

COMPAL CONFIDENTIAL

MODEL NAME : **VAW30**
PCB NO : **LA-9832P (DA8000XL000)**
BOM P/N : **4319M931L01**
GPIO MAP: X.X

Alpine 14"

Haswell ULT

2013-08-23(Gerber)

REV : 1.0

@ : Nopop Component

1@ : M/B SPI ROM

TAA@ : TAA/B SPI ROM

CONN@ : Connector Component

DIS@ : Discrete Pop Component

UMA@ : UMA Pop Component

EMI@ : EMI Component

ESD@ : ESD Component

RF@ : RF Component

XDP@ : XDP Component

eTP@ : TS eTP Component

NeTP@ : TS non - eTP Component

76_U3@ : USB 3.0 Redriver

1 @ 2 : Short_Pad

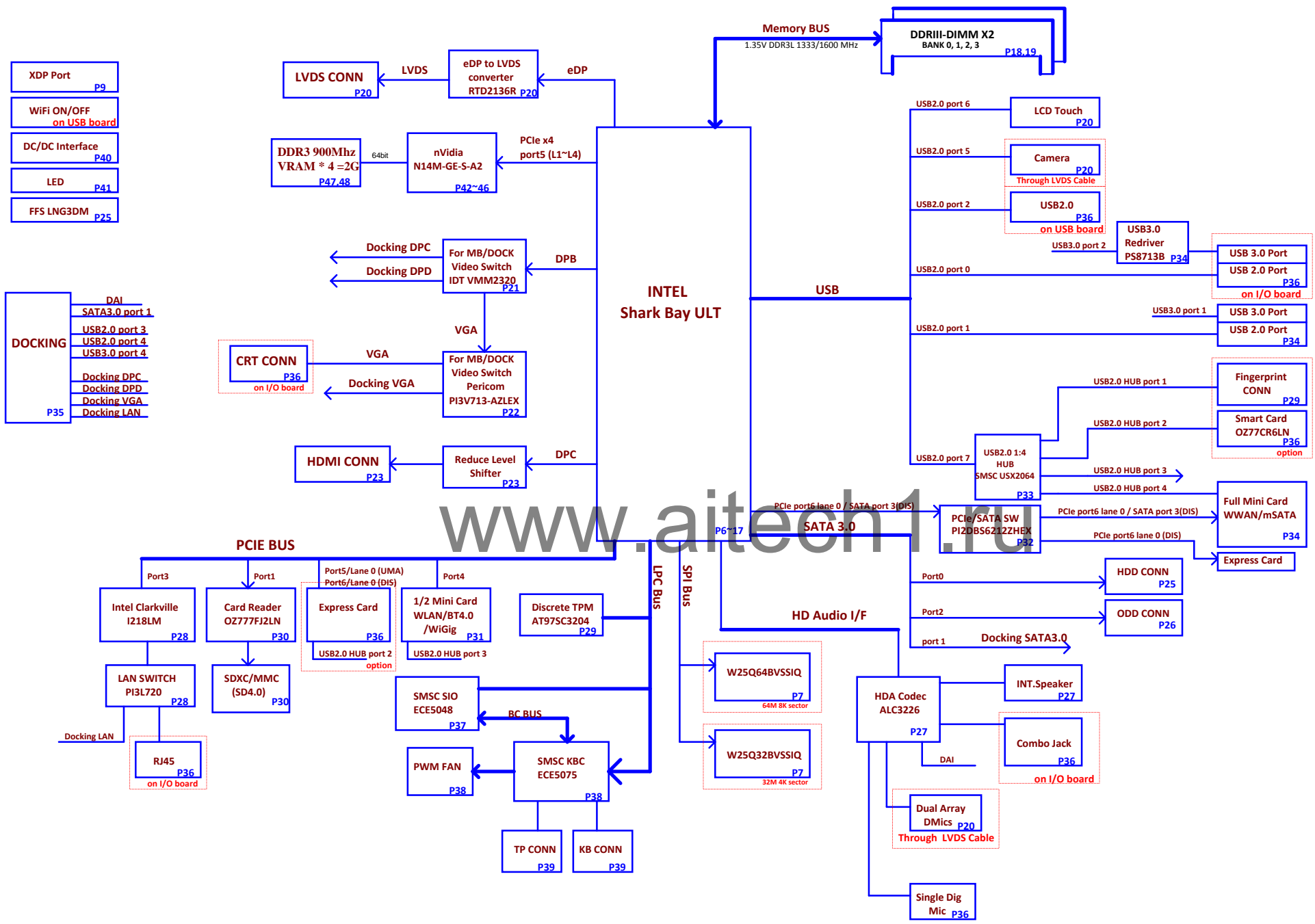
Interleaved Memory

MB PCB	
Part Number	Description
DAXXXXXXXX	PCB OLD LA-9832P REV1 M/B DIS

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.			
Title			
Cover Sheet			
Size	Document Number	Rev	
	LA-9832P	0.5	
Date	Thursday, August 15, 2013	Sheet	1 of 64



www.aitech1.ru

DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.			
Block Diagram			
Rev	Document Number	Rev	
	LA-9832P	0.5	
Date:	Thursday, June 13, 2013	Sheet	2 of 64

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL"). THIS DOCUMENT HAS NOT BE TRANSMITTED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

POWER STATES

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

PM TABLE

power plane State	+5V_ALW +3.3V_ALW +3.3V_ALW_PCH +3.3V_RTC_LDO	+3.3V_SUS +1.35V_MEM	+5V_RUN +3.3V_RUN +0.675V_DDR_VTT +1.05V_RUN +VCC_CORE	+3.3V_M +1.05V_M	+3.3V_M +1.05V_M (M-OFF)
S0	ON	ON	ON	ON	ON
S3	ON	ON	OFF	ON	OFF
S5 S4/AC	ON	OFF	OFF	ON	OFF
S5 S4/AC don't exist	OFF	OFF	OFF	OFF	OFF

need to update Power Status and
PM Table

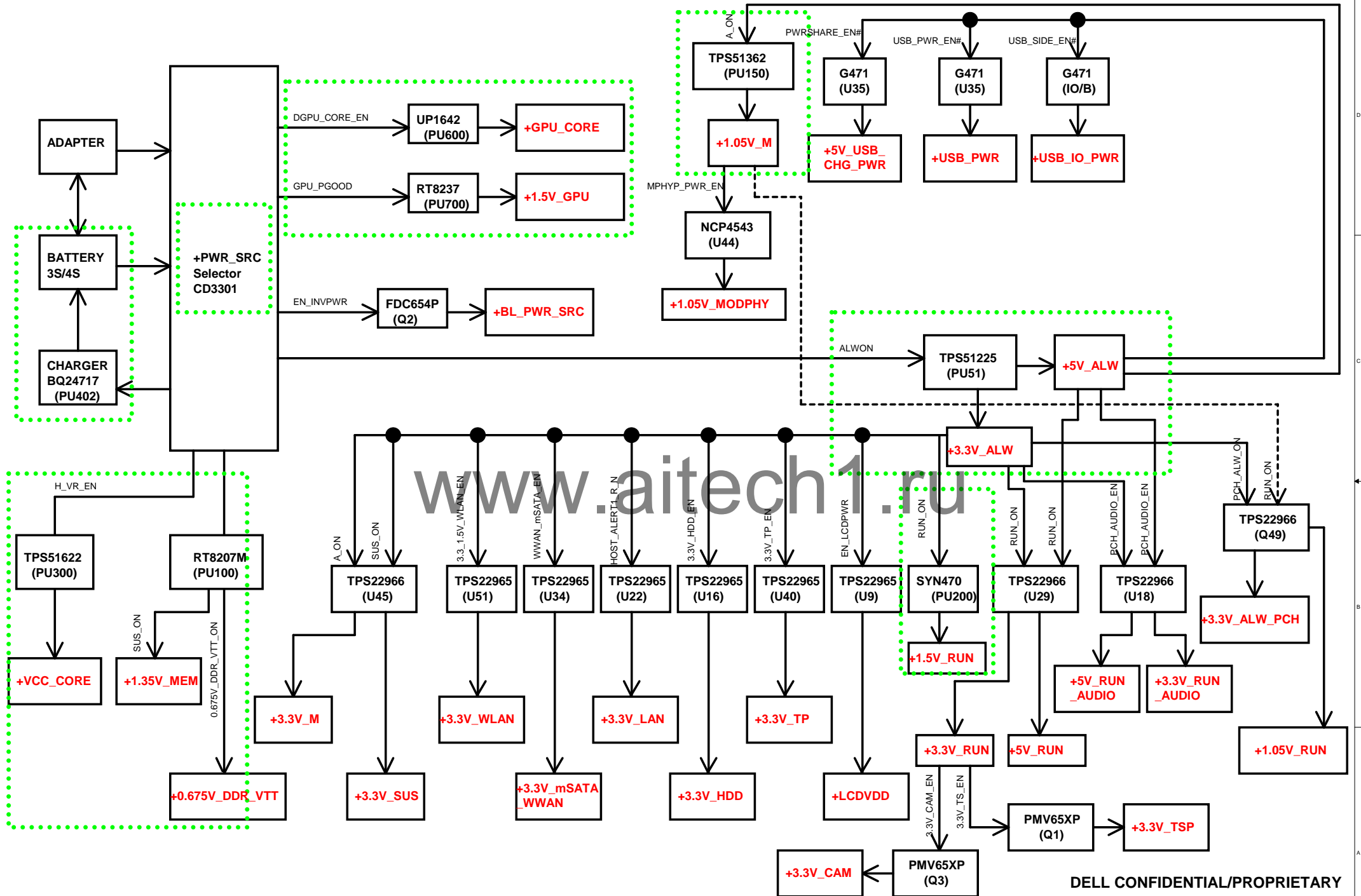
PCIE	USB3.0	SATA	DESTINATION
	USB3.0 1		JUSB1-->MB-->LEFT
	USB3.0 2		USB3.0-->IOB-->Rear Right
PCIE 1	USB3.0 3		PCIE1-->MMI PCIE
PCIE 2	USB3.0 4		USB3.0-->Docking
PCIE 3			LOM
PCIE 4			WLAN (WiGi)
PCIE 5			GPU(DIS)/Express card(UMA)
PCIE 6		SATA 3	WWAN(mSATA)/Express card(PCIE)
		SATA 2	ODD
		SATA 1	HDD
		SATA 0	DOCK

HSW ULT	USB PORT#	DESTINATION
	0	IO (Right)
	1	JUSB1(Left)
	2	USB DB(Rear Left)
	3	DOCK
	4	Dock
	5	WebCAM
	6	Touch Screen
	7	USB HUB

DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.			
Index and Config.			
Size	Document Number	Rev	
	LA-9832P	0.5	
Date:	Thursday, June 13, 2013	Sheet	3 of 64

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL
TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT
BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION,
NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD
PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



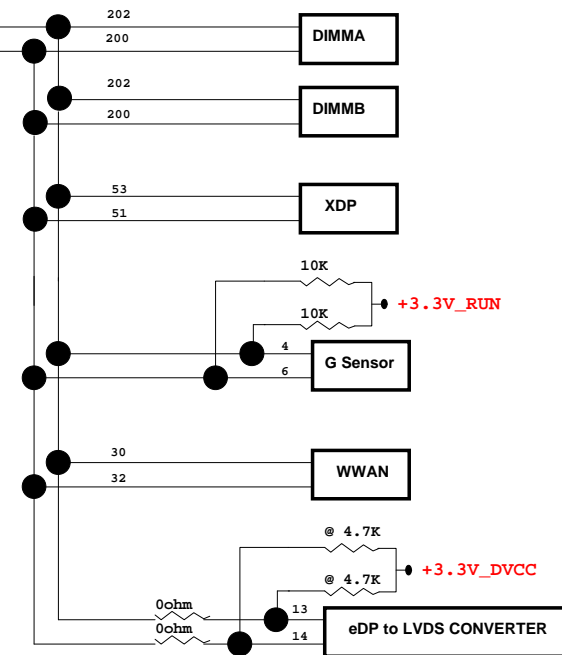
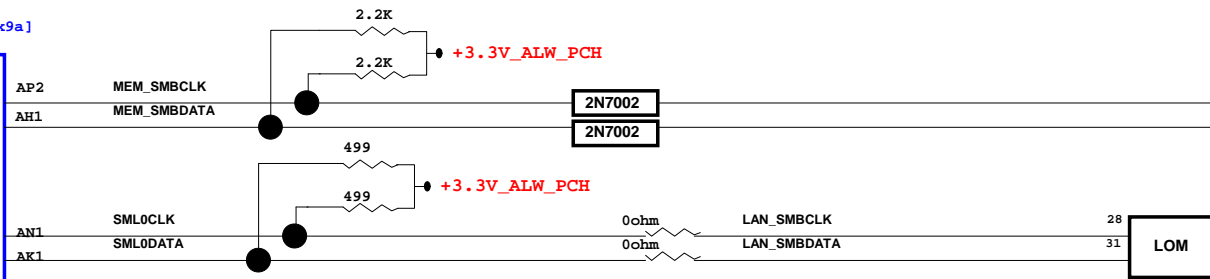
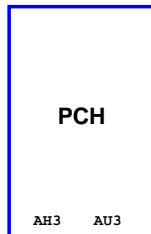
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

DELL CONFIDENTIAL/PROPRIETARY

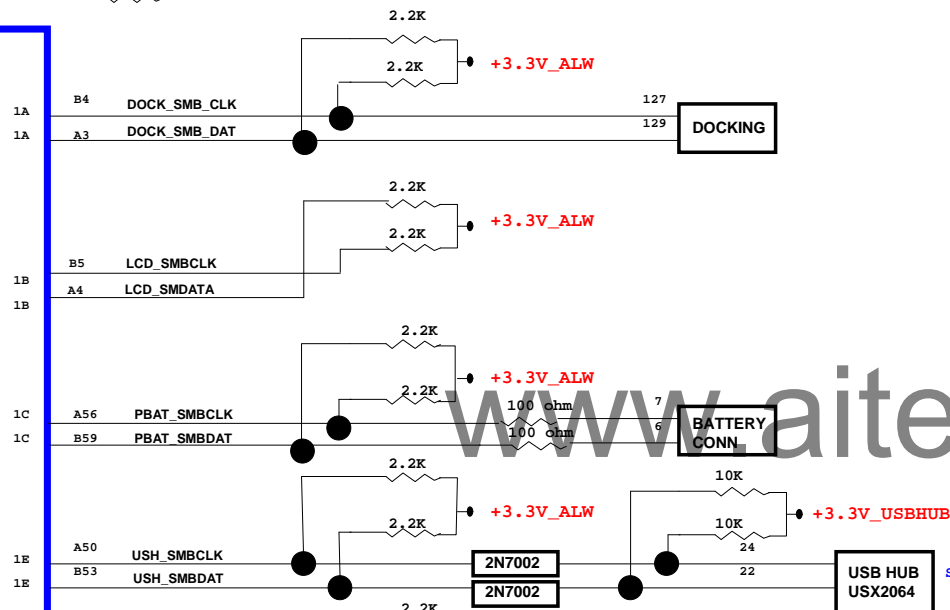


Compal Electronics, Inc.			
Title	Power Rail		
Size	Document Number	Rev	
	LA-9832P	0.5	
Date	Thursday, June 13, 2013	Sheet	4 of 64

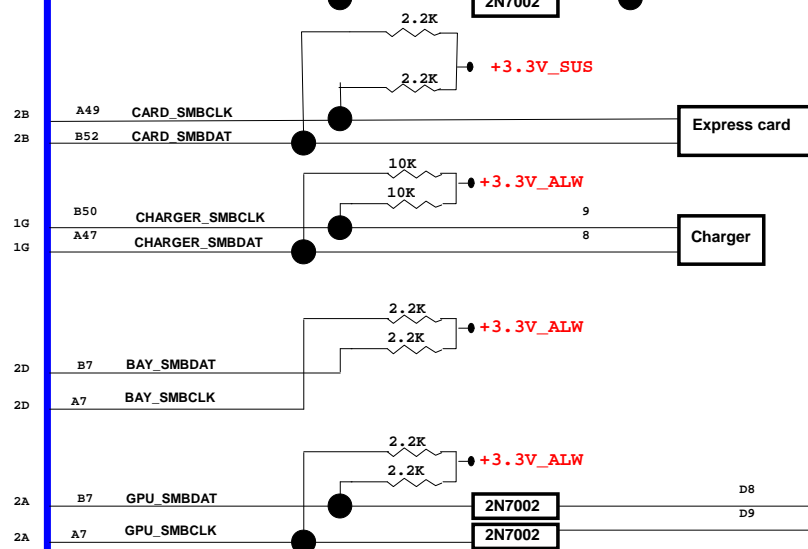
SMBUS Address [0x9a]

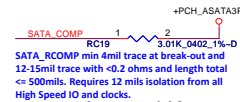
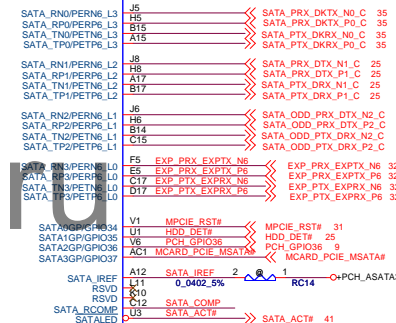
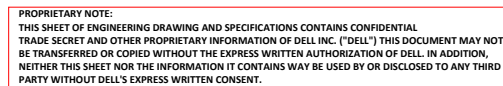
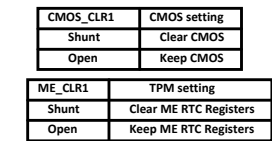


KBC

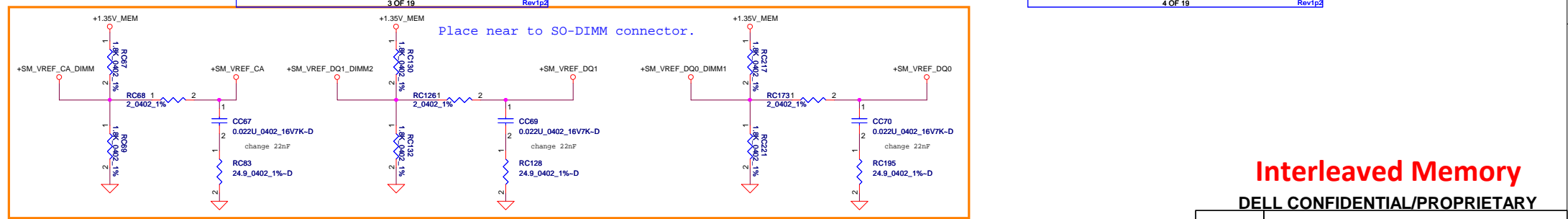


MEC 5075





DDR interleave routing



PROPRIETARY NOTE:
THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL
TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT
BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION,
NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS WAY BE USED BY OR DISCLOSED TO ANY THIRD
PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

DELL CONFIDENTIAL/PROPRIETARY

MCP(3/12) DDR3

LA-9832P

Size	Document Number
Date:	Thursday, June 13, 2013

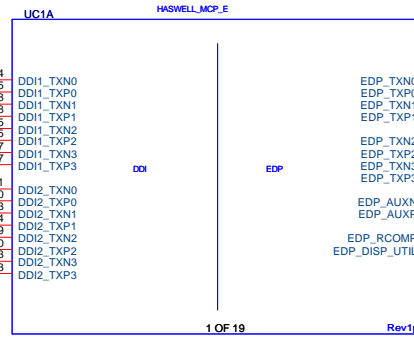
0.5

Intel check list has updated correctly

DP HUB <-----

HDMI <-----

21	DDI1_LANE_N0	<<<	DDI1_LANE_N0	C54	DDI1_TXN0
21	DDI1_LANE_P0	<<<	DDI1_LANE_P0	C55	DDI1_TXP0
21	DDI1_LANE_N1	<<<	DDI1_LANE_N1	B58	DDI1_TXN1
21	DDI1_LANE_P1	<<<	DDI1_LANE_P1	C58	DDI1_TXP1
21	DDI1_LANE_N2	<<<	DDI1_LANE_N2	B55	DDI1_TXN2
21	DDI1_LANE_P2	<<<	DDI1_LANE_P2	A55	DDI1_TXP2
21	DDI1_LANE_N3	<<<	DDI1_LANE_N3	A57	DDI1_TXN3
21	DDI1_LANE_P3	<<<	DDI1_LANE_P3	B57	DDI1_TXP3
23	TMDS_N2	<<<	TMDS_N2	C51	DDI2_TXN0
23	TMDS_P2	<<<	TMDS_P2	C50	DDI2_TXP0
23	TMDS_N1	<<<	TMDS_N1	C53	DDI2_TXN1
23	TMDS_P1	<<<	TMDS_P1	B54	DDI2_TXP1
23	TMDS_N0	<<<	TMDS_N0	C49	DDI2_TXN2
23	TMDS_P0	<<<	TMDS_P0	B50	DDI2_TXP2
23	TMDS_CLK#	<<<	TMDS_CLK#	A53	DDI2_TXN3
23	TMDS_CLK	<<<	TMDS_CLK	B53	DDI2_TXP3



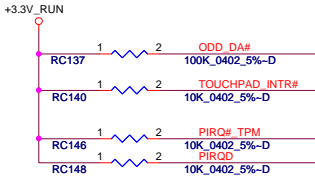
C45	EDP_CPU_LANE_N0	>>>	EDP_CPU_LANE_N0	20
B46	EDP_CPU_LANE_P0	>>>	EDP_CPU_LANE_P0	20
A47	EDP_CPU_LANE_N1	>>>	EDP_CPU_LANE_N1	20
B47	EDP_CPU_LANE_P1	>>>	EDP_CPU_LANE_P1	20
C47	DDI1_TXN2			
C46	DDI1_TXP2			
A49	DDI1_TXN3			
B49	DDI1_TXP3			
A45	EDP_CPU_AUX#	>>>	EDP_CPU_AUX#	20
B45	EDP_CPU_AUX	>>>	EDP_CPU_AUX	20
D20	EDP_COMP			
A43	EDP_DISP_UTIL			

COMPENSATION PU FOR eDP

follow intel feedback



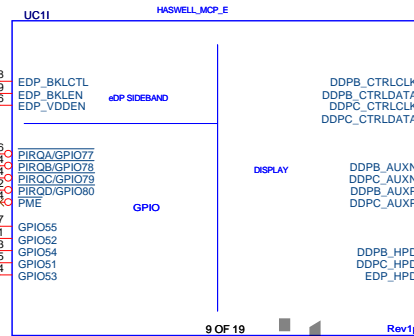
CAD Note: Trace width=20 mils ,Spacing=25mil,
Max length=100 mils.



reference 0.55 design chane log WW23_2

20	EDP_BIA_PWM	<<<	EDP_BIA_PWM	B8
20	PANEL_BKLEN	<<<	PANEL_BKLEN	A9
20,37	ENVDD_PCH	<<<	ENVDD_PCH	C6

26	ODD_DA#	>>>	ODD_DA#	U6
12,37,60,62	DGPU_PWROK	>>>	DGPU_PWROK	P3C
0_0402_5%-D 1	PIQO#_TPM	>>>	PIQO#_TPM	N4C
0_0402_5%-D 1	PIQO#	>>>	PIQO#	N2C
12,25	HDD_FALL_INT#	>>>	HDD_FALL_INT#	AD4
12	TOUCH_RST_N_GYRO_INT1	<<<	TOUCH_RST_N_GYRO_INT1	U7
49	DGPU_PWR_EN	<<<	DGPU_PWR_EN	L3
60	DGPU_CORE_EN	<<<	DGPU_CORE_EN	R5
	CODEC_IRQ	<<<	CODEC_IRQ	L4



eDP SIDE BAND

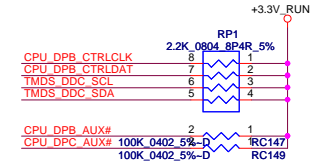
DISPLAY

GPIO

B9	CPU_DPB_CTRLCLK	>>>	CPU_DPB_CTRLCLK	
C9	CPU_DPB_CTRLDAT	>>>	CPU_DPB_CTRLDAT	
D9	TMDS_DDC_SCL	>>>	TMDS_DDC_SCL	23
D11	TMDS_DDC_SDA	>>>	TMDS_DDC_SDA	23
C5	CPU_DPB_AUX#	<<<	CPU_DPB_AUX#	21
B6	CPU_DPC_AUX#	<<<	CPU_DPC_AUX#	21
B5	CPU_DPB_AUX	<<<	CPU_DPB_AUX	21
A6	CPU_DPC_AUX	<<<	CPU_DPC_AUX	21
C8	DPB_HPD	>>>	DPB_HPD	21
A8	TMDS_HPD	>>>	TMDS_HPD	23
D6	EDP_CPU_HPD	>>>	EDP_CPU_HPD	20

