

Compal Confidential

KIUN0 Schematics Document

Intel Diamondville Processor with Calistoga(945GSE) + DDRII + ICH7M

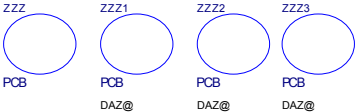
2009-03-31

REV: 1.0

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				B	LA-4421P	0.2
				Date	Monday, April 06, 2009	Sheet 1 of 42

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Model Name : KIUN0
File Name : LA-5071P



Thermal Sensor
EMC1402
page 4

CRT Conn
page 16

LCD Conn.
page 15

Diamondville SC
FCBGA8
437Pins
22x22mm
page 4,5

Clock Generator
CK505
page 14

Calistoga GSE
FCBGA998
27x27mm
page 6,7,8,9,10

DDRII-SO-DIMM
page 13

ICH7M
BGA652
31x31mm
page 17,18,19,20

MINI Card x1
page 21

10/100 Ethernet
RTL8103E(L)
page 25

Transfermer
page 25

RJ45
page 25

SSD
page 21

HDD
page 24

MINI Card x2
page 21

USB Port X3
page 30

BlueTooth
page21

CMOS CAM
page24

Aralia Codec
ALC272
page 22

Card Reader
RTS5159
page 26

ENE KBC
KB926
page 27

Int.KBD
page 29

Touch Pad
page 29

SPI ROM
page 27

AMP & INT
Speaker
page 22

INT MIC
page 22

HeadPhone &
MIC Jack
page 23

SD/MMC/MS
CONN
page 26

Power ON/OFF
page 28

DC/DC Interface
page 31

DC IN
page 34

3VALW/5VALW
page 37

BATT IN
page 35

1.5VS/0.9VS/
2.5VS
page 39

CHARGER
page 36

1.8V/VCCP
page 38

CPU_CORE
page 40

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					LA-4421P
				Date	Monday, April 06, 2009
				Sheet	2 of 42
				Rev	0.1

Voltage Rails

Power Plane	Description	S1	S3	S5
VIN	Adapter power supply (19V)	N/A	N/A	N/A
B+	AC or battery power rail for power circuit.	N/A	N/A	N/A
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF
+0.9VS	0.9V switched power rail for DDR terminator	ON	OFF	OFF
+VCCP	VCCP switched power rail	ON	OFF	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+1.8V	1.8V power rail for DDR	ON	ON	OFF
+2.5VS	2.5V switched power rail	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON*
+3VS	3.3V switched power rail	ON	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON*
+5VS	5V switched power rail	ON	OFF	OFF
+VSB	VSB always on power rail	ON	ON	ON*
+RTCVCC	RTC power	ON	ON	ON

Note : ON* means that this power plane is ON only with AC power available, otherwise it is OFF.

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

BOARD ID Table(Page 25)

ID	BRD ID	Ra	Rb	Vab
0	R01 (EVT)	NC	0	0V
1	R02 (DVT)	100K	8.2K	0.25V
2	R03 (PVT)	100K	18K	0.50V
3	R10A (MP)	100K	NC	3.3V

External PCI Devices

DEVICE	IDSEL #	REQ/GNT #	PIRQ
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No PCI Device

EC SM Bus1 address

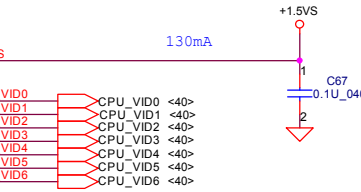
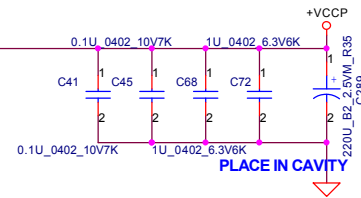
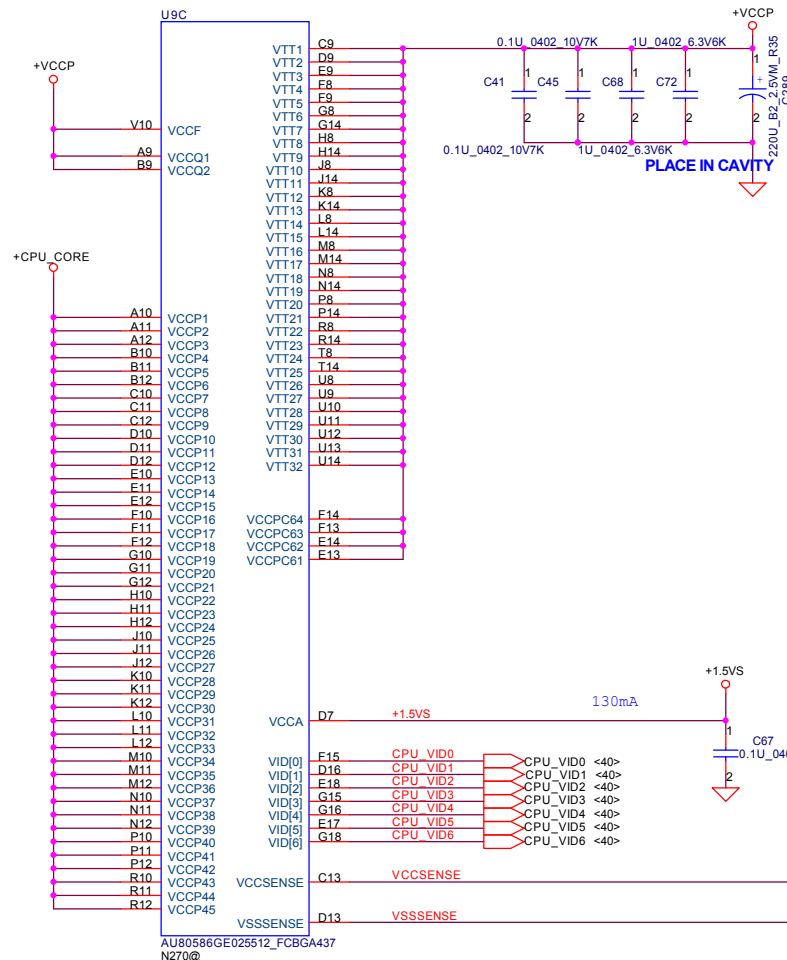
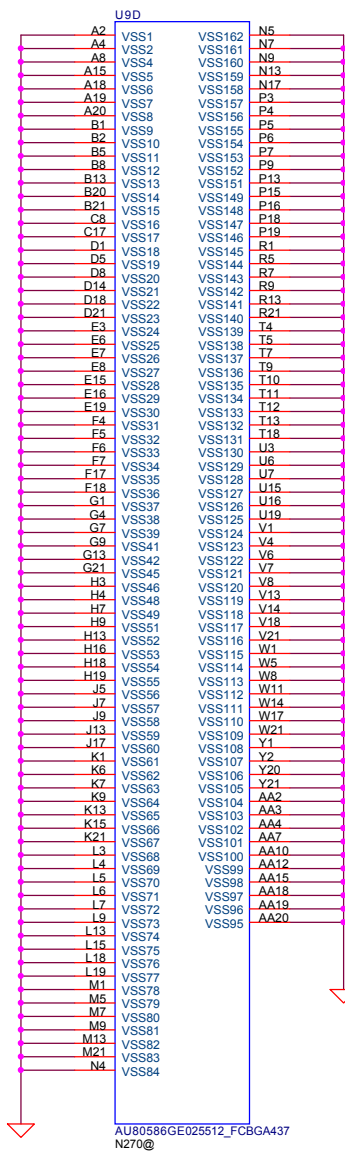
Device	Address	Device	Address
Smart Battery	0001 011X b	EMC1402	100_1100

