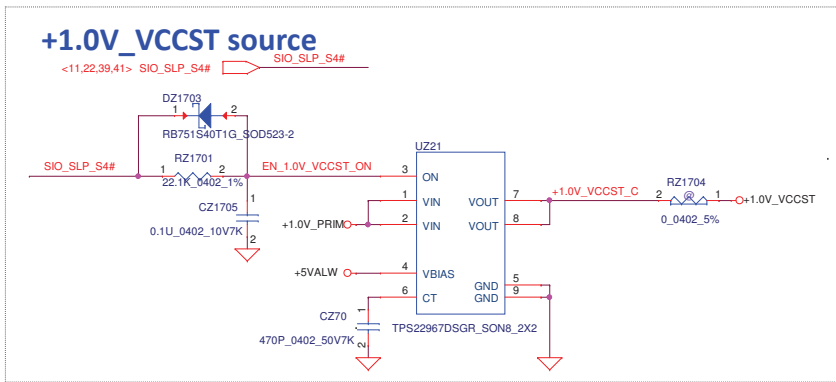
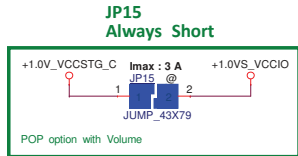
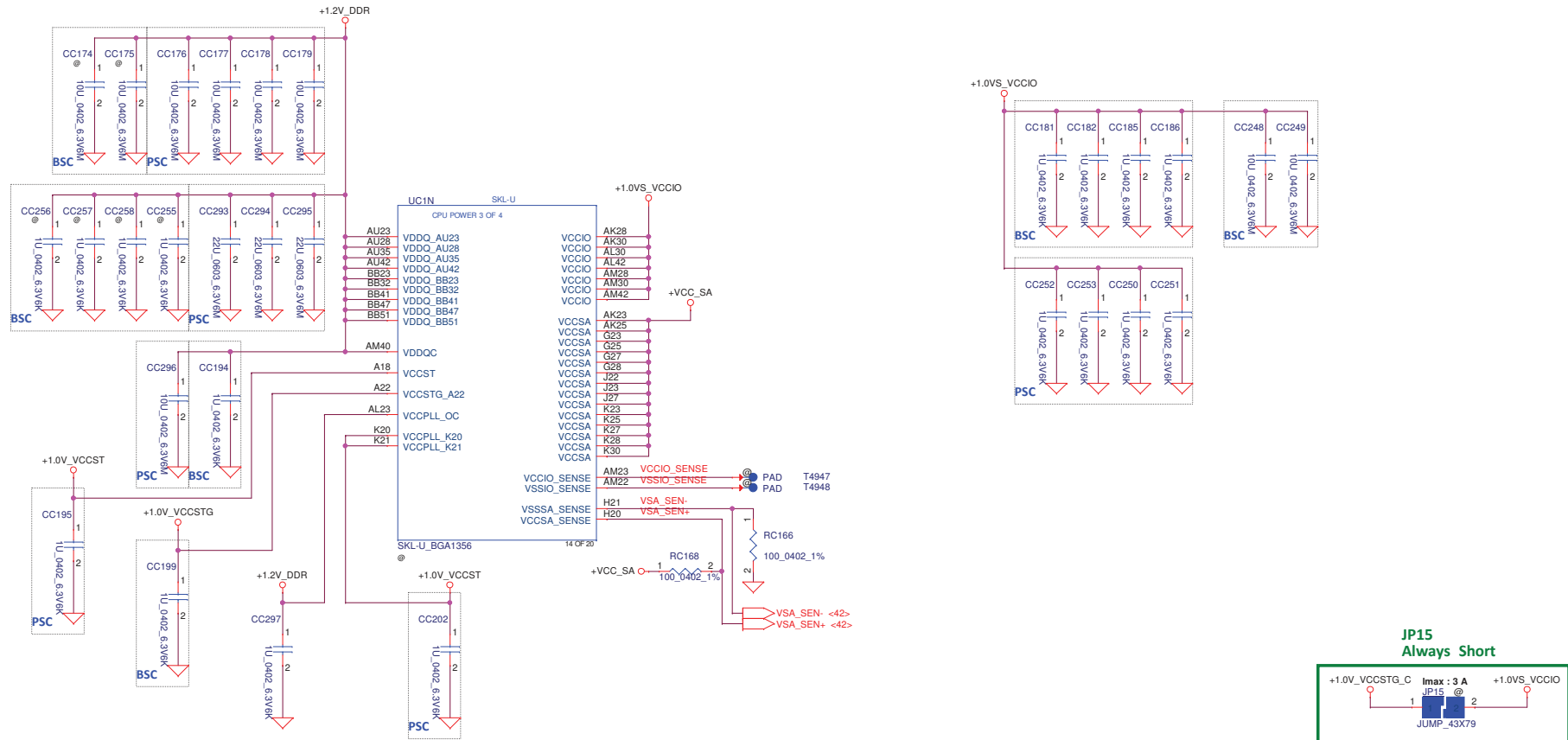
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Title: **MCP(10,11/14)PWR-VCCORE,GT**

Size: Document Number: **LA-D822P** Rev: 1.0

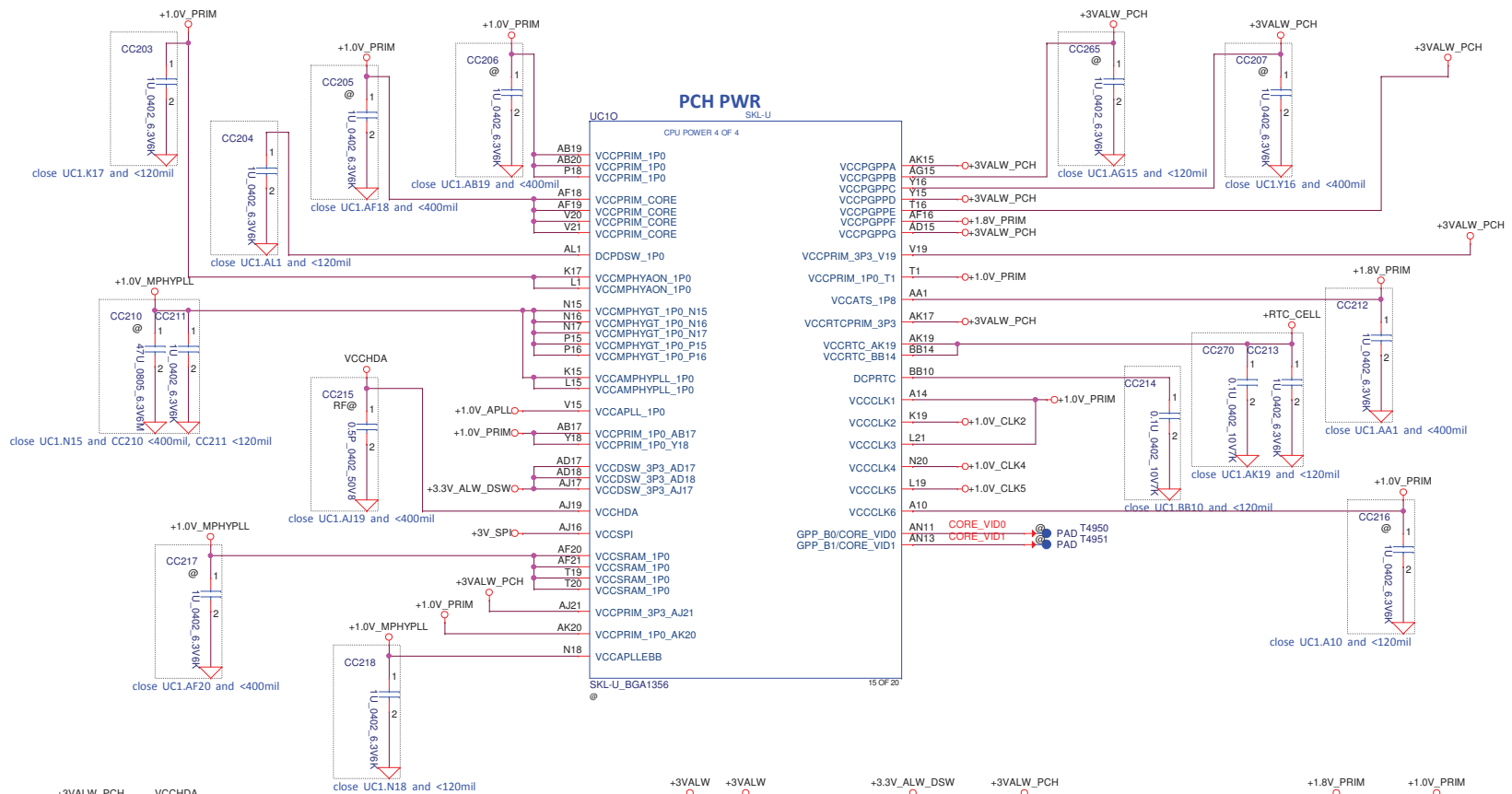
Date: Monday, June 06, 2016 Sheet: 15 of 46



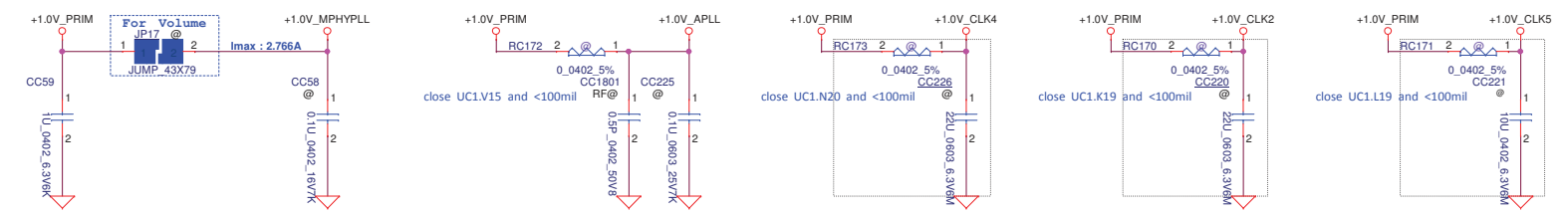
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MCP(12/14)PWR-VCCIO, MEM			
LA-D822P			
Size	Document Number	Rev 1.0	
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+1.0V PRIM TO +1.0V MPHYPOLL

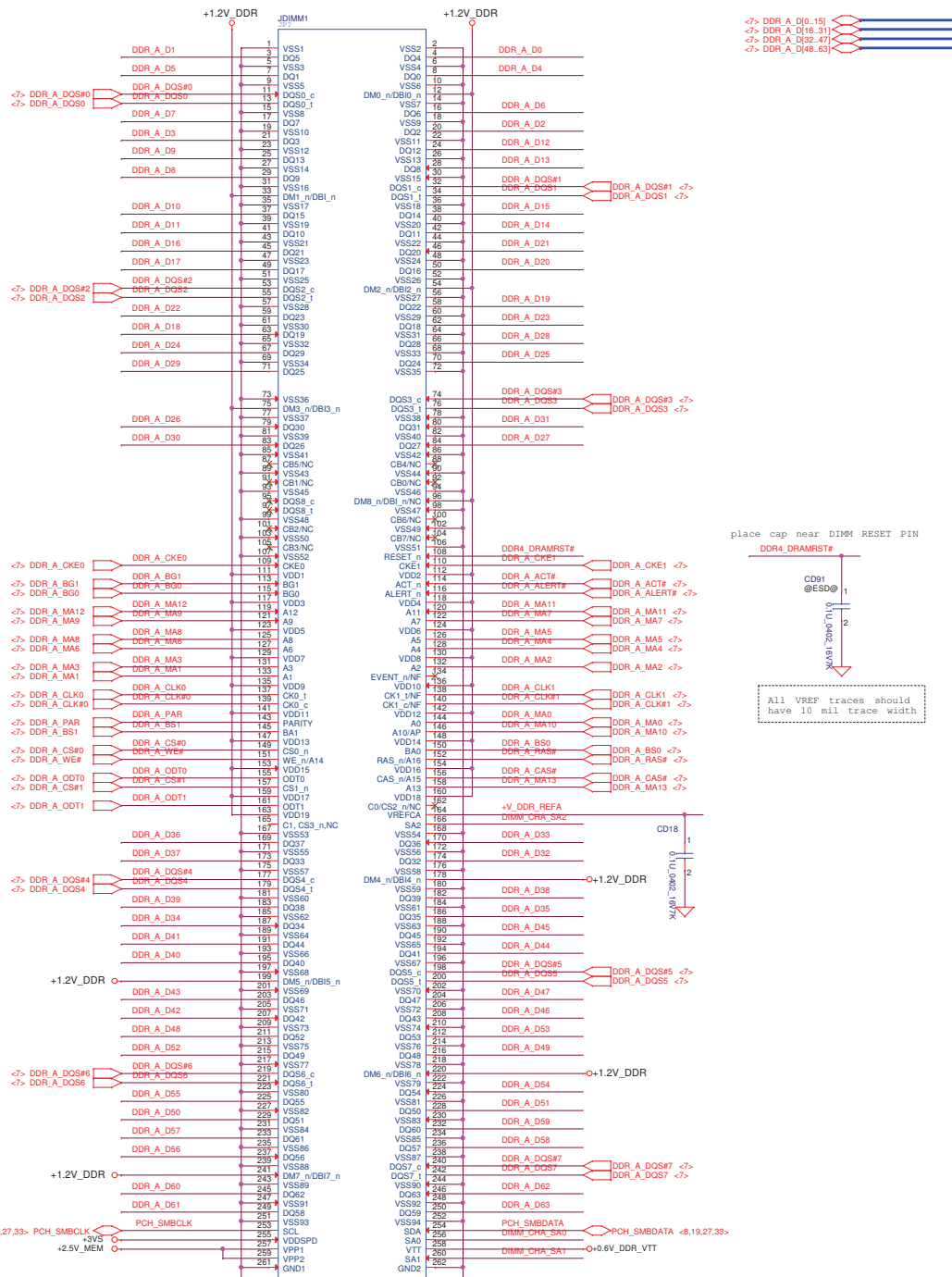


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Title		
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Size	Document Number	Rev
	LA-D822P	1.0
Date:	Monday, June 06, 2016	Sheet 17 of 46

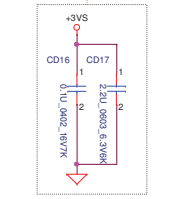
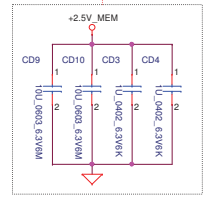
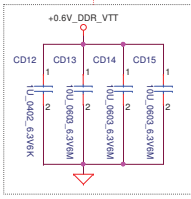


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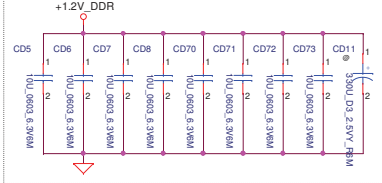
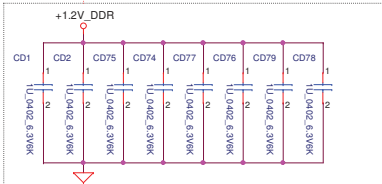
Layout Note:
Place near JDIMM1.258

Layout Note:
Place near JDIMM1.257,259

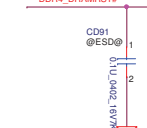
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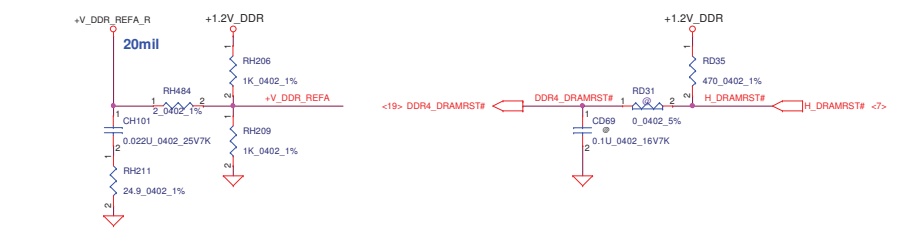
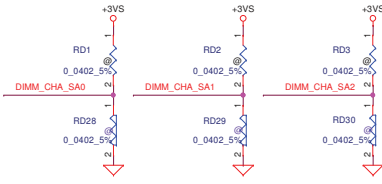
Layout Note:
Place near JDIMM1



place cap near DIMM RESET PIN

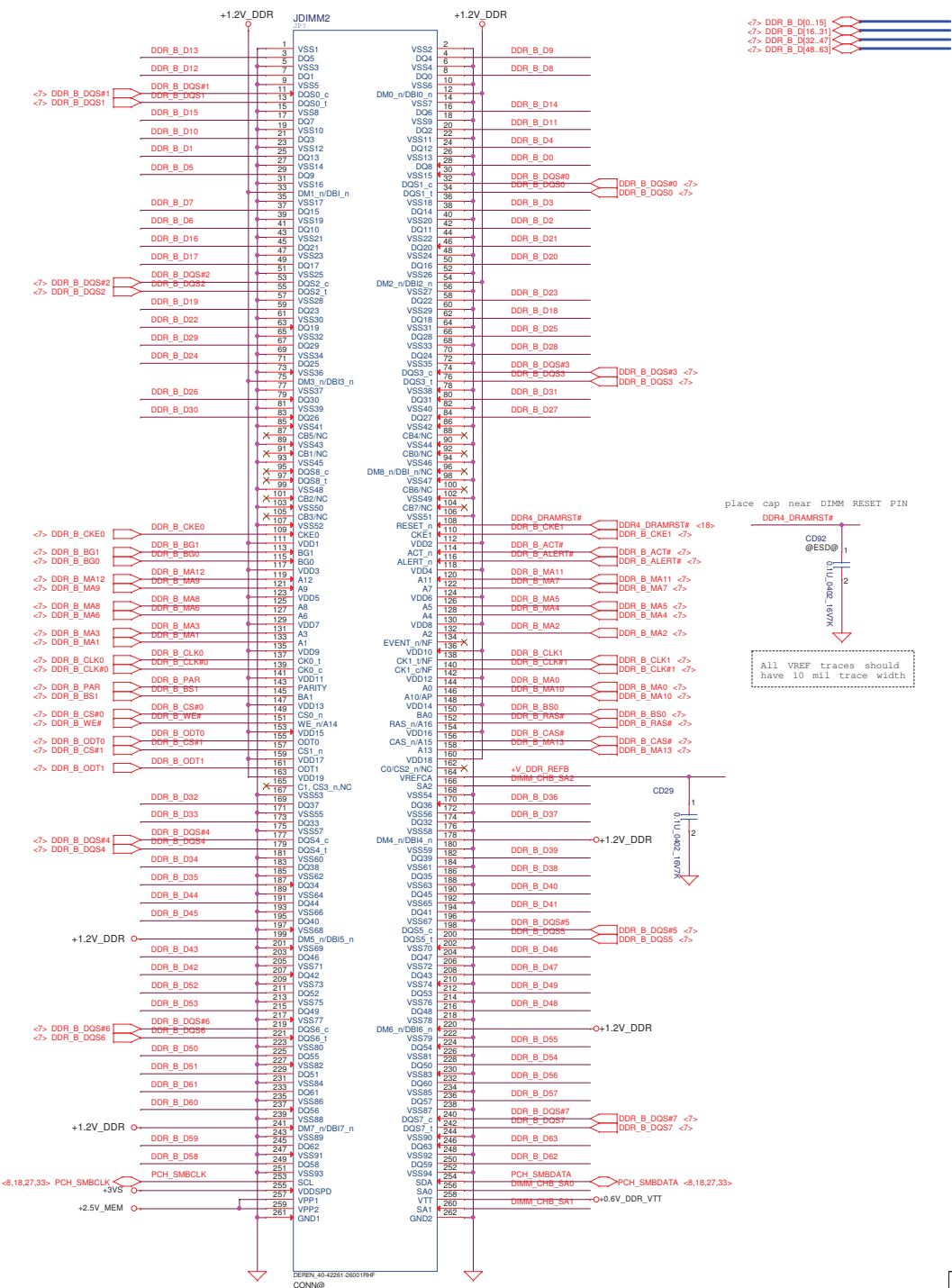


All VREF traces should have 10 mil trace width



REV: 43-42271-28001R#
CONN@

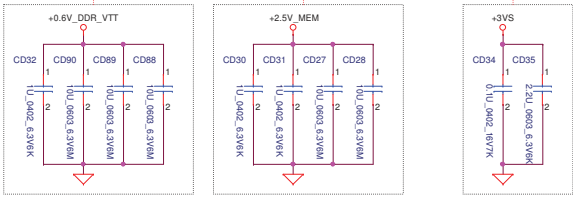
Security Classification		Compal Secret Data		Title	
Issued Date	2015/01/30	Deciphered Date	2016/12/31	DDRIV DIMMA	
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Date:	Monday, June 06, 2016	Sheet	18 of 46	LA-D822P	Rev 1.0