Intel WW18 Strapping option

Intel WW18 Strapping option



www.aitech1.ru

reference PDG 0.9

DELL CONFIDENTIAL/PROPRIETARY

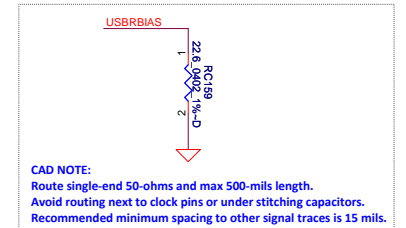
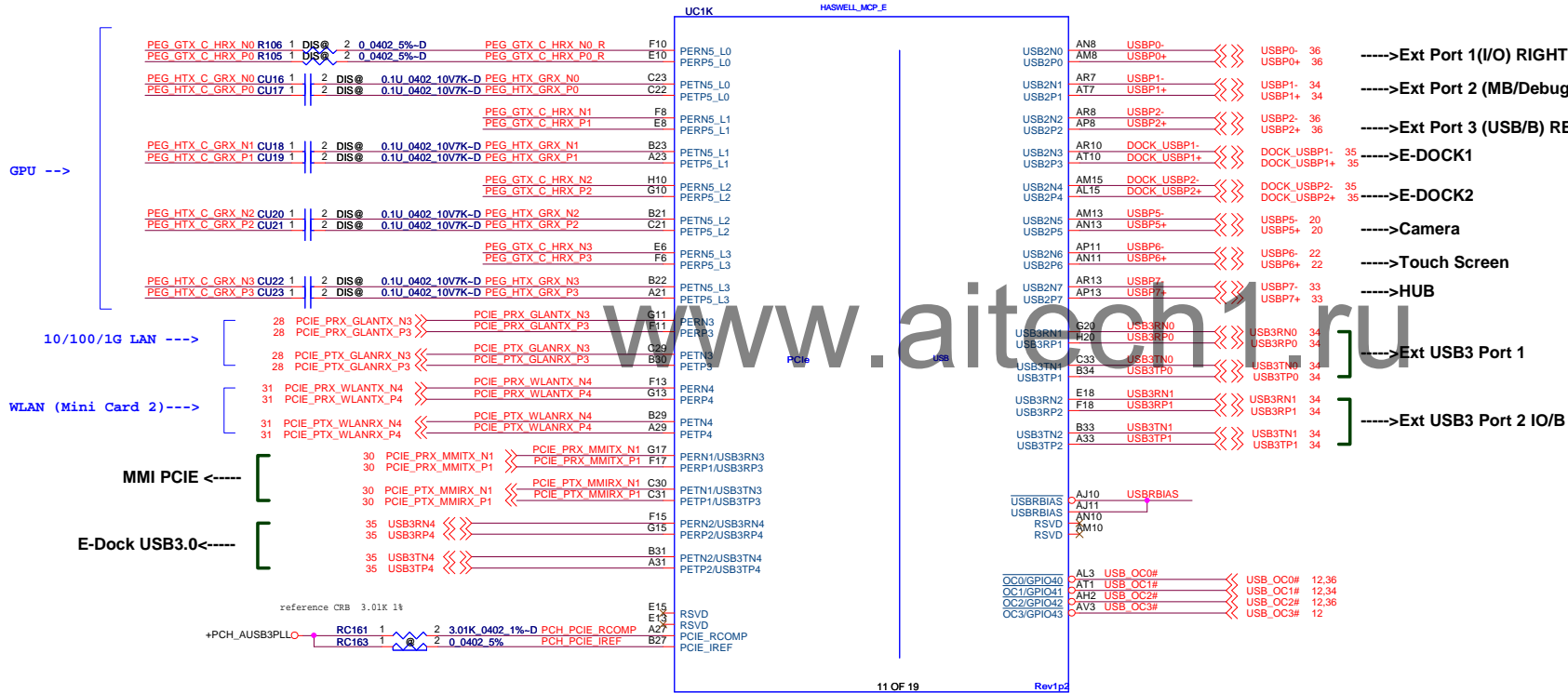
Compal Electronics, Inc.

Title	MCP(5/12) DDI,EDP,GPIO		
Size	Document Number	Rev	0.5
Date	Thursday, June 13, 2013	Sheet	10 of 64

PROPRIETARY NOTE:
THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL
TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT
BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION,
NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS WAY BE USED BY OR DISCLOSED TO ANY THIRD
PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

42 PEG_GTX_C_HRX_N[0..3] >> PEG_GTX_C_HRX_N[0..3]
42 PEG_GTX_C_HRX_P[0..3] >> PEG_GTX_C_HRX_P[0..3]
42 PEG_HTX_C_GRX_N[0..3] << PEG_HTX_C_GRX_N[0..3]
42 PEG_HTX_C_GRX_P[0..3] << PEG_HTX_C_GRX_P[0..3]

32 PEG_GTX_C_HRX_N0_M >> PEG_GTX_C_HRX_N0_M R101 1 UMA@ 2 0 0402 5%-D PEG_GTX_C_HRX_N0_R
32 PEG_GTX_C_HRX_P0_M >> PEG_GTX_C_HRX_P0_M R100 1 UMA@ 2 0 0402 5%-D PEG_GTX_C_HRX_P0_R
32 PEG_HTX_C_GRX_N0_M << PEG_HTX_C_GRX_N0_M R102 1 UMA@ 2 0 0402 5%-D PEG_HTX_C_GRX_N0
32 PEG_HTX_C_GRX_P0_M << PEG_HTX_C_GRX_P0_M R104 1 UMA@ 2 0 0402 5%-D PEG_HTX_C_GRX_P0



DELL CONFIDENTIAL/PROPRIETARY



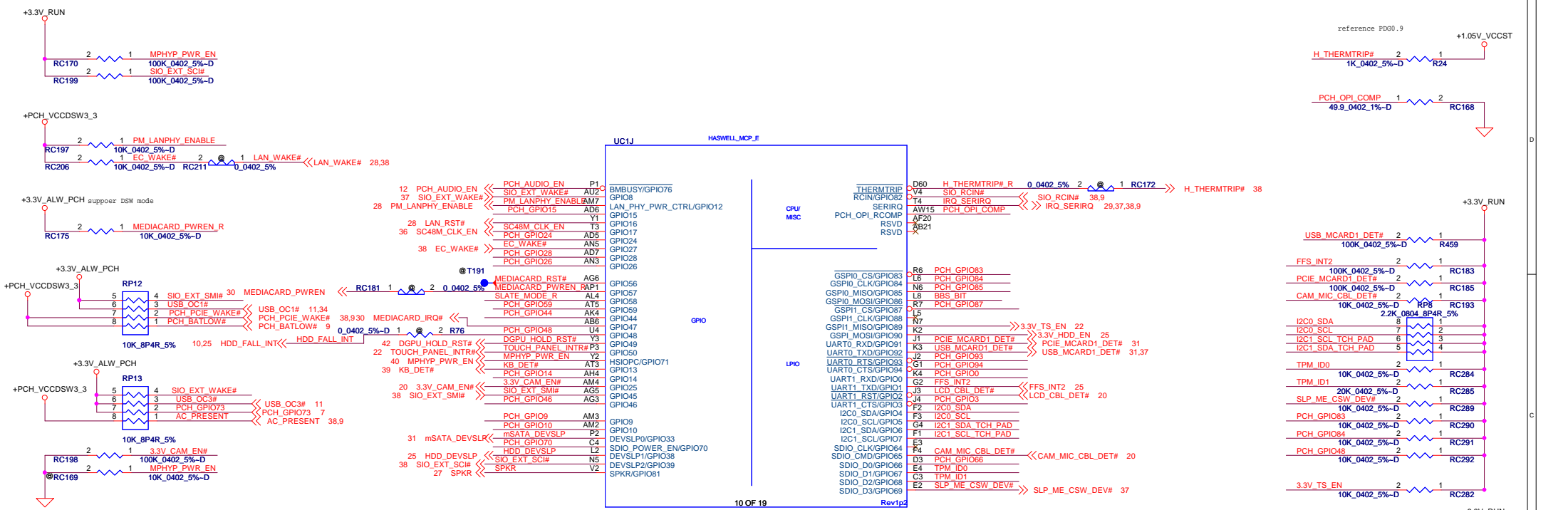
Compal Electronics, Inc.

MCP(6/12) PCIE,USB

LA-9832P

Date: Thursday, June 13, 2013 Sheet 11 of 64

PROPRIETARY NOTE:
THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL
TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT
BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION,
NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS WAY BE USED BY OR DISCLOSED TO ANY THIRD
PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

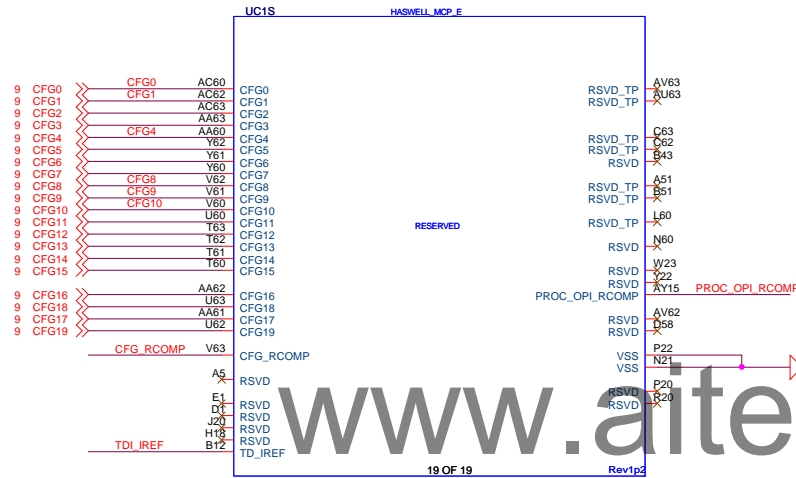


www.aitech1.ru



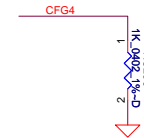
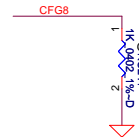
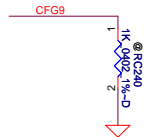
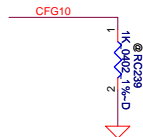
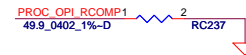
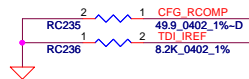
TOP-BLOCK SWAP OVERRIDE		BOOT BIOS STRAP BIT BBS		TLS CONFIDENTIALITY		NO REBOOT STRAP	
HIGH depop RC288 (DEFAULT)		HIGH	LPC	HIGH		HIGH	
LOW pop RC288		LOW(DEFAULT)	SPI	LOW(DEFAULT)		LOW(DEFAULT)	

CFG STRAPS for CPU



EAR-STALL/NOT STALL RESET SEQUENCE AFTER PCU PLL IS LOCKED	
CFG0	1:(Default) Normal Operation; No stall 0:Lane Reversed

PCH/PCH LESS MODE SELECTION	
CFG1	1:(Default) Normal Operation 0:Lane Reversed



SAFE MODE BOOT	
CFG10	1: POWER FEATURES ACTIVATED DURING RESET 0: POWER FEATURES (ESPECIALLY CLOCK GATING) ARE NOT ACTIVATED

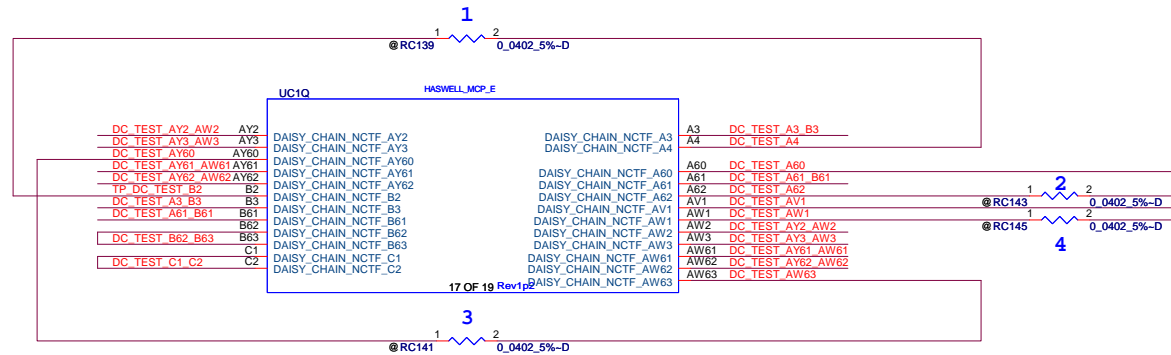
NO SVID PROTOCOL CAPABLE VR CONNECTED	
CFG9	1: VRS support SVID protocol are present 0: No VR support SVID is present The chip will not generate (OR Respond to) SVID activity

ALLOW THE USE OF NOA ON LOCKED UNITS	
CFG8	1: Enable (Default): Noa will be disabled in locked units and enable in un-locked units 0: Enable Noa will be available regardless of the locking of the unit

Display Port Presence Strap	
CFG4	1 : Disabled; No Physical Display Port attached to Embedded Display Port 0 : Enabled; An external Display Port device is connected to the Embedded Display Port

PROPRIETARY NOTE:
THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

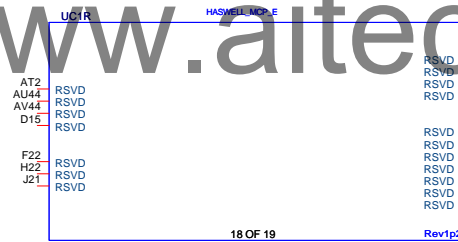
DELL CONFIDENTIAL/PROPRIETARY			
Compal Electronics, Inc.			
Title	MCP(8/12) CFG, RSVD		
Size	Document Number	Rev	
	LA-9832P	0.5	
Date:	Thursday, June 13, 2013	Sheet	13 of 64



Package Daisy Chain:

1. B2-PKG-C1-PCB-C2-PKG-B3-PCB-A3-PKG-A4
2. A62-PKG-A61-PCB-B61-PKG-B62-PCB-B63-PKG-A60
3. AY60-PKG-AW61-PCB-AY61-PKG-AW62-PCB-AY62-PKG-AW63
4. AW1-PKG-AW3-PCB-AY3-PKG-AW2-PCB-AY2-PKG-AV1

www.aitech1.ru



DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title		MCP(9/12) TP,RSVD	
Size	Document Number	Rev	
	LA-9832P	0.5	
Date:	Thursday, June 13, 2013	Sheet	14 of 64

PROPRIETARY NOTE:
THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL
TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT
BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION,
NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS WAY BE USED BY OR DISCLOSED TO ANY THIRD
PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



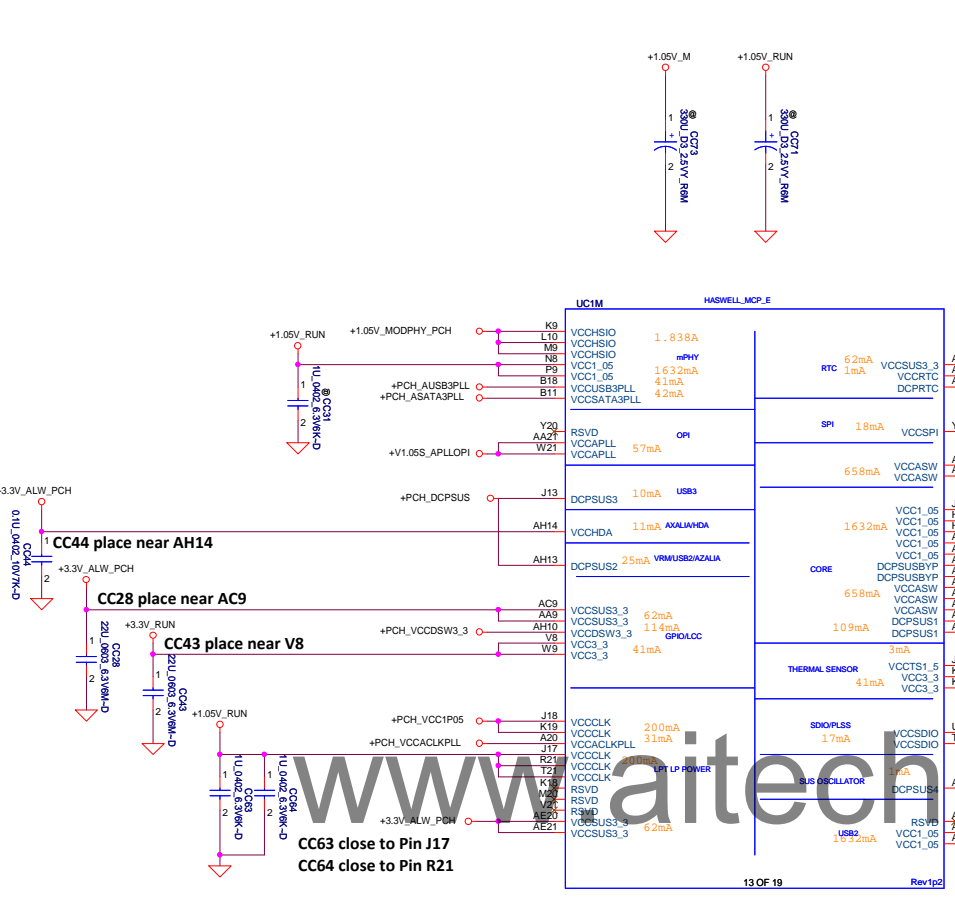
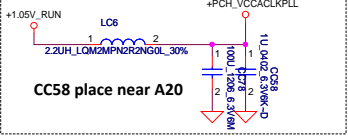
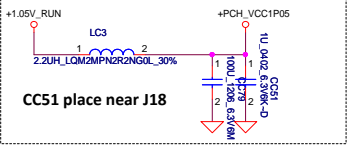
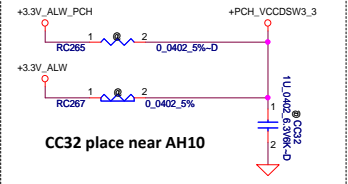
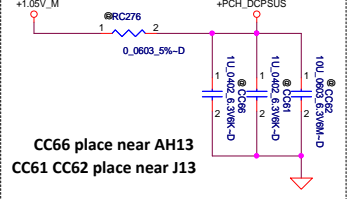
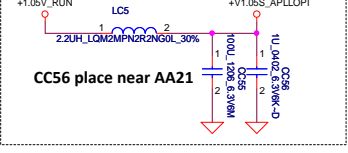
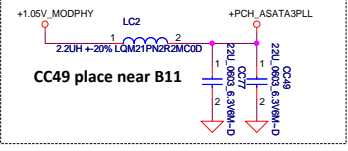
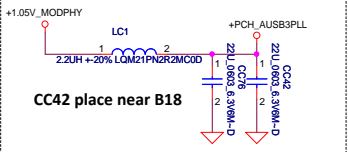
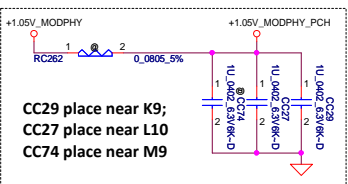
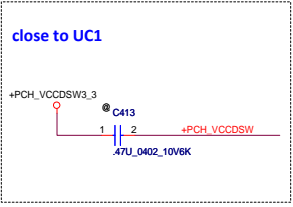
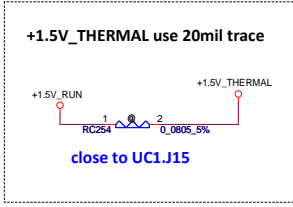


Table 6-3. Pre-Si I_{CC} max Estimates

Voltage Rail	Voltage (V)	S0 Iccmax (A) ¹	Sx Iccmax (A) ²	Deep Sx Iccmax (A) ³	G3
VCC1_05 (Internal Suspend VR mode using INTVRMEN)	1.05	1.741	0	0	0
VCC1_05 (External Suspend VR mode using INTVRMEN)	1.05	1.632	0	0	0
VCCAPLL	1.05	0.057	0	0	0
VCCSATA3PLL	1.05	0.042	0	0	0
VCCUSB3PLL	1.05	0.041	0	0	0
VCCACKPLL	1.05	0.031	0	0	0
VCCCLK	1.05	0.200	0	0	0
VCCHSIO	1.05	1.838	0	0	0
VCCTS1_5	1.5	0.003	0	0	0
VCC3_3	3.3	0.041	0	0	0
VCCSDIO	3.3	0.017	0	0	0
VCCASW	1.05	0.658	0	0	0
VCCSPI	3.3	0.018	0	0	0
VCCSDA	3.3	0.011	<1 mA	0	0
VCCSUS3_3 (Internal Suspend VR mode using INTVRMEN)	3.3	0.063	0.024	0	0
VCCSUS3_3 (External Suspend VR mode using INTVRMEN)	3.3	0.062	0.005	0	0
DcpSus1 ⁴	1.05	0.109	0.014	0	0
DcpSus2 ⁴	1.05	0.025	0.001	0	0
DcpSus3 ⁴	1.05	0.010	0.003	0	0
DcpSus4 ⁴	1.05	0.001	0.001	0	0
VCCDSW3_3	3.3	0.114	0.004	0.002	0
VCCRTC	3.3	<1 mA	<1 mA	<1 mA	See notes 1, 2

6 μA
See notes 1, 2



DeepSleep and Non-DeepSleep config:

Config	DSx	Non-DSx
Pop	RC86, R319, RC267	RC79, RC82, RC265
Depop	RC79, RC82, RC265	RC86, R319, RC267

DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

MCP(11/12) Power

LA-9832P

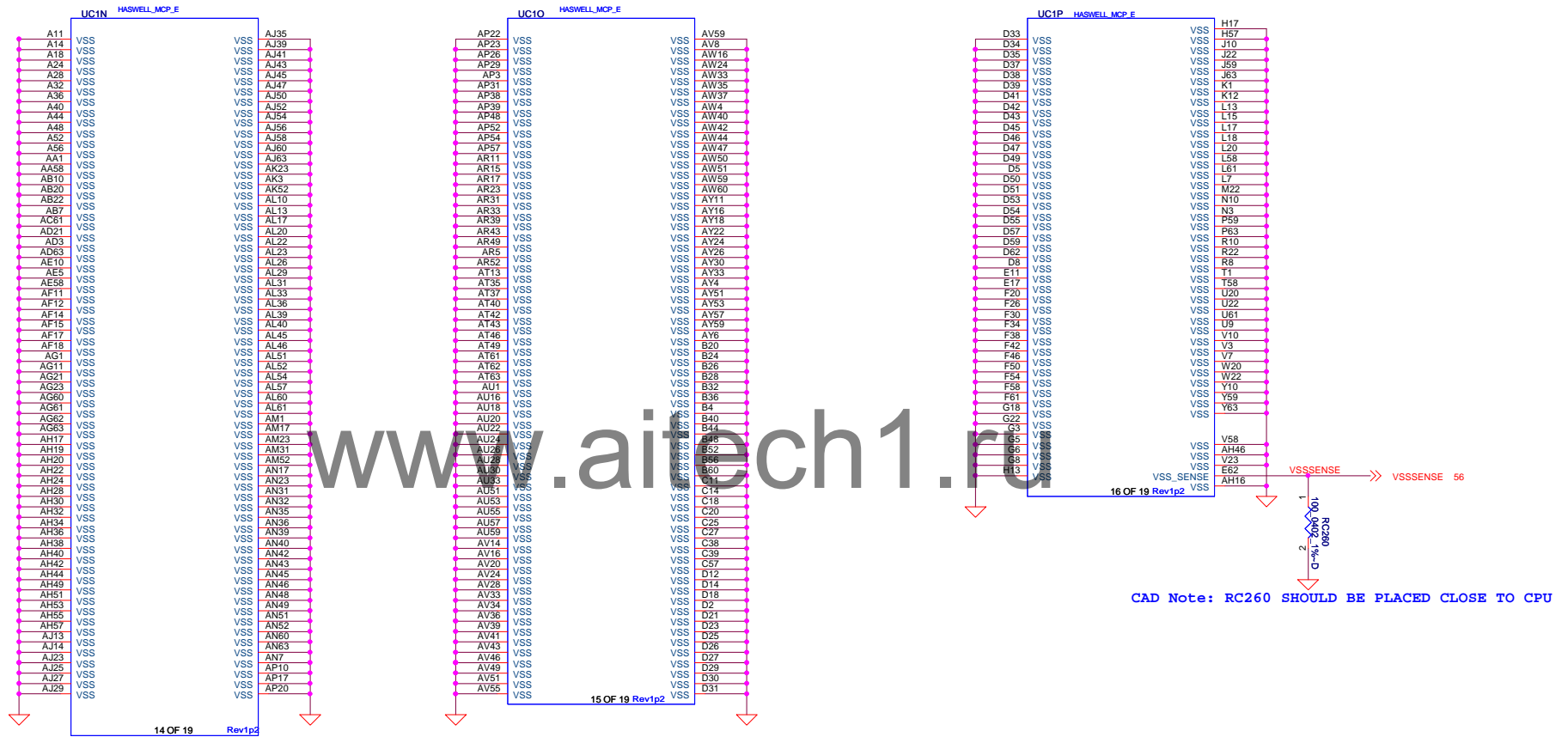
Rev 0.5

File _____

Size _____ Document Number _____

Date: Friday, August 30, 2013 Sheet 16 of 64

PROPRIETARY NOTE:
THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS WAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