EC SM Bus2 address

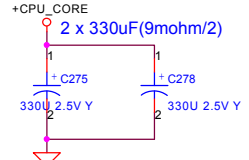
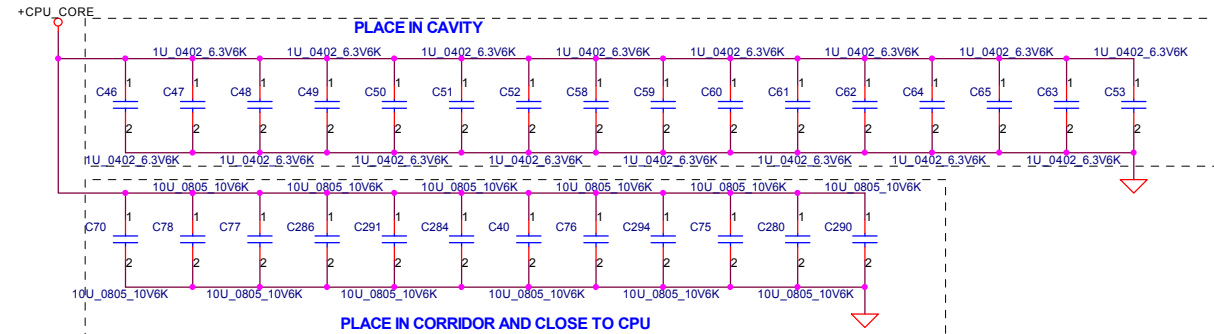
ICH7M SM Bus address

Device	Address
Clock Generator (SLG8SP556VTR)	1101 001Xb
DDR DIMMA	1010 000Xb



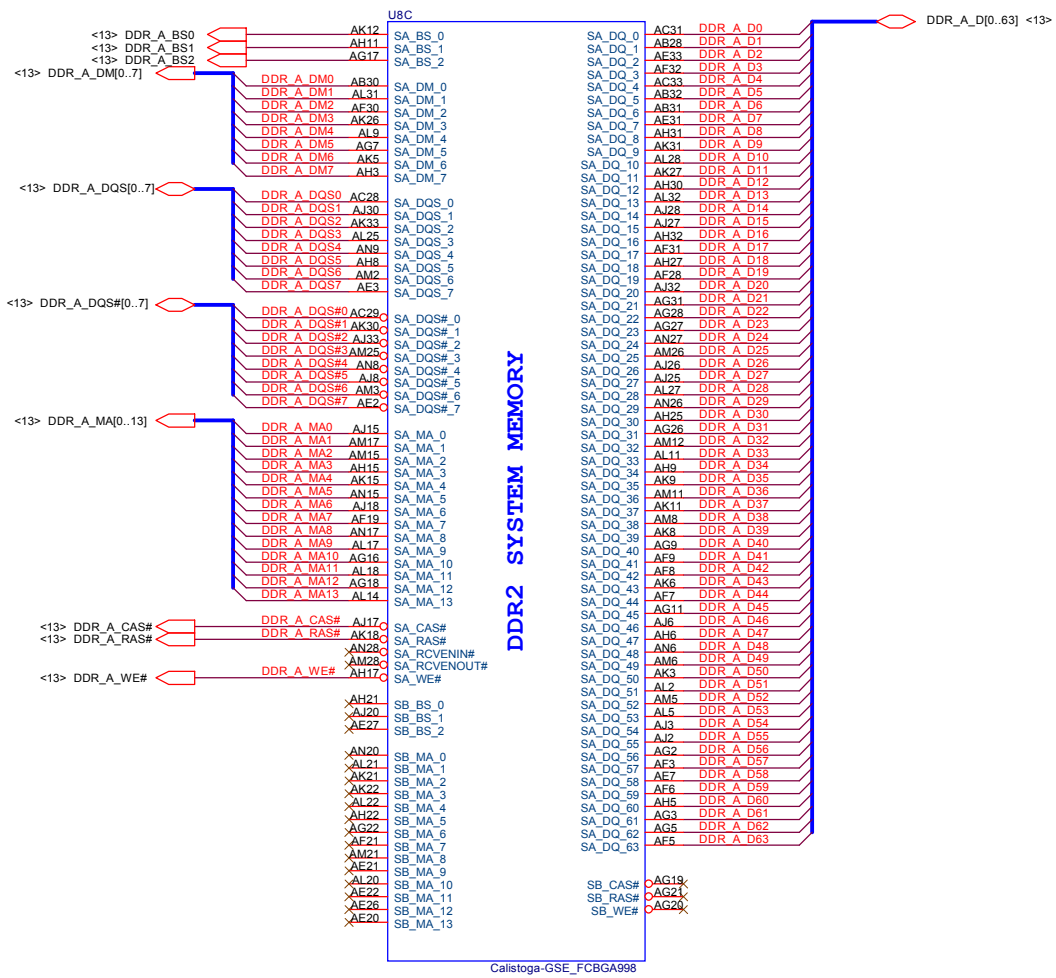


Length match within 25 mils
The trace space 7 mils,
Zo=27.4ohm

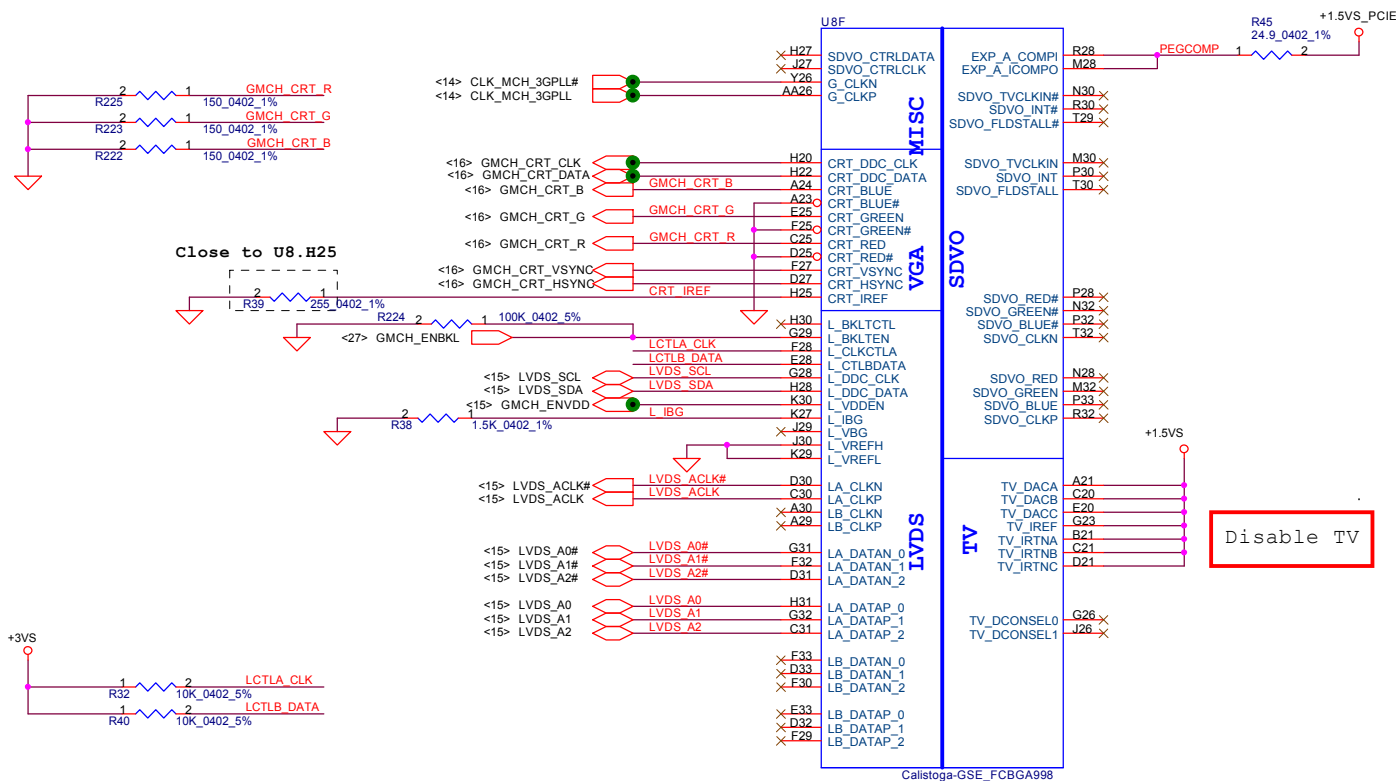


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Size B	Document Number	LA-4421P		Rev	0.2
Date:	Monday, April 06, 2009	Sheet	5	of	42





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Size		Document Number		Rev	
Custom		LA-4421P		0.2	
Date:		Monday, April 06, 2009		Sheet 7 of 42	