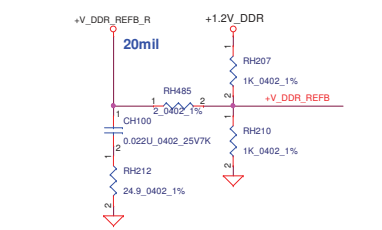
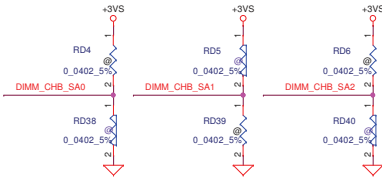
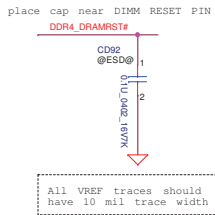
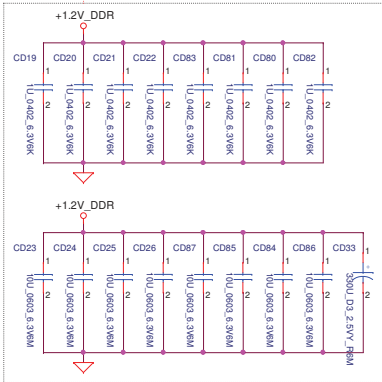
Layout Note: Place near JDIMM2.258

Layout Note: Place near JDIMM2.257, 259

Layout Note: Place near JDIMM2.255



Layout Note: Place near JDIMM2

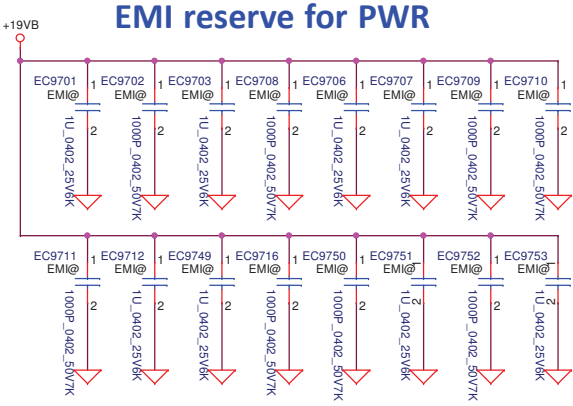
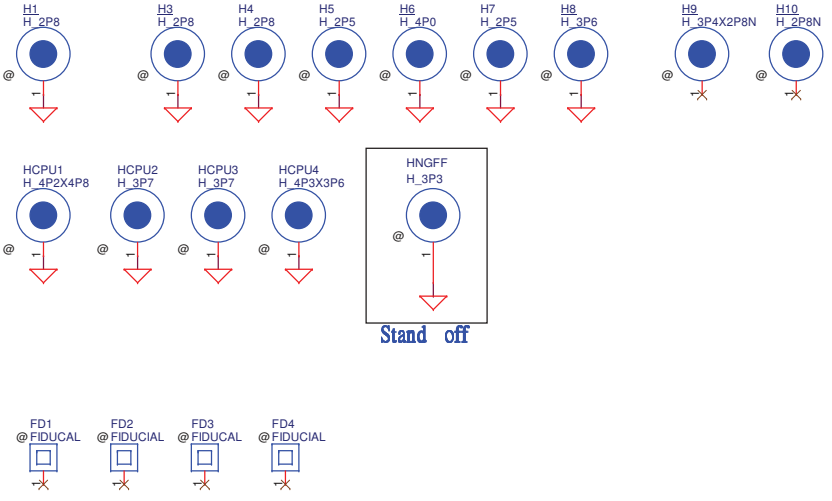


REV:EN: 43-42261-28001R#
CONN#

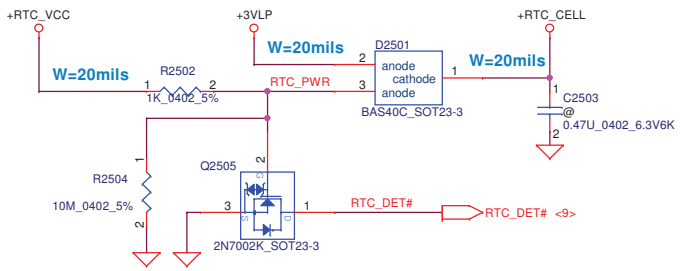
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Issued Date	2015/01/30	Deciphered Date	2016/12/31	DRIV DIMM8	
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Date:	Monday, June 06, 2016	Sheet	19	of 46	

Main Func = Other

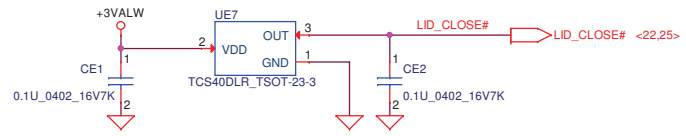
Screw hole/FD/EMI stop



Main Func = RTC

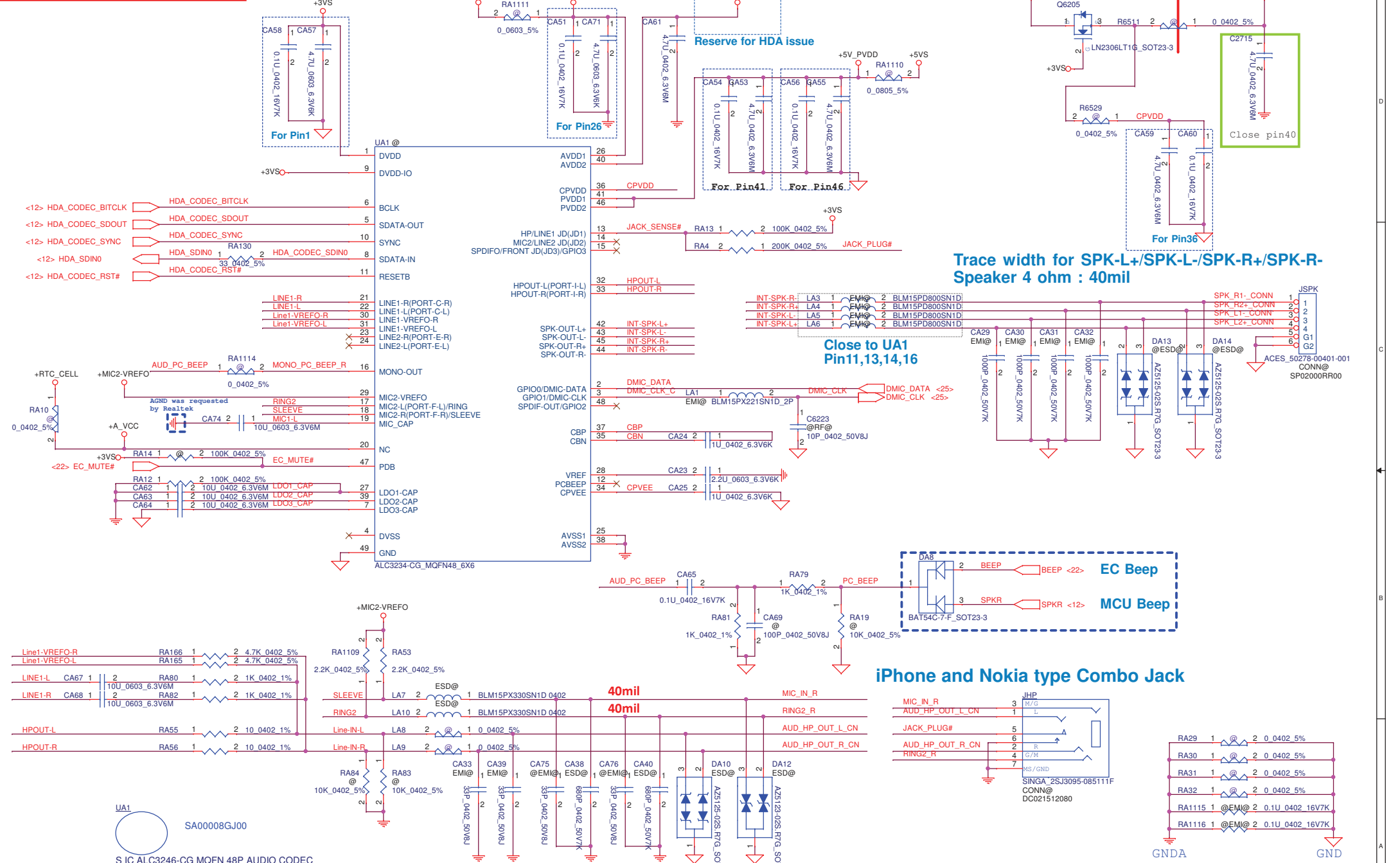


Main Func = LID Switch



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Main Func = Audio

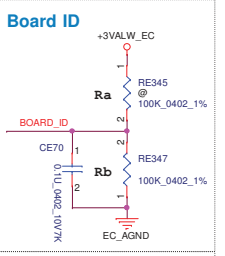
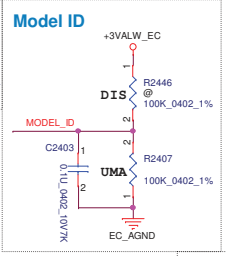
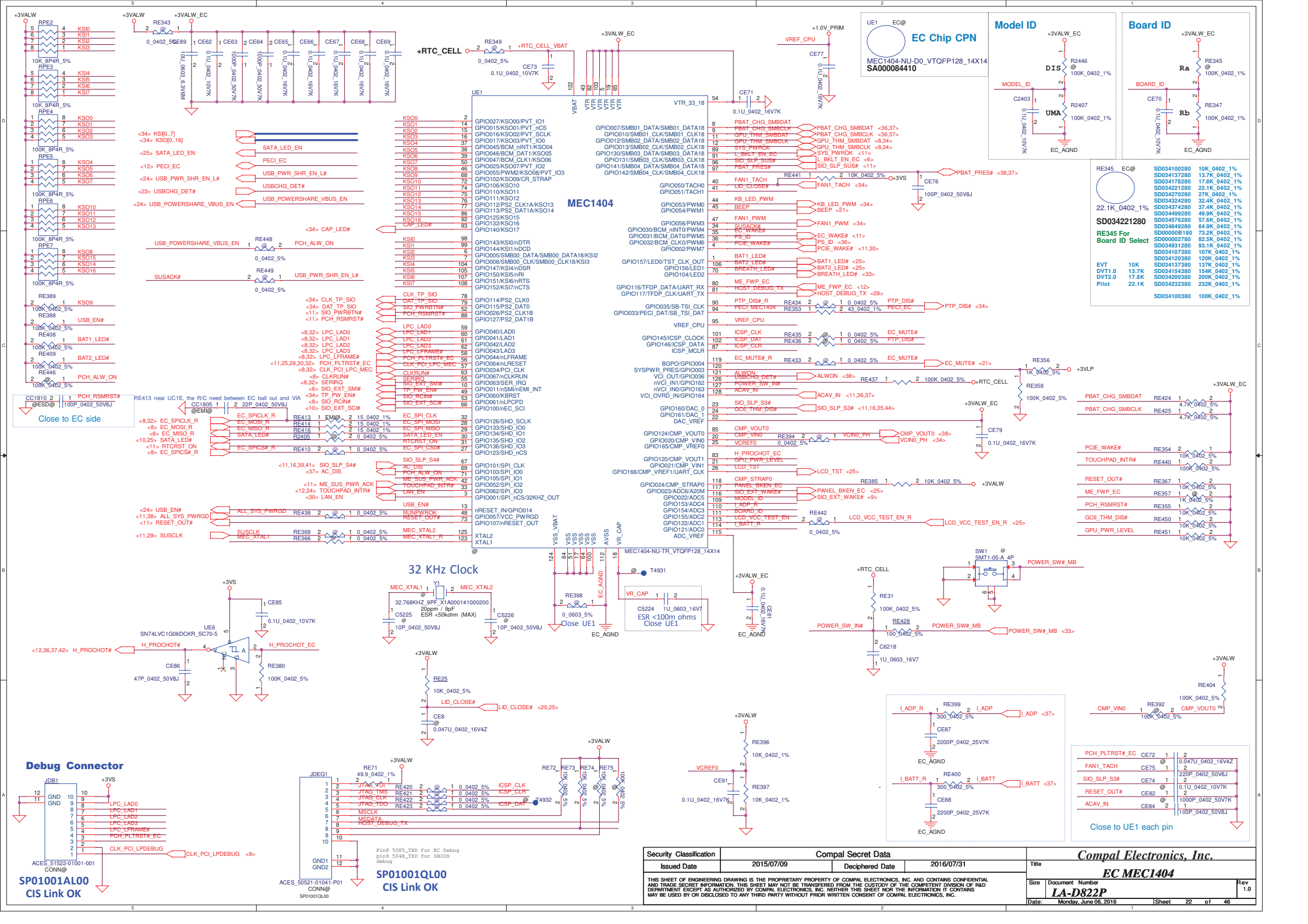


Diff Table

IC	PIN	PIN4	PIN11	PIN12	PIN16	PIN20	PIN36
ALC3234	DVSS	RESETB	PCBEEP	MONO-OUT	NC	CPVDD(3.3V)	
ALC3246	DC_DET	I2C_SDA	I2C_SCL	PCBEEP	5VSTB	CPVDD(1.8V)	

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Issued Date	2014/04/01	Deciphered Date	2015/04/30
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Compal Electronics, Inc.			
Title: Audio Codec ALC3246			
Size	Document Number	Rev	
	LA-D822P	1.0	
Date:	Monday, June 06, 2016	Sheet	21 of 46

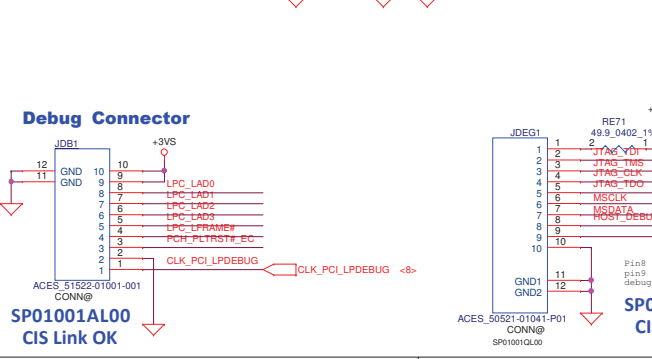
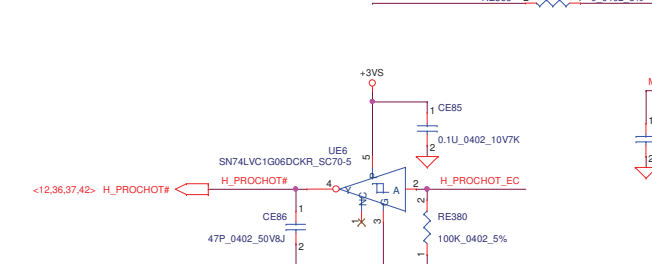
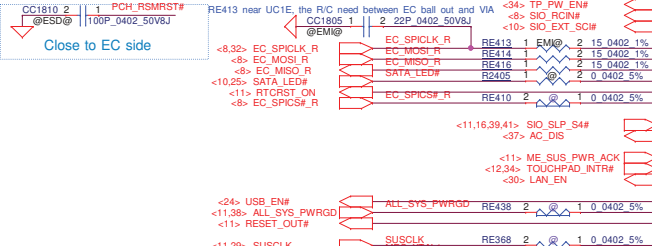
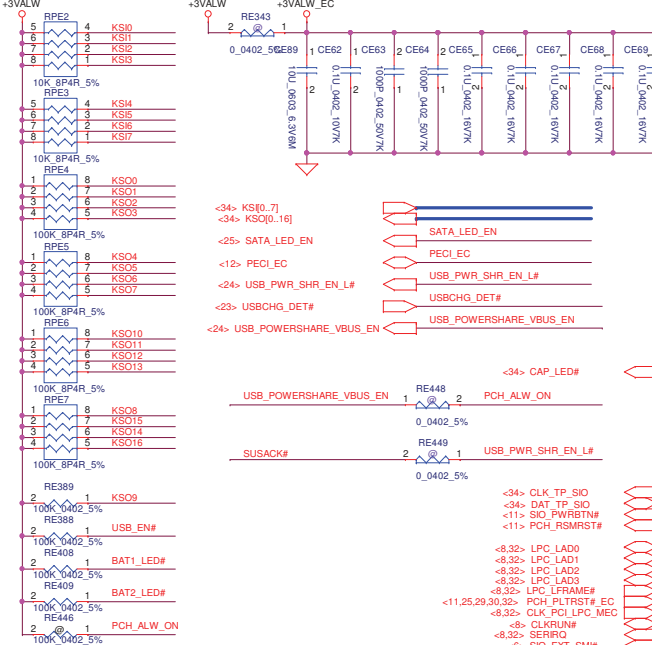


SD034221280
RE345 For Board ID Select

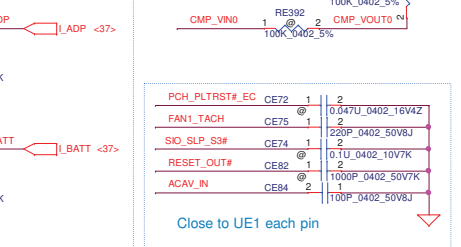
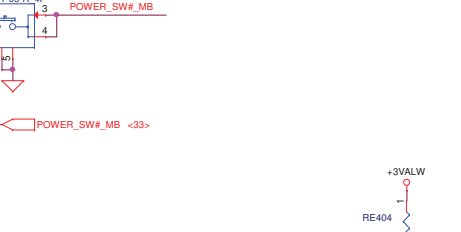
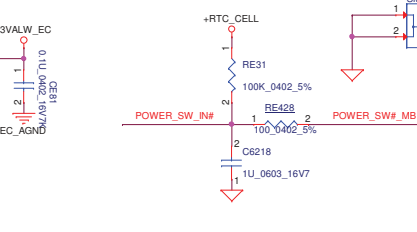
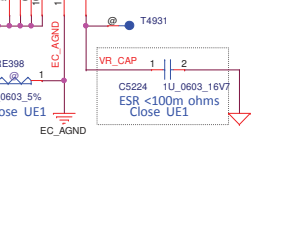
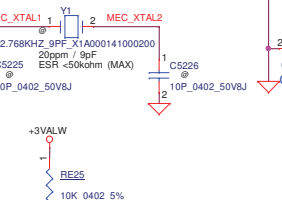
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DVT1.0	13.7K	SD034154380	154K_0402_1%
DVT2.0	17.8K	SD034203380	200K_0402_1%
Pilot	22.1K	SD034232380	232K_0402_1%
		SD034103380	100K_0402_1%