PROPRIETARY NOTE:
THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL
TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT
BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION,
NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS WAY BE USED BY OR DISCLOSED TO ANY THIRD
PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



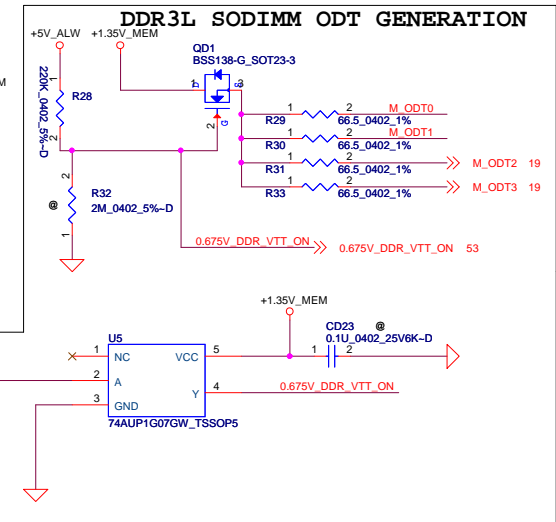
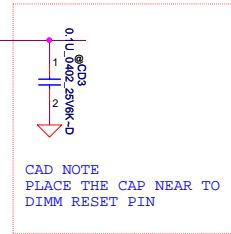
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.			
Title			
MCP(12/12) VSS			
Size	Document Number	Rev	
	LA-9832P	0.5	
Date:	Thursday, June 13, 2013	Sheet	17 of 64

M 2-3A to 1 DIMMs/channel



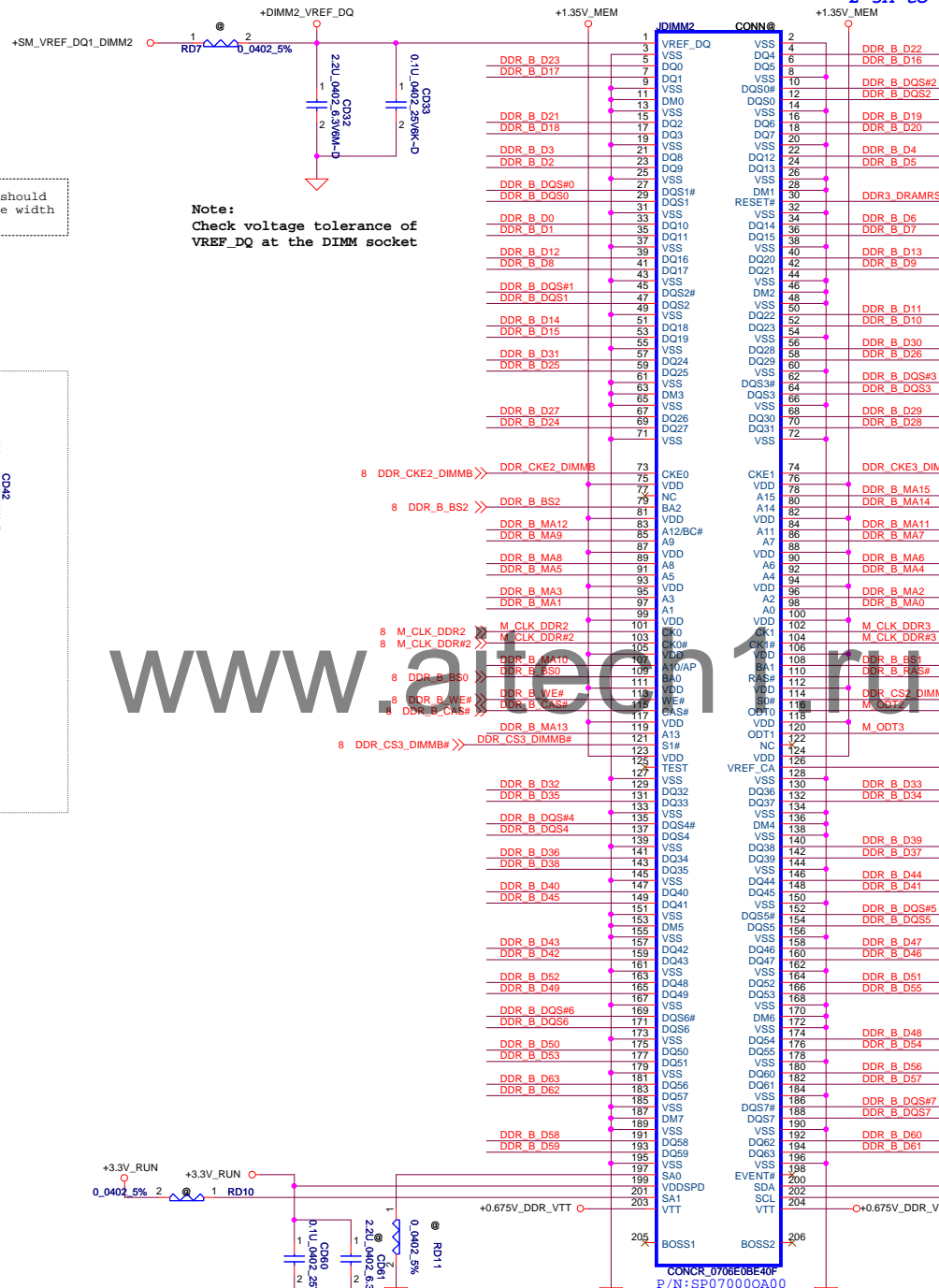
Note:
Check voltage tolerance of
VREF_DQ at the DIMM socket



Title			
DDRIII DIMM1			
Size	Document Number		Rev
	LA-9832P		0.5
Date:	Thursday, June 13, 2013		Sheet 18 of 64

JDIMM2 H=4mm 2-3A to 1 DIMMs/channel

Reverse Type



CAD NOTE
PLACE THE CAP NEAR TO
DIMM RESET PIN

Interleaved Memory

DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

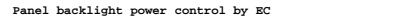
DDRIII DIMM2

LA-9832P

Rev
0.5

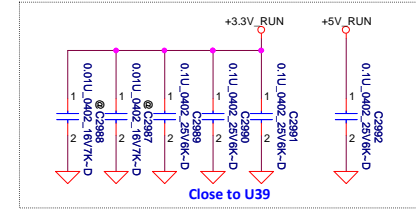
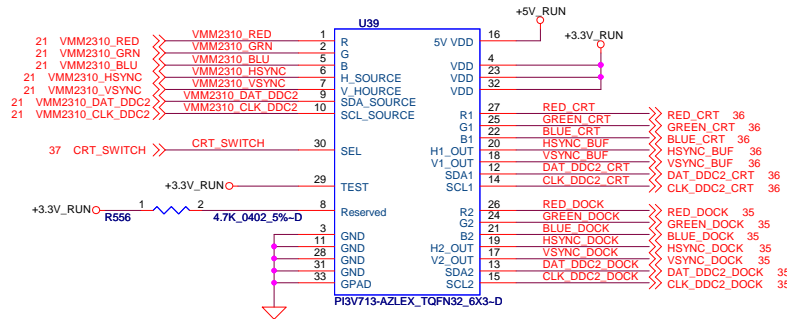
Date:	Thursday, June 13, 2013	Sheet	19	of	64
-------	-------------------------	-------	----	----	----

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

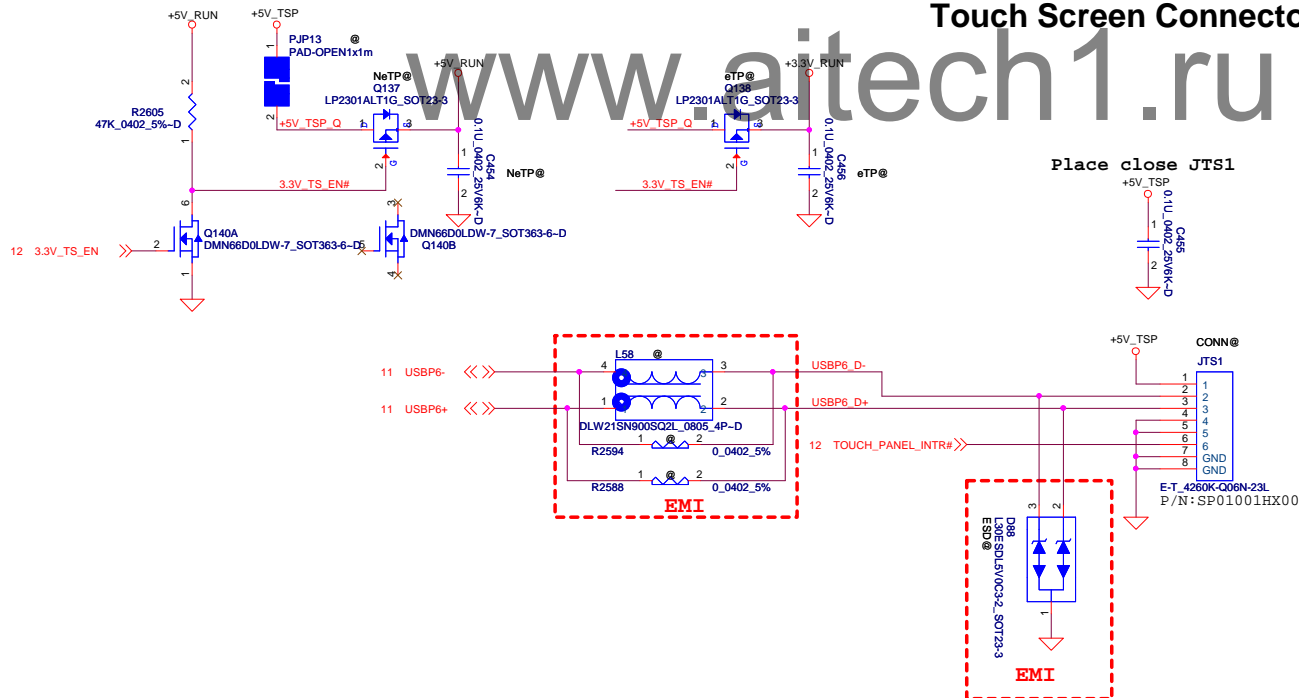
RTD2136R Operation Mode Table

CRT SW for MB/DOCK

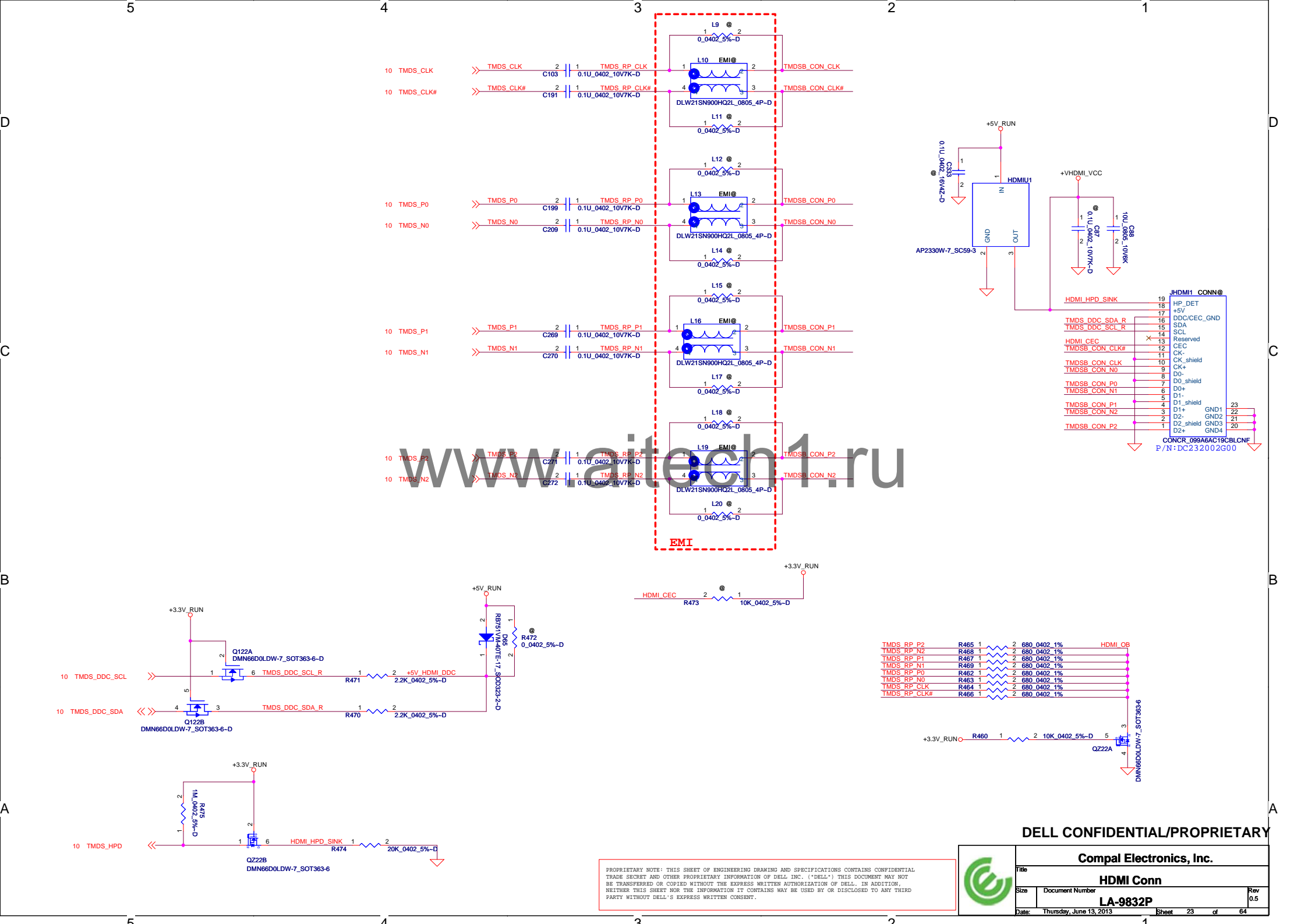
SEL1/SEL2	Chanel	Source
0	A=B1	MB
1	A=B2	APR/SPR



Touch Screen Connector



Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2011/07/15	Deciphered Date	2012/07/15	Title	CRT switch/Conn and TS
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.					Rev 0.5
Date: Thursday, June 13, 2013					Sheet 22 of 64

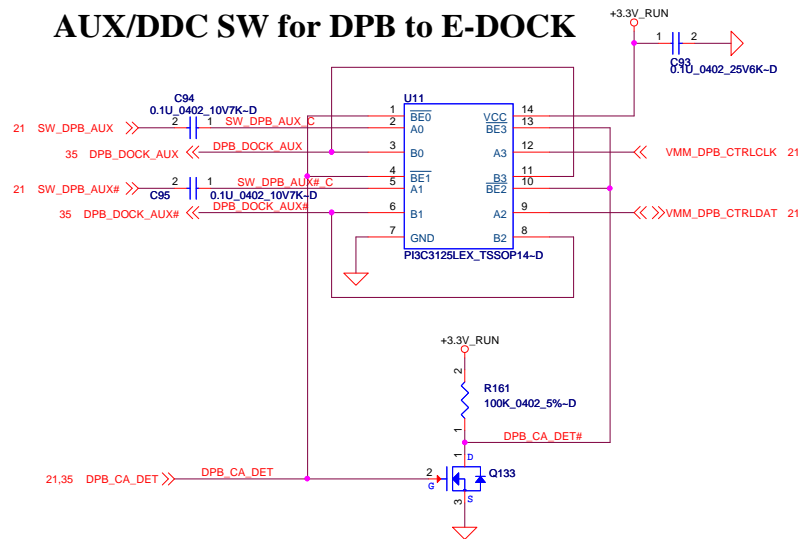


DELL CONFIDENTIAL/PROPRIETARY

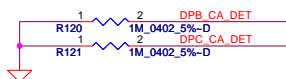
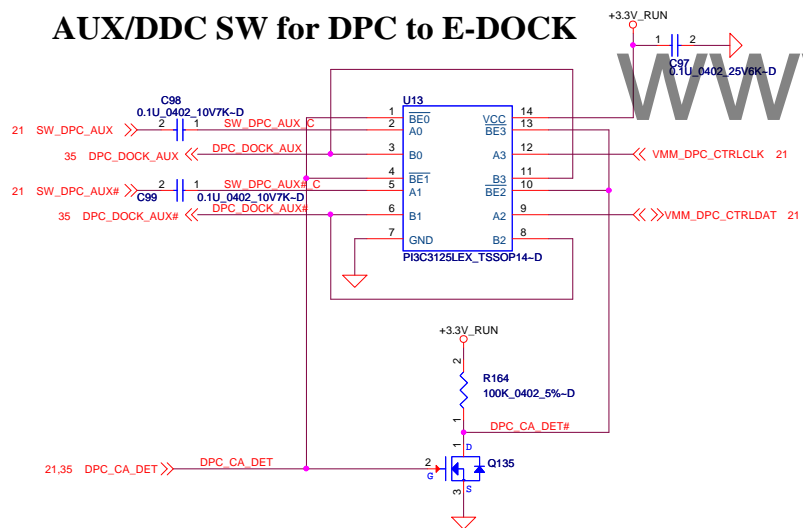
Compal Electronics, Inc.			
HDMI Conn			
Size	Document Number	LA-9832P	
Date	Thursday, June 13, 2013	Sheet	23 of 64

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ('DELL') THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

AUX/DDC SW for DPB to E-DOCK



AUX/DDC SW for DPC to E-DOCK



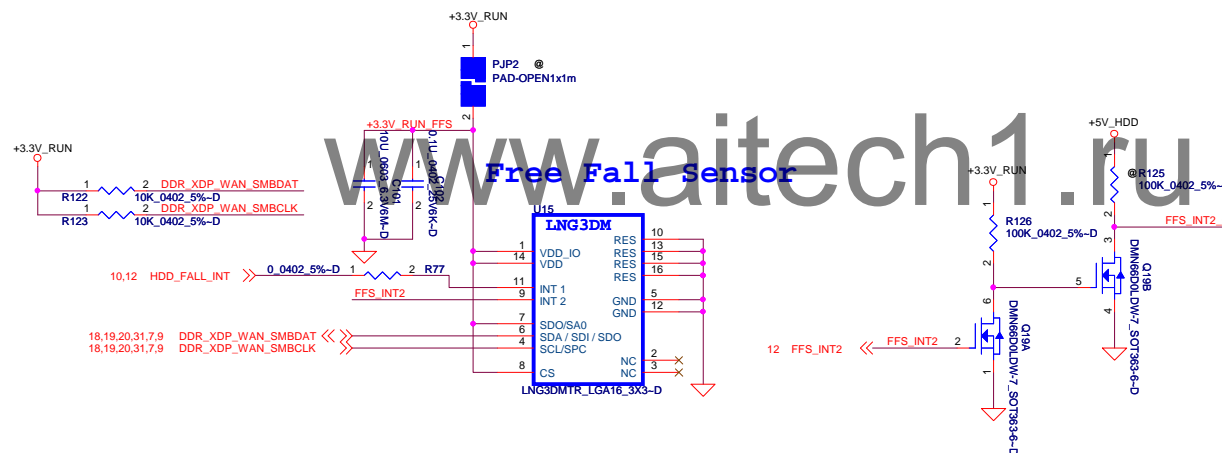
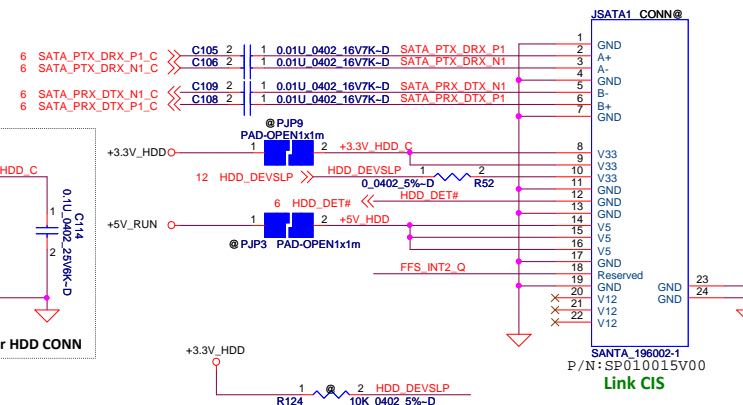
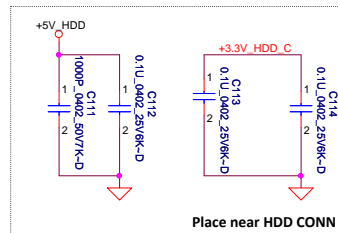
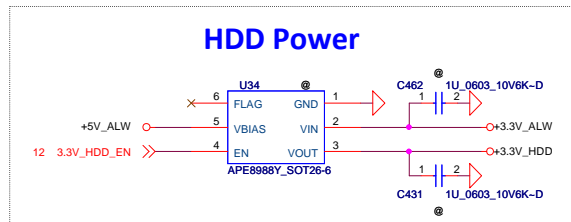
DELL CONFIDENTIAL/PROPRIETARY



Compal Electronics, Inc.