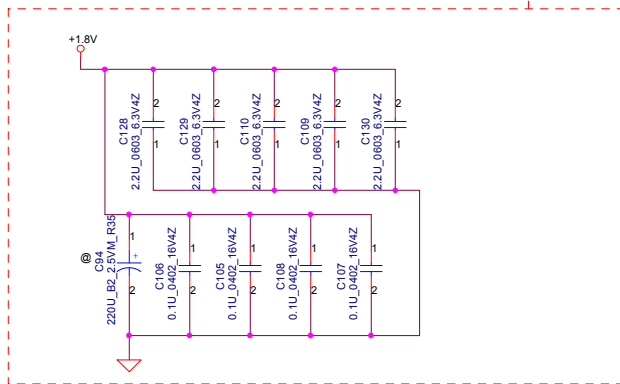
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Size B	Document Number	LA-4421P		Rev	0.2
Date:	Monday, April 06, 2009	Sheet	8 of 42		



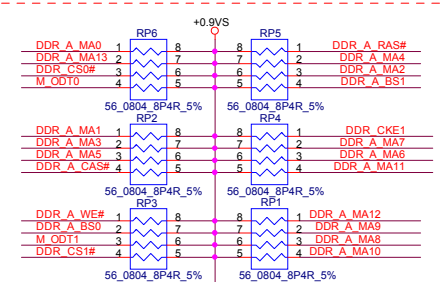
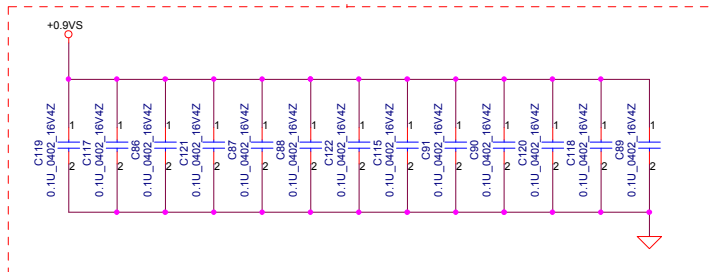
Size Custom	Document Number LA-4421P	Rev 0.2
Date: Monday, April 06, 2009	Sheet 9 of 42	

<7> DDR_A_DQS#[0..7]
 <7> DDR_A_D[0..63]
 <7> DDR_A_DM[0..7]
 <7> DDR_A_DQS[0..7]
 <7> DDR_A_MA[0..13]

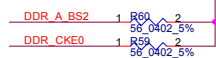
Layout Note:
Place near JDIM1



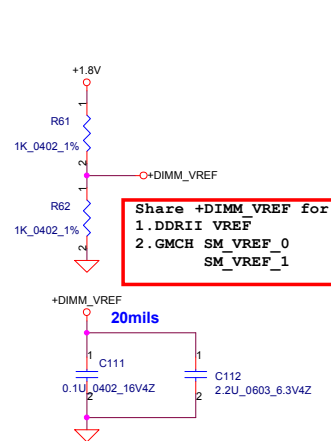
Layout Note:
Place one cap close to every 2 pullup resistors terminated to +0.9VS



Layout Note:
Place these resistor
closely DIMMA,all
trace length<750 mil

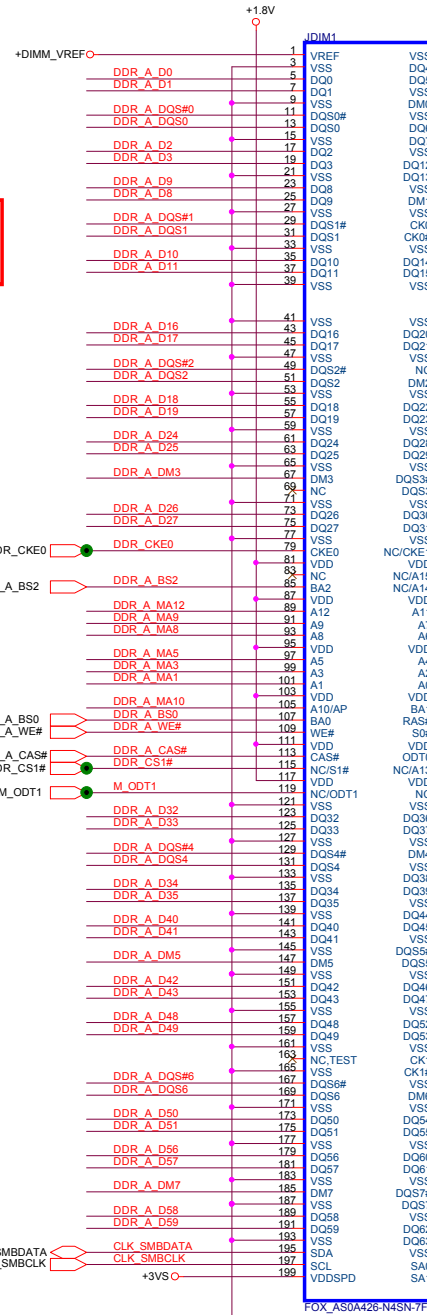
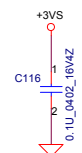


Layout Note:
Place these resistor
closely DIMMA,all
trace length
Max=1.3"