MEC1404

GPIO007/SMB01_DATA/SMB01_DATA18	8	PBAT_CHG_SMBDAT	PBAT_CHG_SMBDAT <36.37>
GPIO016/KS002_PVT_SCLK	11	GPU_THM_SMBDAT	GPU_THM_SMBDAT <36.37>
GPIO017/KS003_PVT_IO0	12	GPU_THM_SMBCLK	GPU_THM_SMBDAT <8.34>
GPIO018/SMB02_CLK/SMB02_CLK18	13	SYS_PWROK	GPU_THM_SMBCLK <8.34>
GPIO046/BCM_DAT1/KS005	38	L_BKLT_EN_EC	SYS_PWROK <11>
GPIO047/BCM_CLK1/KS006	39	SIO_SLP_S3#	L_BKLT_EN_EC <6>
GPIO055/PWM2/KS008/PVT_IO3	46	PBAT_PRES#	SIO_SLP_S3# <11>
GPIO102/KS009_CR_STRAP	72	FAN1_TACH	PBAT_PRES# <36.37>
GPIO106/KS010	75	KB_LED_PWM	FAN1_TACH <34>
GPIO111/KS012	76	BEEP	KB_LED_PWM <34>
GPIO112/PS2_CLK1/KS013	77	FAN1_PWM	BEEP <21>
GPIO113/PS2_DAT1/KS014	78	SUSACK#	FAN1_PWM <34>
GPIO125/KS015	82	PCIE_WAKE#	SUSACK# <11>
GPIO132/KS016	83	PS_ID	PCIE_WAKE# <11.30>
GPIO140/KS017	88	PCIE_WAKE#	PS_ID <36>
GPIO143/KS10nDTR	93	BAT1_LED#	PCIE_WAKE# <11.30>
GPIO144/KS11nDCCD	94	BAT2_LED#	BAT1_LED# <25>
GPIO005/SMB00_DATA/SMB00_DATA18/KS12	105	BREATH_LED#	BAT2_LED# <25>
GPIO006/SMB00_CLK/SMB00_CLK18/KS13	106	ME_FWP_EC	BREATH_LED# <33>
GPIO147/KS14nDSR	107	HOST_DEBUG_TX	ME_FWP_EC <12>
GPIO150/KS15nIRTS	108	HOST_DEBUG_TX	HOST_DEBUG_TX <29>
GPIO151/KS16nIRTS	109	PTP_DIS#_R	ME_FWP_EC <12>
GPIO152/KS17nCTS	110	PECL_EC	HOST_DEBUG_TX <29>
GPIO114/PS2_CLK0	79	ICSP_CLK	PTP_DIS# <34>
GPIO115/PS2_DAT0	80	ICSP_DAT	PECL_EC <11>
GPIO116/PS2_DAT1	81	ICSP_CLR	PTP_DIS# <34>
GPIO127/PS2_DAT1B	88	ICSP_MCLR	PECL_EC <11>
GPIO044/LAD0	59	EC_MUTE#_R	ICSP_CLR <2>
GPIO041/LAD1	60	ALWON	EC_MUTE#_R <21>
GPIO042/LAD2	61	USBSH3_DET#	ALWON <38>
GPIO043/LAD3	62	POWER_SW_IN#	USBSH3_DET# <25>
GPIO044/nLFRAME	63	ACAV_IN	POWER_SW_IN# <38>
GPIO044/nLRESET	64	SIO_SLP_S3#	ACAV_IN <11.36.37>
GPIO034/PCL_CLK	56	OC6_THM_DIS#	SIO_SLP_S3# <11.16.35.44>
GPIO007/nCLRUN	53	CMP_VOUT0	OC6_THM_DIS# <25>
GPIO033/SER_IRQ	50	CMP_VIN0	CMP_VOUT0 <38>
GPIO001/nBSM/nEM_INT	49	MODEL_ID	CMP_VIN0 <34>
SIO_FWR#	53	H_PROCHOT_EC	MODEL_ID <9.0402.5%>
SIO_EXT_S3W#	55	GPU_PWR_LEVEL	H_PROCHOT_EC <25>
TP_PW_EN#	49	LCD_TST	GPU_PWR_LEVEL <25>
SIO_EXT_S3#	53	RESET_OUT#	LCD_TST <25>
SIO_EXT_S3W#	55	ME_FWP_EC	RESET_OUT# <2>
SIO_EXT_S3#	55	PCH_RSMRST#	ME_FWP_EC <2>
SIO_EXT_S3W#	55	CG6_THM_DIS#	PCH_RSMRST# <1K_0402_5%>
SIO_EXT_S3#	55	GPU_PWR_LEVEL	CG6_THM_DIS# <10K_0402_5%>
SIO_EXT_S3W#	55		GPU_PWR_LEVEL <10K_0402_5%>



32 KHz Clock



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Issued Date	2015/07/09	Deciphered Date	2016/07/31

Compal Electronics, Inc.
EC MEC1404

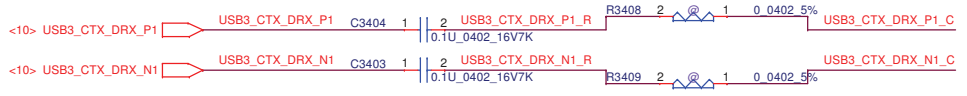
Size	Document Number	Rev
	LA-D822P	1.0

Date: Monday, June 06, 2016 | Sheet: 22 of 46

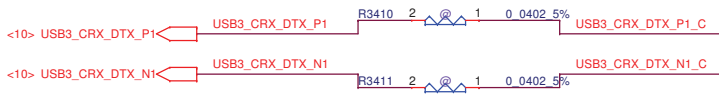
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Main Func = USB3.0 Port1/Port2

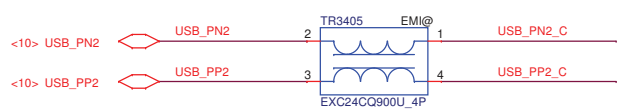
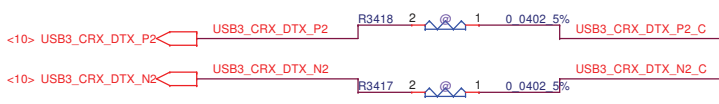
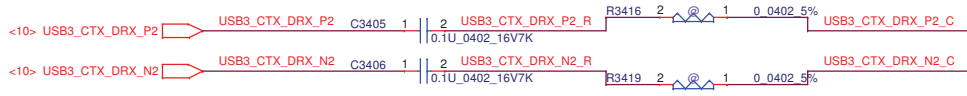
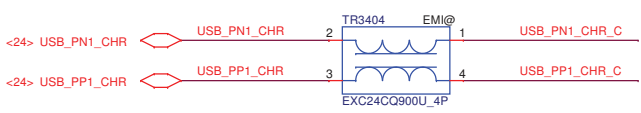
USB3.0 90ohm
 Main SM070003V00(S COM FL_INPAQ HCM1012GH900BP)
 2nd SM070004000(S COM FL_TAIYO MCF12102G900-T)
 3rd SM070004300(S COM FL_PANASONIC EXC24CH900U)



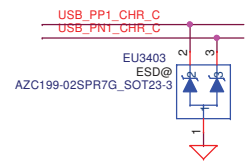
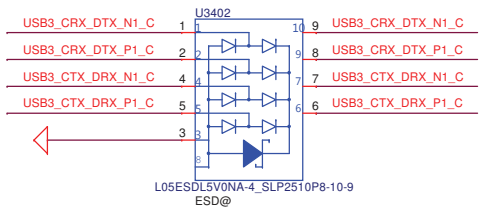
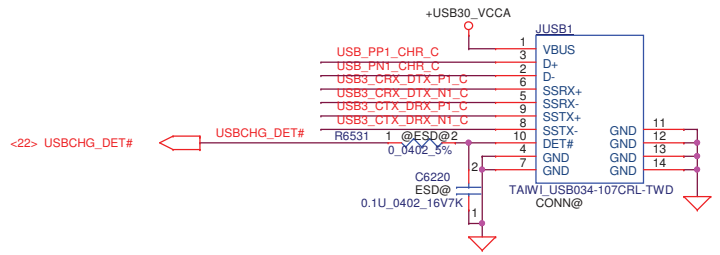
USB3.0 90ohm
 Main SM070003V00(S COM FL_INPAQ HCM1012GH900BP)
 2nd SM070004000(S COM FL_TAIYO MCF12102G900-T)
 3rd SM070004300(S COM FL_PANASONIC EXC24CH900U)



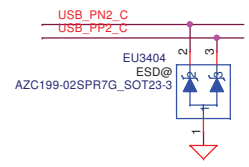
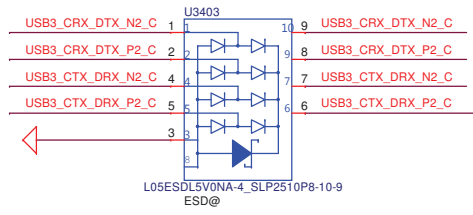
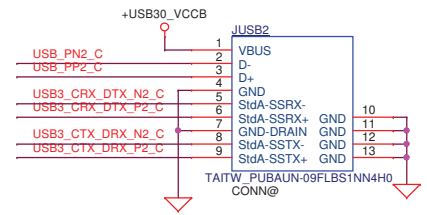
USB2.0 90ohm
 Main SM070003Z00(S COM FL_INPAQ MCM1012B900F06BP)
 2nd SM070004U00(S COM FL_MURATA DLM11SN900HY2L)
 3rd SM070004400(S COM FL_PANASONIC EXC24CQ900U)



USB3.0 Port1

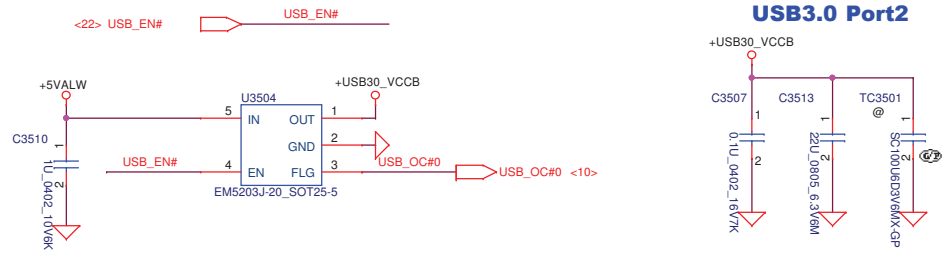


USB3.0 Port2

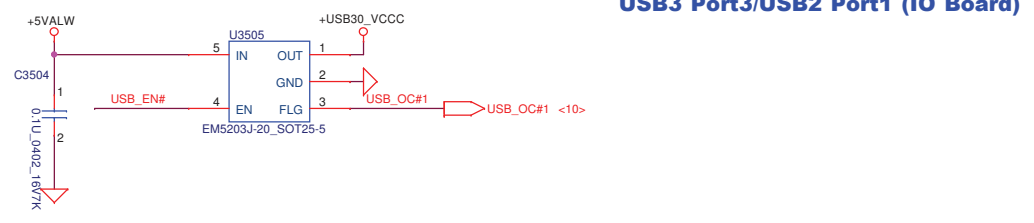


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Size	Document Number		LA-D822P		Rev		1.0	
Date:	Monday, June 06, 2016		Sheet		23		of 46	

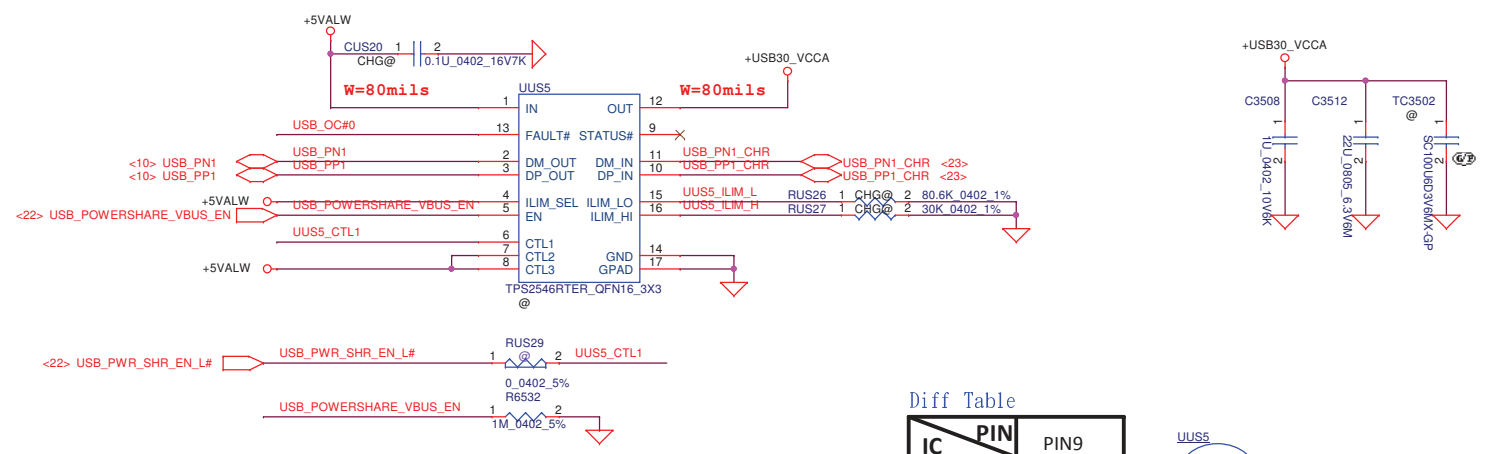
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Main Func = USB3.0 Port3 / USB2.0 Port



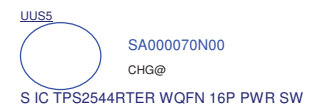
Main Func = USB Chager



Charger CT	CTL1	CTL2	CTL3	ILIM_SEL
EC GPIO	GPIOA07 (pin104)	GPIO22 (pin41)	GPIOA11 (pin108)	GPIO21 (pin40)
S0/S3 (CDP)	1	1	1	1
S4/S5 (DCP)	0	1	1	1

Diff Table

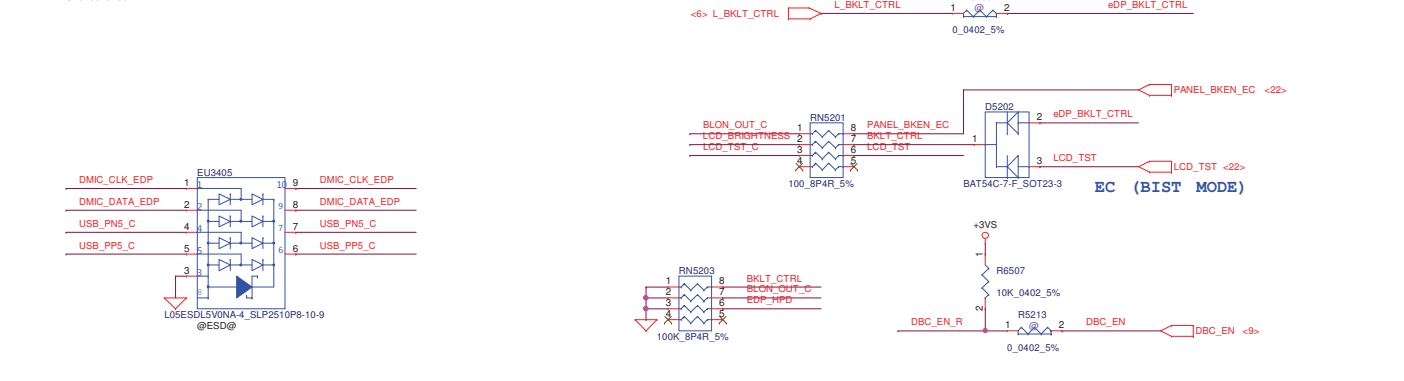
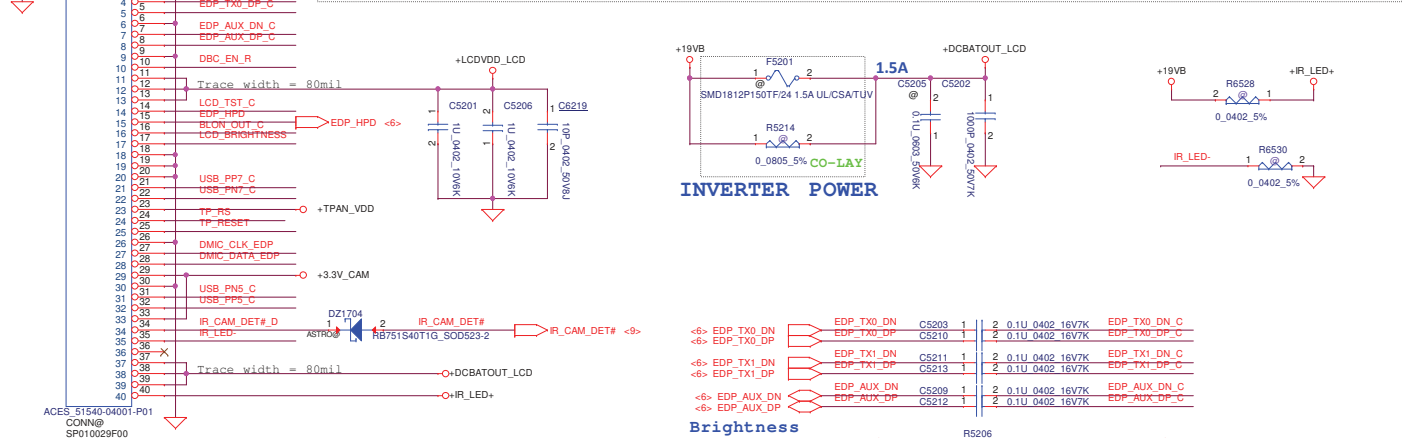
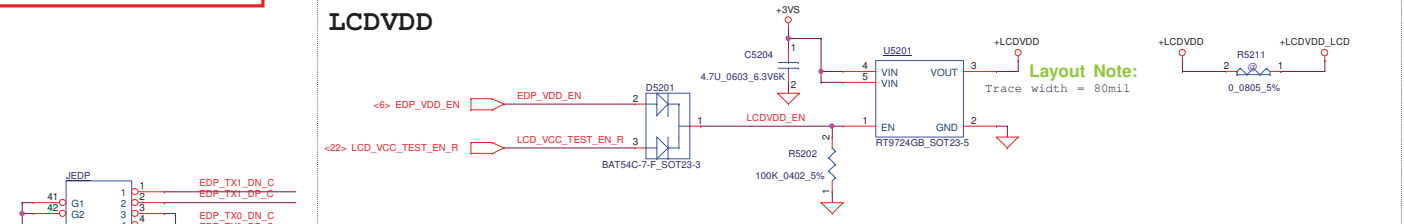
IC	PIN	PIN9
TPS2546		STATUS#
TPS2544		NC



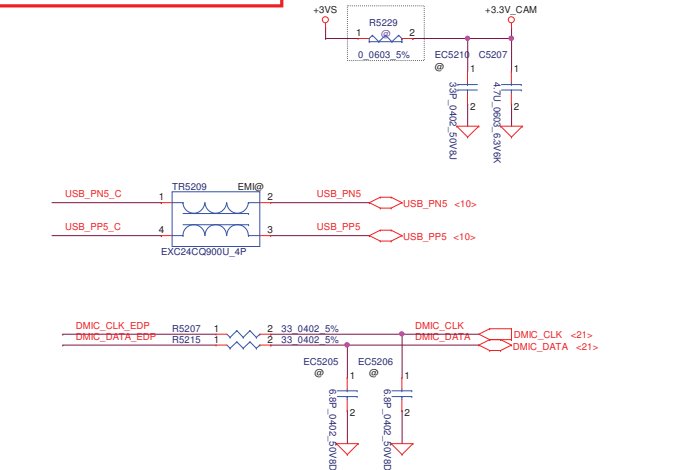
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2015/07/09	Deciphered Date	2016/07/31	Title	
				USB Power SW	
Size		Document Number			Rev
		LA-D822P			1.0
Date:		Monday, June 06, 2016	Sheet	24	of 46