Title			
DP SW DP125			
Size	Document Number		Rev
	LA-9832P		0.5
Date:	Thursday, June 13, 2013	Sheet 24 of 64	

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



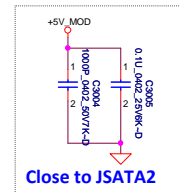
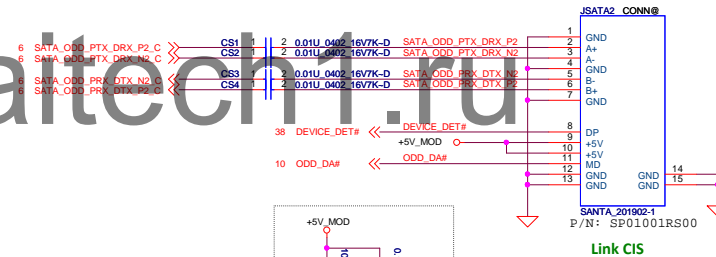
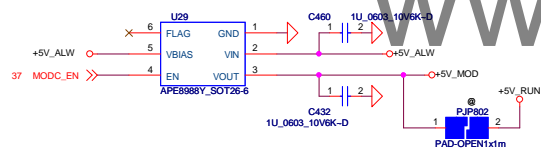
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

HDD CONN			
Title	HDD CONN		
Size	Document Number	LA-9832P	Rev 0.5
Date	Thursday, June 13, 2013	Sheet 25	of 64

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL, TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

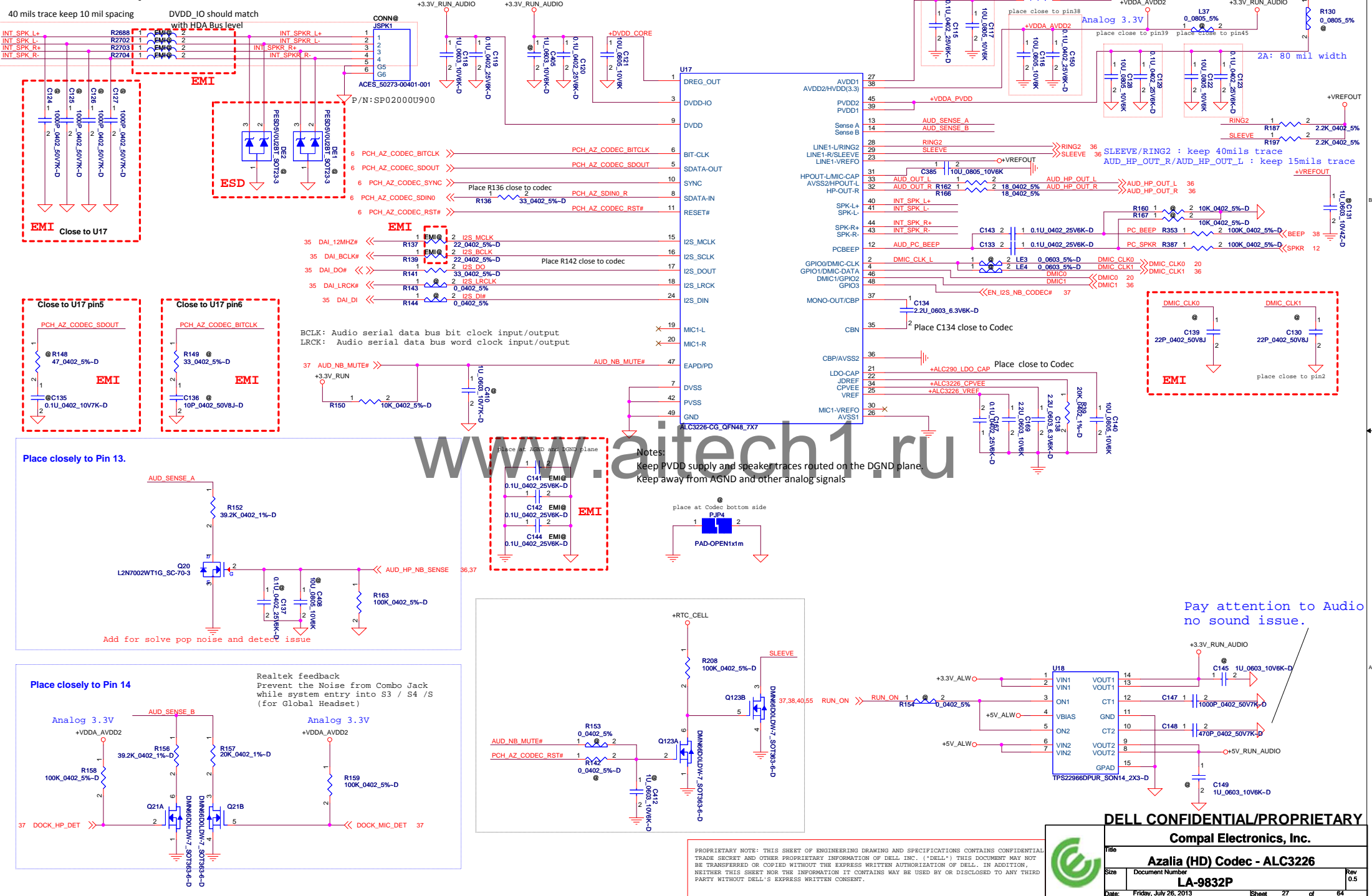
ODD power



PROPRIETARY NOTE:
THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL
TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT
BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION,
NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD
PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

DELL CONFIDENTIAL/PROPRIETARY	
Compal Electronics, Inc.	
Title	ODD module
Size	Document Number
Date	Rev
Thursday, June 13, 2013	0.5
Sheet 26	of 64

Internal Speakers Header



AT97SC3204-X4A12-ABF TSSOP 28P

Pin Connections:

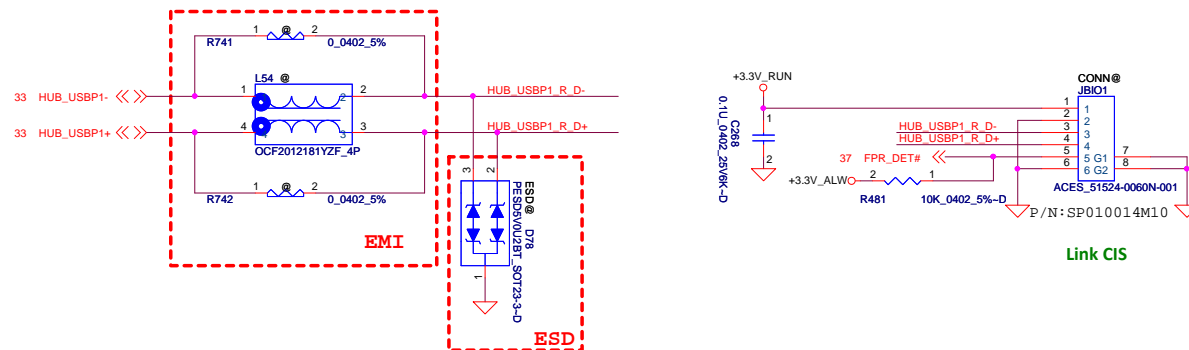
Pin	Signal	Notes
1	CLK_PCL_TPM_TCM	7
2	CLK_PCL_TPM_TCM	16
3	CLK_PCL_TPM_TCM	27
4	CLK_PCL_TPM_TCM	15
5	CLK_PCL_TPM_TCM	21
6	CLK_PCL_TPM_TCM	22
7	CLK_PCL_TPM_TCM	16
8	CLK_PCL_TPM_TCM	27
9	CLK_PCL_TPM_TCM	15
10	CLK_PCL_TPM_TCM	21
11	CLK_PCL_TPM_TCM	22
12	CLK_PCL_TPM_TCM	16
13	CLK_PCL_TPM_TCM	27
14	CLK_PCL_TPM_TCM	15
15	CLK_PCL_TPM_TCM	21
16	CLK_PCL_TPM_TCM	22
17	CLK_PCL_TPM_TCM	16
18	CLK_PCL_TPM_TCM	27
19	CLK_PCL_TPM_TCM	15
20	CLK_PCL_TPM_TCM	21
21	CLK_PCL_TPM_TCM	22
22	CLK_PCL_TPM_TCM	16
23	CLK_PCL_TPM_TCM	27
24	CLK_PCL_TPM_TCM	15
25	CLK_PCL_TPM_TCM	21
26	CLK_PCL_TPM_TCM	22
27	CLK_PCL_TPM_TCM	16
28	CLK_PCL_TPM_TCM	27

Components:

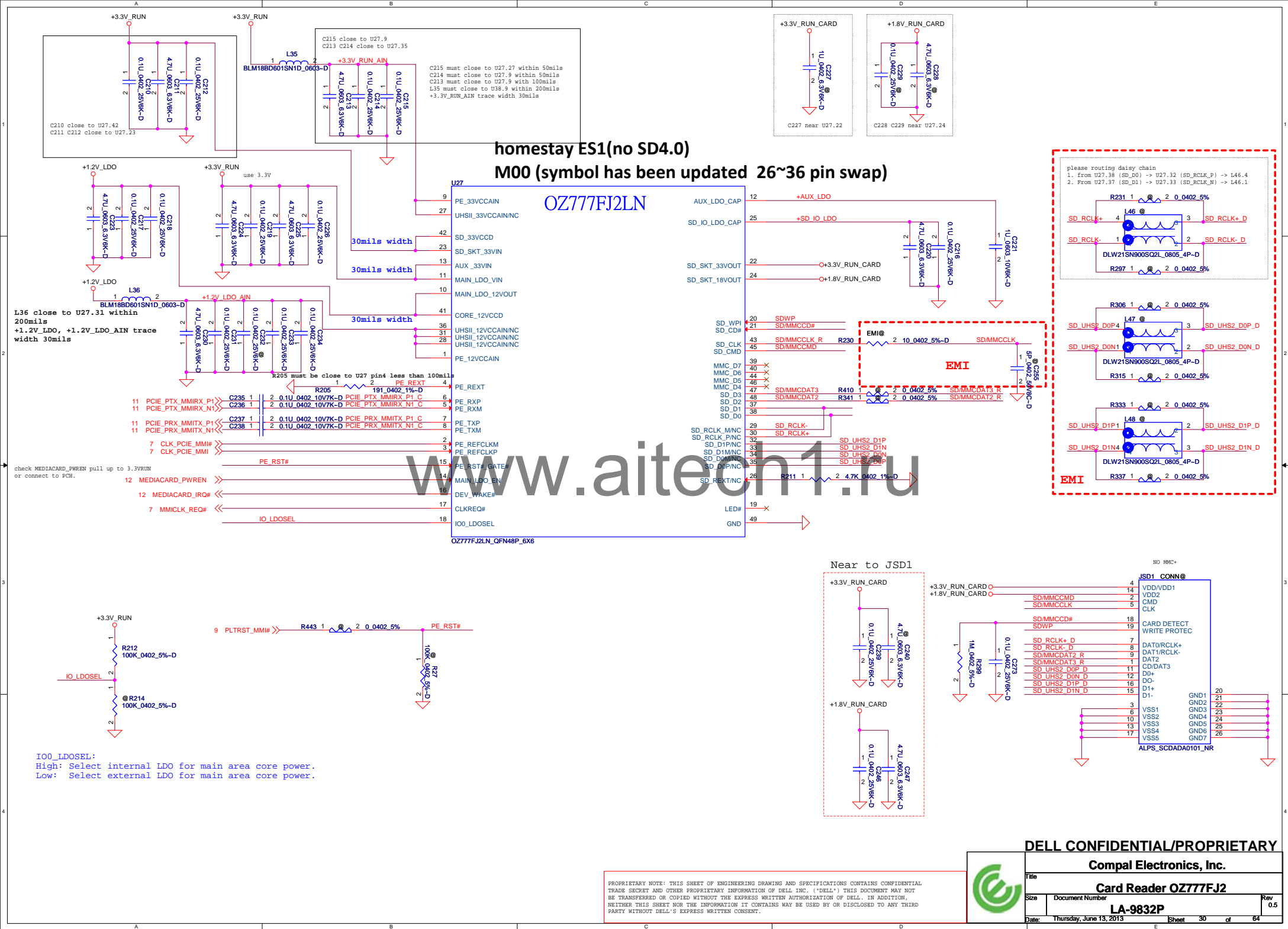
- PJP5
- PAD-OPEN1x1m
- C301
- C300
- C303
- C304

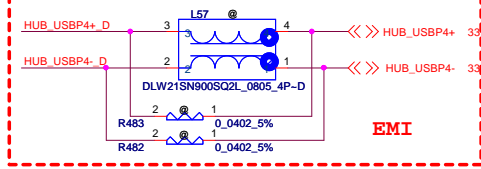
AT97SC3204-X4A12-ABF TSSOP 28P

Finger print module

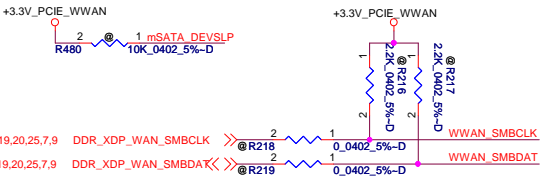
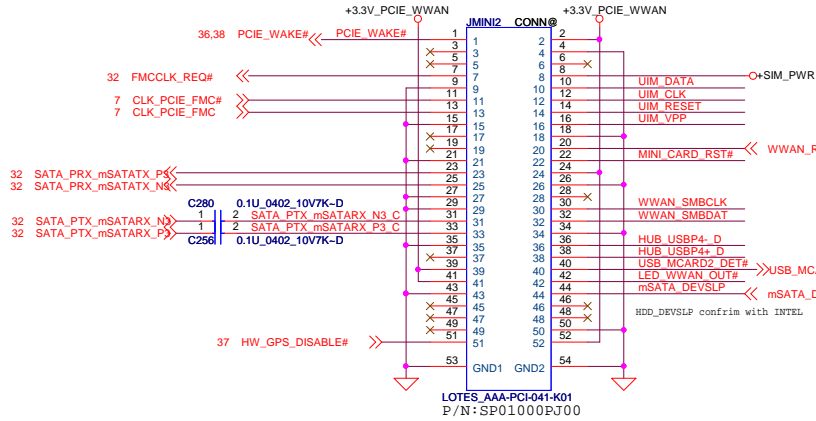


Rev	0.5
-----	-----

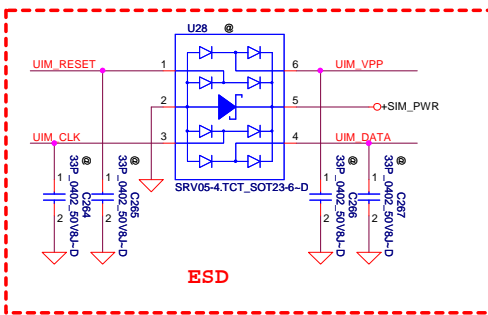
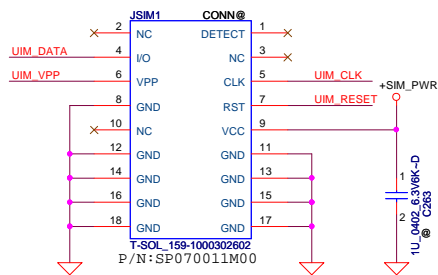




FMC: Mini WWAN/LTE H=8



uSIM Card Push-Push



For 80 port Debug

29,31,33,36,37,38,9 PCH_PLTRST#_EC
7 CLK_PCIE_MINI2#
7 CLK_PCIE_MINI2#

11 PCIE_PRX_WLANTX_N4
11 PCIE_PRX_WLANTX_P4

11 PCIE_PTX_WLANTX_N4
11 PCIE_PTX_WLANTX_P4

12 PCIE_MCARD1_DET#

7 PCH_CL_CLK1#
7 PCH_CL_DATA1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

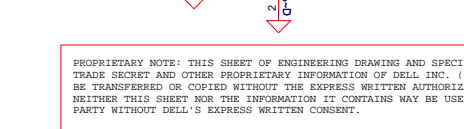
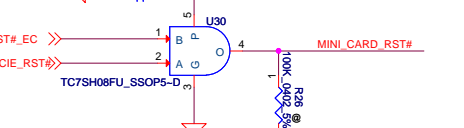
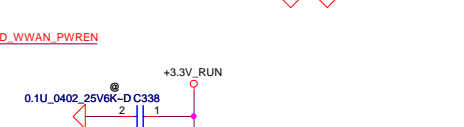
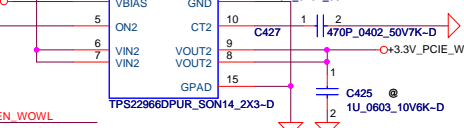
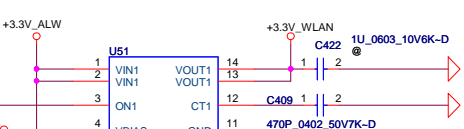
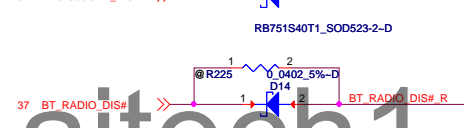
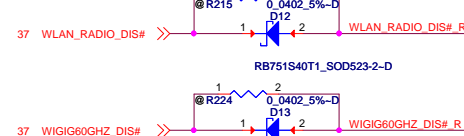
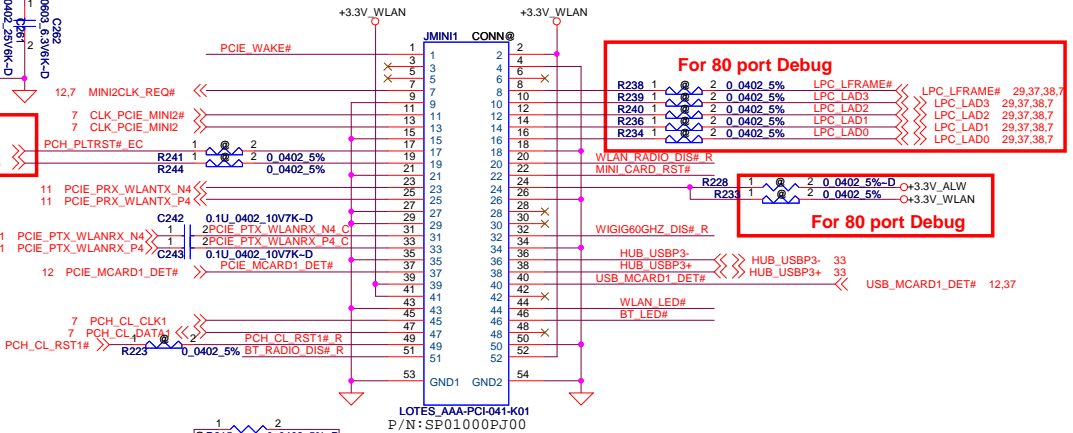
7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

7 PCH_RST1#

HMC: Mini WLAN/WiFi/BT H=4



PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



DELL CONFIDENTIAL/PROPRIETARY

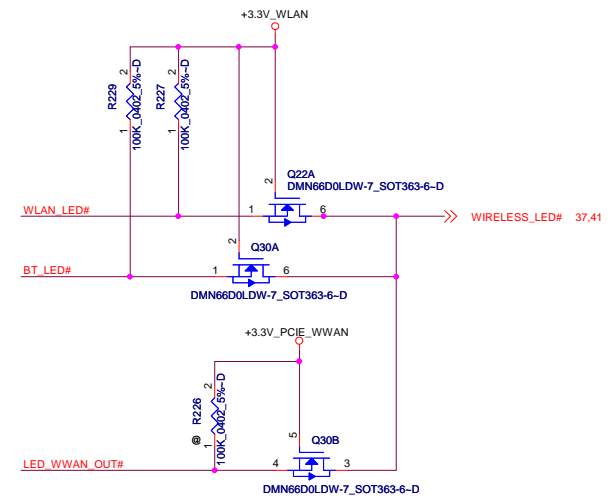
Compal Electronics, Inc.

Mini Card/SIM Card

LA-9832P

Size	Document Number	Rev
Thursday, June 13, 2013	LA-9832P	0.5

LED control circuit



DELL CONFIDENTIAL/PROPRIETARY

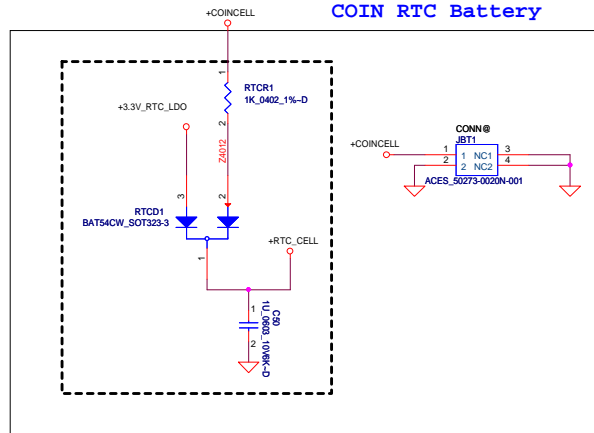
Compal Electronics, Inc.

Mini Card/SIM Card

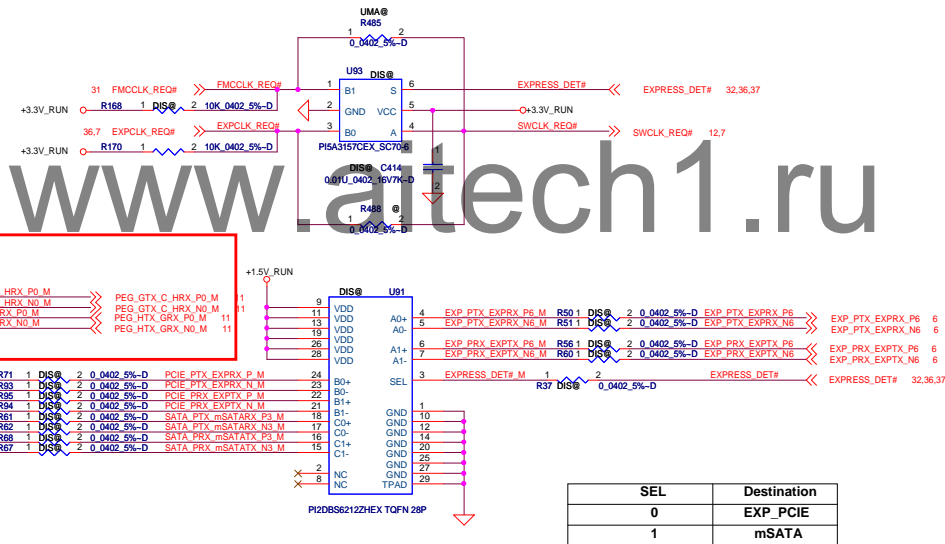
LA-9832P

Size	Document Number	Rev
Thursday, June 13, 2013	LA-9832P	0.5

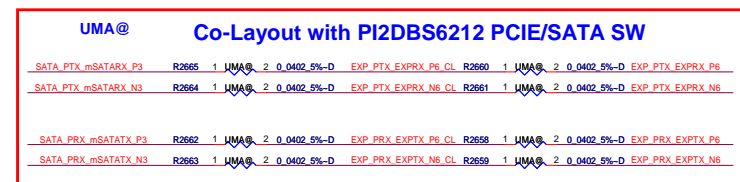
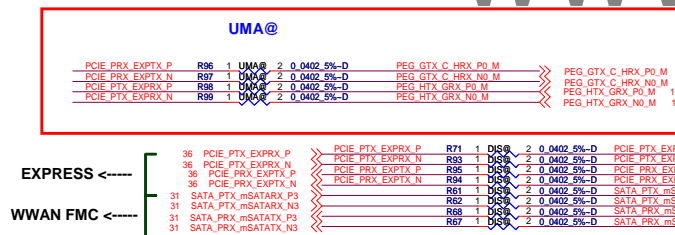
EXP/FMC PCIe clock/REQ Switch



B \ S	EXPRESS_DET
EXPCLK_REQ#	0
FMCCCLK_REQ#	1



SEL	Destination
0	EXP_PCIE
1	mSATA



DELL CONFIDENTIAL/PROPRIETARY

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OR DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.



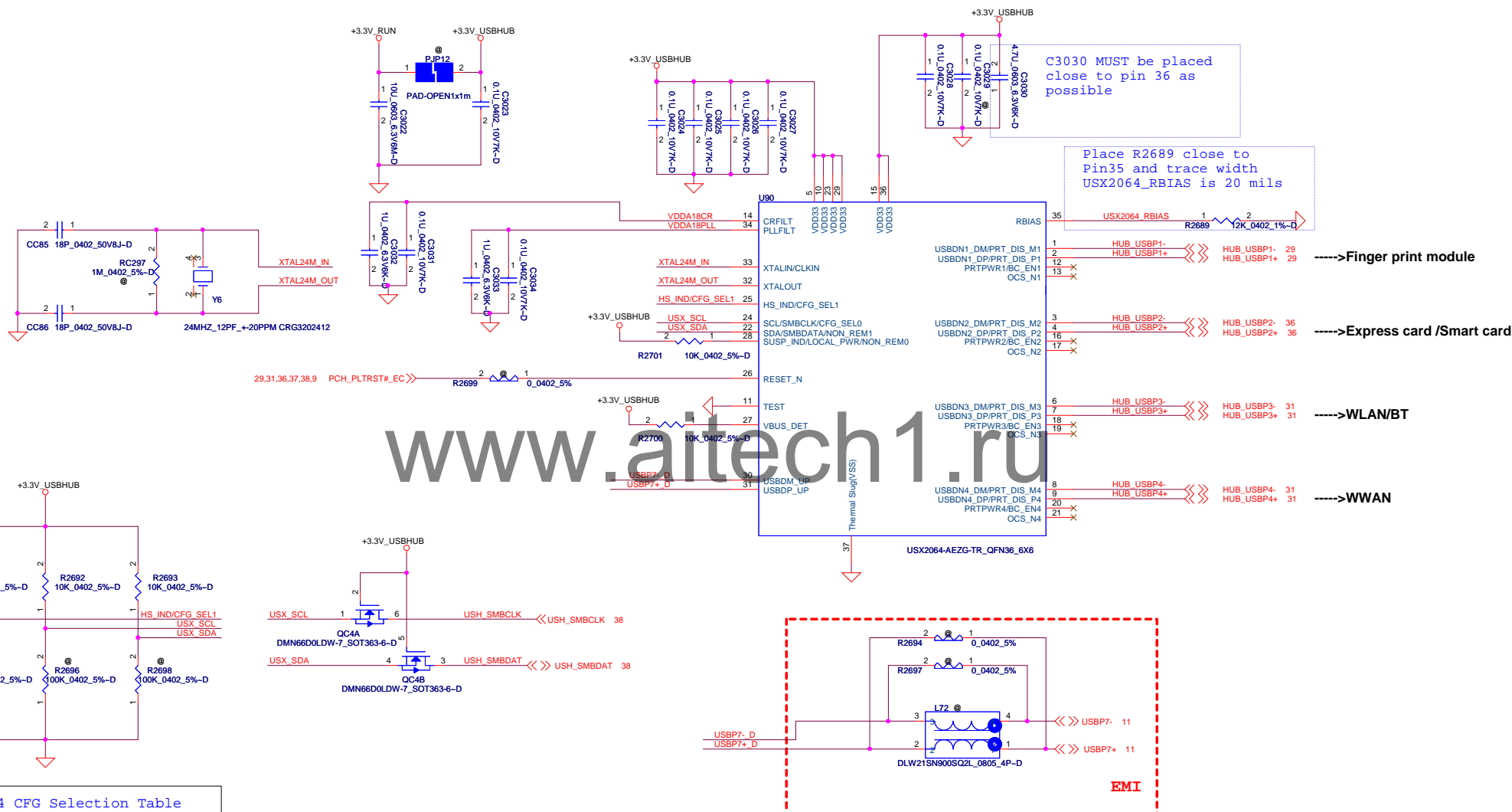
Compal Electronics, Inc.