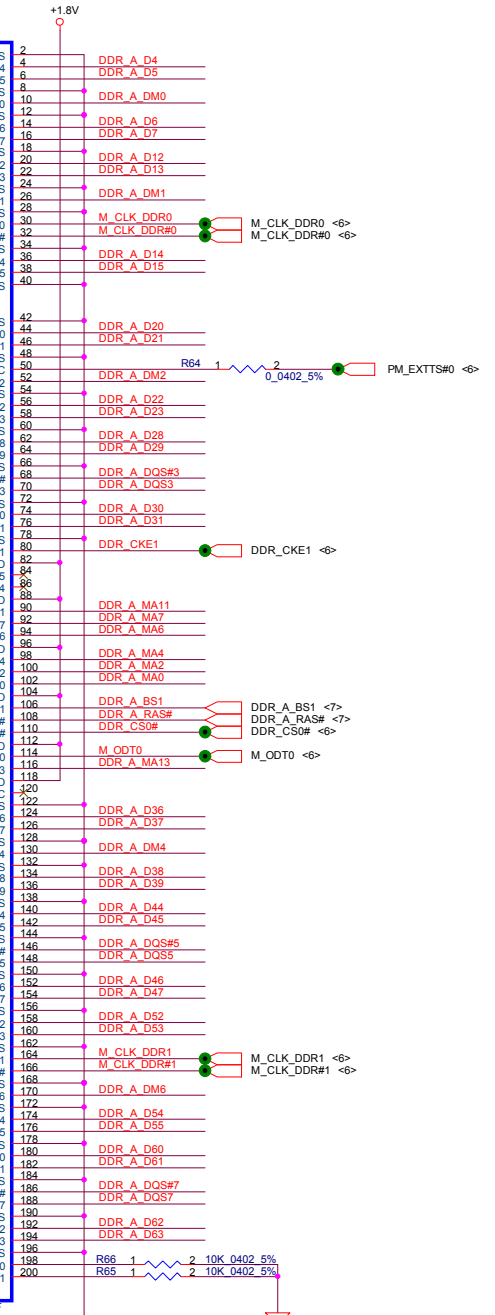


Share +DIMM_VREF for
1.DDRII VREF
2.GMCH SM_VREF_0
SM_VREF_1

<6> DDR_CKE0
 <7> DDR_A_BS2
 <7> DDR_A_BS0
 <7> DDR_A_WE#
 <7> DDR_A_CAS#
 <6> DDR_CS1#
 <6> M_ODT1

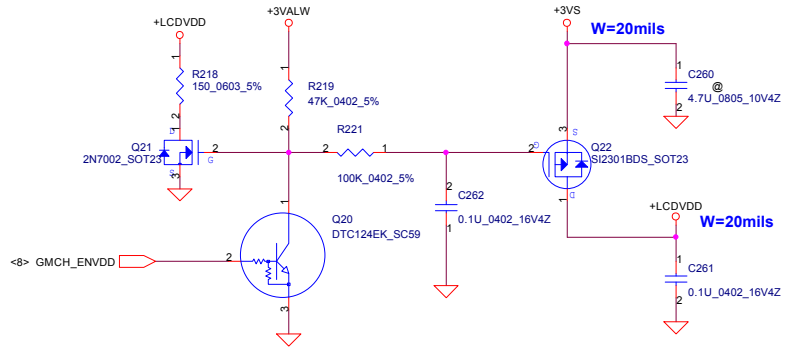


DIMMA

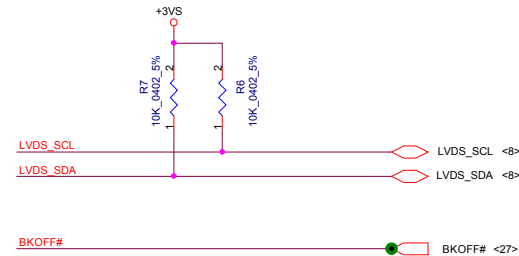
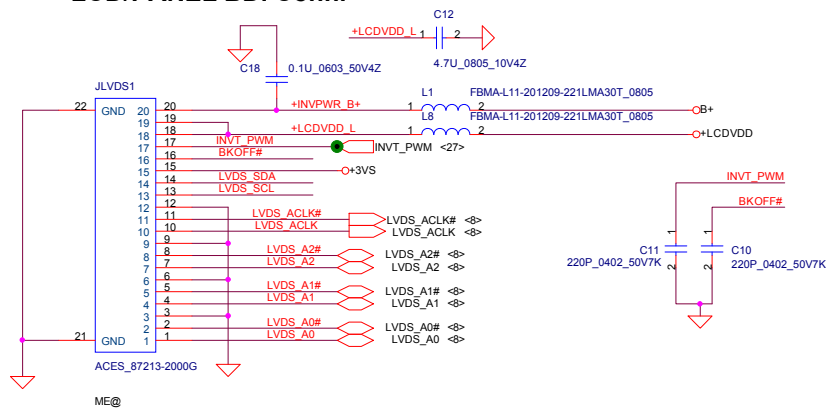


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				Size B	Document Number
				LA-4421P	
				Date: Monday, April 06, 2009	Rev 0.2
				Sheet 13	of 42

LCD POWER CIRCUIT

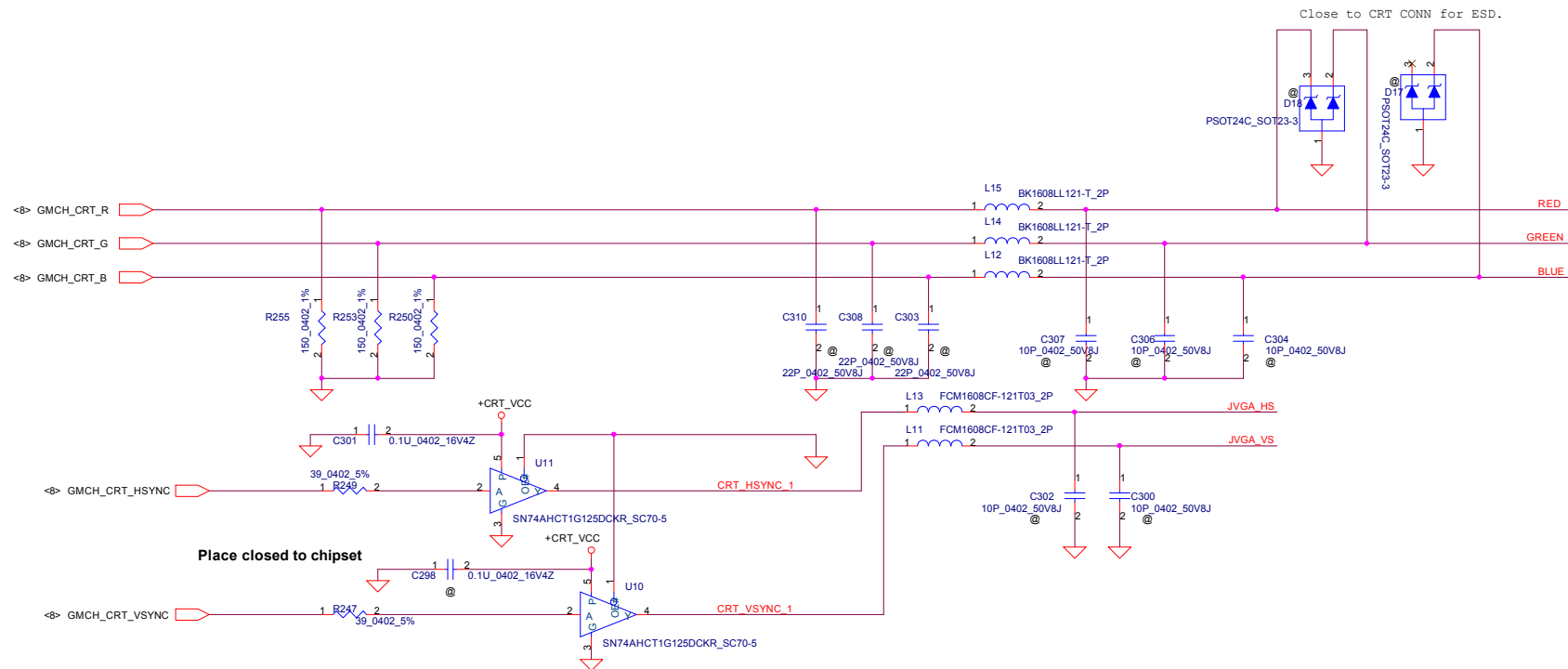


LCD/PANEL BD. Conn.



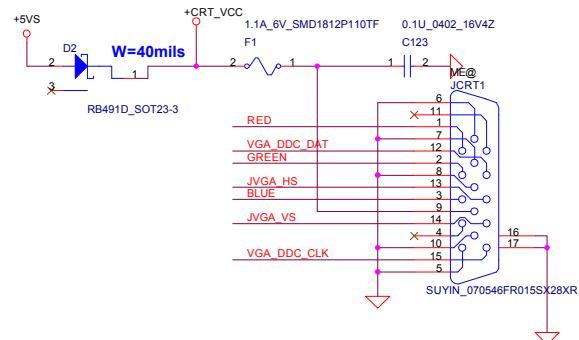
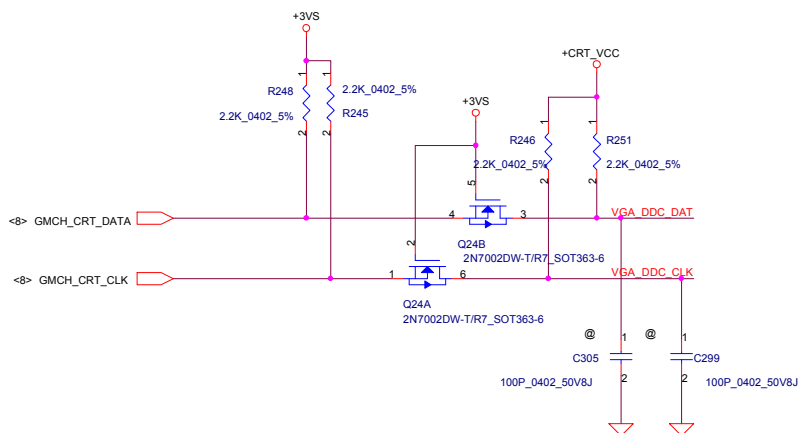
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								Size B			
								Document Number			
								LA-4421P			
								Rev 0.2			
								Date			
								Monday, April 06, 2009			
								Sheet 15 of 42			