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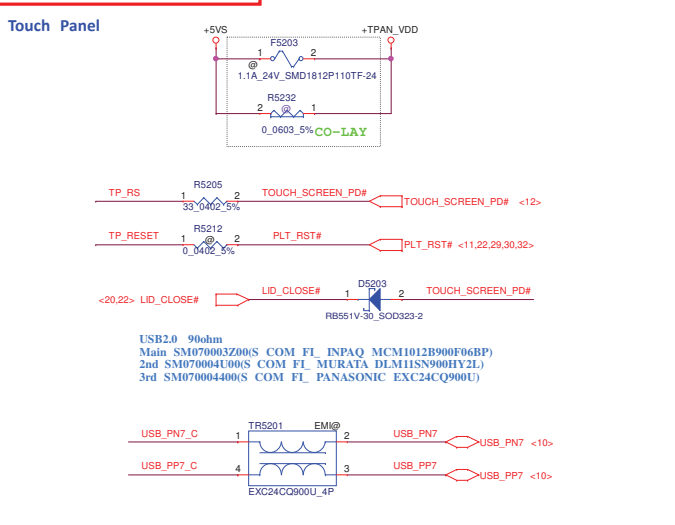
Main Func = LCD



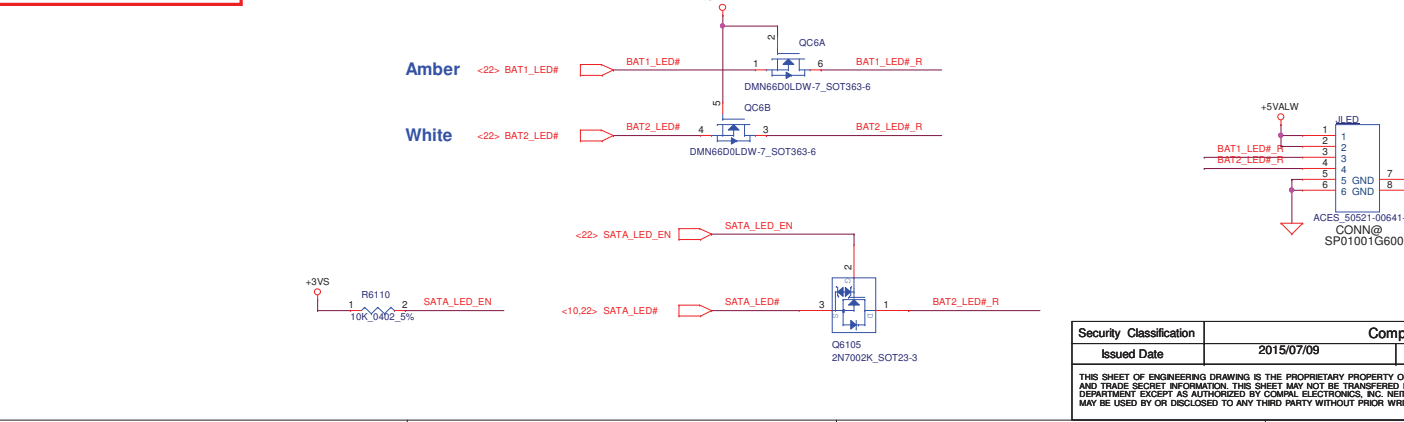
Main Func = CAM



Main Func = TS



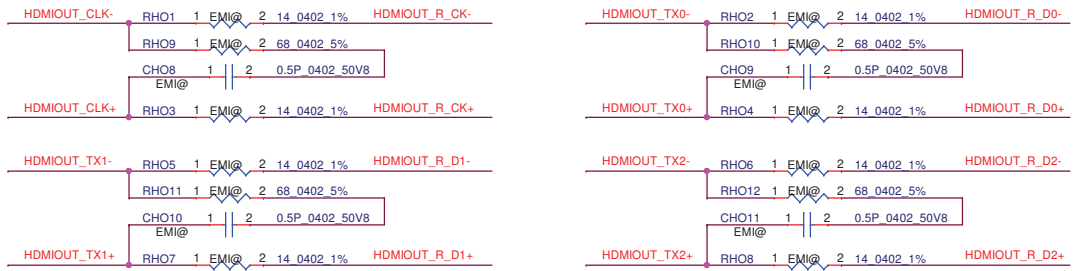
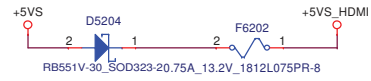
Main Func = LED



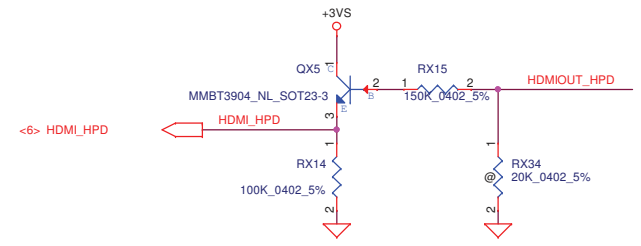
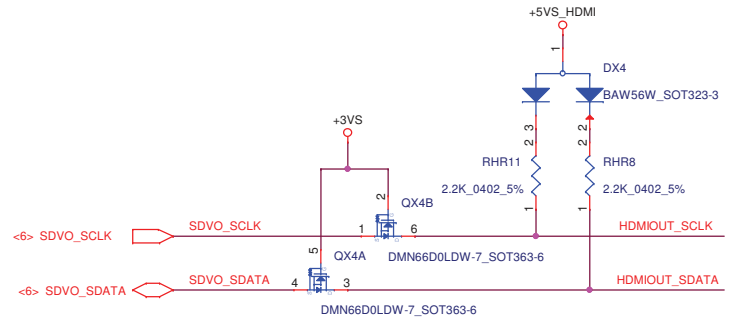
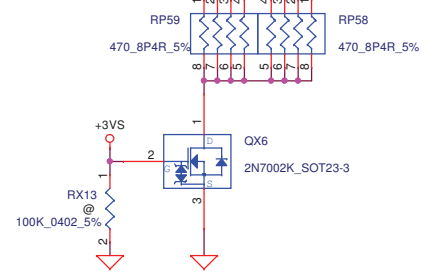
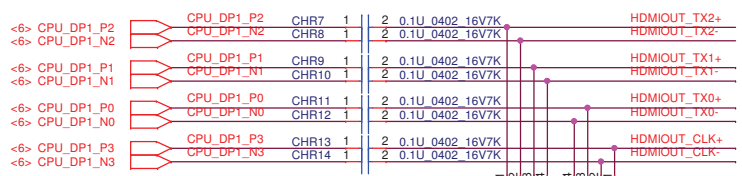
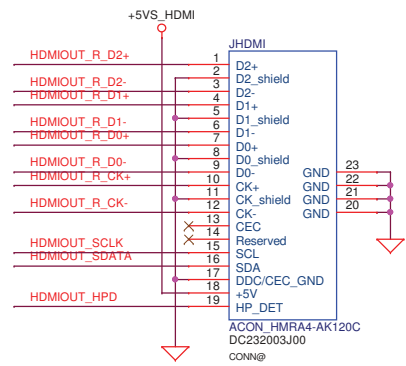
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Issued Date	2015/07/09	Deciphered Date	2016/07/31	Rev
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Main Func = LED				Document Number LA-D822P
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Main Func = HDMI

2014.12.25
 1. LHO1, LHO2, LHO, LH O4 change root pin (SI ZE : 050 4) and unpp
 2. RHO1, RHO3, RHO5, RHO7, RHO2, RHO4, RHO6, RHO8, RHO13, RHO14, RHO15, RHO16, change to pop.

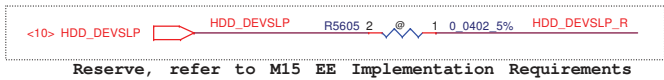
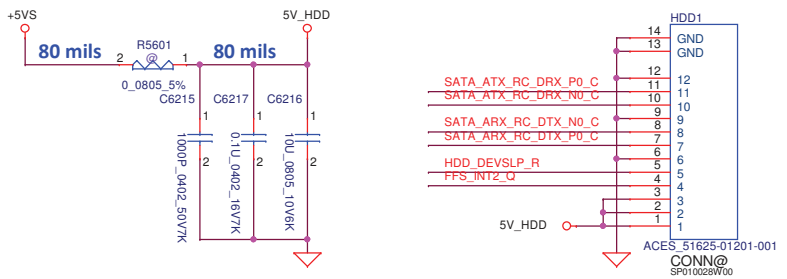


HDMI-OUT Connector

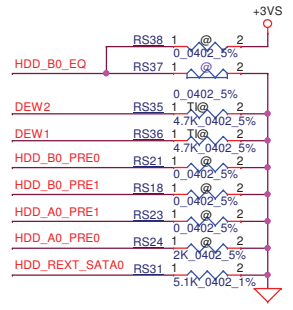
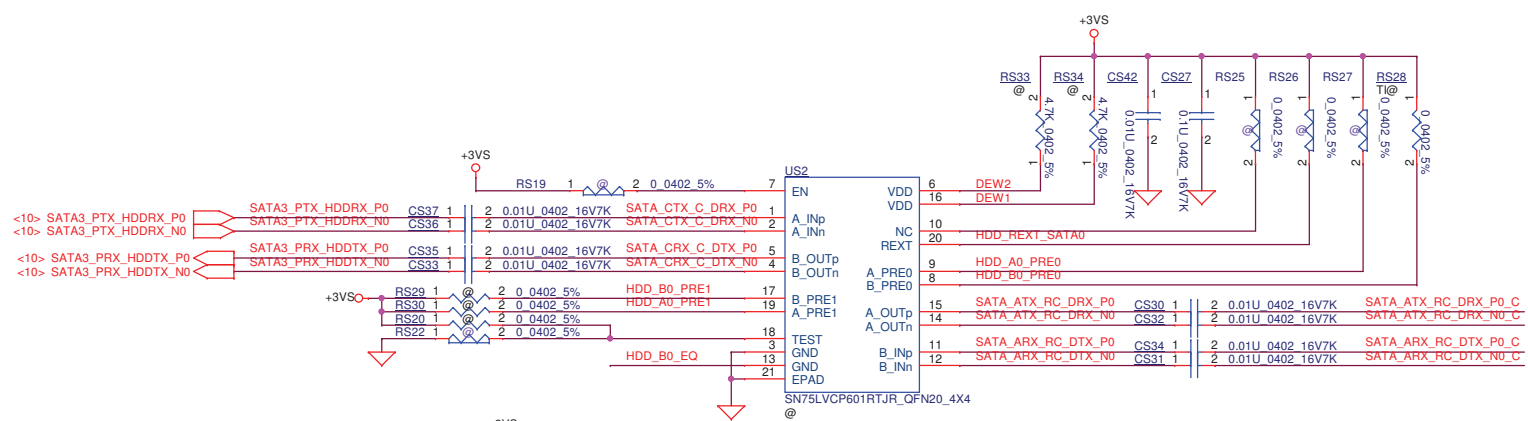
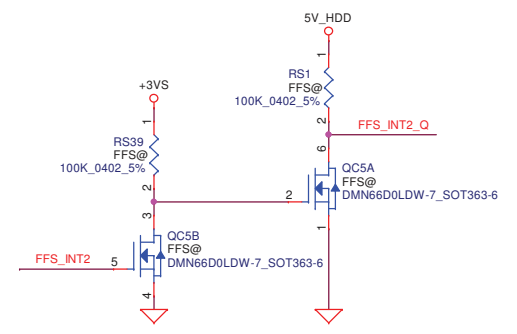
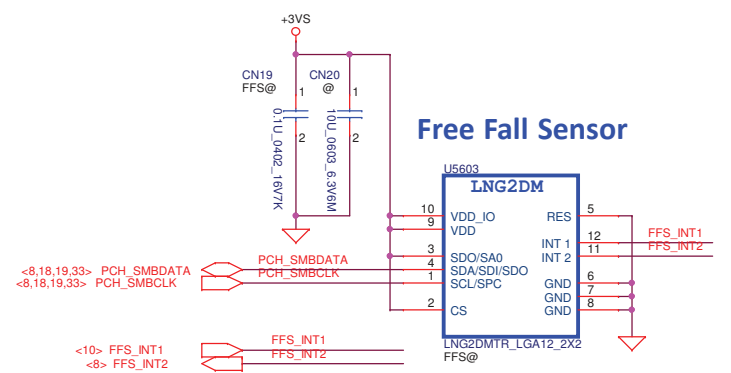


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Size	Document Number			Rev	
	LA-D822P			1.0	
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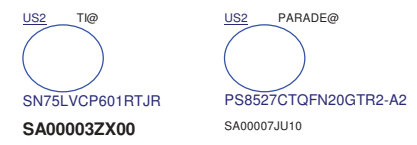
SATA HDD Connector



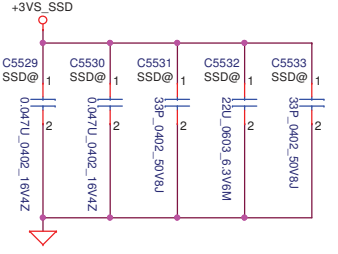
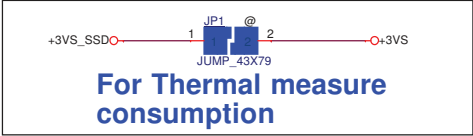
CONN	FFC
GND	S1
A+	S2
A-	S3
GND	S4
B-	S5
B+	S6
GND	S7
GND	P1
GND	P2
GND	P3
5V	P4
5V	P5
5V	P6
GND	P7
GND	P8



	US2	RS35	RS36	RS18	RS22	RS23	RS24	RS28
TI	SA00003ZX00	4.7K	4.7K	NC	NC	NC	2K	Y
PARADE	SA00007JU00	7.5K	NC	V	V	V	NC	NC



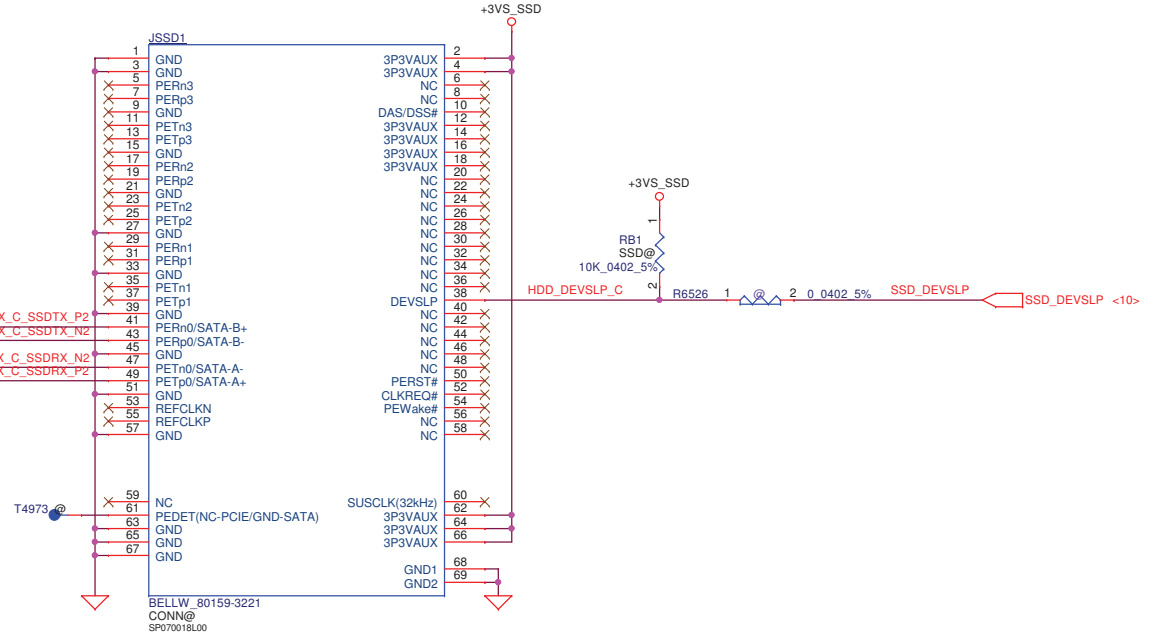
Security Classification	Compal Secret Data		Compal Electronics, Inc. HDD+Sensor	
Issued Date	2015/07/09	Deciphered Date		
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**2/6 TX Cap change P/N,
Now It's 0402 0ohm resistor.**

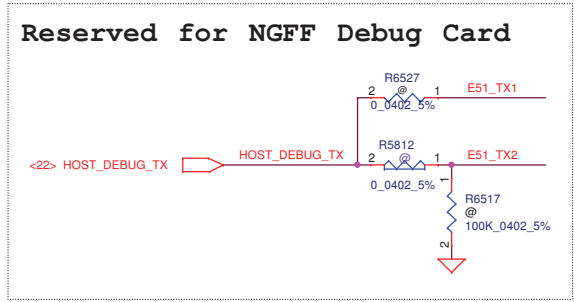
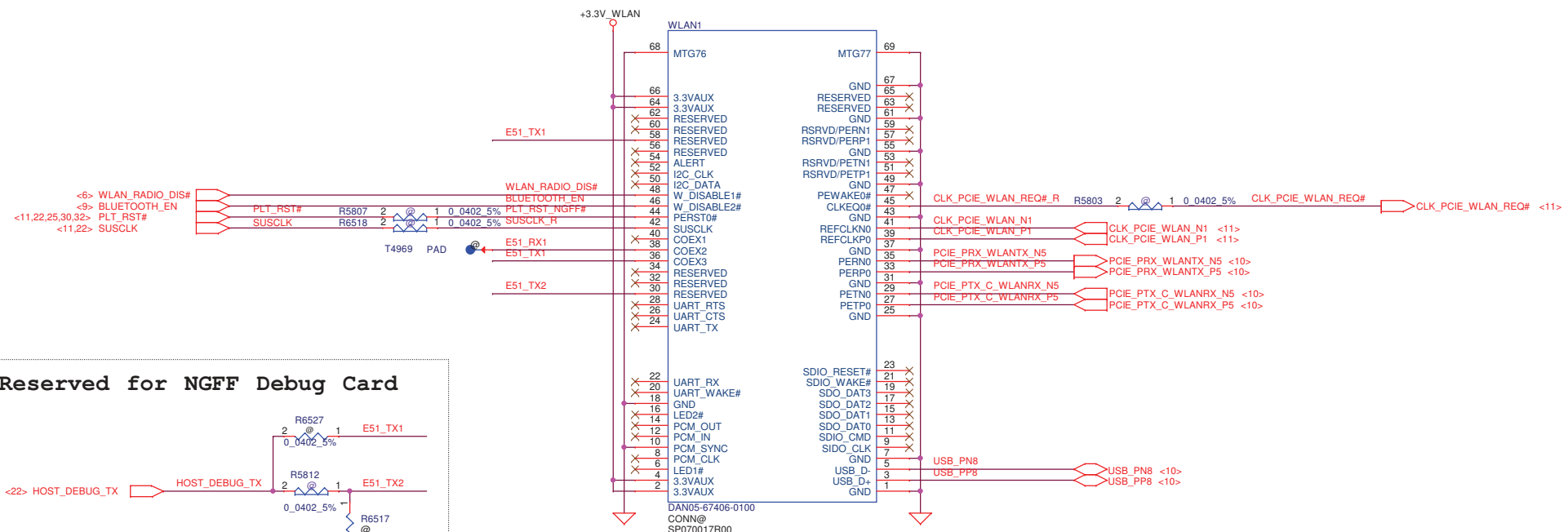
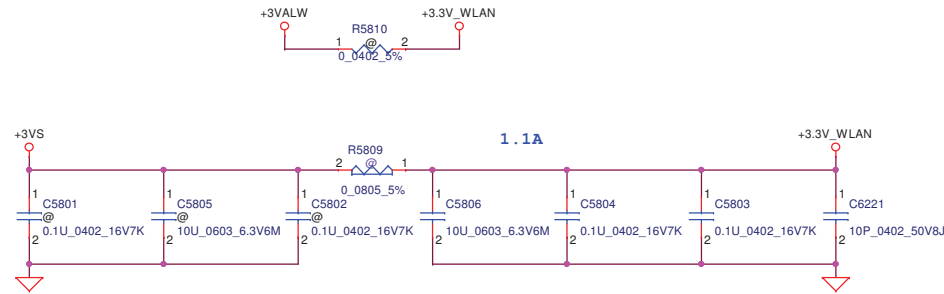
<10> SATA3_PRX_SSDTX_P2	SATA3_PRX_SSDTX_P2	CHD1	SSD@	1	2	0.01U	0402	16V7K	SATA3_PRX_C_SSDTX_P2
<10> SATA3_PRX_SSDTX_N2	SATA3_PRX_SSDTX_N2	CHD2	SSD@	1	2	0.01U	0402	16V7K	SATA3_PRX_C_SSDTX_N2
<10> SATA3_PTX_SSDRX_N2	SATA3_PTX_SSDRX_N2	CHD3	SSD@	1	2	0.01U	0402	16V7K	SATA3_PTX_C_SSDRX_N2
<10> SATA3_PTX_SSDRX_P2	SATA3_PTX_SSDRX_P2	CHD4	SSD@	1	2	0.01U	0402	16V7K	SATA3_PTX_C_SSDRX_P2