RTC Batt/PCIE_SATA SW

Number
LA-9832P

Rev
of

Date: Thursday, June 13, 2013 Sheet 32 of 64



PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

DELL CONFIDENTIAL/PROPRIETARY

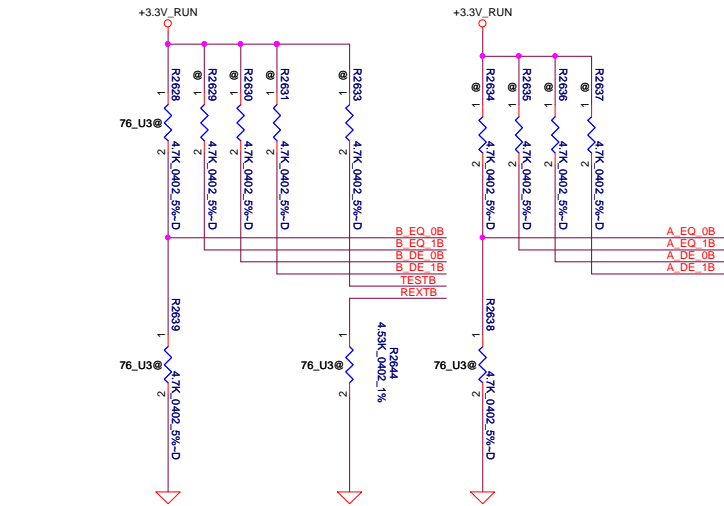
Compal Electronics, Inc.

USB2.0 HUB-USX2064

LA-9832P

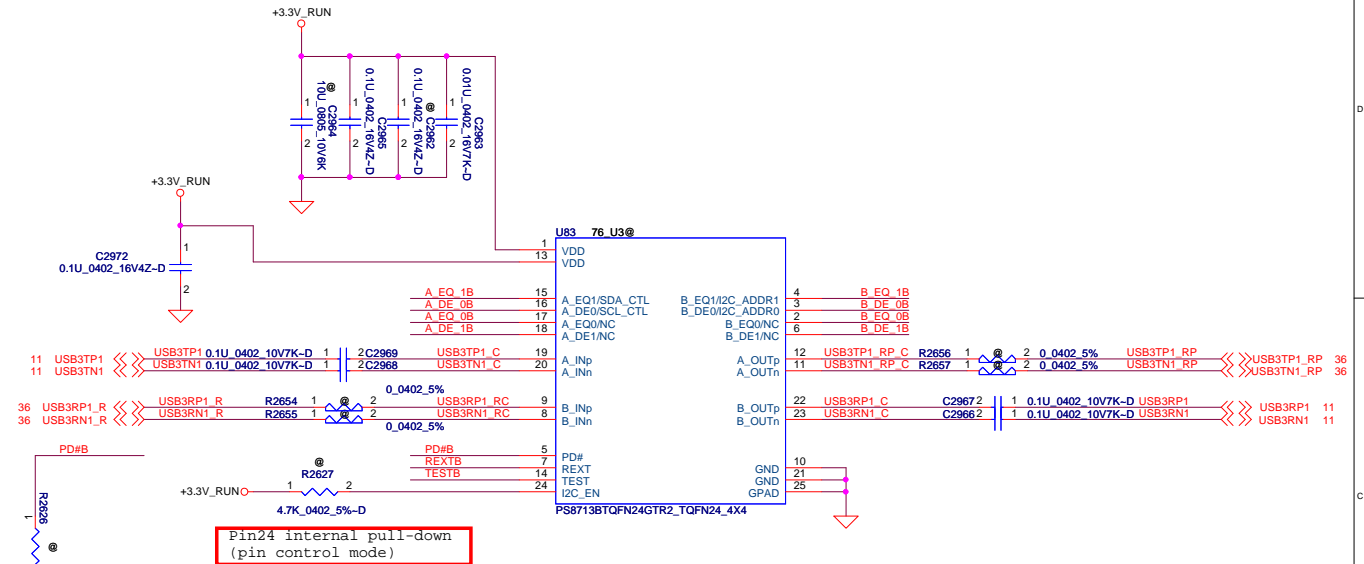
Date: Monday, June 17, 2013 Sheet 33 of 64

USB 3.0 Re-driver for IOB

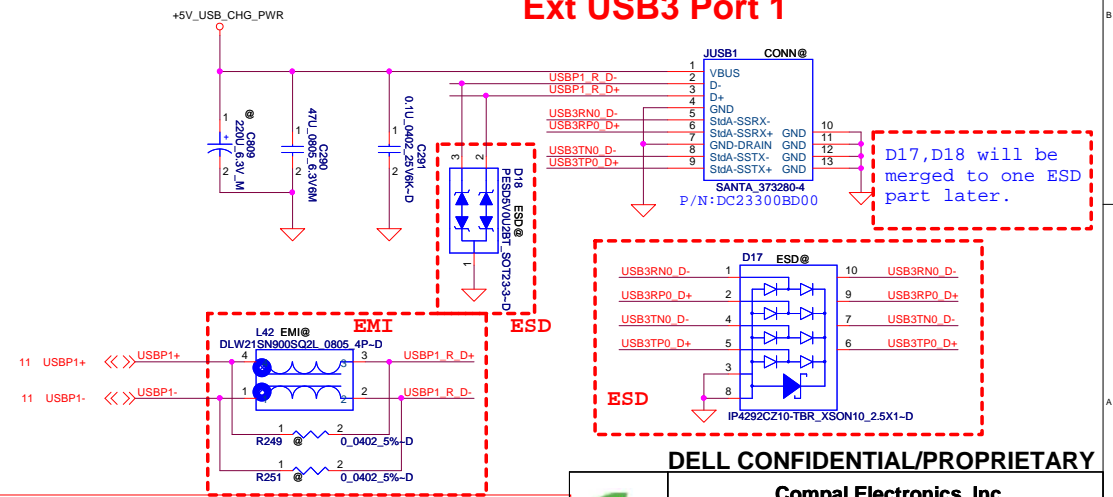
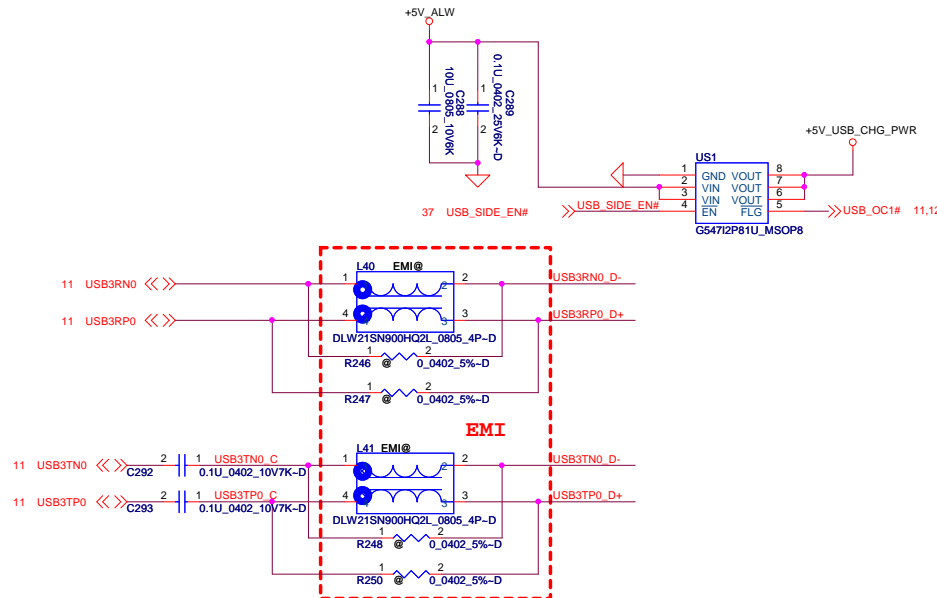
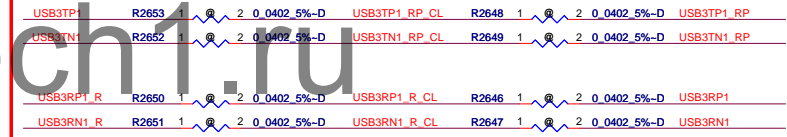


ONLY FOR VAW30

Pericom (Main) SA00006WV00	Parade (2nd) SA00005OR20
POP:R2638, R2639	POP:R2628
POP:R2644 (SD00000U200)	POP:R2644 (SD034453180)
A channel EQ 3db DE -3.5db B channel EQ 3db DE -3.5db	A channel EQ 9.5db DE 3.5db B channel EQ 13db DE 3.5db



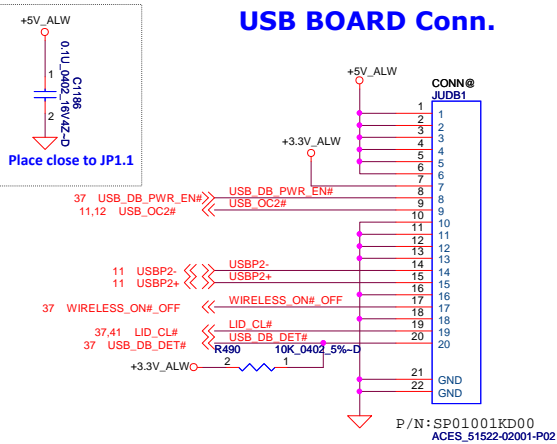
Co-Layout with PS8713B USB3.0 re-driver



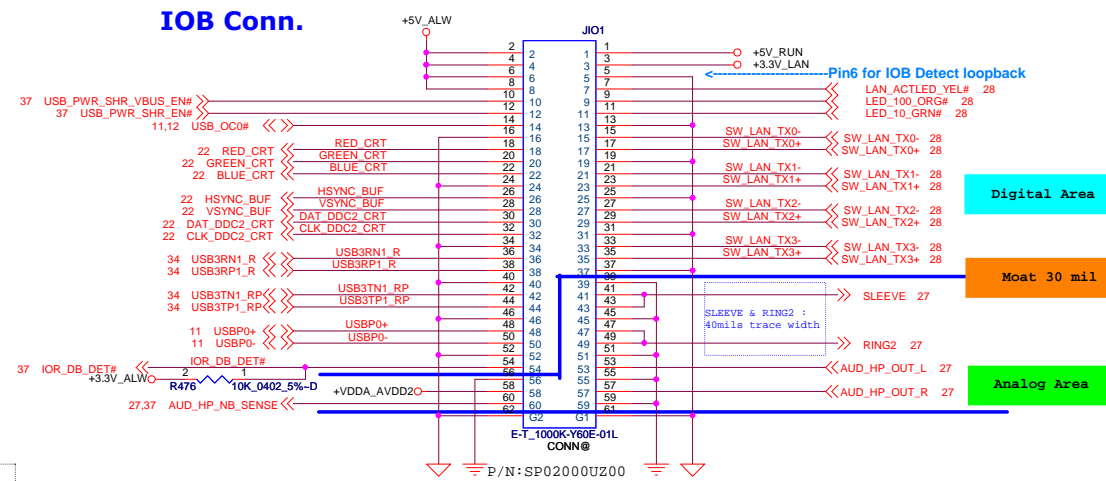
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.			
USB on MB/Redriver			
LA-9832P	Rev 0.5		
Friday, August 30, 2013	Sheet 34	of 64	

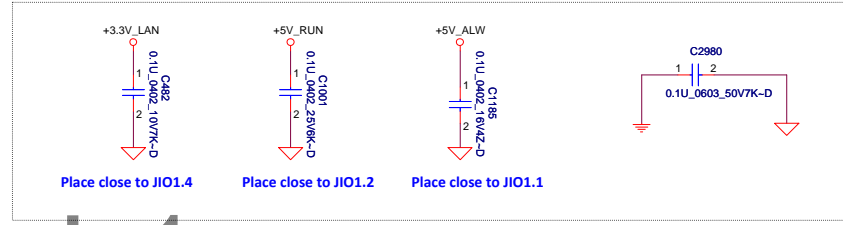
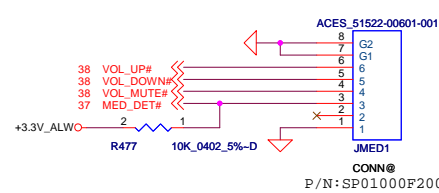
USB BOARD Conn.



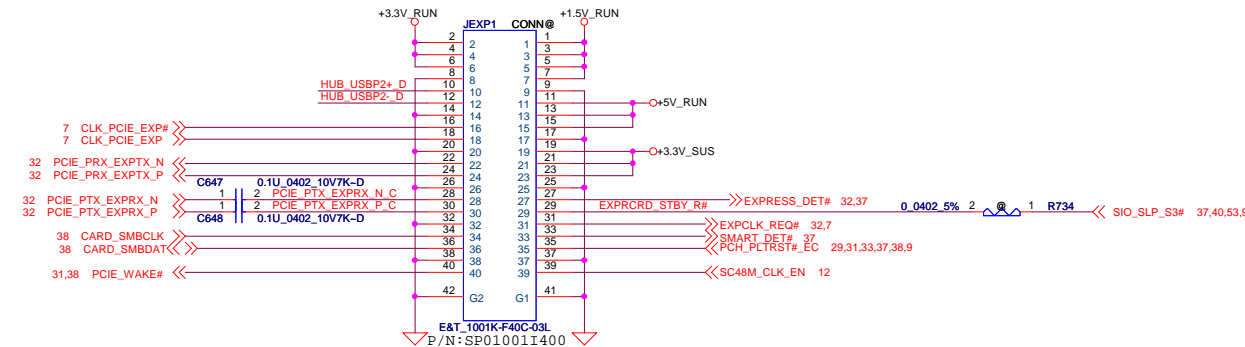
IOB Conn.



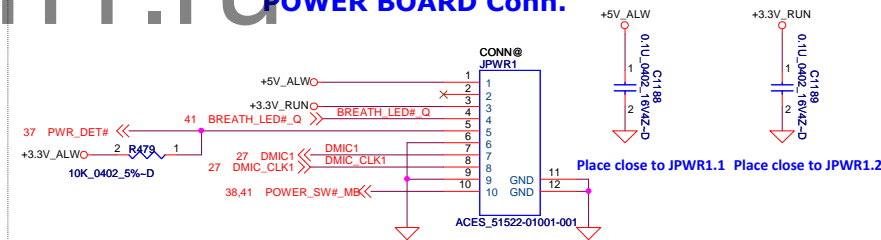
MEDIA BOARD Conn.



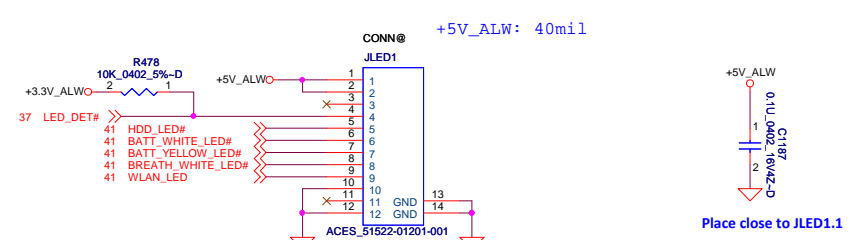
Express/Smart Card Conn.



POWER BOARD Conn.



LED EXTERNAL BOARD Conn.



DELL CONFIDENTIAL/PROPRIETARY

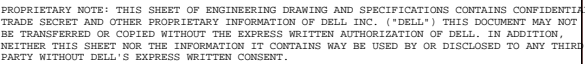
Compal Electronics, Inc.

I/O Conn

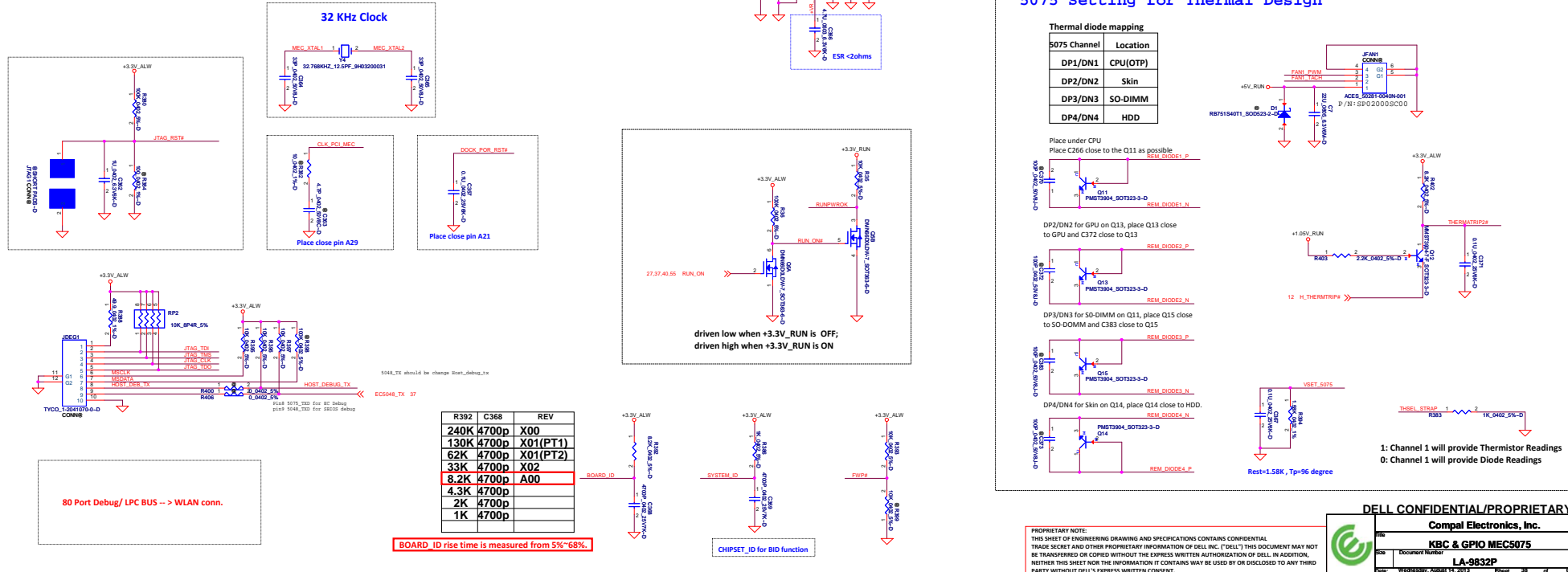
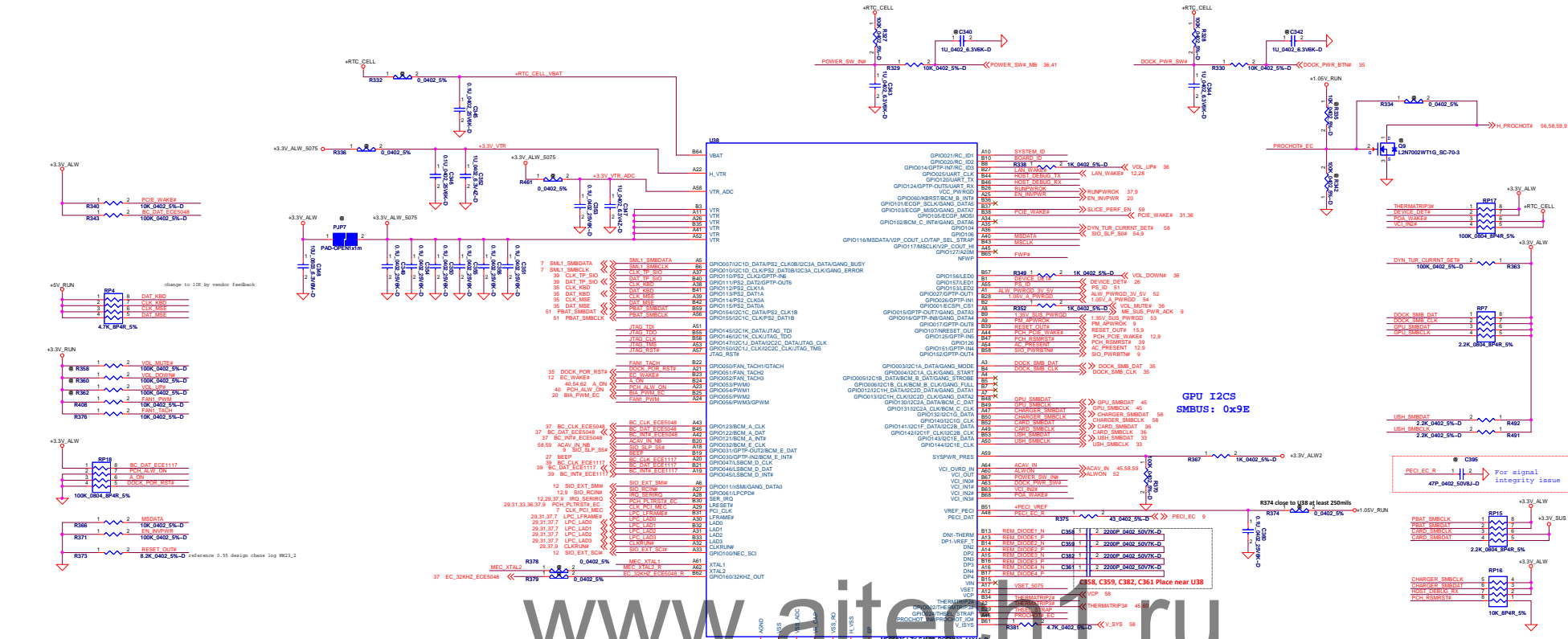
LA-9832P

Date: Thursday, August 22, 2013 Sheet 36 of 64

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

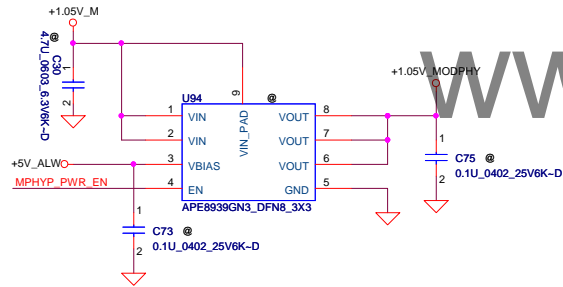
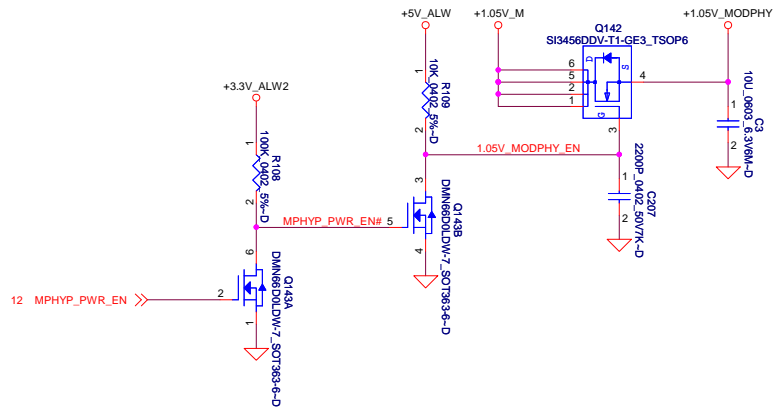