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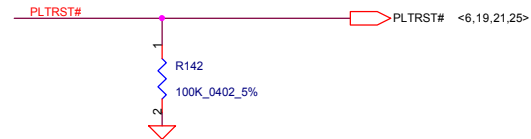
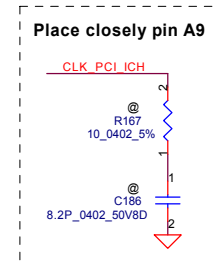
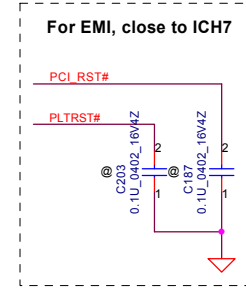
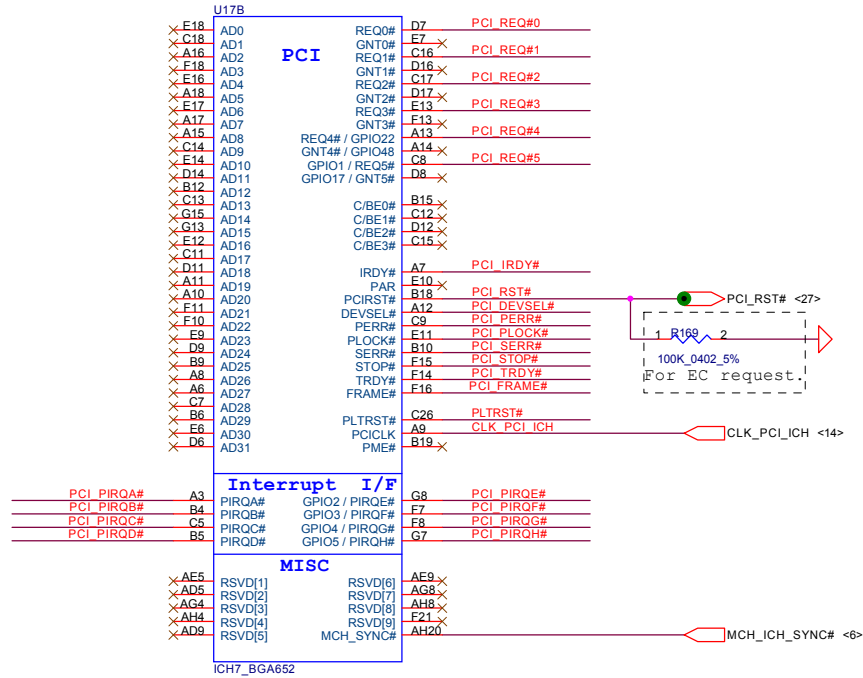
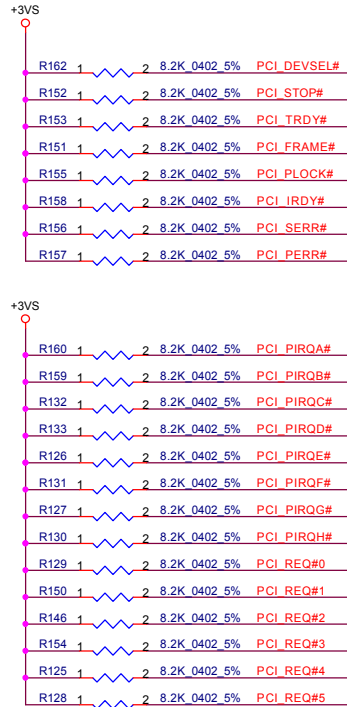