**SSD
NGFF Slot_2 Key M**



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Size	Document Number			Rev
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Main Func = WLAN

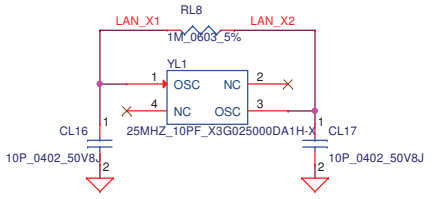
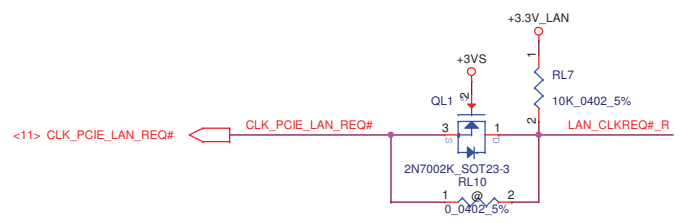
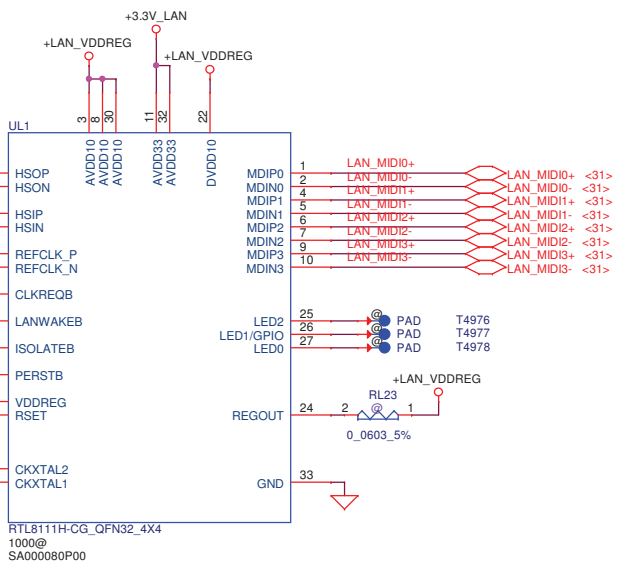
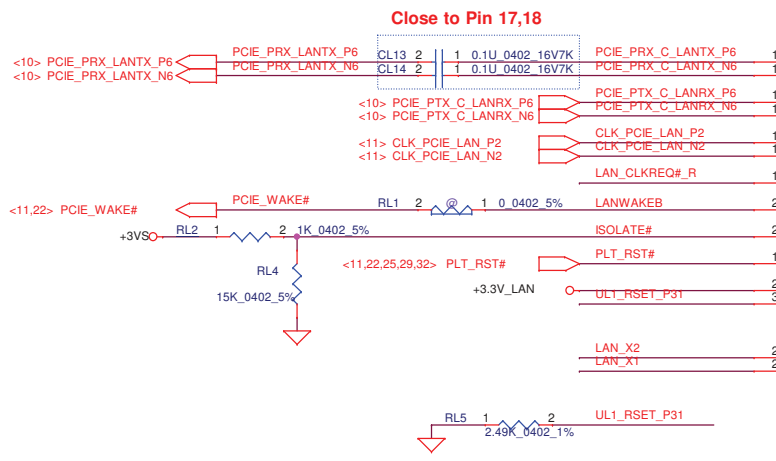
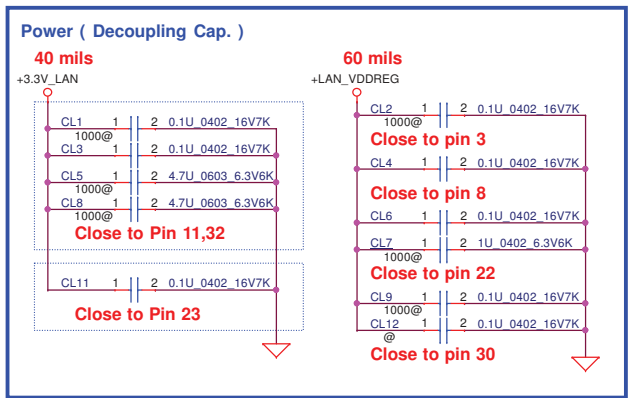
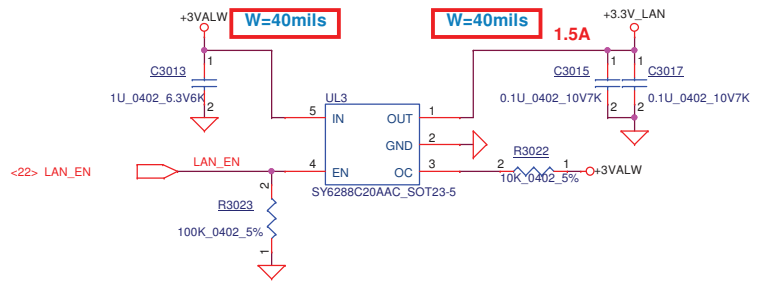


Support: Intel Dual Band Wireless-AC 3160

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				WLAN	
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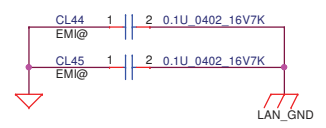
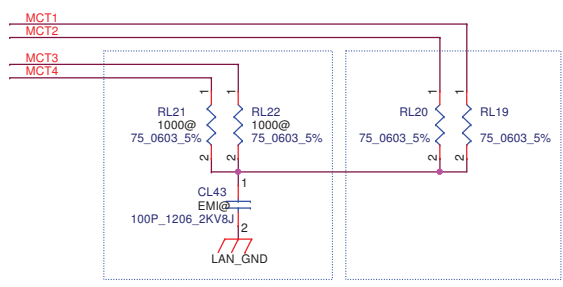
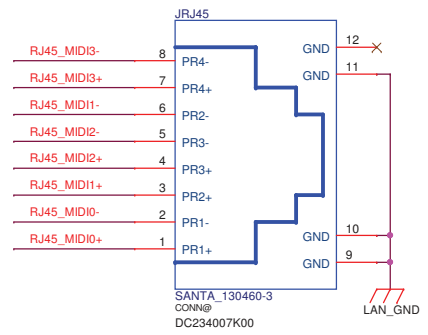
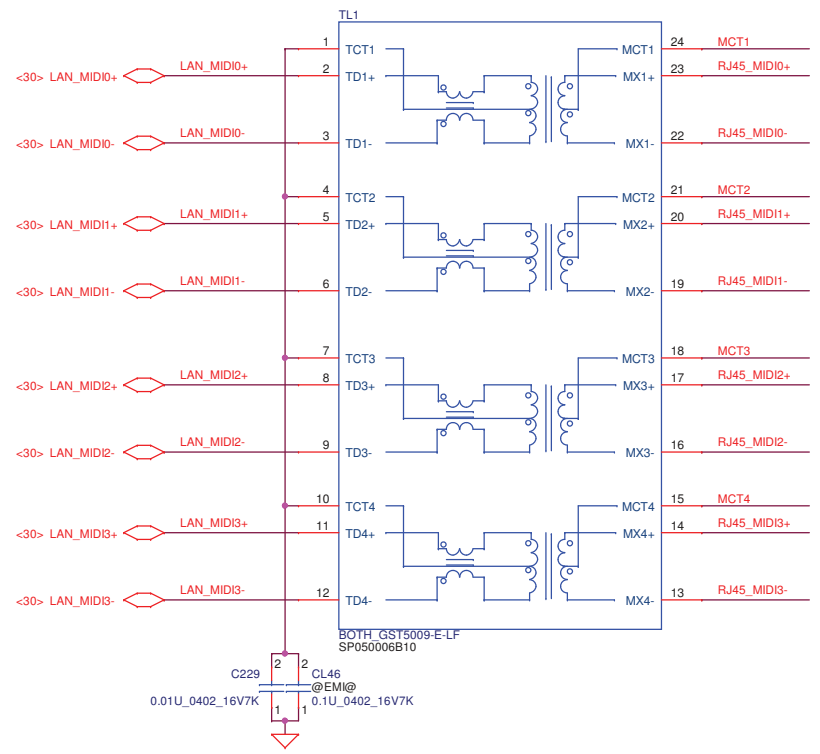
Main Func = LAN

+3.3V_LAN rising time (10%~90%) need > 0.5ms and <100ms.



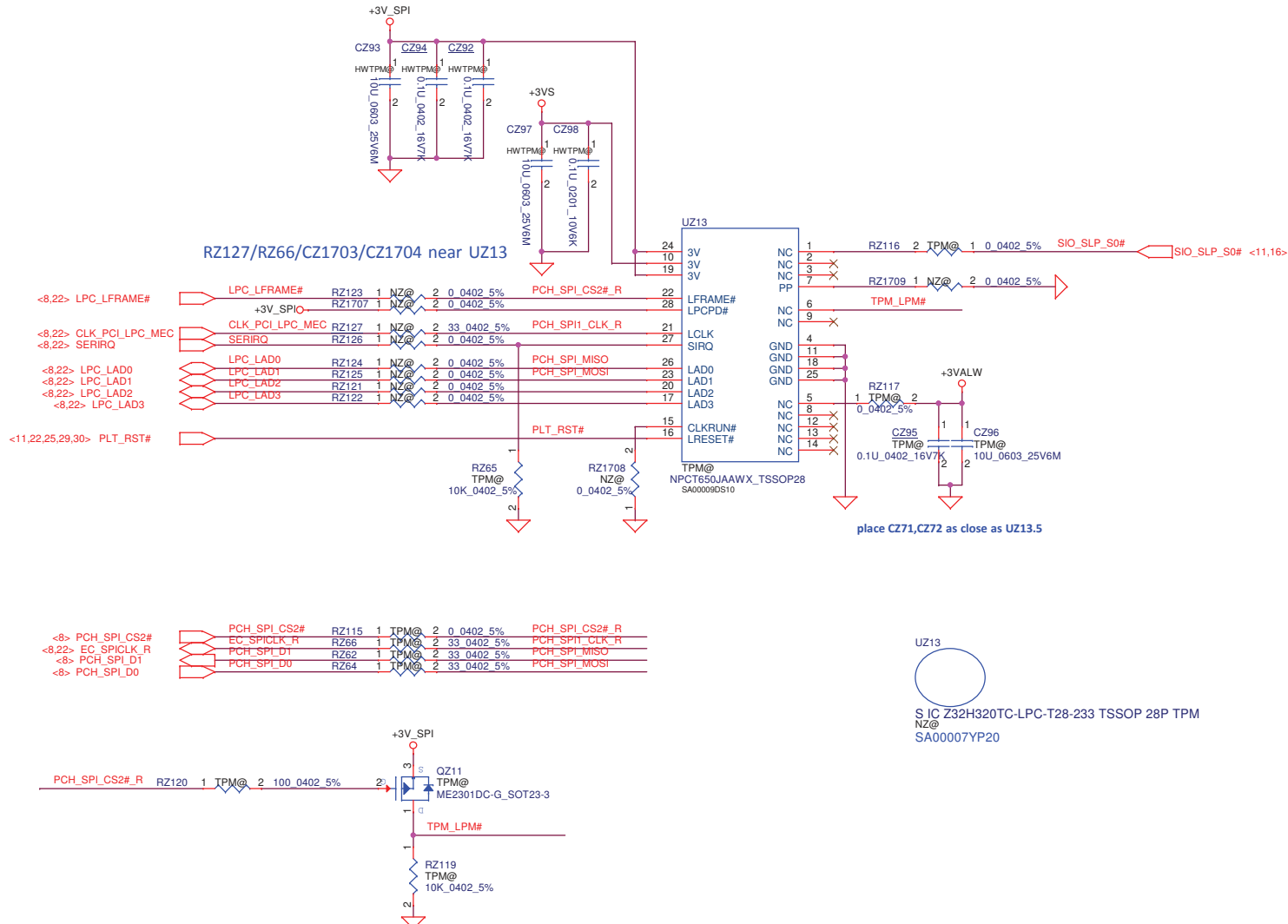
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Issued Date	2014/12/15	Deciphered Date	2016/12/15	LAN RTL8111H	
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Main Func = LAN

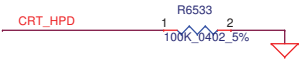
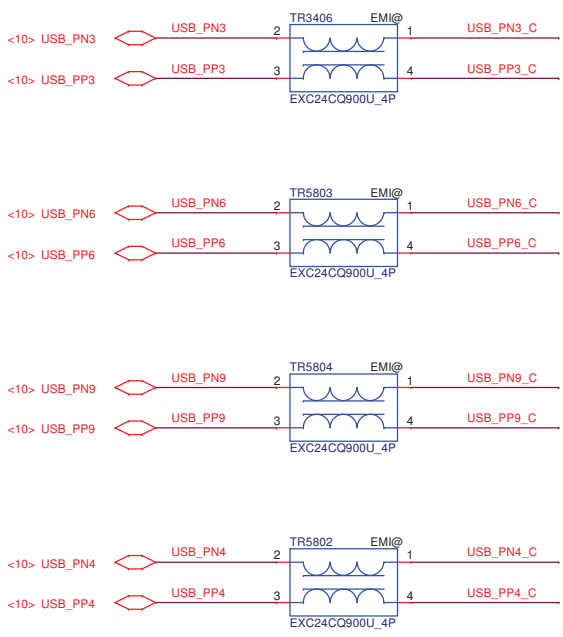


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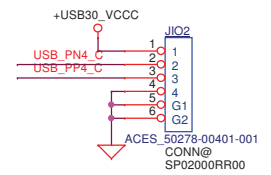
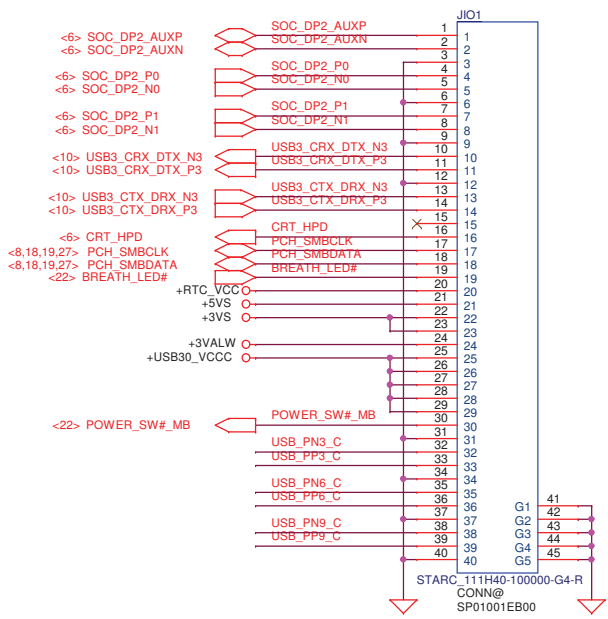
Main Func = TPM2.0



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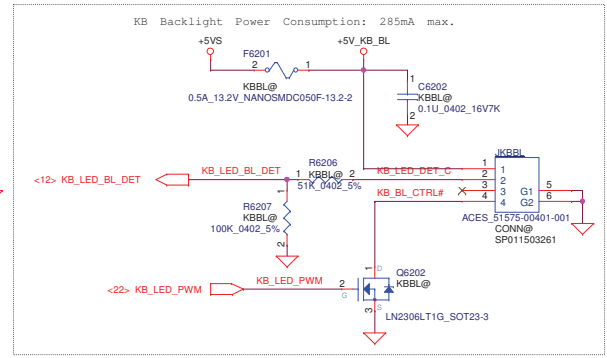
I/O Board Connector



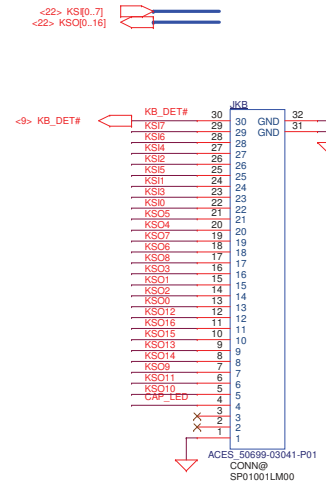
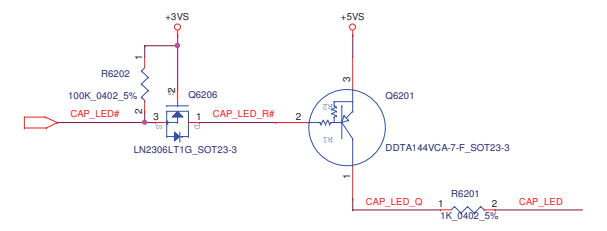
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Main Func = KB

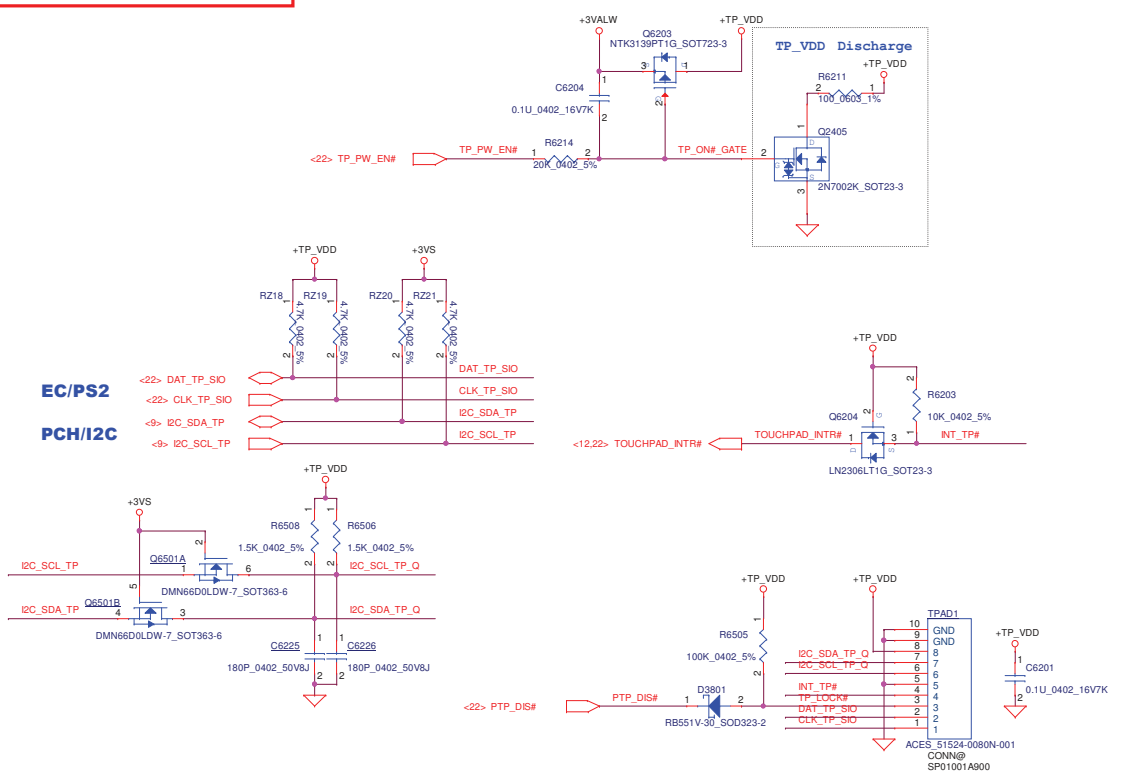
Keyboard Backlight (Reserved)