www.aitech1.ru



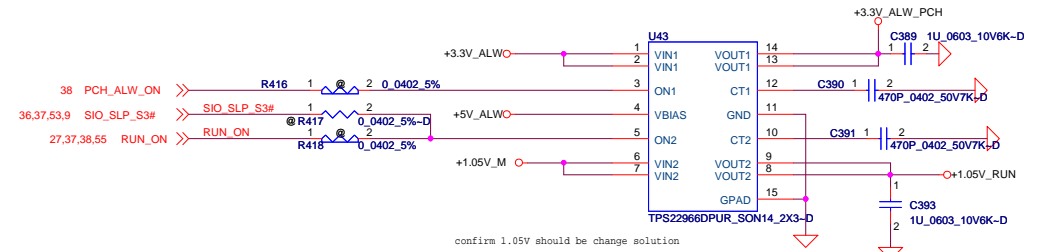
1

+1.05V_MODPHY source

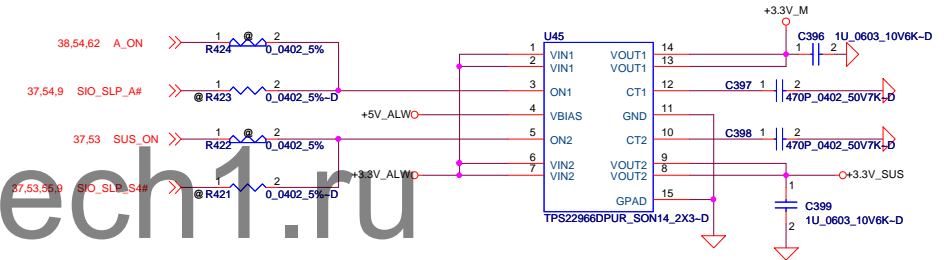


DC/DC Interface

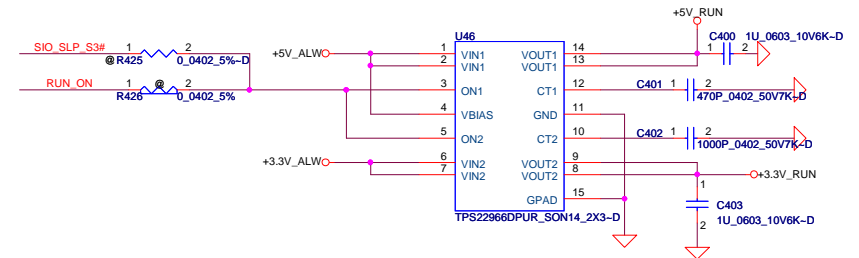
+3.3V_ALW_PCH/+1.05V_RUN source



+3.3V_SUS/+3.3V_M source



+3.3V_RUN/+5V_RUN source



DELL CONFIDENTIAL/PROPRIETARY

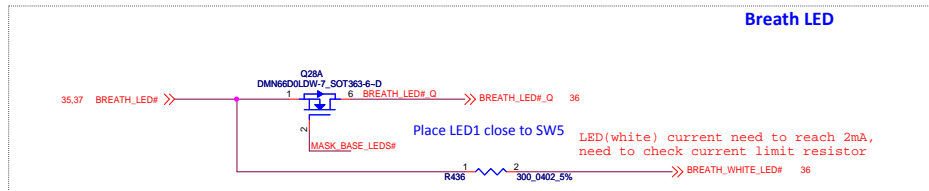
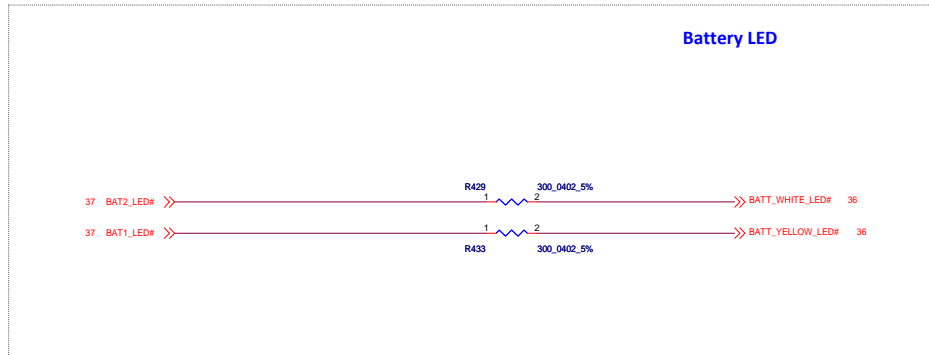
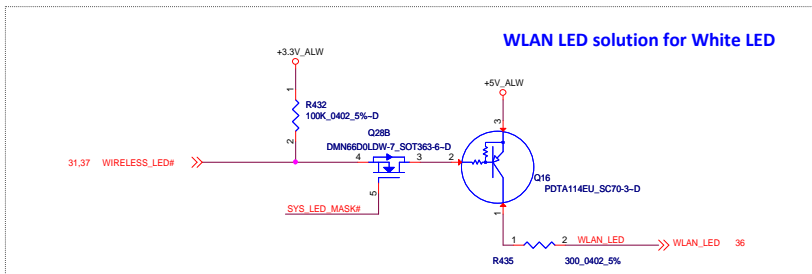
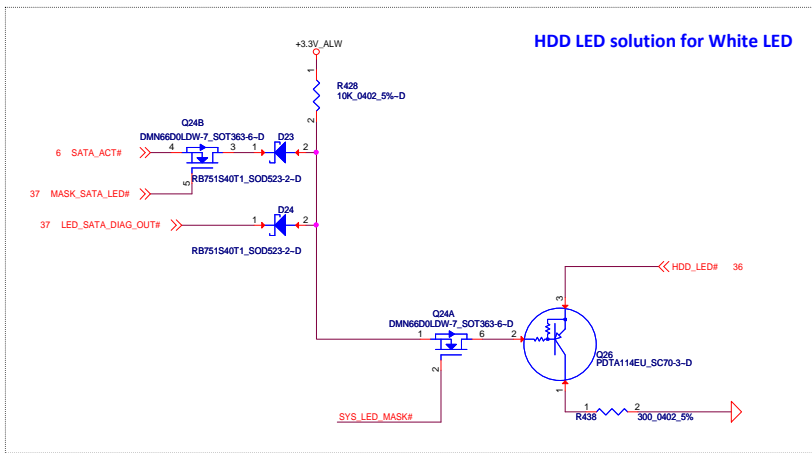
Compal Electronics, Inc.

POWER CONTROL

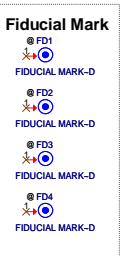
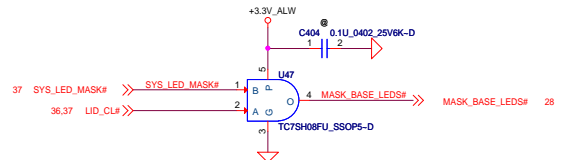
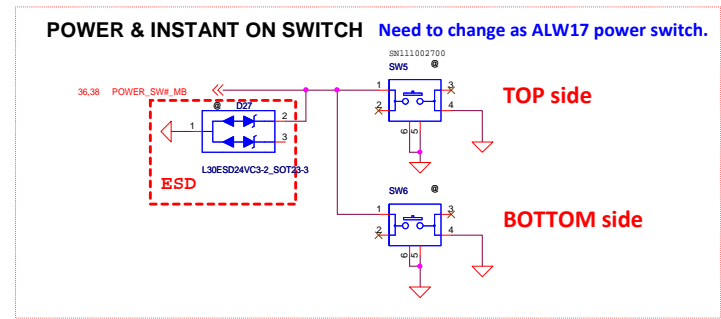
LA-9832P

Date: Thursday, June 13, 2013 Sheet 40 of 64

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

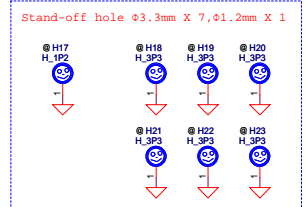
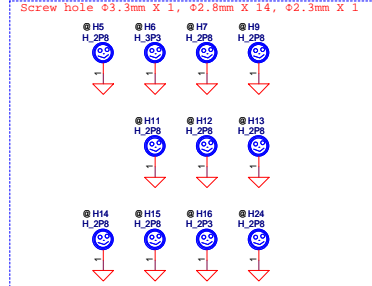
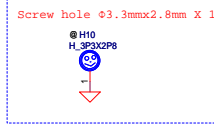
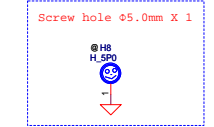
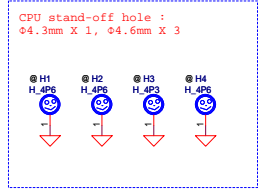


www.aitech1.ru



LED Circuit Control Table

	SYS_LED_MASK#	LID_CL#
Mask All LEDs (Sniffer Function)	0	X
Mask Base MB LEDs (Lid Closed)	1	0
Do not Mask LEDs (Lid Opened)	1	1



PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

DELL CONFIDENTIAL/PROPRIETARY

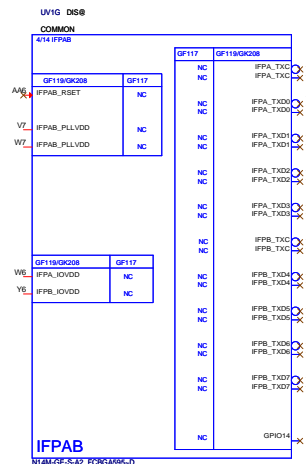
Compal Electronics, Inc.

PAD & ME & LED

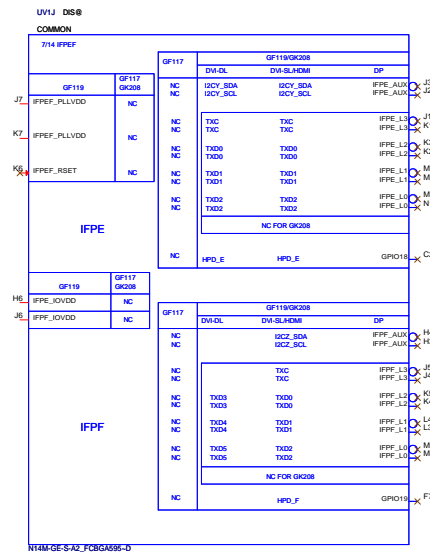
Document Number: **LA-9832P**

Date: Wednesday, August 14, 2013 Sheet 41 of 64

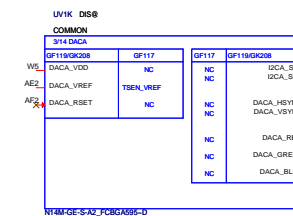
IFPA/B



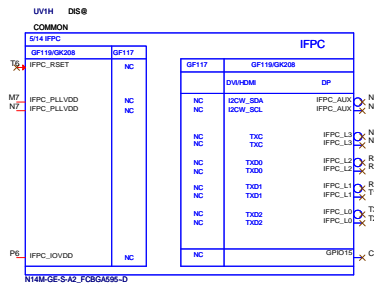
IFPE/F



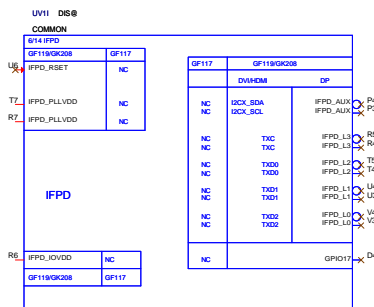
DAC_A



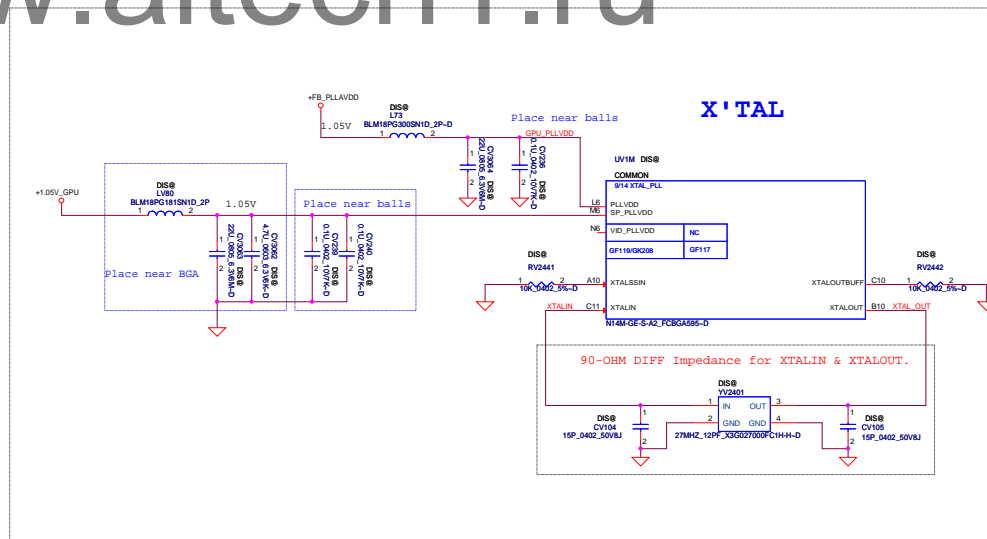
IFPC

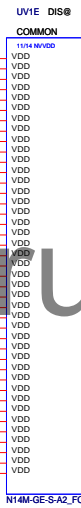
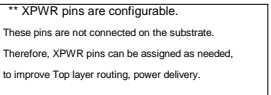
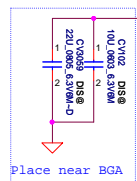


IFPD



www.aitech1.ru

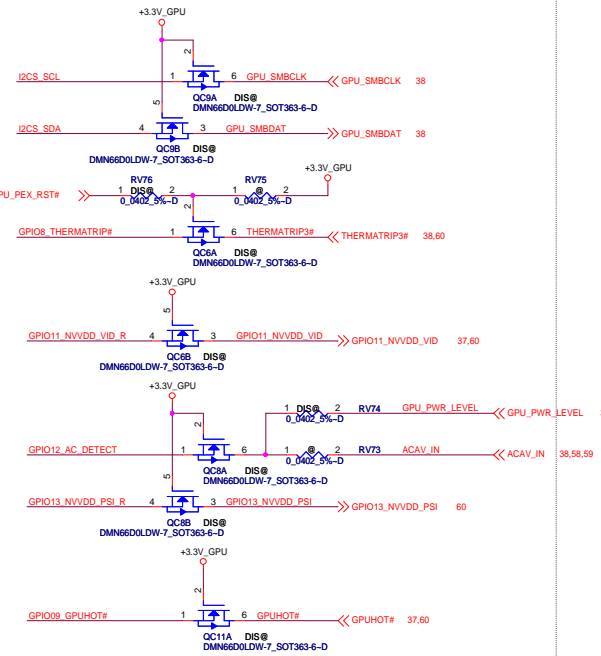
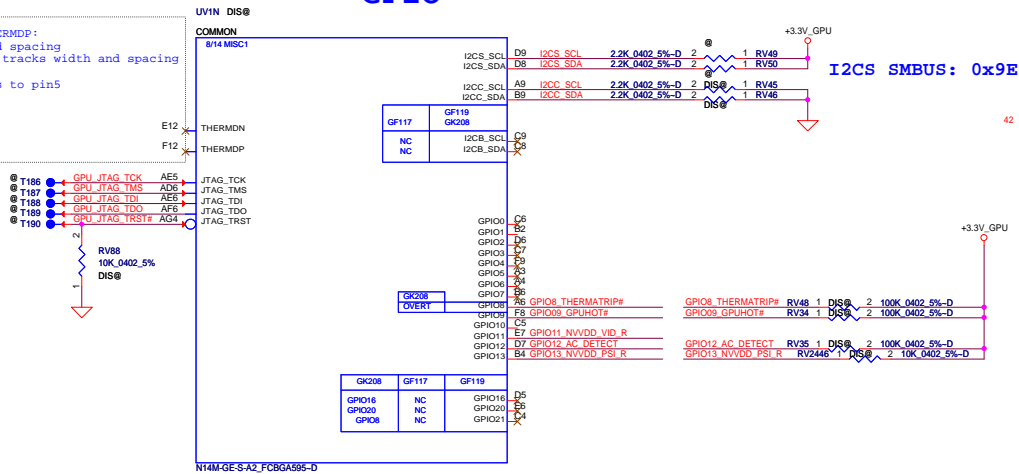




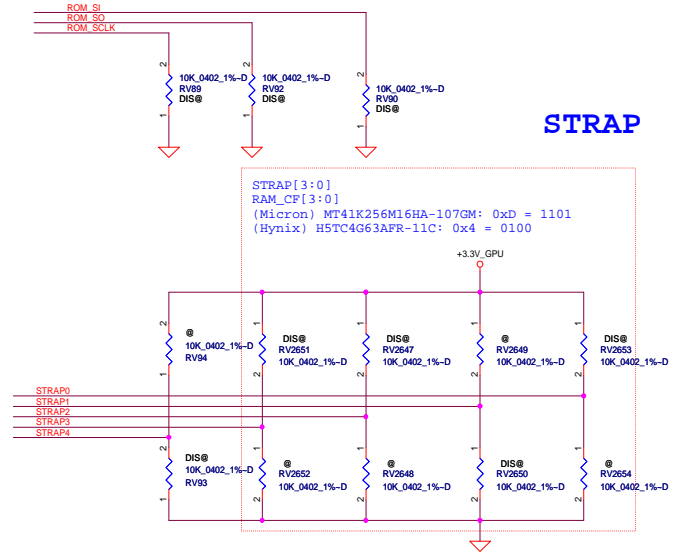
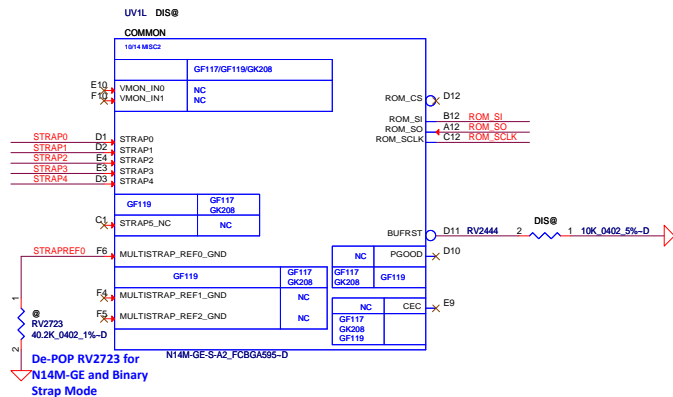
GPIO

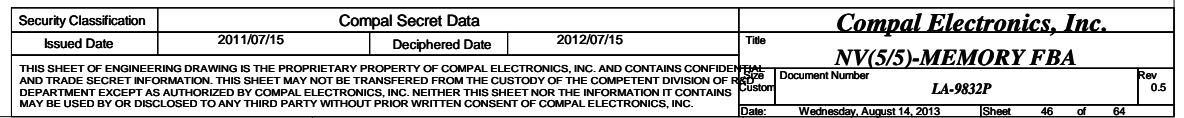
VGA_THERMDN and VGA_THERMDP:
1. 5mil track width and spacing
2. 5mil grounded guard tracks width and spacing
3. ground referenced
4. Connect guard tracks to pin5

For Boundary
Scan using.



www.aitech1.ru





```
VRAM P/N changes to Micron 900Mhz
MT41K256M16HA-107G:E
```



PT

The diagram illustrates a PT (Peripheral Test) setup. At the top, a blue box labeled "PT" contains a blue circle with a cross inside. Below this, a large blue circle represents the "HYNIX" module, labeled "PCB-MB X76_HYN" at the bottom. To the left and right of the HYNIX module are two smaller blue circles representing "SAMSUNG" modules, labeled "PCB-MB X76_SAM" at the bottom. Each Samsung module is connected to the HYNIX module by a blue line. The Samsung modules are also connected to each other by a blue line. The HYNIX module is connected to the PT box by a blue line.

SAMSUNG

UV5

UV4

PCB-MB
X76_SAM

PCB-MB
X76_SAM

HYNIX

UV5

UV4

PCB-MB
X76_HYN

PCB-MB
X76_HYN

A15 is not required for any x16 device, even up to 4Gb density.

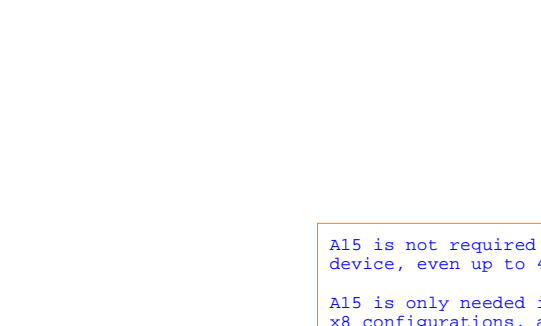
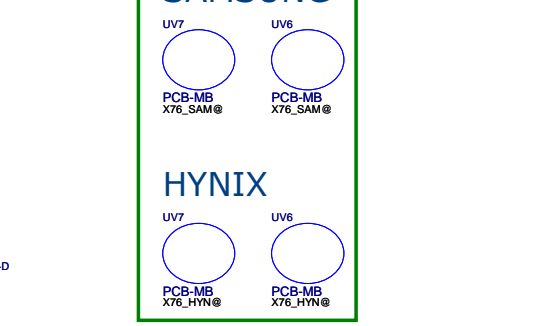
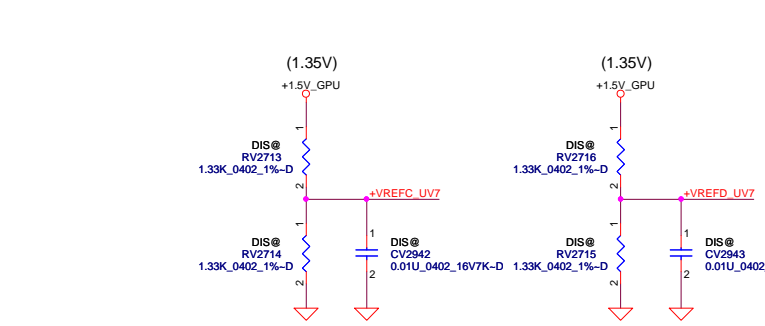
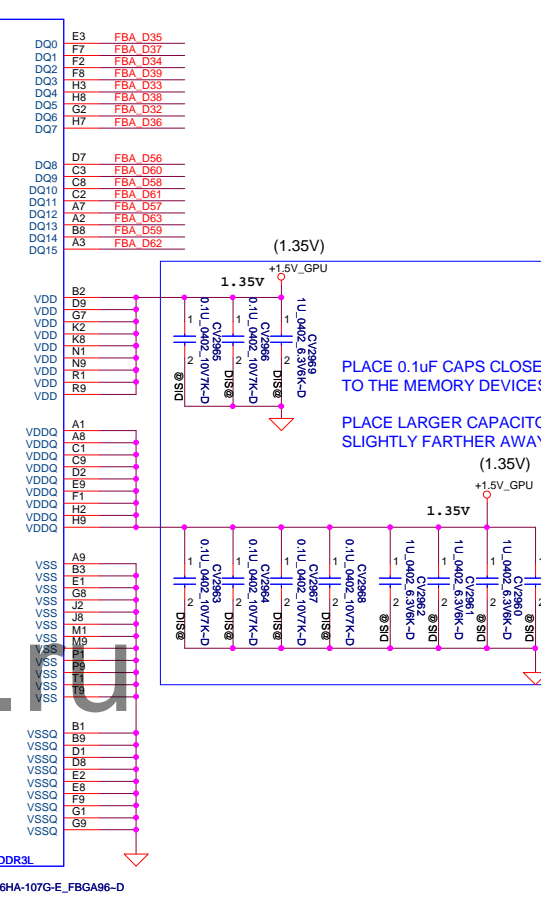
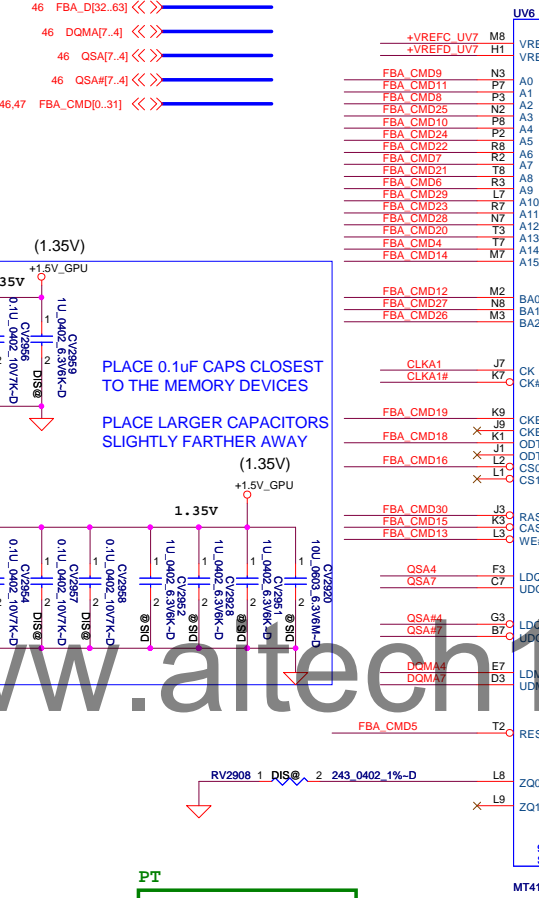
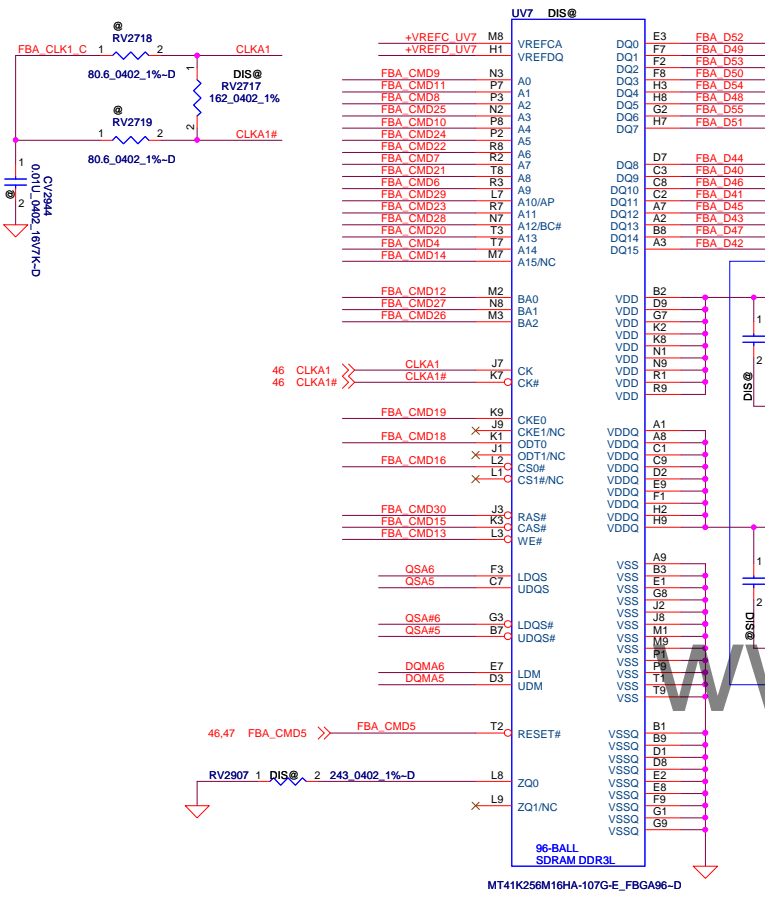
A15 is only needed if we support x8 configurations, and only at 4Gb.