Place closed to chipset

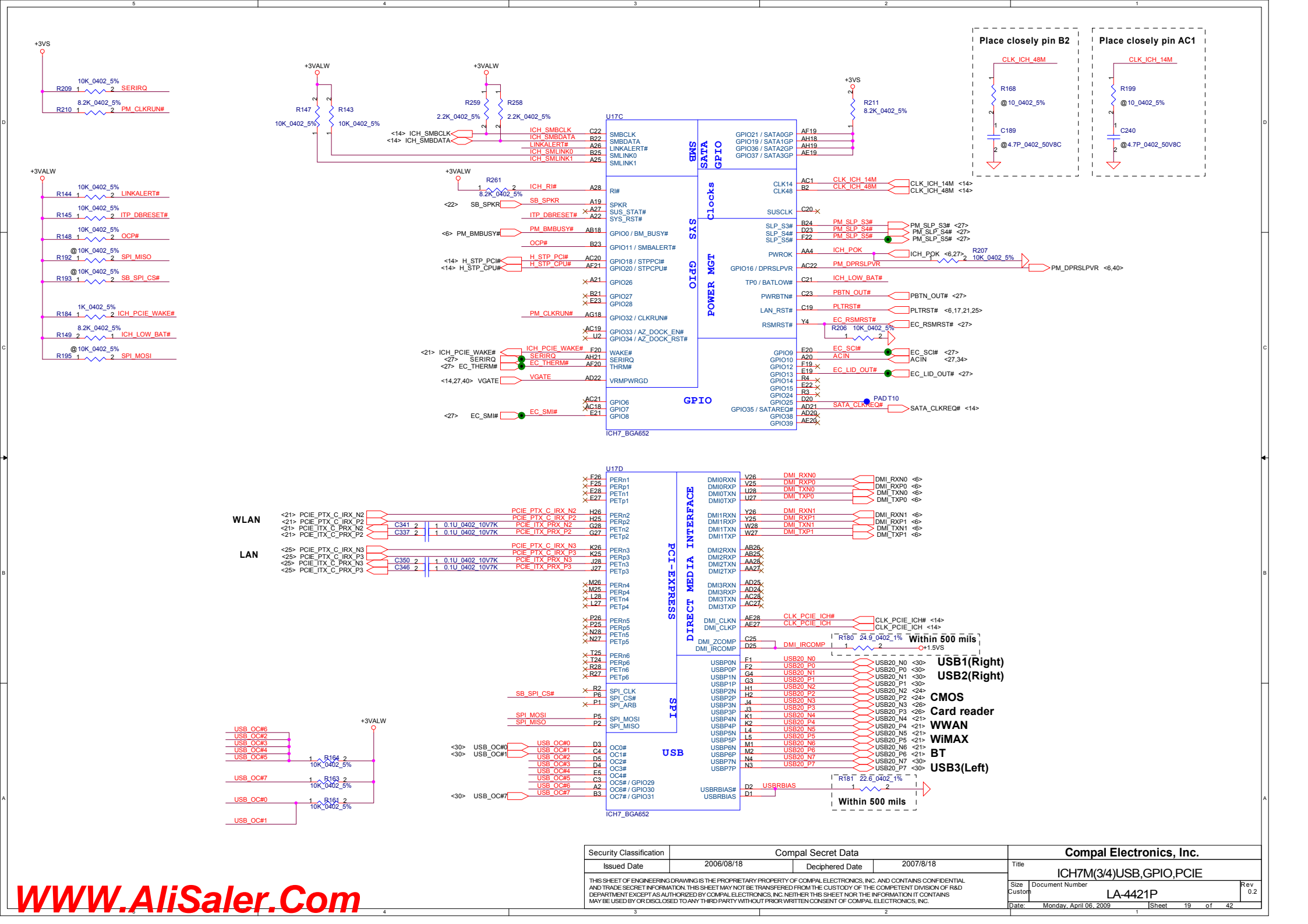
CRT PORT

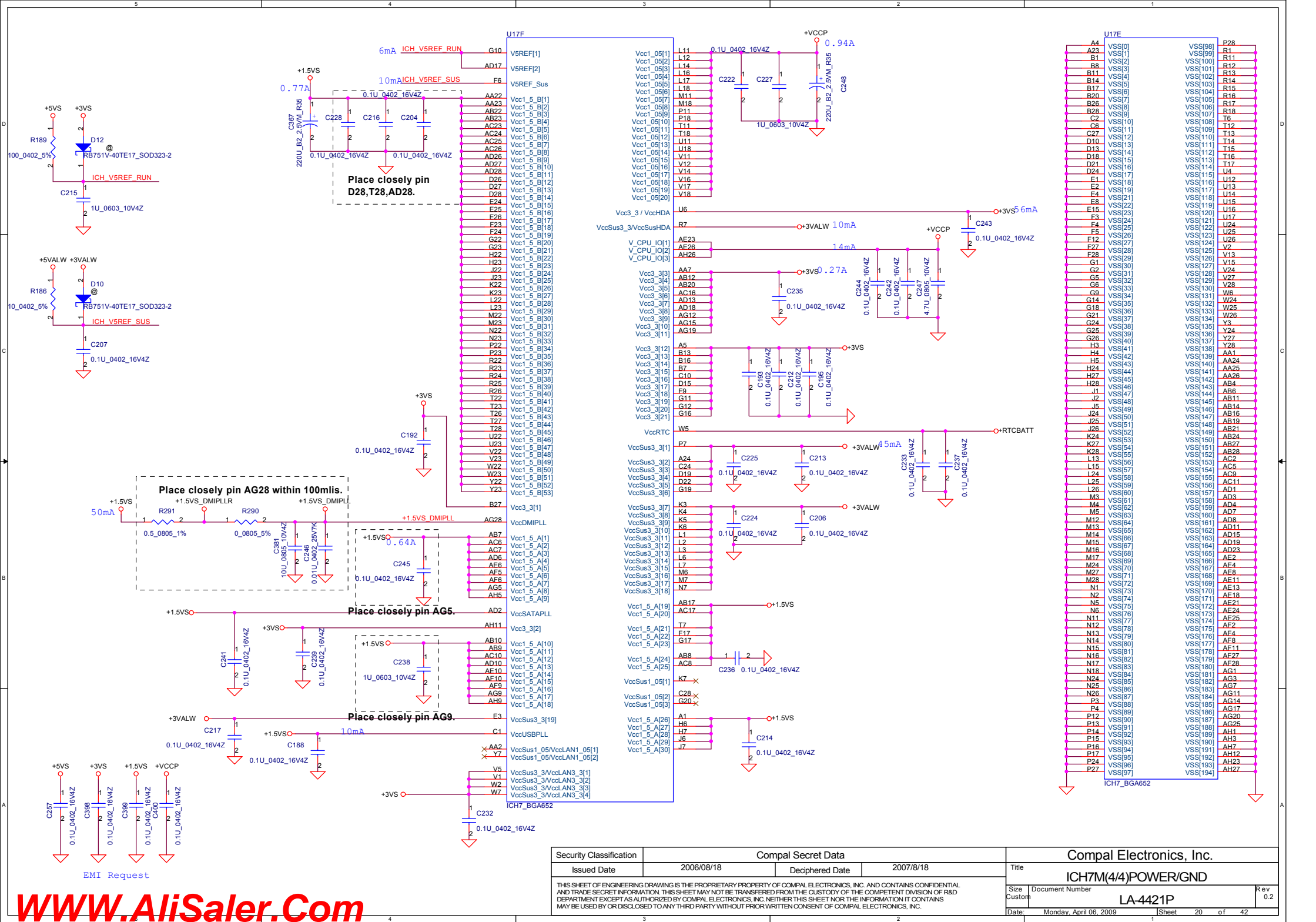


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				LA-4421P	
				Date	Monday, April 06, 2009
				Sheet	16 of 42



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Size		Document Number		Rev	
		LA-4421P		0.2	
Date:		Monday, April 06, 2009		Sheet 17 of 42	





Mini-Express Card for WWAN

The diagram illustrates the electrical connections for a Mini-Express Card for WWAN. The card is populated with an ACES_88910-5204 module. Key components include capacitors C145, C148, C158, C159, C163, and C178. Power is supplied via +3VS_WLAN and +3VS. Ground connections are labeled GND1 and GND2. Control signals include ICH_PCIE_WAKE#, WLAN_CLKREQ#, CLK_PCIE_WLAN#, CLK_PCIE_WLAN#, PCIE_PTX_C_IRX_N2, PCIE_PTX_C_IRX_P2, PCIE_ITX_C_PRX_N2, PCIE_ITX_C_PRX_P2, WL_OFF#, PLTRST#, USB20_N5, USB20_P5, WLAN_LED#, BT_LED#, and WWAN_LED#. The card is connected to a BT module via a BT module connector.

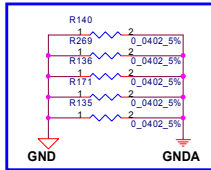
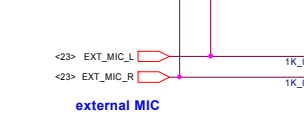
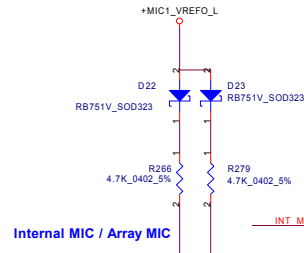
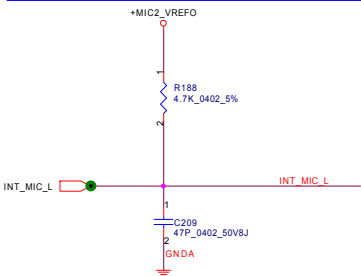
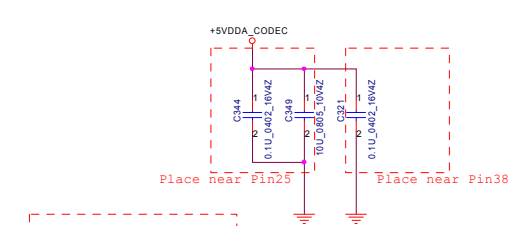
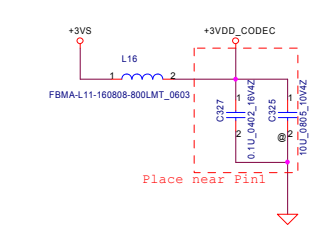
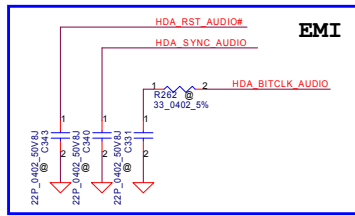
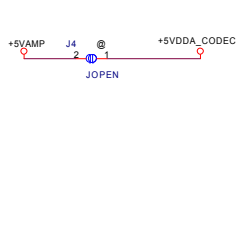
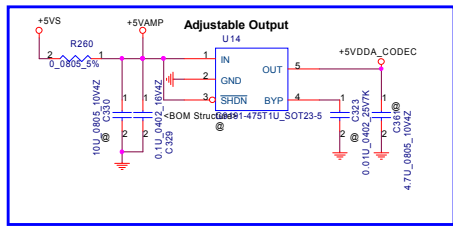
The schematic diagram illustrates the electrical connections for the TAITW PMPAT6-06GLBSTN14N0 ME@ board. It features a top section with a WWAN module (J2) and a middle section with SATA and USB connectors. Key components include capacitors (C149, C153, C202, C168, C159), resistors (R12, R228), and various power and data lines. The diagram is labeled with 'Security Classification' at the bottom right.

BT MODULE CONN

The schematic diagram illustrates the internal circuitry of the BT module and its connections to the system. Key components and connections include:

- Power Rails:**
 - +1.5VS:** Connected to WWAN_LED#, WXMITEFF#, USB20_N4, USB20_P4, and WWAN_LED#.
 - +3VS:** Connected to the module's pin 3.
 - +3VS_BT:** Connected to the module's pin 2 and the BT module's pin 1.
- Control Signals:**
 - BT_OFF#:** Connected to the module's pin 2.
 - BT_LED#:** Connected to the module's pin 1.
 - USB20_N6, USB20_P6:** Connected to the module's pins 19 and 20.
 - BTON_LED, BT_ACTIVE, WLAN_ACTIVE:** Connected to the module's pins 5, 6, and 7.
- Internal Components:**
 - Q25 (DTC124EK_SC59):** A PNP transistor used for the BT_OFF# signal.
 - Q26 (SI2301BDS_SOT23):** A diode used for the +3VS_BT signal.
 - Q11 (DTC124EK_SC59):** A PNP transistor used for the BT_LED# signal.
 - R254 (10K 0402_5%):** A resistor connected to the BT module's pin 2.
 - R102 (10K 0402_5%):** A resistor connected to the module's pin 2.
- Module Identification:** The module is identified as **ACES_87213-0800G**.

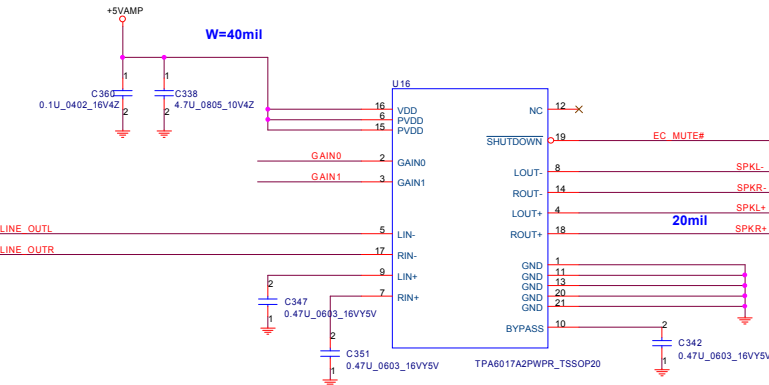
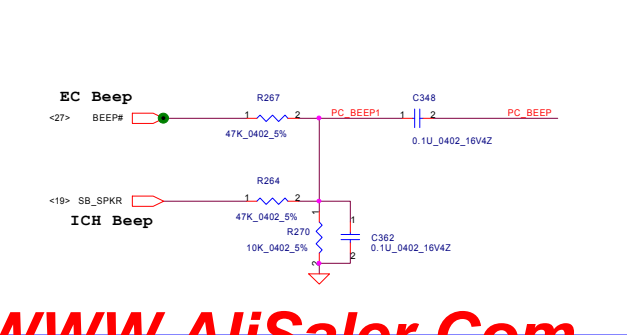
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					LA-4421P	0.2
				Date:	Monday, April 06, 2009	Sheet 21 of 42