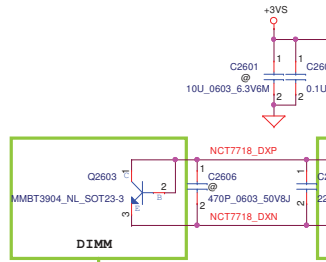
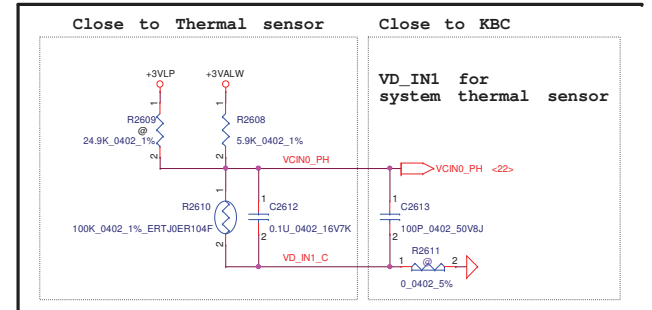
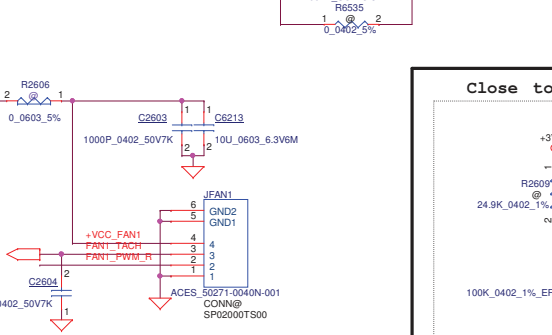
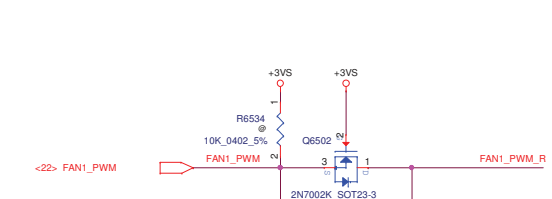
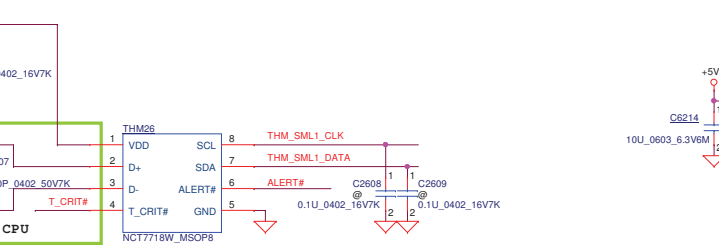
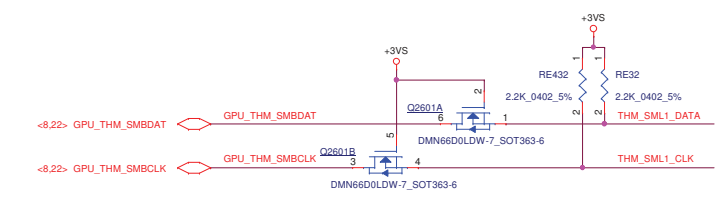
**CAP LED Control
LOW acted from KBC GPIO**



Main Func = TPAD



Main Func = Thermal



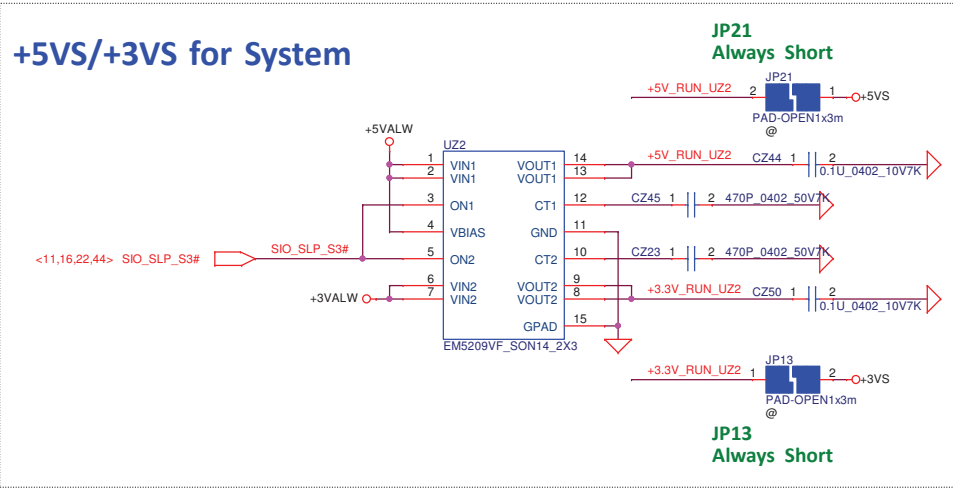
Address: X100_1100(4C), 1001_100X(98)

Layout Note: C2607 close THM26
D2XN and D2XP routing width and spacing is 10 mil / 10 mil.

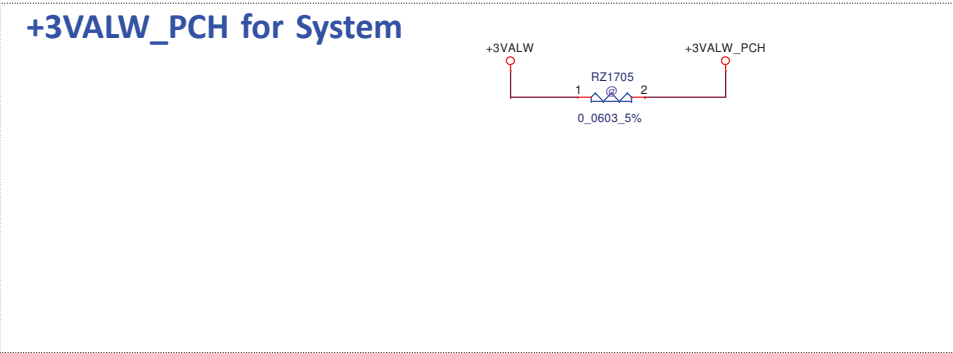
TEMPERATURE (°C)	T_CRIT#				
	2KΩ	7.5KΩ	10.5KΩ	14KΩ	18.7KΩ
77	87	97	107	117	
79	89	99	109	119	
81	91	101	111	121	
83	93	103	113	123	
85	95	105	115	125	

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+5VS/+3VS for System



+3VALW_PCH for System



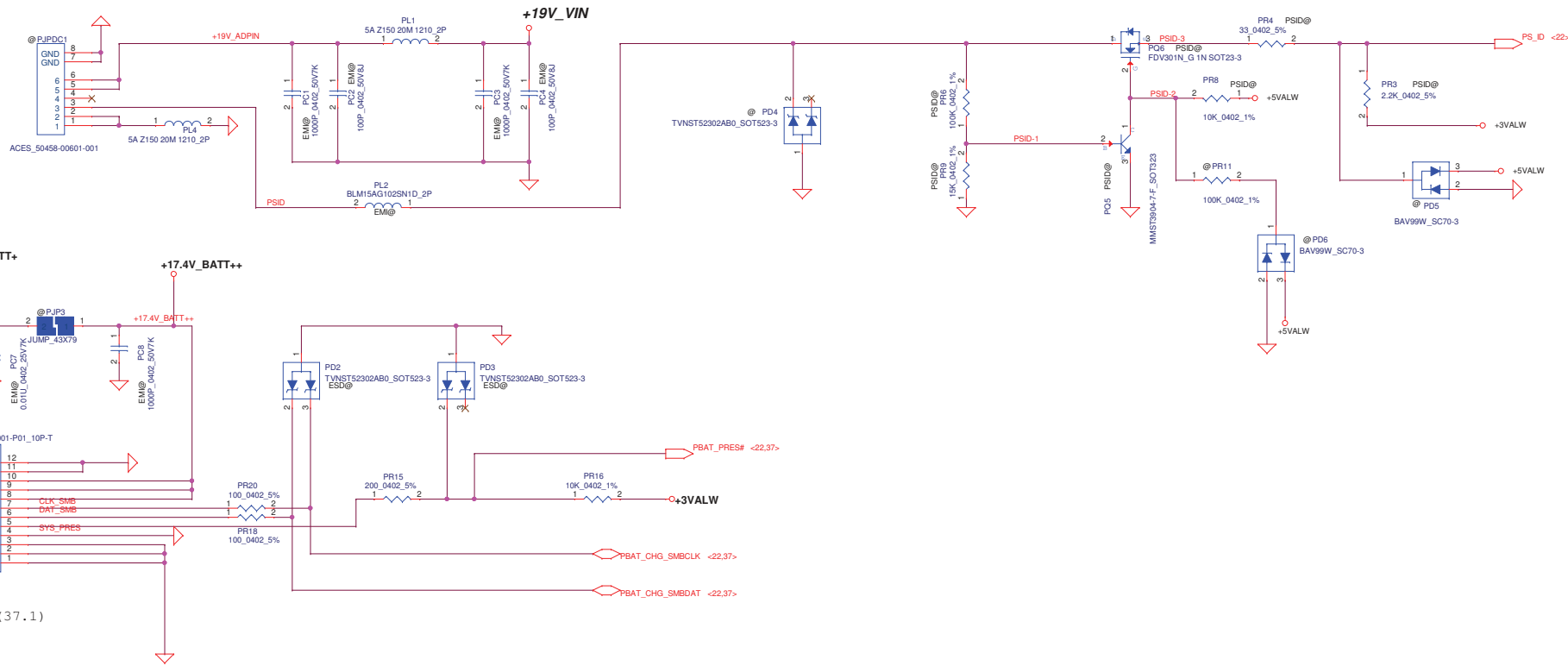
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Compal Electronics, Inc.

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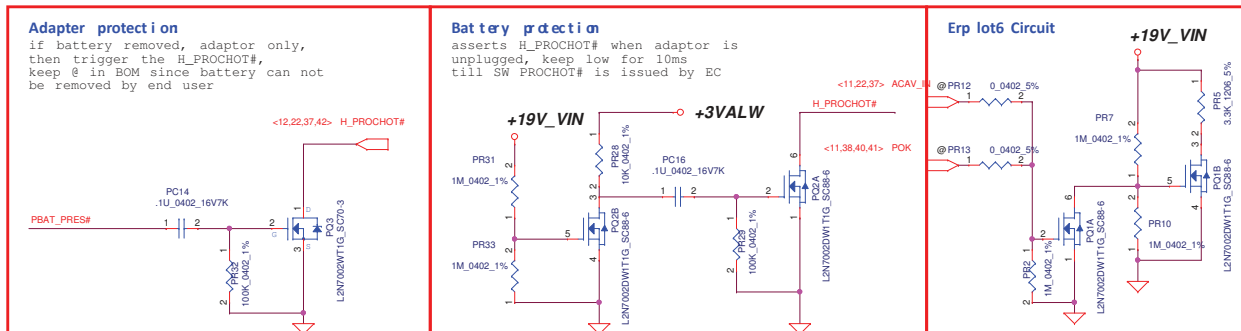
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SMART Battery:
 01.GND
 02.GND
 03.GND
 04.SYS_PRES
 05.BATT_PRS
 06.DAT_SMB
 07.CLK_SMB
 08.BATT
 09.BATT
 10.BATT

Other component (37.1)



15W_U22(SKL)
 X63:PSID@/U22_SKL@/15W@_U22
 X4P:EMIO/BSDO/RFO

15W_U22(KBL)
 X63:PSID@/U22_KBL@/15W@_U22
 X4P:EMIO/BSDO/RFO

28W_U23e
 X63:PSID@/U23@/28W@
 X4P:EMIO/BSDO/RFO

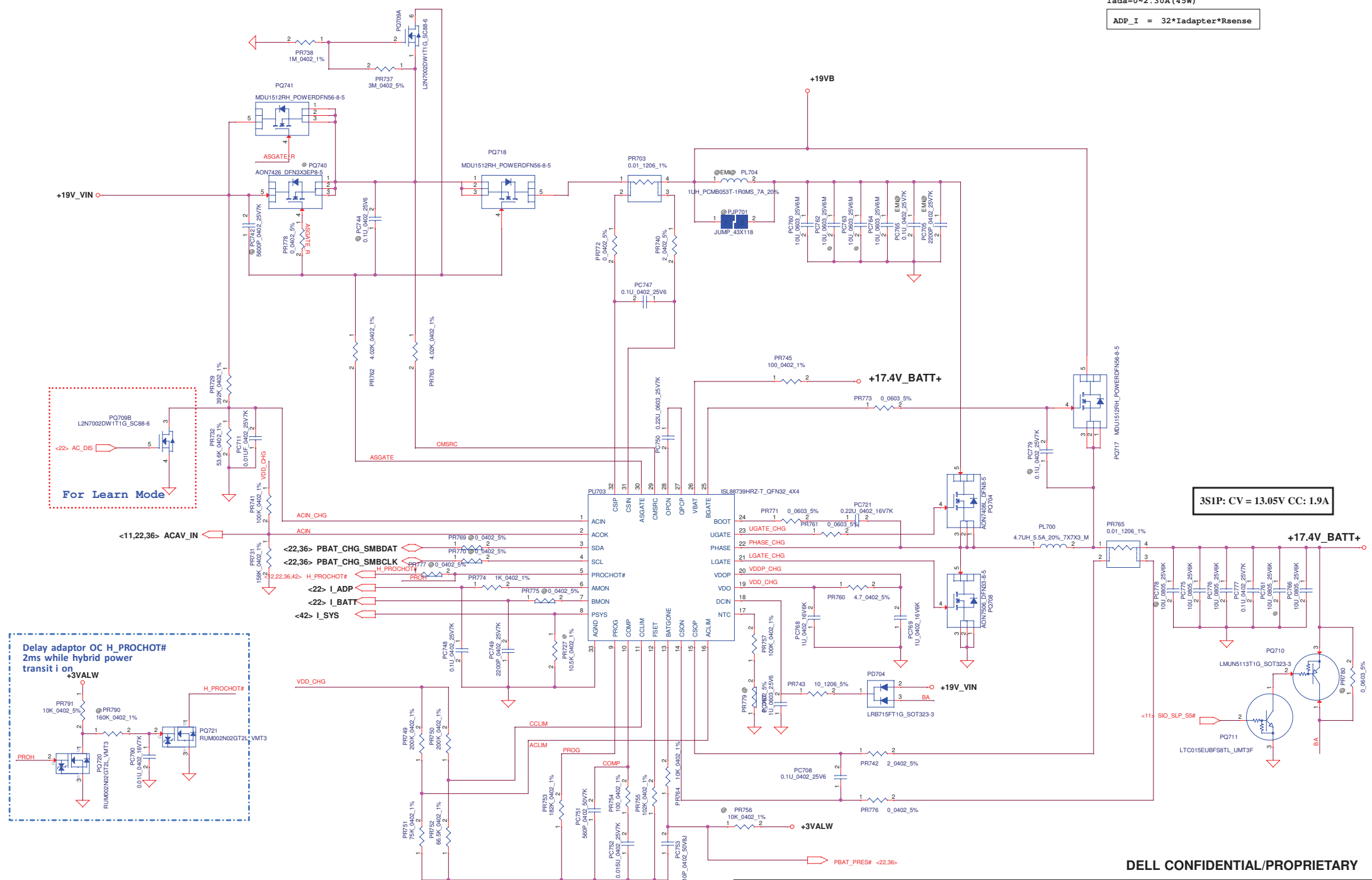
15W_U23e(Unused)
 X63:PSID@/U23@/15W@_U22/15W@_U23
 X4P:EMIO/BSDO/RFO

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Date:	Monday, June 06, 2016	Sheet:	36	of	46

Iada=0-3.33A (65W)
Iada=0-2.30A (45W)

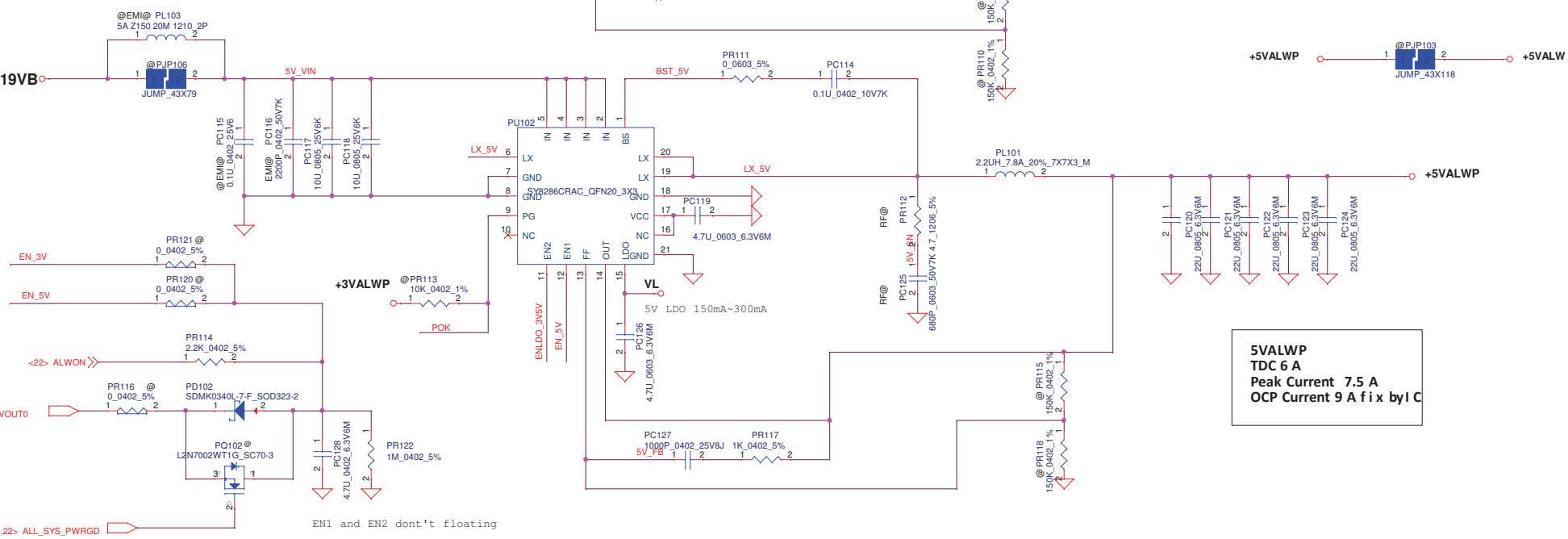
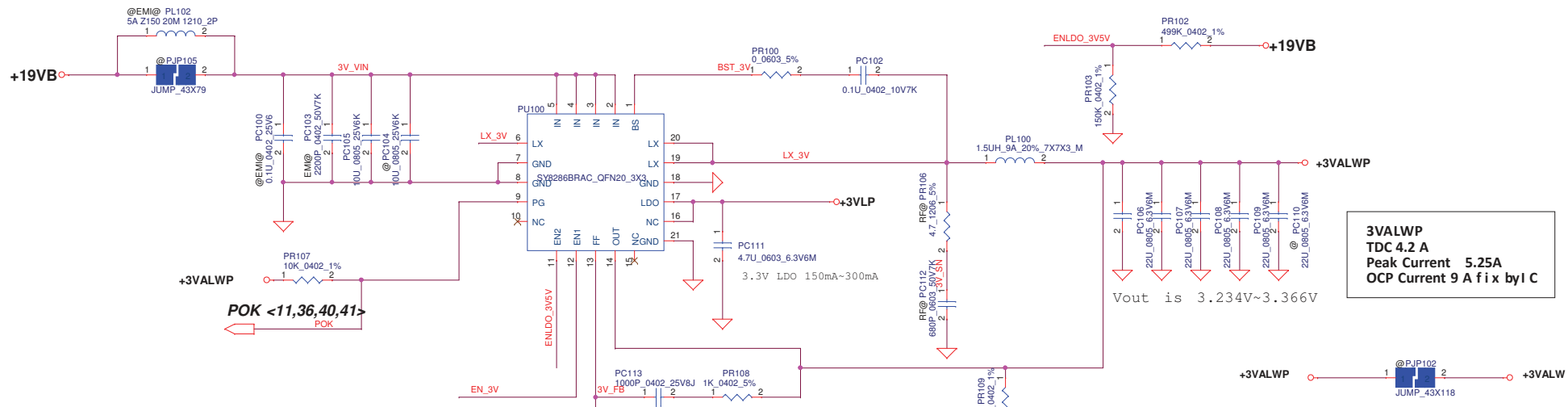
$ADP_I = 32 * I_{adapter} * R_{sense}$