Security Classification		Compal Secret Data		Compal Electronics, Inc. VRAM DDR3 A Lower	
Issued Date	2011/07/15	Deciphered Date	2012/07/15	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF RESEARCH AND DEVELOPMENT DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number LA-9832P	Rev 0.5
				Date: Thursday, June 13, 2013	Sheet 47 of 64

Memory Partition A - Upper 32 bits [64..32]

VRAM P/N changes to Micron 900Mhz
MT41K256M16HA-107G:E

VRAM P/N changes to Micron 900Mhz
MT41K256M16HA-107G:E



SAMSUNG

UV7 UV6

PCB-MB X76_SAM@

HYNIX

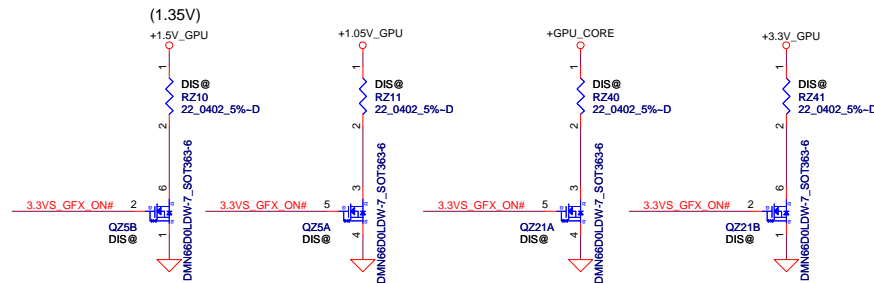
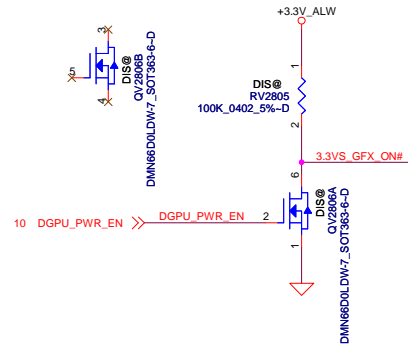
UV7 UV6

PCB-MB X76_HYN@

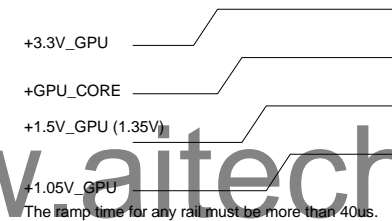
A15 is not required for any x16 device, even up to 4Gb density.

A15 is only needed if we support x8 configurations, and only at 4Gb.

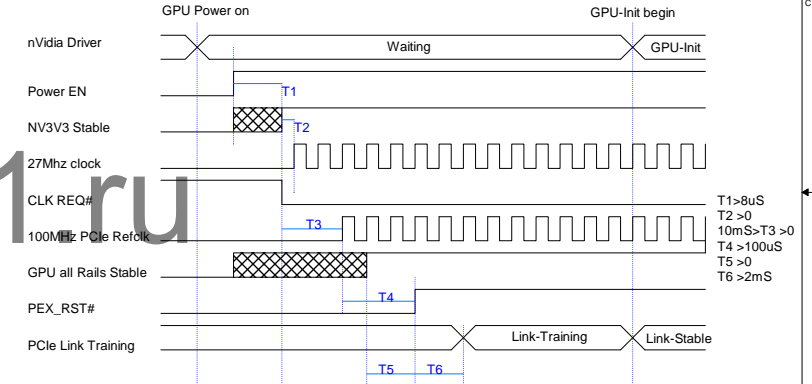
GPU Power Discharge Path



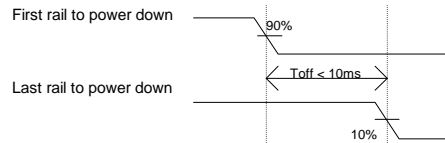
GPU Power Up Power Rail Sequence



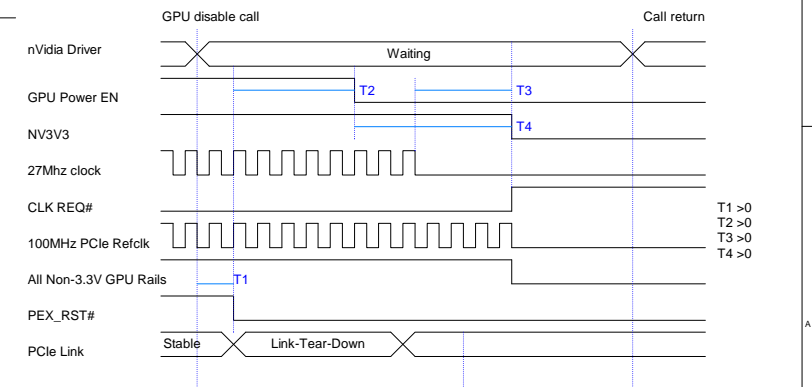
GPU Power Up Sub-system Sequence



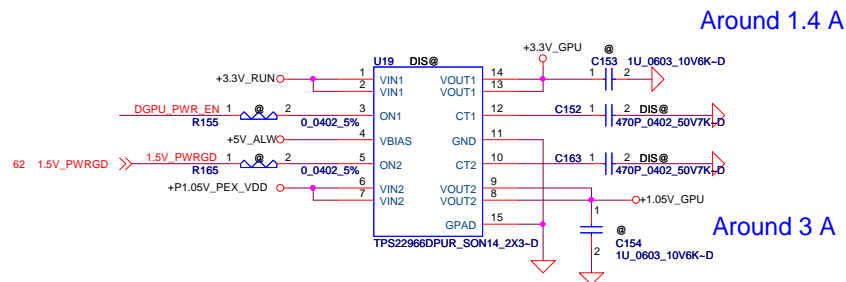
GPU Power Down Sequence



GPU Power Down Sub-system Sequence



+3.3V_{RUN} to +3.3V_{RUN_GFX}



+1.05V_MP to +1.05V_PEX_VDD


Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2011/07/15	Deciphered Date	2012/07/15	Title	VGA DC/DC Interface	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF FIRST DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	Rev	0.5
				Date: Thursday, August 15, 2013	Sheet	49 of 64

BLANK PAGE

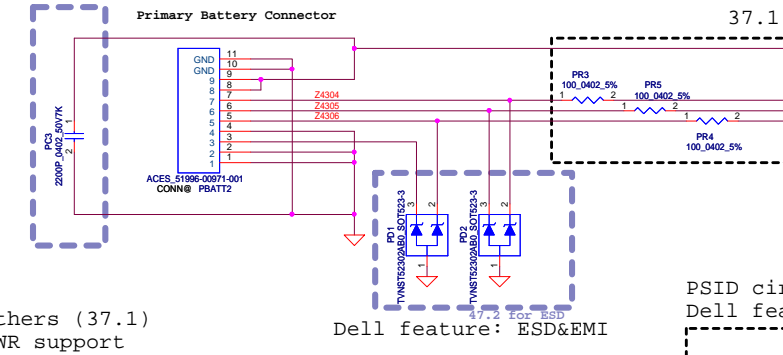
www.aitech1.ru

DELL CONFIDENTIAL/PROPRIETARY

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OR DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

			Compal Electronics, Inc.		
Title			BLANK PAGE		
Size	Document Number		Rev		
	LA-9832P		0.5		
Date:	Thursday, June 13, 2013		Sheet	50	of 64

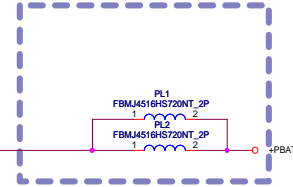
EMI (47.1)



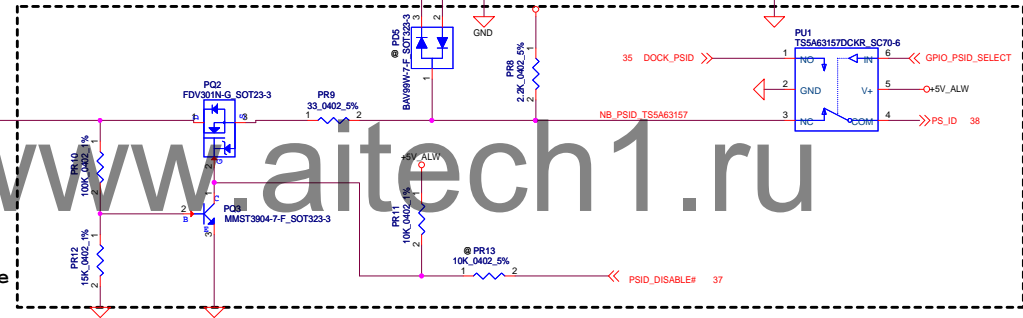
Others (37.1)
PWR support

Dell feature: ESD&EMI

EMI (47.1)
Dell feature: ESD&EMI



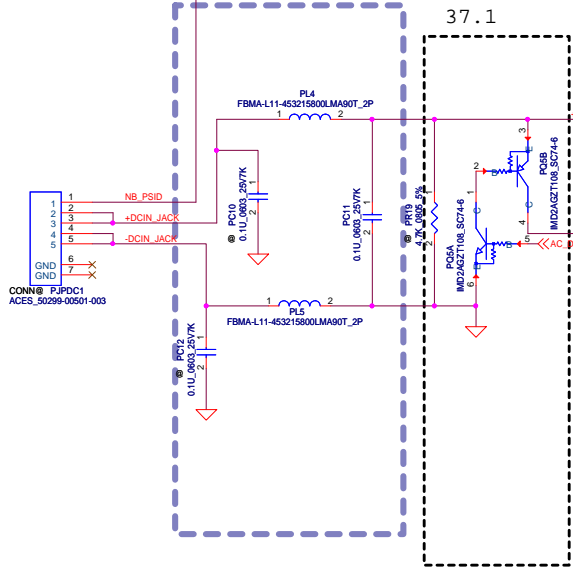
PSID circuit (39.1)
Dell feature: PSID



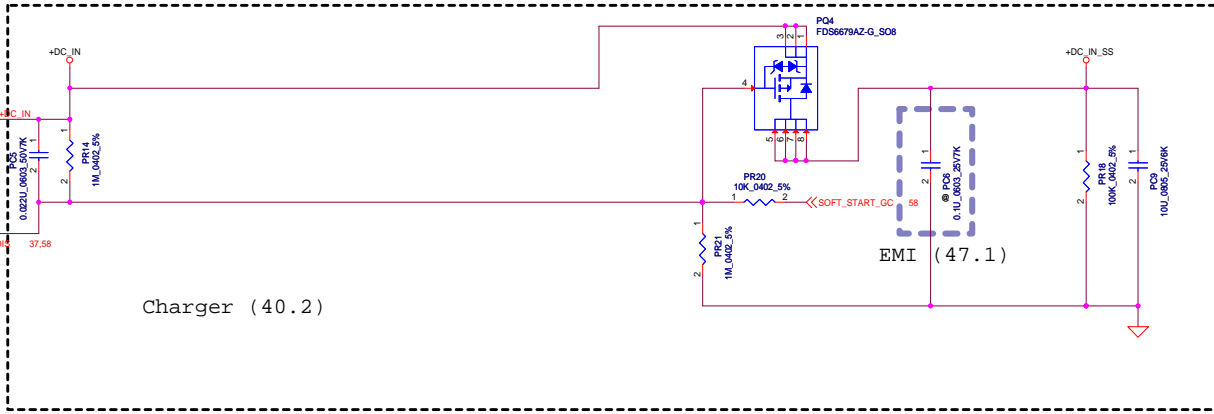
Dell feature: Support dock

EMI (47.1)

Dell feature: peak power



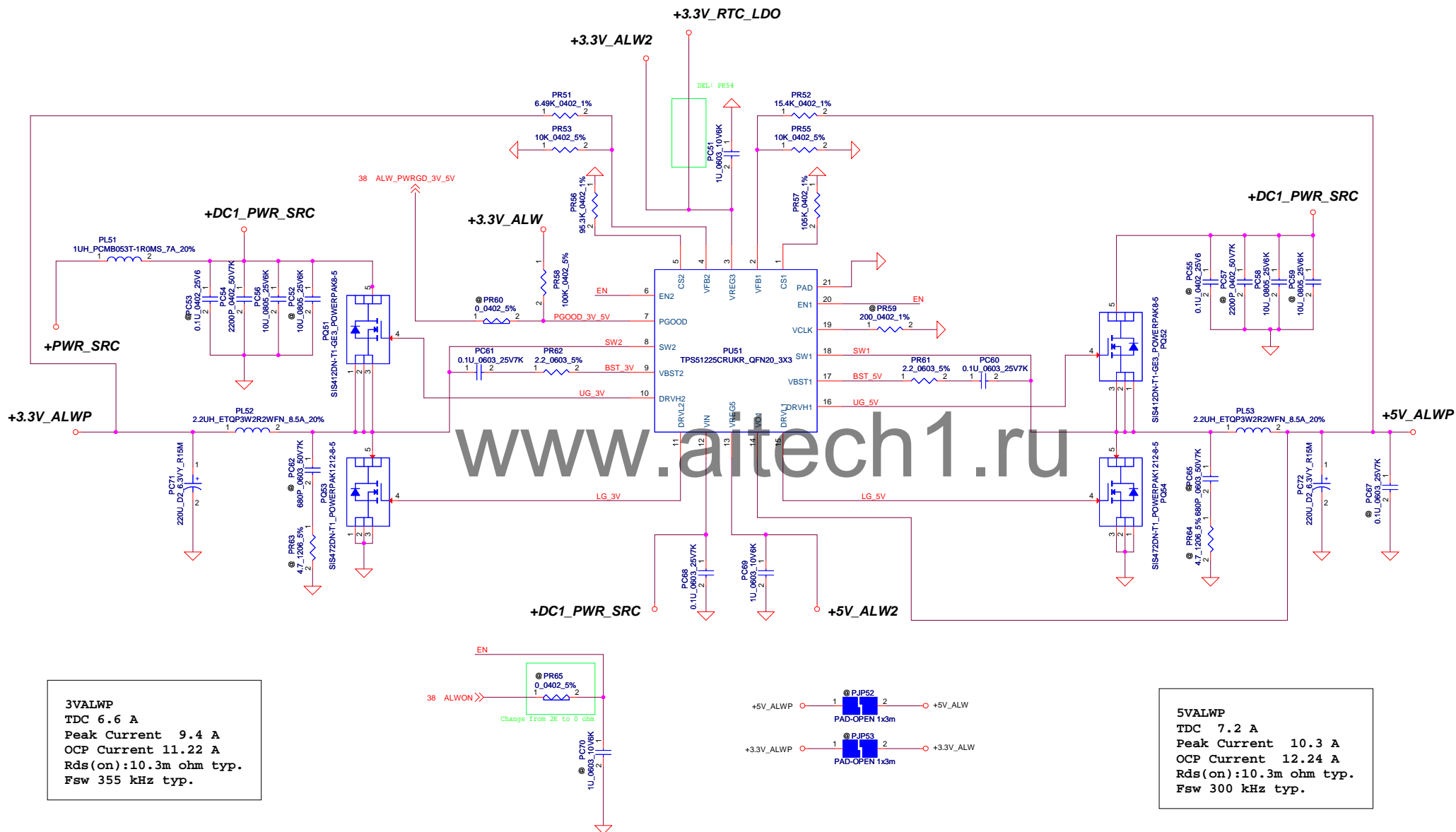
Charger (40.2)



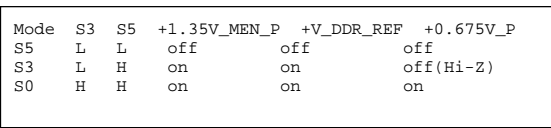
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.	
+DCIN	
Size	Document Number
LA-XXXX	Rev 0.1
Date: Wednesday, August 14, 2013	Sheet 51 of 64

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF COMPAL ELECTRONICS, INC. WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

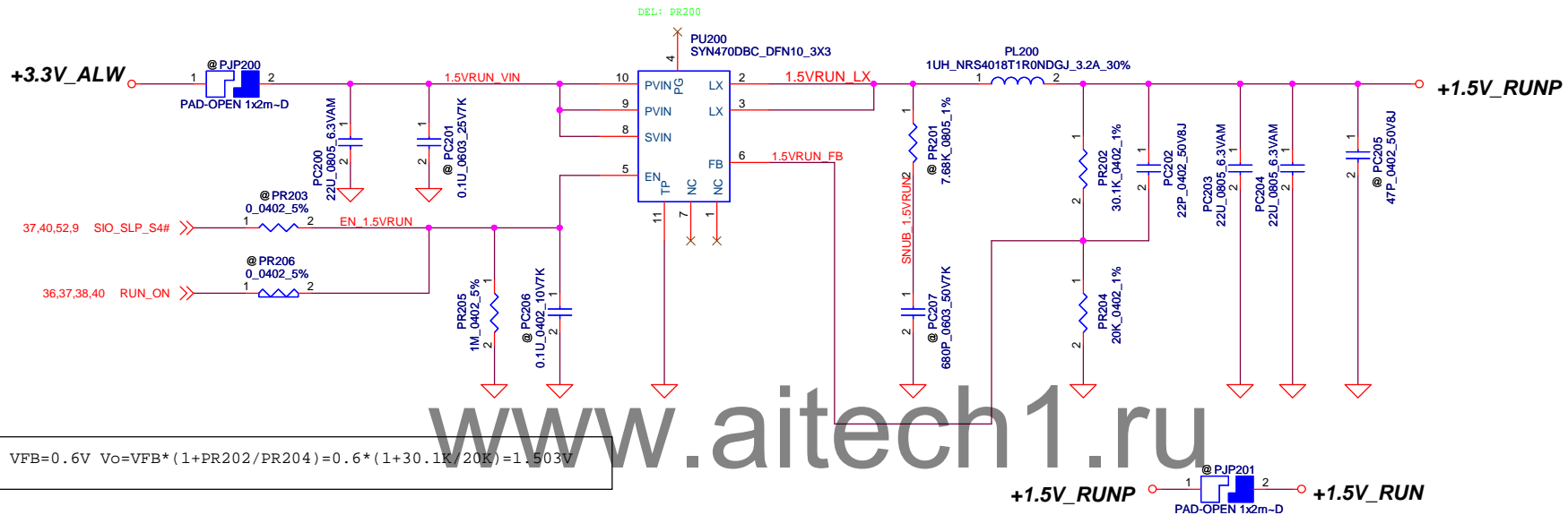


0.675Volt +/- 5%
TDC 0.525A
Peak Current 0.75A
OCP Current 0.8925A

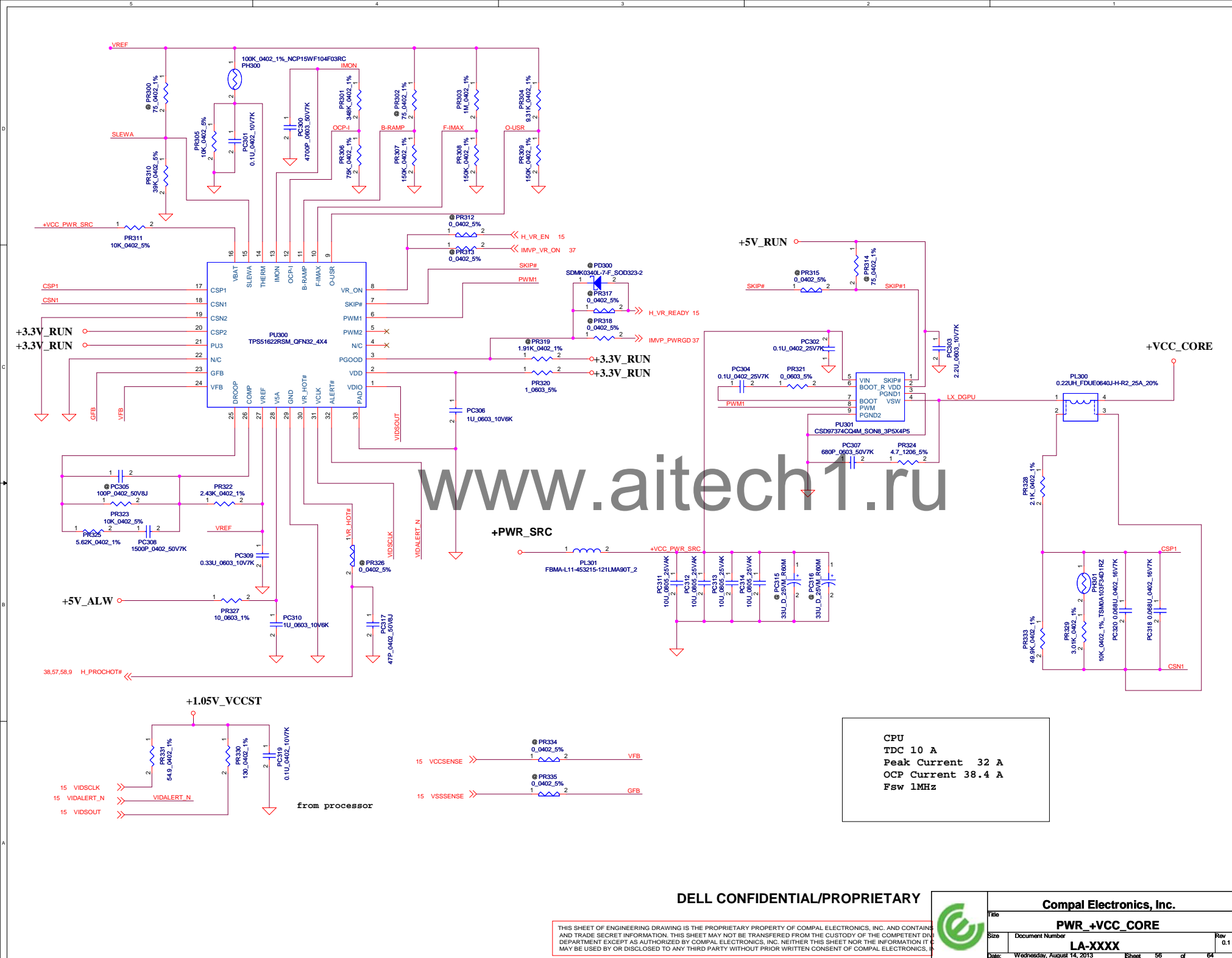


THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OR DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

1.5Volt
Frequency 1MHz
TDC 0.65A
Peak Current 0.93A
OCP current 3.5A (Fix)



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	<Issued_Date>	Deciphered Date	<Deciphered_Date>	Title	PWR_1.5V_RUN
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	Rev 1.0
				Date: Wednesday, August 14, 2013	Sheet 55 of 64



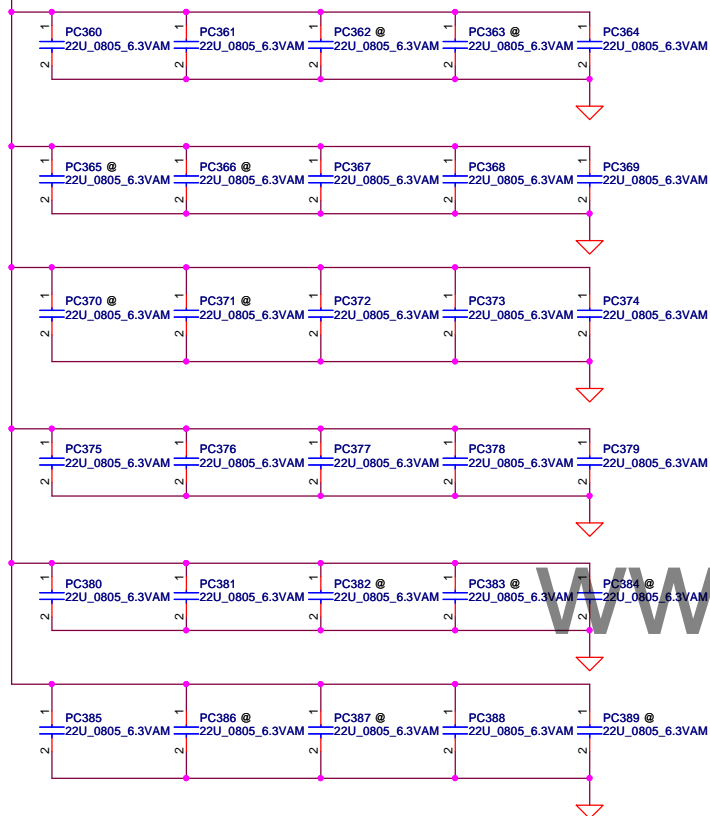
DELL CONFIDENTIAL/PROPRIETARY

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.