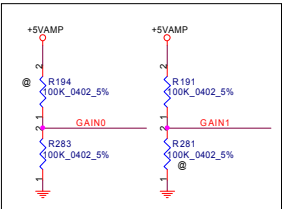
MIC Sense
R271 place near pin13
Capless HP Sense
R170 place near pin34

Pin Assignment	Location	Function
LINE-OUT (Pin35/36)	Internal	Int Speaker
Capless HP-OUT (Pin32/33)	External	Headphone out
LINE1 (Pin23/24)	External	
MIC1 (Pin21/22)	External	Mic in
MONO-OUT (Pin37)	Internal	
MIC2 (Pin16/17)	Internal	Internal Mic

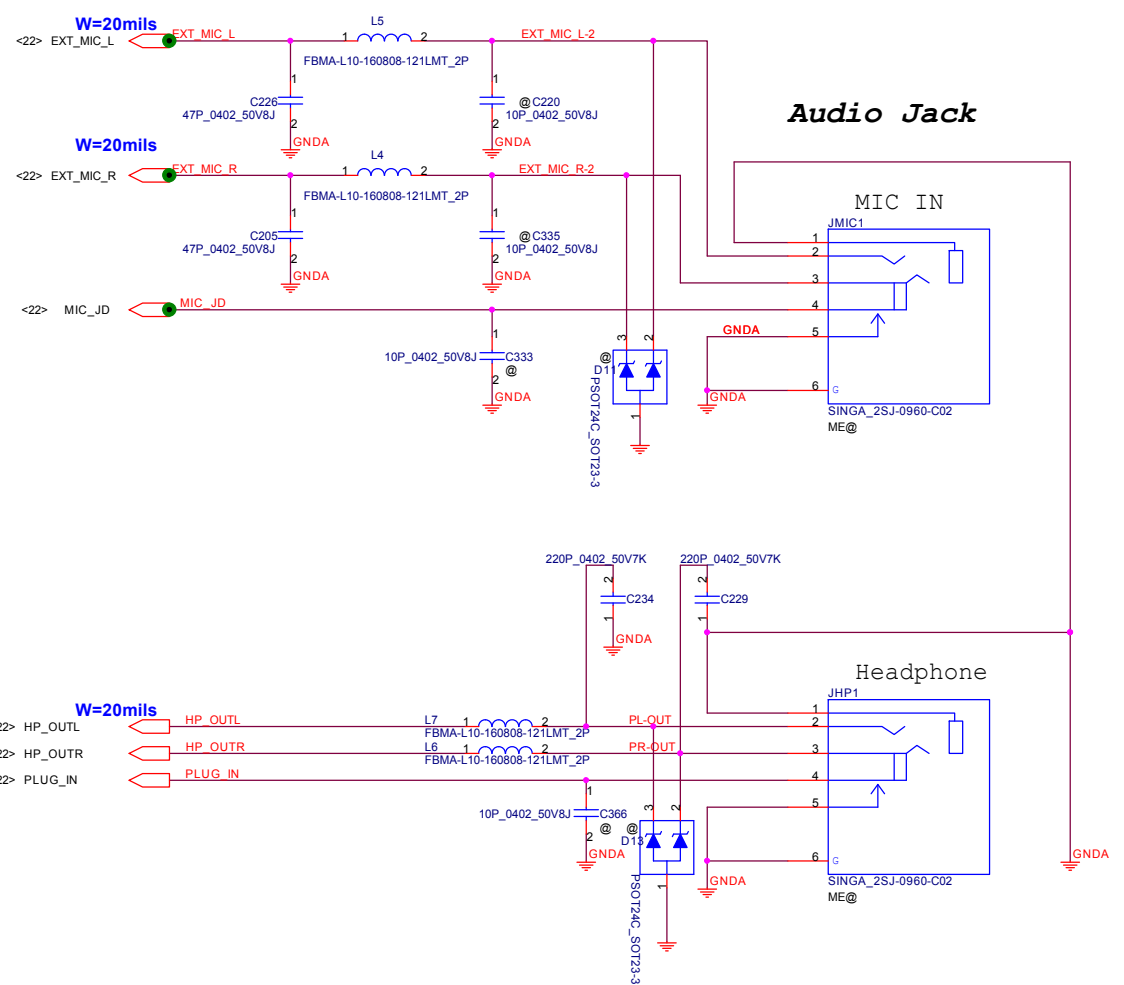
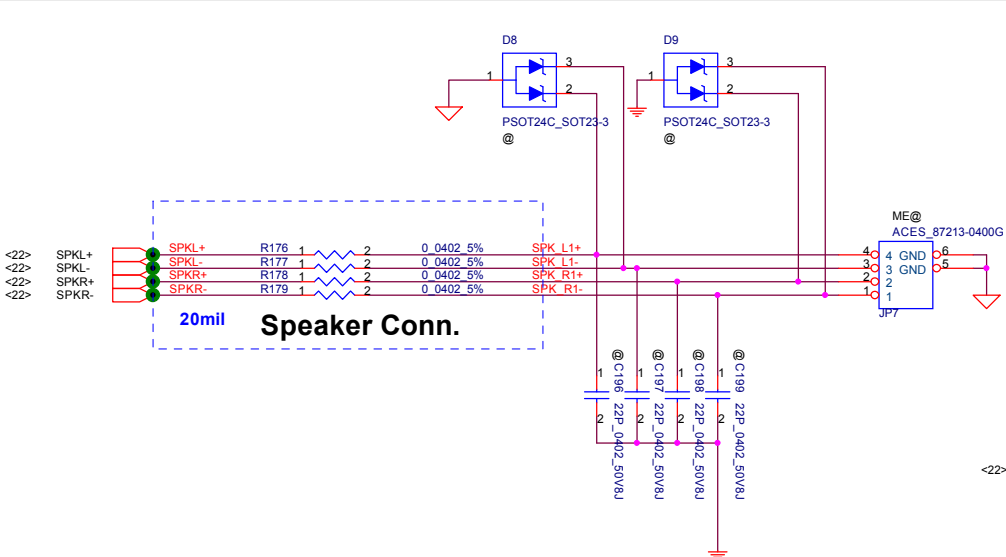
PC BEEP