3S1P: CV = 13.05V CC: 1.9A

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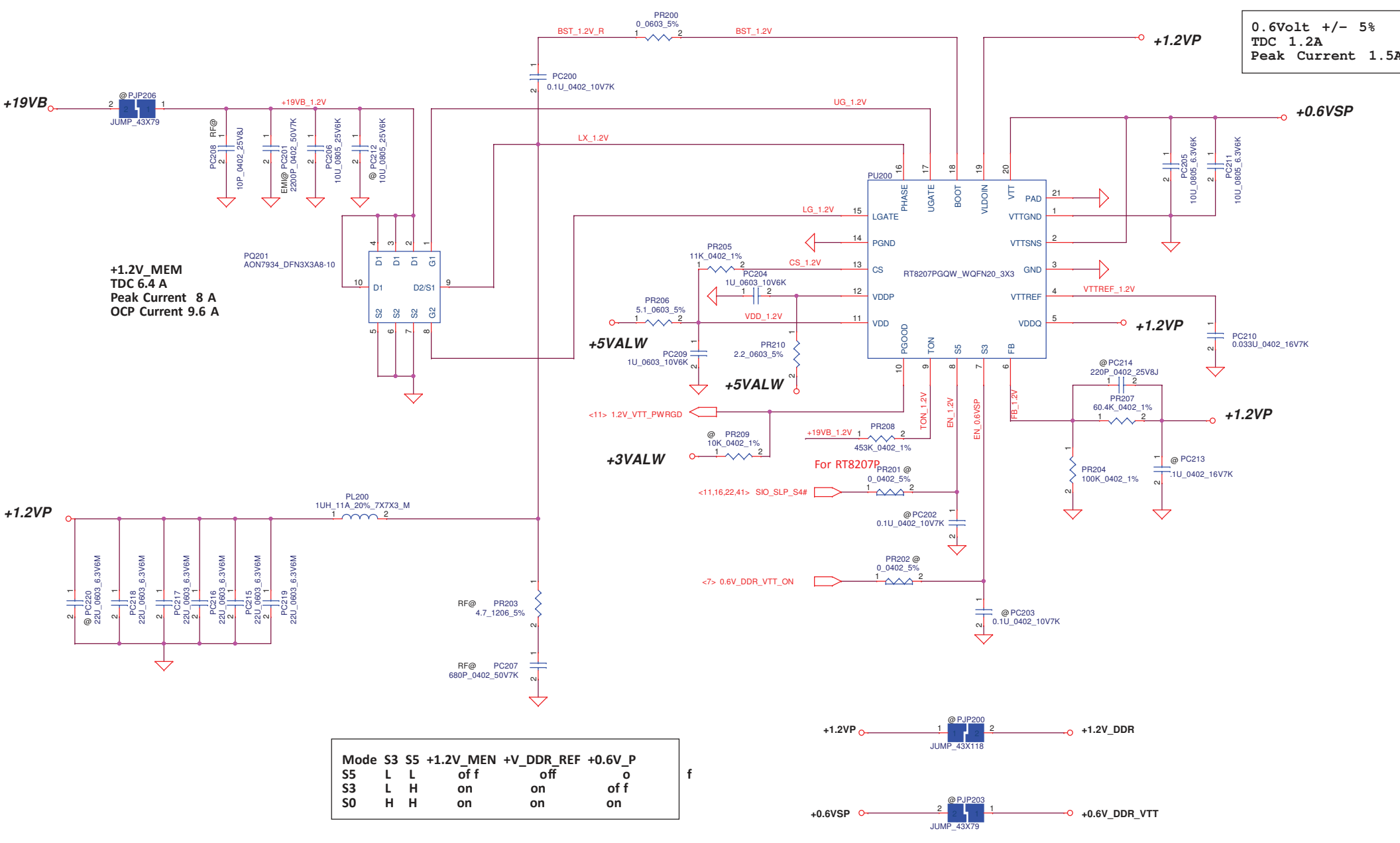
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Title		Compal Electronics, Inc.	
PWR CHARGER		Rev X010	
Size Document Number		Date: Monday, June 06, 2016	
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Compal Electronics, Inc.			
PWR_3.3VALWP/5VALWP			
Title			
Size	Document Number	Rev X01(0.2)	
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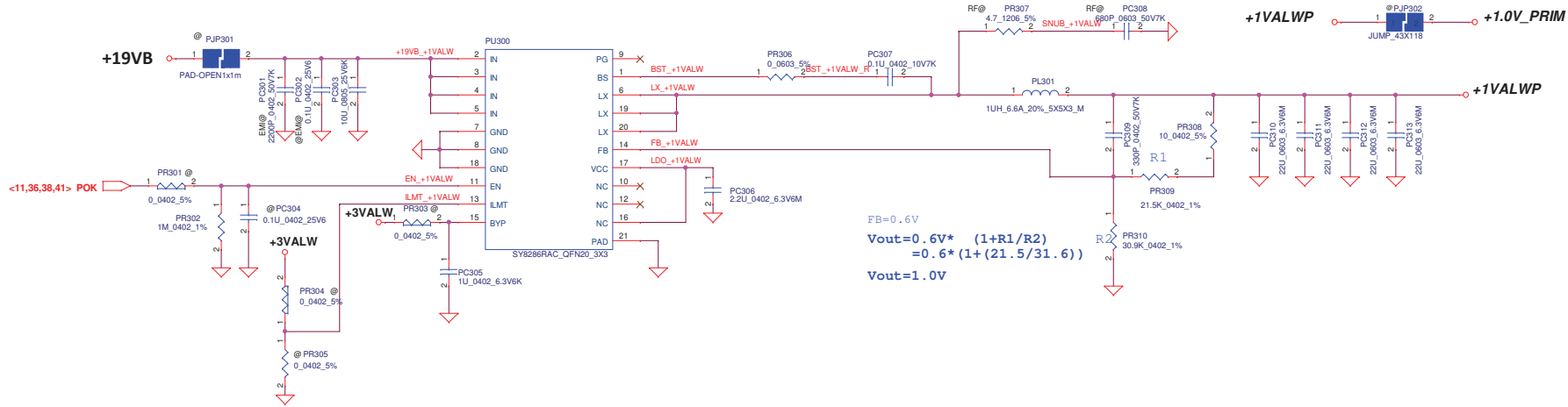
0.6V_{olt} +/- 5%
TDC 1.2A
Peak Current 1.5A

+1.2V_{MEN}
TDC 6.4 A
Peak Current 8 A
OCP Current 9.6 A

Mode	S3	S5	+1.2V _{MEN}	+V _{DDR_REF}	+0.6V _P
S5	L	L	off	off	o
S3	L	H	on	on	off
S0	H	H	on	on	on

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Security Classification		Compal Secret Data		Title	
Issued Date	2015/03/23	Deciphered Date	2014/12/15	PWR +1.2V _{MEN} +0.6V _{DDR_VTT}	
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<11,36,38,41> POK

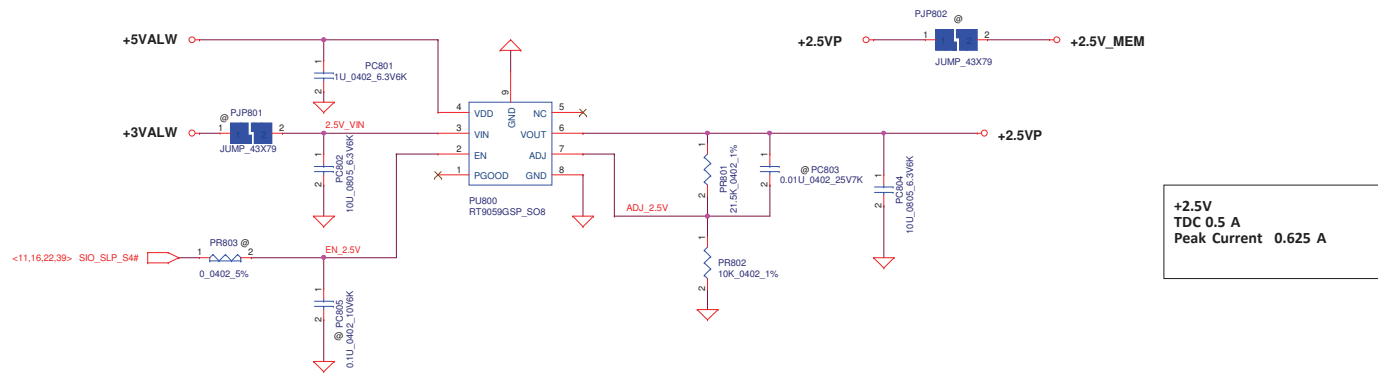
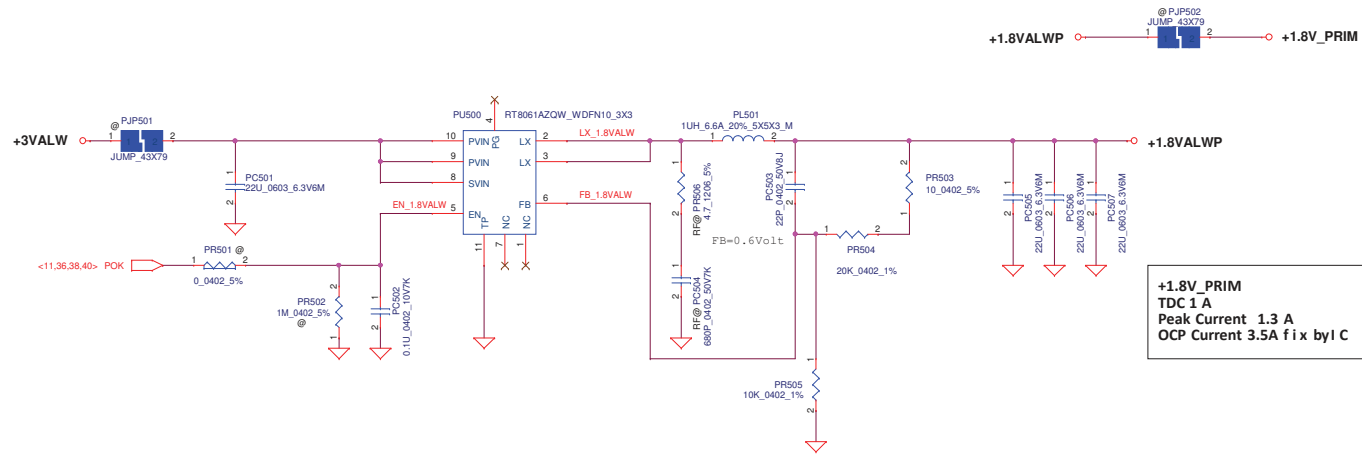
$FB = 0.6V$
 $V_{out} = 0.6V * (1 + R1/R2)$
 $= 0.6 * (1 + (21.5/31.6))$
 $V_{out} = 1.0V$

The current limit is set to 6A, 9A or 12A when this pin is pull low, floating or pull high

OCP setting	ILMT(pin3)
6A	Pull low
9A	Floating
12A	Pull high

+1.0V_PRIM
TDC 6 A
Peak Current 8.6 A
OCP Current 12 A Fix by IC
TYP MAX
Choke DCR 11.0mohm , 12.0mohm

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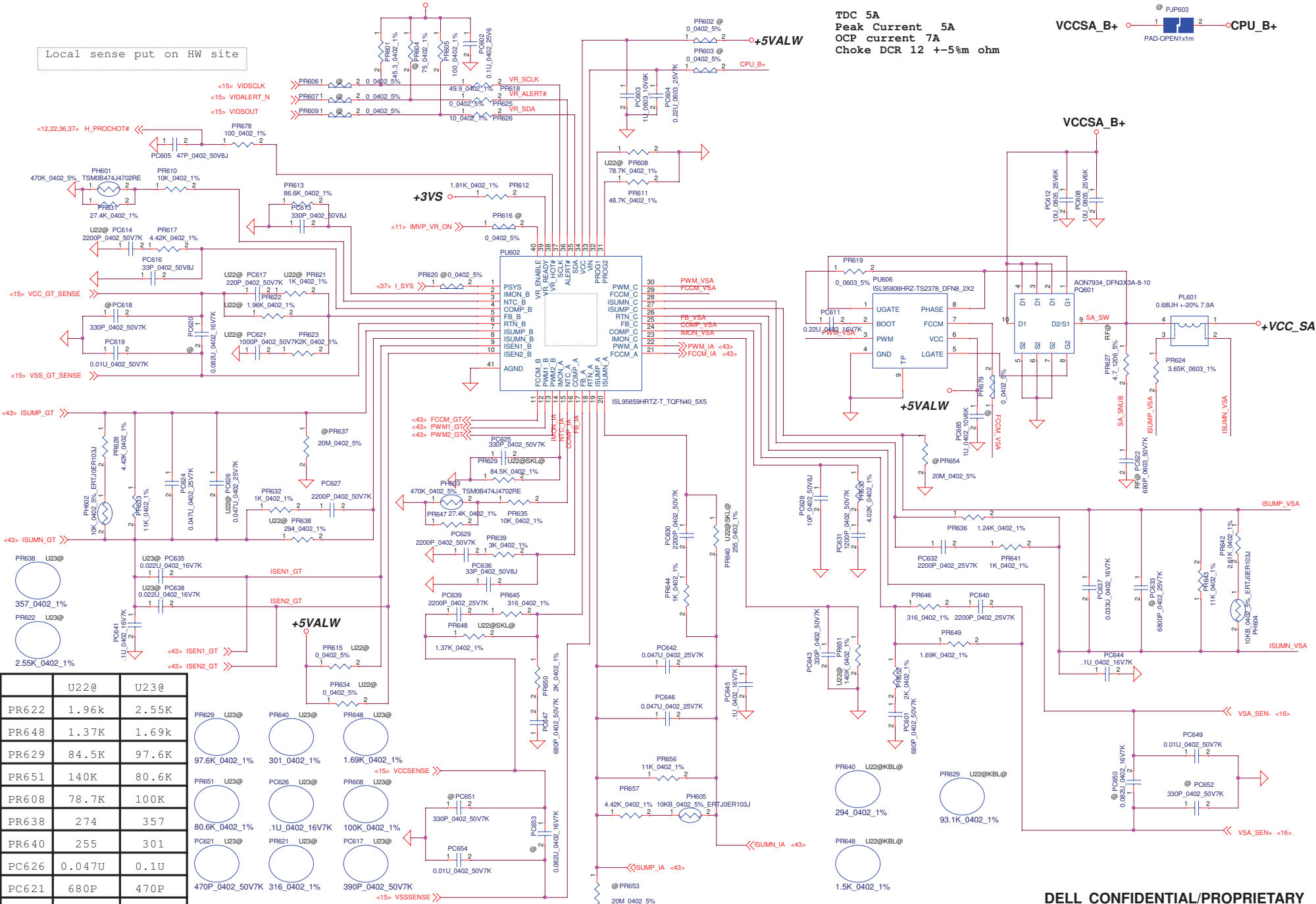
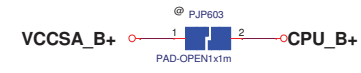
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Local sense put on HW site