Compal Electronics, Inc.			
PWR_+VCC_CORE			
File	Document Number	Rev	
	LA-XXXX	0.1	
Date	Wednesday, August 14, 2013	Sheet	56 of 64

+VCC_CORE

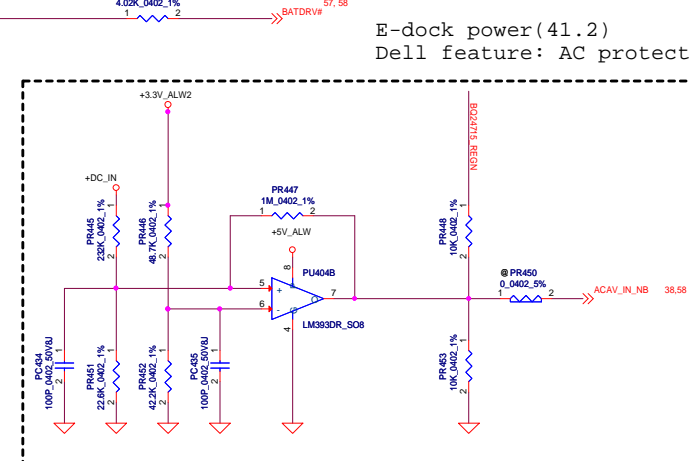
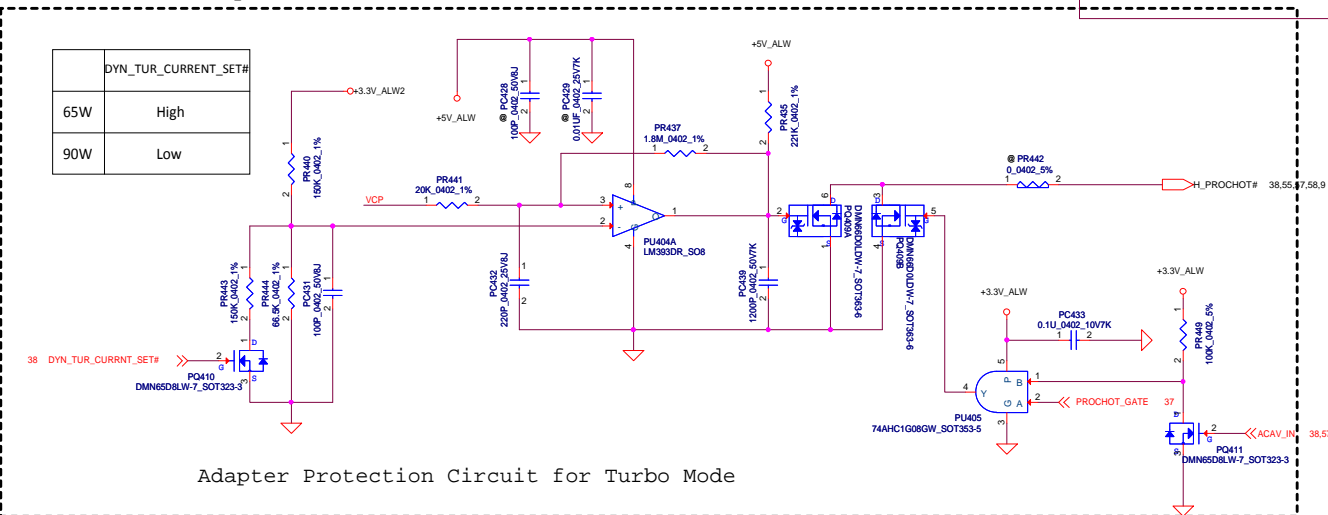
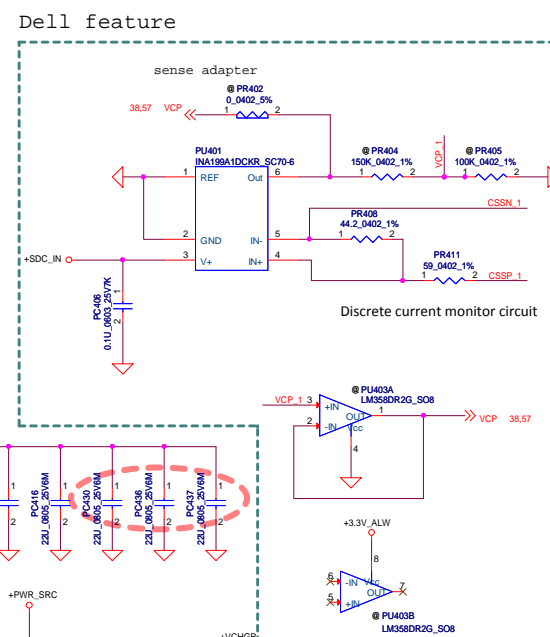
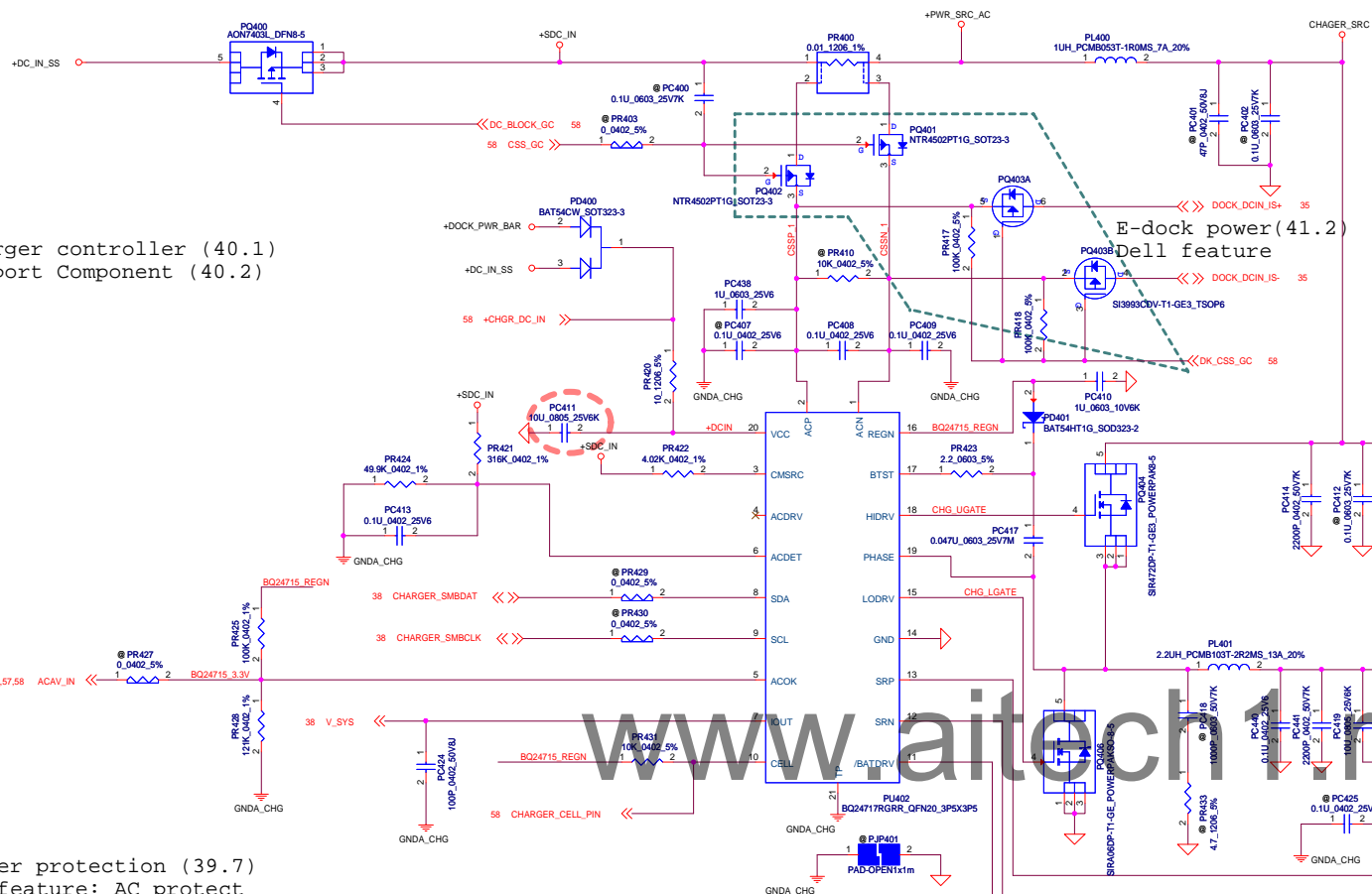


www.aitech1.ru

DELL CONFIDENTIAL/PROPRIETARY

	Compal Electronics, Inc.				
	Title				
	PWR_PROCESSOR DECOUPLING				
	Size	Document Number			Rev
		LA-XXXX			0.1
	Date:	Wednesday, August 14, 2013		Sheet 57 of 64	

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OR DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.



DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

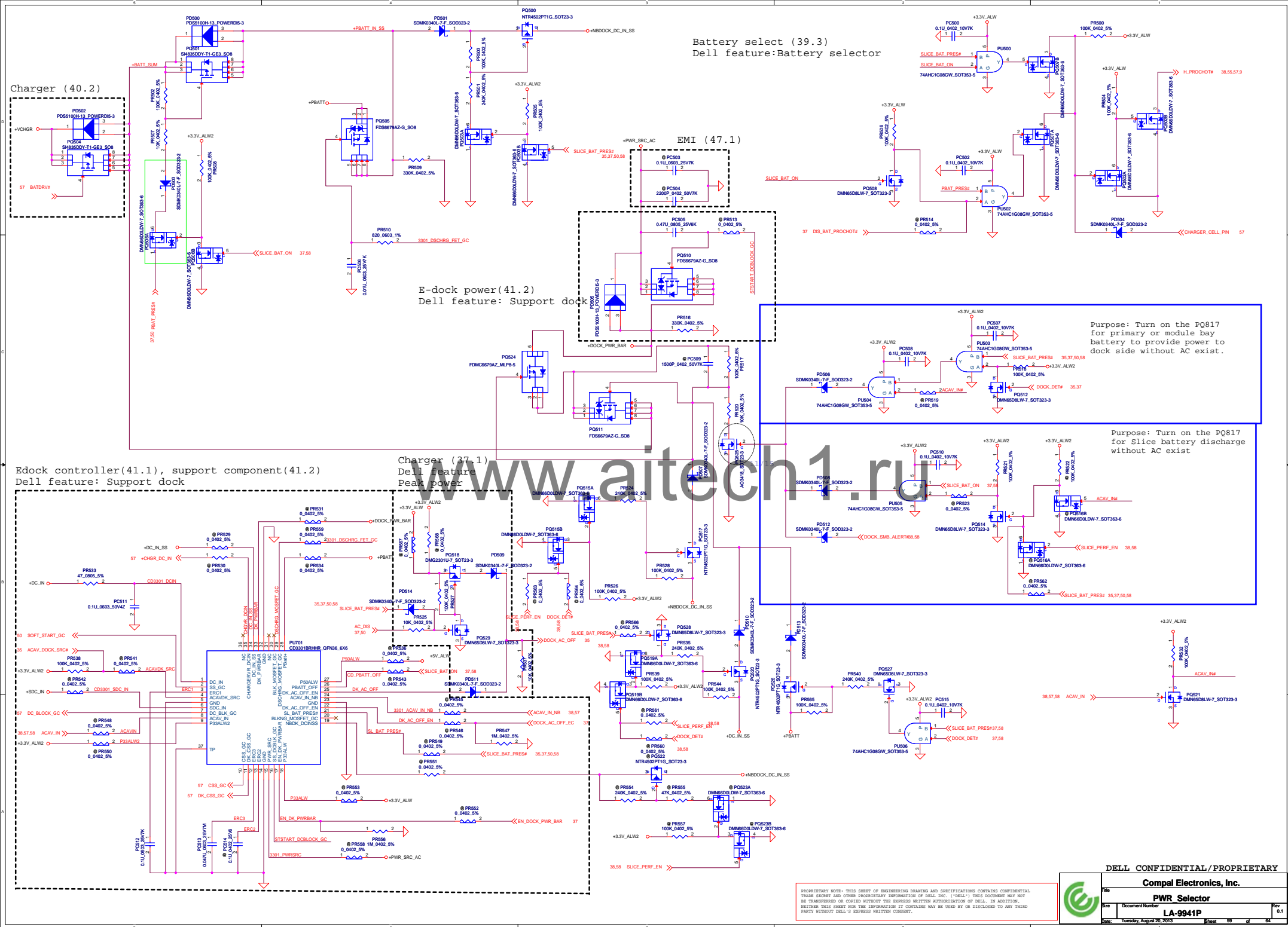
PWR_Chager

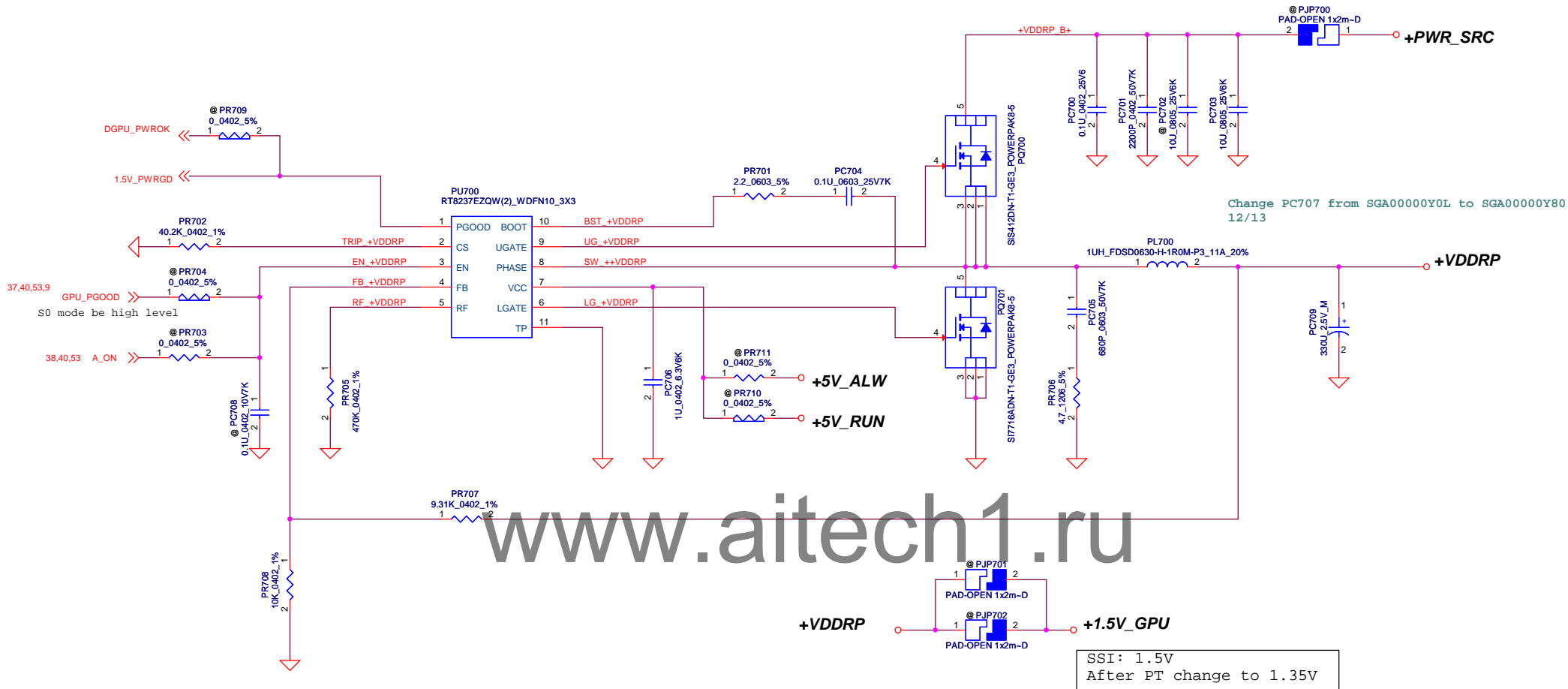
LA-XXXX

Rev	0.1
-----	-----

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OR DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.







+VDDRP(1.35V)
TDC 2.94A
Peak Current 4.2A
OCP current 5A
Rds(on):13.5m ohm typ
Fsw 290 kHz when Rrf=470 Kohm

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL
 TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT
 BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION,
 NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD
 PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



Compal Electronics, Inc.			
Title			
PWR_+1.5VDDR			
Size	Document Number		Rev 0.1
	LA-9391P		
Date: Wednesday, August 14, 2013		Sheet 62	of 64

Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	58	Adapter Protection Circuit	2013/1/30	Power	PC432 220pF is not popular part	Change to 0402 size	X00
2	59	P59-PWR_Selector	2013/2/4	Power	Battery voltage leakage to docking if only battery	Add: PD513, PQ526, PR565, PR540, PQ527, PU506, PC515	X00
3	56	Vcore fine tune	2013/2/7	Power	Vcore fine tune	Modify: PR306, PR301, PR333, PR328, PR325, PR322, PL300	X00
4	57	Vcorecapacitor reduce	2013/2/7	Power	Vcore output capacitor reduce	NC: PC371 ,PC386, PC370 ,PC382,PC383	X00
5	58	Charger	2013/2/18	Power	Reserve H_PROCHOT# delay time fine tune by soft ware	Add "MODULE_BATT_PRES#" and PR454(Cancel 3/19)	X00
6	59	P59-PWR_Selector	2013/2/26	Power	Adjust divider resistor for MOSFET	Change from 240K to 100K: PR503, PR528, PR544, PR565	X00
7	59	P59-PWR_Selector	2013/2/26	Power	Adjust divider resistor for MOSFET	Change from 47K to 240K: PR501, PR524, PR535, PR540	X00
8	59	P59-PWR_Selector	2013/2/26	Power	SUT will unexpected shut down if un-docking during S0/S3	Add: PQ528, PR566	X00
9	51	*PBAT_PRES# ESD fail	2013/3/4	Power	ESD PD1 fail, even connect 3.3V to VBUS pin	Change PD1 to PD1, PD2(TVNST52302AB0)	X00
10	59	P59-PWR_Selector	2013/3/6	Power	SB903380020 FDN338P derating fail	PQ500, PQ517,PQ520,PQ522,PQ526 change to SB000007900, PQ1change to SB000007900	X00
11	51	PC5 down size	2013/3/12	Power	PC5 down size	Change PC5 from 0805 to 0603 size	X00
12	51,59	AC_DIS# net change	2013/3/12	Power	AC_DIS# should high enable, not low enable	AC_DIS# change to AC_DIS	X00
13		EMC open issue	2013/3/18	Power	Add parts for EMI	PR606,PC615, PR632, PC628, PR706, PC705, PR324, PC307	X00
14	60, 62	PU600, PU601 VCC	2013/3/19	Power	DIS S3 power consumption voer 200mW	Add PR630 PR711, PR710 for reserve +5V_RUN	X00
15	61	Change DGPU output cap	2013/3/19	Power	For thermal issue change DGPU power output cap.-14"	Change PC683,PC684	X00
16	62	GPU DDR change to 1.35V	2013/3/19	Power	Change VDDR output voltage from 1.5V to 1.35V	Change PR707 from 11.5K to 9.1K	X00
17	54	+1.05V dynamic load test	2013/3/19	Power	+1.05V dynamic load over spec	Change PL150 from 1uH to 0.68uH	X00
18	58	Change output chock	2013/3/20	Power	Same as 14" for height limit	Charger output choke change to 2.2uH	X00
19	60	0 ohm resistor	2013/3/21	Power	0 ohm 1% vender is not correct in ISPD	Change PR621 0ohm from 1% to 5%	X00
20	54	1.05V dynamic over spec	2013/3/21	Power	1.05V dynamic over spec	Change PL150 from 1uH to 0.68uH	X00
21	59	Modify for Peak power	2013/3/21	Power	Modify schematic	PQ529, PQ518, PR527 and PR567	X00
22	NA	Reserve	Reserve	Power	Reserve	Reserve	X01
23	60	DGPU core output ripple	2013/5/10	Power	Output ripple with a low frequence ripple	+PWR_SRC do not include feedback via	X01
24	60	DGPU core output ripple	2013/5/10	Power	Output ripple with a low frequence ripple	+PWR_SRC do not include feedback via	X01
25	59	14" 組裝問題	2013/5/10	Power	PD512 太靠邊板	Move location	X01

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



Compal Electronics, Inc.

Title			EE PIR(1)
Size	Document Number		LA-XXXX
Date	Wednesday, August 14, 2013	Sheet	64 of 64
Rev	1.0		

Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	56	14" Vcore find tune	2013/5/29	Power	14" Vcore find tune for LL and DIMON	PR328=2.4K->2.1K; PR333=30K->49.9K; PR301=390K->348K	X02
2	NA	Reserve	Reserve	Power	Reserve	Reserve	X02
3	58	EMI solution	2013/5/31	EMI	EMI: 200-225MHz boardband	Populate bead 120 ohm on PJP100 and PL301, populate 0.1uF on pc302 and pc700, 2200pF on pc701.	X02
4	58	EMI solution	2013/5/31	EMI	EMI: 200-225MHz boardband	PC419 add parallel PC441:2200pF and PC440: 0.1uF	X02
5	62	Thermal de-ratgin issue	2013/6/10	Power	MLCC are exceeded thermal derating criteria	Change to X6S/X7R: PC600, PC601, PC604, PC605, PC674, PC302, PC304, PC311, PC312, PC313, PC314	X02
6	59	Change part number	2013/6/6	Power	Part number -N0 is for other customer	PC505 SE043474KN0 change to SE043474K80	X02
7	NA	14" NPI report(4/19)	2013/6/6	Power	Co-lay need select 1 component	Del NC: PJP300, PL600, PJP1, PC66, PC707, PJP51, PJP400	X02
8		Selector	2013/5/30	Power	For 3V/5V volgate level, change VDS rating from 30V to 20V	PQ1, PQ518 change to 20V rating DMG2301U-7_SOT23-3	X02
9	62	14" DGPU DDR	2013/6/7	Power	Output capacitor PC709 not in PSL	Change to NCC: SF0000003100	X02
XB							
1		Thermal de-ratgin issue	2013/7/10	Power	According QAD test result change MLCC back to X5R	PC674, PC302, PC304, PC311, PC312, PC313, PC314	X03
2		Change 0 ohm to short pad	2013/7/10	Power	Reduce part count	Except: PR321 and PR621	X03
3		Thermal de-ratgin issue	2013/7/10	Power	MLCC are exceeded thermal derating criteria	VAW30 change to X6S/X7R: PC302, PC304, PC311, PC312, PC313, PC314	X03

www.aitech1.ru

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



Compal Electronics, Inc.

Title		EE PIR(1)	
Size	Document Number	LA-XXXX	Rev 1.0
Date:	Wednesday, August 14, 2013	Sheet 64	of 64

Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	34	USB3.0 Re-driver	13'0814	EE	Pull-up and Pull-down resister	R2628, R2638, R2639, R2644	1.0
2	41	POWER BOTTON	13'0814	EE	Un-pop power botton.	SW5 and SW6	1.0
3	38	Board ID	13'0814	EE	Change board ID to REV. A00.	Change R392 to 8.2K ohm.	1.0
4	41	LED bright	13'0814	ME	change LED resister to 300 ohm	R438, R436, R435, R433 and R429	1.0
5	38	AUDIO test fail	13'0814	EE	Audio resistor change from 9.1 ohm to 18 ohm	R162 and R166	1.0
6	42-46	GPU chip PN	13'0814	EE	Update P/N of GPU chip	Change P/N of UV1 to SA00006CB1L.	1.0
7	28	LAN chip P/N	13'0814	EE	Type change to T & R	Change P/N of U21 to SA000066W4L.	1.0
8	1	change R3 PN of PCB	13'0815	EE	change R3 PN of PCB	Change from DA8000WJ000 to DA8000WJ011	1.0
9	16	BT issue	13'0822	EE	Un-pop 0.47uF between "+PCH_VCCDSW3_3" and "+PCH_VCCDSW"	C413	1.0
10	36	EMI Request	13'0822	EMI	Add D2 on "Sleeve" & "Ring2" and connect to DGND		1.0

www.aitech1.ru

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



Compal Electronics, Inc.

Title	EE PIR(1)			Rev
Size	Document Number	LA-9832P		0.5
Date:	Friday, August 30, 2013	Sheet	65	of 64