+1.0V_VCCST

VCC_SA
Loadline : 10.3m-ohm

TDC 5A
Peak Current 5A
OCP current 7A
Choke DCR 12 +-5% ohm

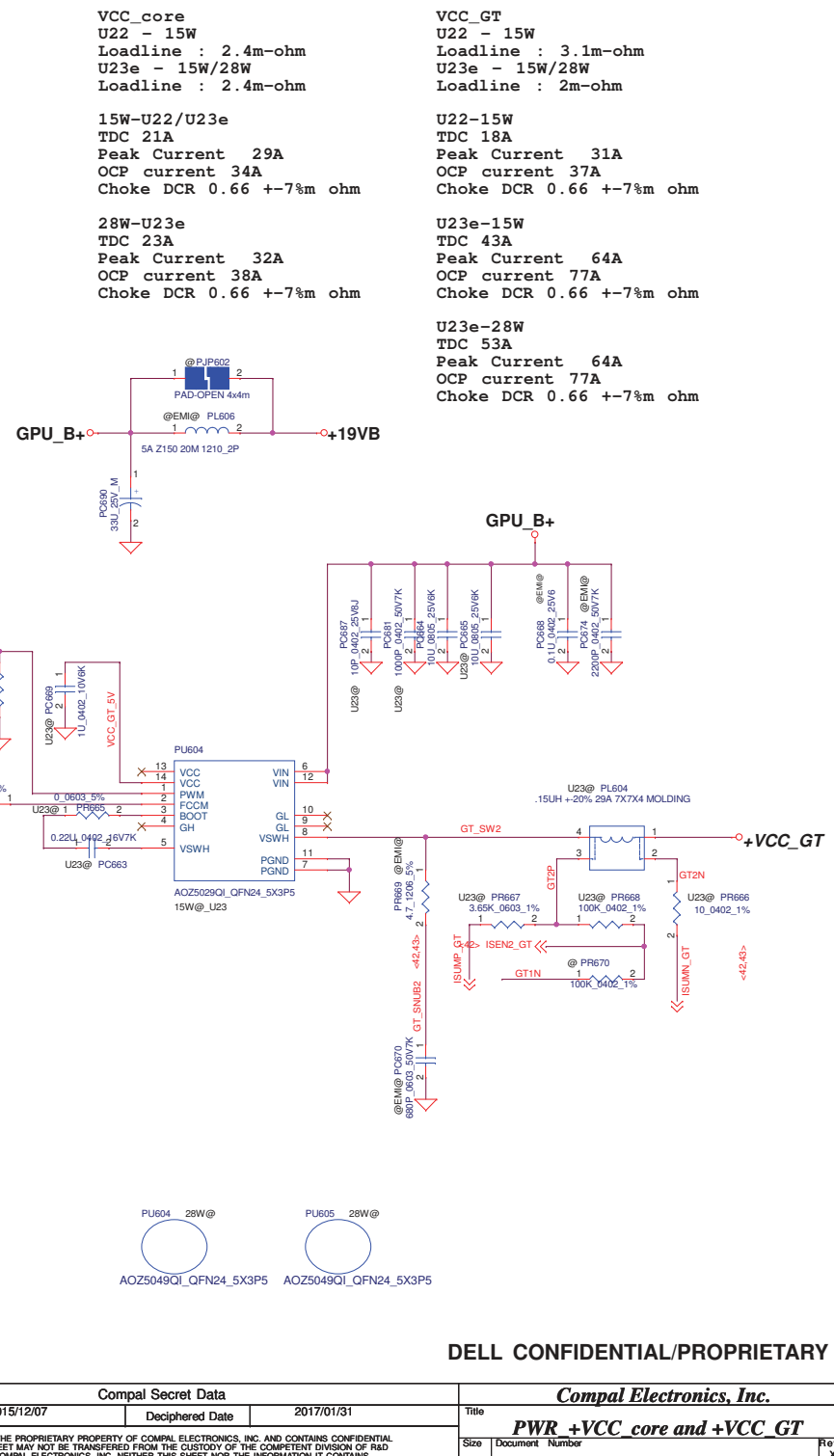
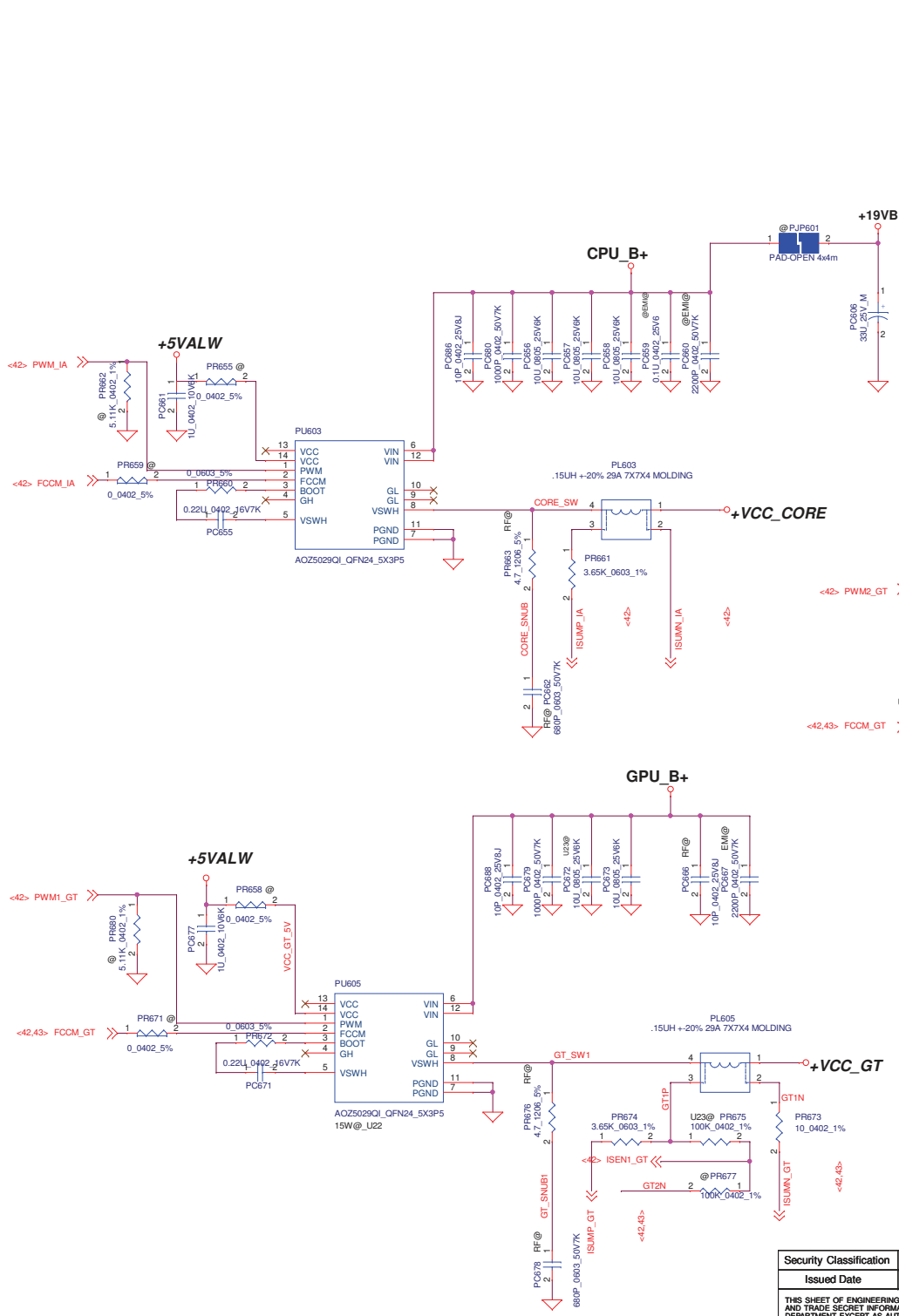


	U22@	U23@			
PR622	1.96k	2.55K	PR629	U23@	PR640
PR648	1.37k	1.69k	PR640	U23@	PR648
PR629	84.5k	97.6k	PR648	U23@	PR608
PR651	140k	80.6k	PR651	U23@	PC626
PR608	78.7k	100k	PC626	U23@	PR608
PR638	274	357	PR608	U23@	PC617
PR640	255	301	PC617	U23@	PC617
PC626	0.047u	0.1u	PC617	U23@	PC617
PC621	680P	470P	PC614	U23@	PC614
PR621	1k	316	PC614	U23@	PC614
PC617	220P	390P			
PC614	2200P	6800P			

Local sense put on HW site

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VCC_core
 U22 - 15W
 Loadline : 2.4m-ohm
 U23e - 15W/28W
 Loadline : 2.4m-ohm

15W-U22/U23e
 TDC 21A
 Peak Current 29A
 OCP current 34A
 Choke DCR 0.66 +-7% ohm

28W-U23e
 TDC 23A
 Peak Current 32A
 OCP current 38A
 Choke DCR 0.66 +-7% ohm

VCC_GT
 U22 - 15W
 Loadline : 3.1m-ohm
 U23e - 15W/28W
 Loadline : 2m-ohm

U22-15W
 TDC 18A
 Peak Current 31A
 OCP current 37A
 Choke DCR 0.66 +-7% ohm

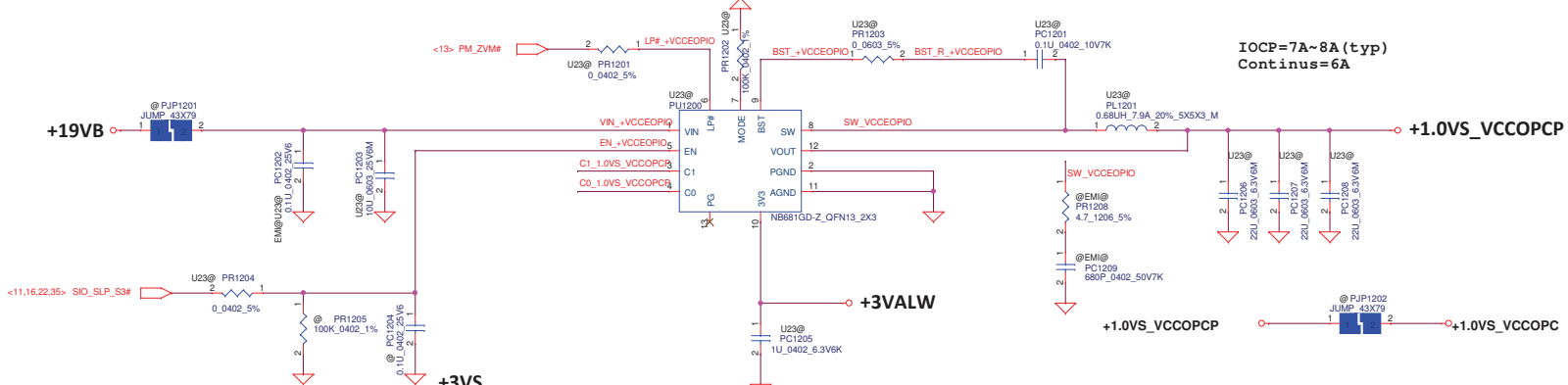
U23e-15W
 TDC 43A
 Peak Current 64A
 OCP current 77A
 Choke DCR 0.66 +-7% ohm

U23e-28W
 TDC 53A
 Peak Current 64A
 OCP current 77A
 Choke DCR 0.66 +-7% ohm



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IOCP=7A~8A (typ)
Continus=6A

Table 3—Control Bit Definitions

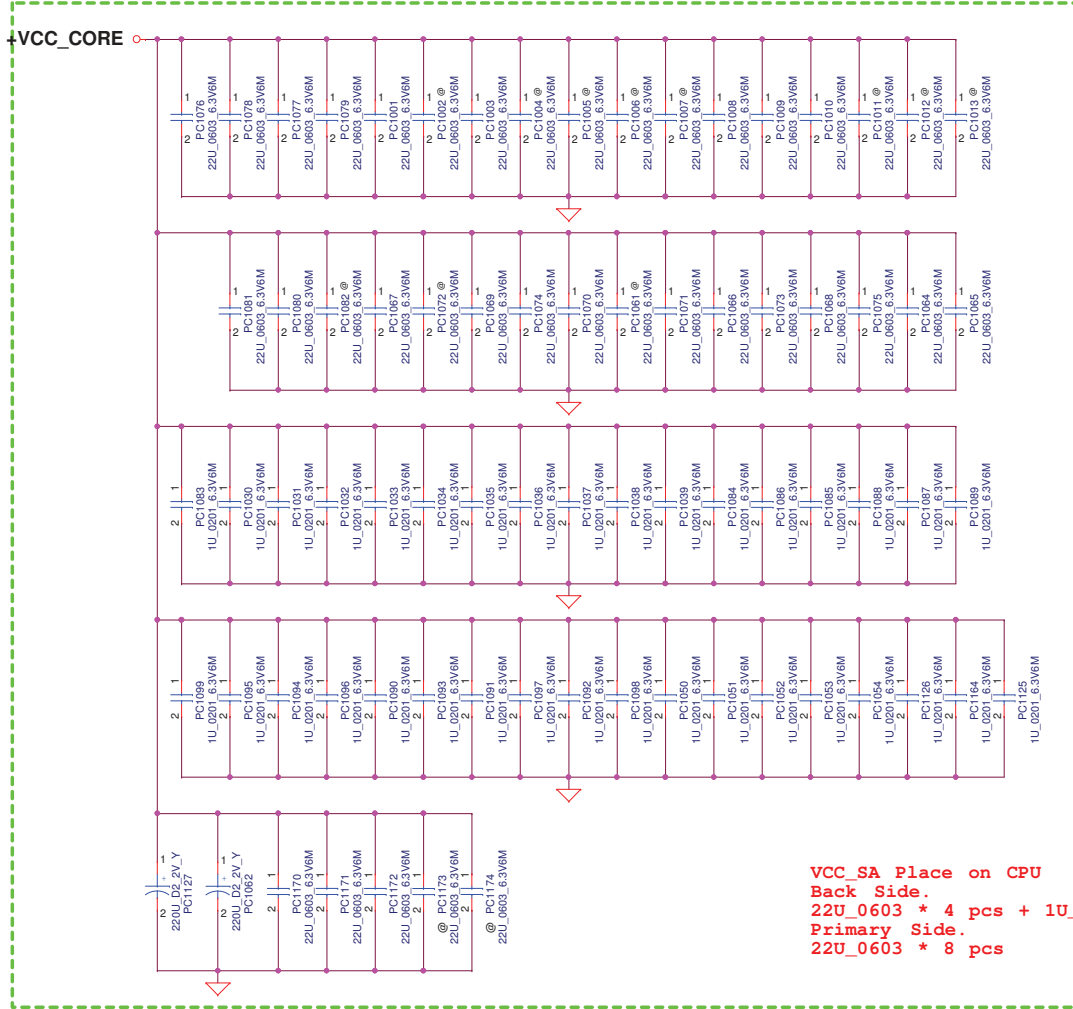
	LP#	C1	C0	VOUT(V)
VCCIO	0	X	X	0
	1	0	0	0.85
	1	0	1	0.875
	1	1	0	0.95
VCCPCH	0	X	X	0.7
	1	0	0	0.8
	1	0	1	0.85
	1	1	0	0.9
EDRAM/ EOPIO	0	X	X	0
	1	0	0	0.8(MSM)
	1	0	1	0.95
	1	1	0	1.05
Others	0	X	X	0
	1	0	0	1.0
	1	0	1	1.075
	1	1	0	1.15

+1.0VS_VCCOPC
(EOPIO merge EDRAM)
TDC 4.16A
Peak Current 5.2 A
OCP Current 7~8 A Fix by IC
TYP MAX
Choke DCR 48.0mohm

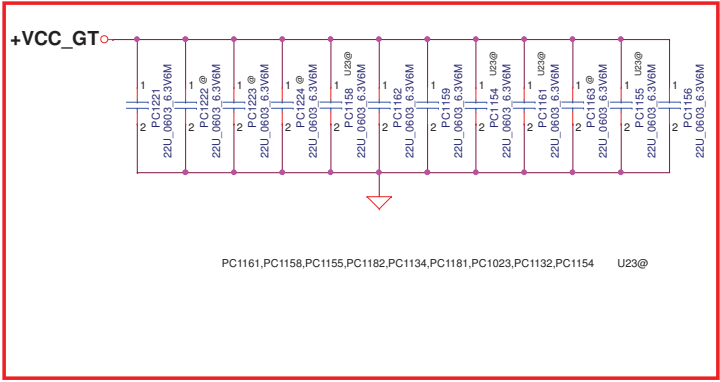
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VCC_CORE Place on CPU
 Back Side.
 22U_0603 * 13 pcs +1U_0201*35 pcs
 Primary Side.
 22U_0603 * 20 pcs+220u_D2*2 pcs



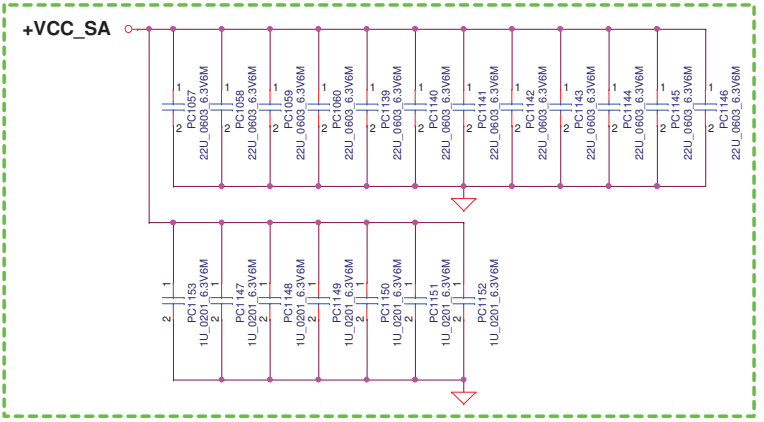
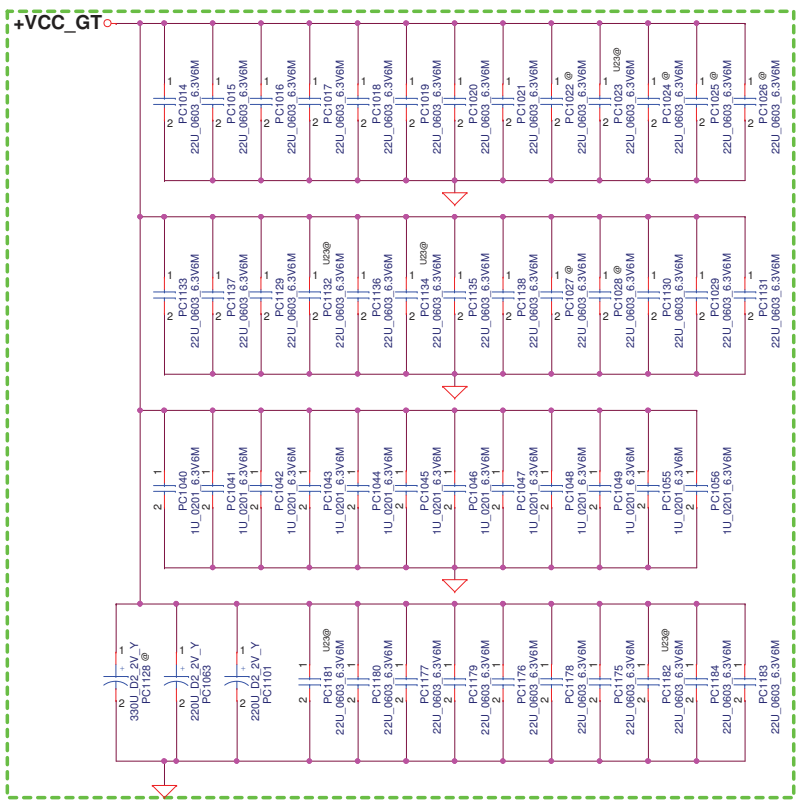
VCC_SA Place on CPU
 Back Side.
 22U_0603 * 4 pcs + 1U_0201*7 pcs
 Primary Side.
 22U_0603 * 8 pcs



PC1161,PC1158,PC1155,PC1182,PC1134,PC1181,PC1023,PC1132,PC1154 U23@

For GTX

VCC_GT Place on CPU
 Back Side.
 22U_0603 * 13 pcs +1U_0201*12 pcs
 Primary Side.
 22U_0603 * 13 pcs +220u_D2*2 pcs



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Version Change List (P. I. R. List)

Item Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.	
1	P37	PWR	20160303	COMPAL	to change charger IC	change charger IC(PU703) to ISL88739	0.2 (X01)
2	P39 P43 P45 P46	PWR	20160303	COMPAL	to prevent RF issue	add PC208 add PC666,PR676,PC678 add PC1116,PR1122,PC1109, add PC1402,PR1408,PC1408	
3	P42	PWR	20160303	COMPAL	to adjust +VCC_CORE and +VCC_GT load line	change PR622 to 1.91K,PR638 to 287 ohm,PC626 to 0.1uF,PC642 to 0.1uF	
4	P36,P42	PWR	20160303	COMPAL	to save layout space	delete PL3,PL602(reserve location)	
5	P36	PWR	20160303	COMPAL	to fix battery connector ME issue	to change battery connector	
6	P37	PWR	20160304	COMPAL	to fix Temp/Voltage 19.5V DC-IN issue	change PR732 to 53.6K	
7	P44	PWR	20160304	COMPAL	to fix DFB solder open problem	change PC1127,PC1062,PC1128 footprint	
8	P38	PWR	20160308	COMPAL	to prevent OTP functions abnormal issue	to reserve PQ102 and connect to ALL_SYS_PWRGD	
9	P37	PWR	20160316	COMPAL	to save layout space by EMI request	change PC760,PC762,PC763,PC764 to 0603 size and delete PR766,PC767	
10	P43	PWR	20160328	COMPAL	according to test result to adjust VCC_CORE and GT_CORE's load line	to unmount PC624 and PC646	
11	P45	PWR	20160328	COMPAL	according to test result to adjust VCC_CORE and GT_CORE's output MLCC's location(only change BOM) and bulk cap	unmount:PC1021,PC1135,PC1133,PC1131,PC1022,PC1025,PC1027, PC1028,PC1063, PC1008,PC1003,PC1011,PC1072,PC1076,PC1071,PC1081,PC1082,PC1004, PC1007,PC1012 to mount:PC1176,PC1175,PC1177,PC1179,PC1178,PC1180,PC1183,PC1184, PC1170,PC1173,PC1174 to change PC1127,PC1062 to 220uF/9m ohm	
12	P36	PWR	20160429	COMPAL	To improve EMI and reduce inrush current to mount n filter' s bead and change cap	unmount:PL1,PL4 change:PC2,PC4 to 100pF	
13	P37	PWR	20160429	COMPAL	ISL88739 doesn't support PSYS function	unmount:PR727 change PR774 to 1K ohm change PC748 0.1uF	
14	P39	PWR	20160429	COMPAL	to adjust 1.2V OCP to 10.2A	change PR205 to 11K	
15	P37	PWR	20160429	COMPAL	to aviod inrush to damage MOS	to reserve PQ741	

0.3 (X02)

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				Size	Document Number	Rev	1.0(00)	
				Date	Monday, June 06, 2016	Sheet	46	of