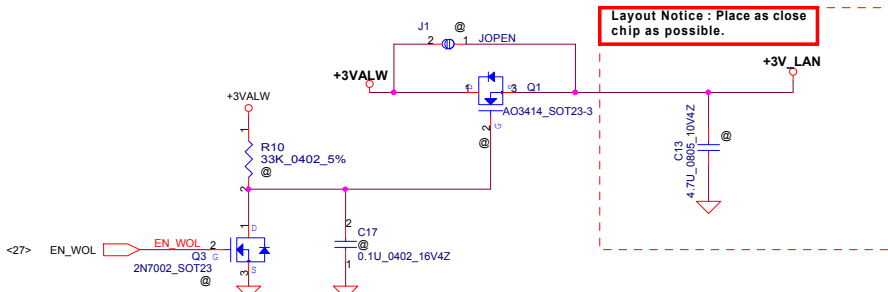
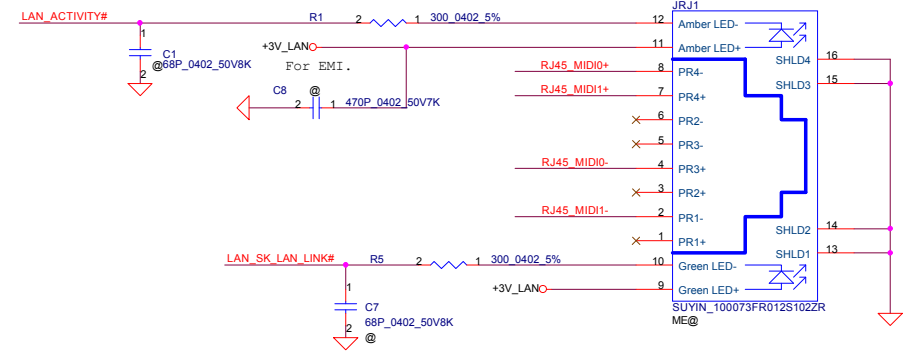
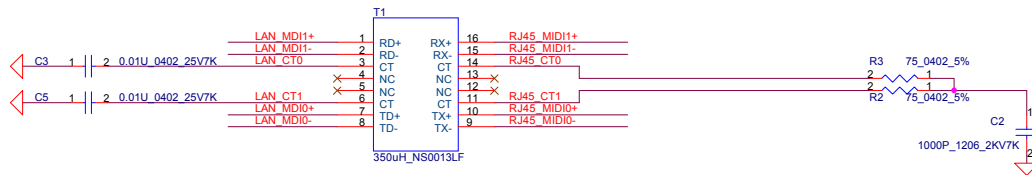
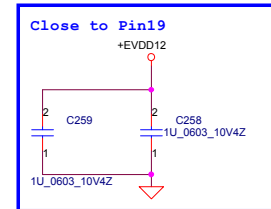
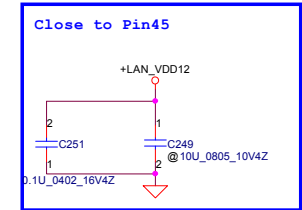
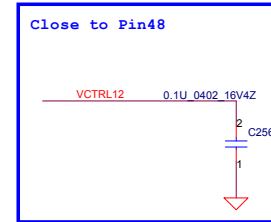
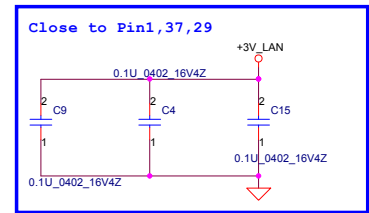
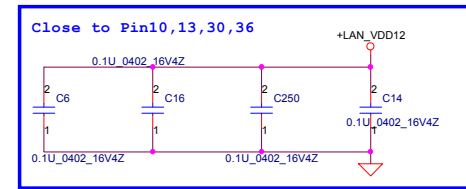
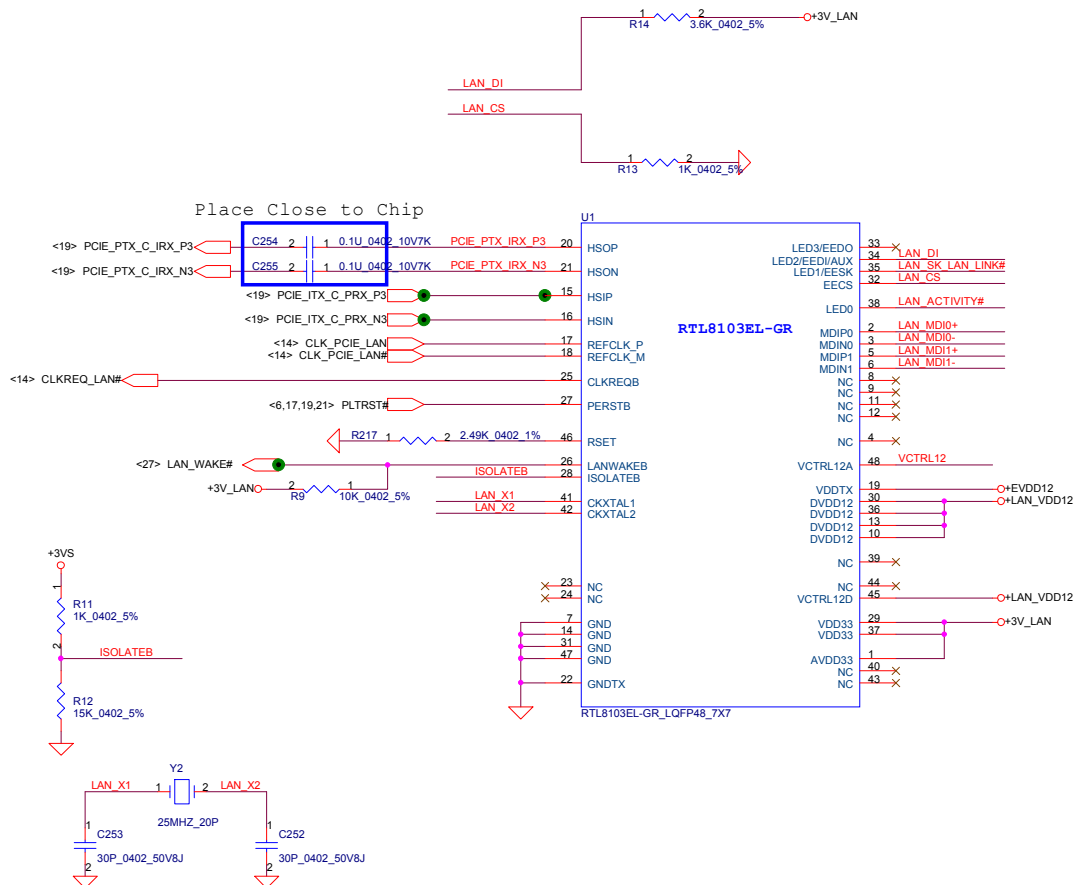
GAIN0	GAIN1	Gain
0	0	6dB
0	1	10dB
1	0	15.6dB
1	1	21.6dB



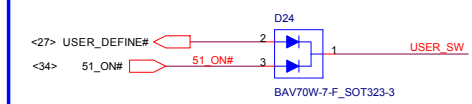
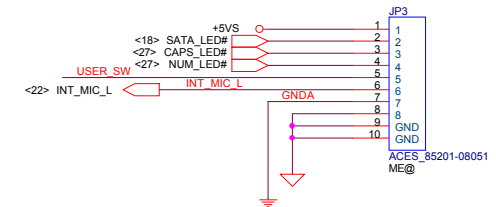
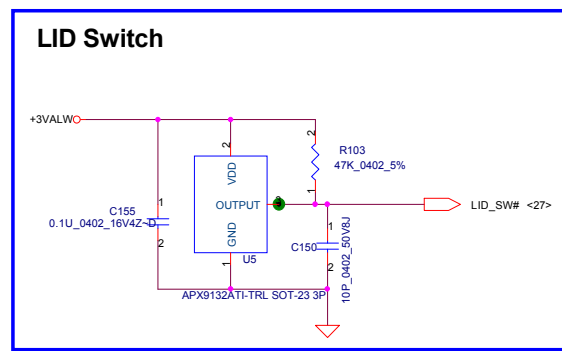
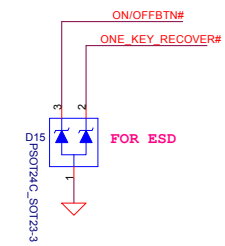
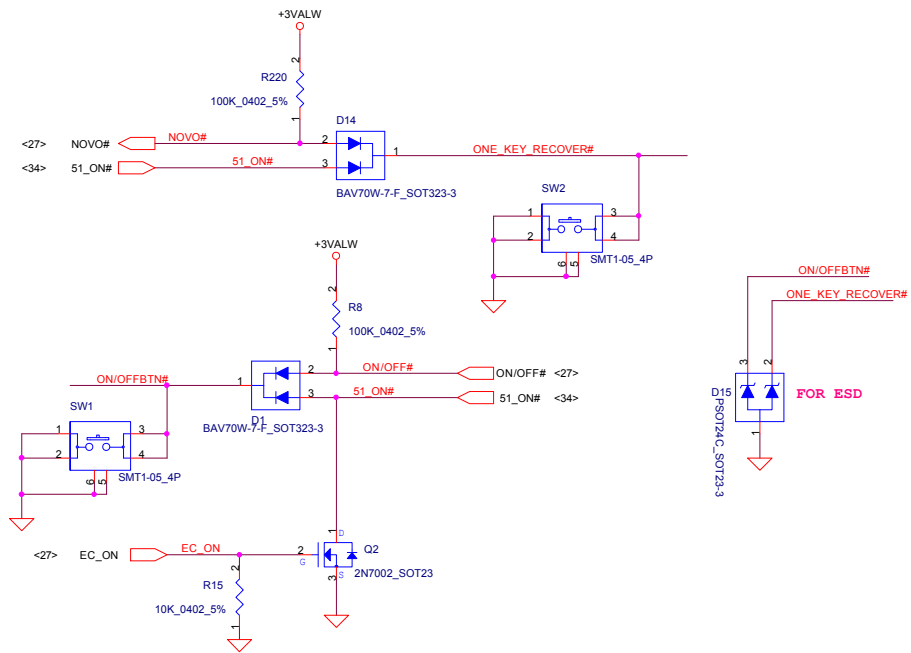
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Issued Date	2008/03/25	Deciphered Date
2008/04/		2008/04/
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Size	Document Number	Rev
C	KIWB1/B2_LA4601P	0.1
Date: Monday, April 06, 2009	Sheet	22 of 42



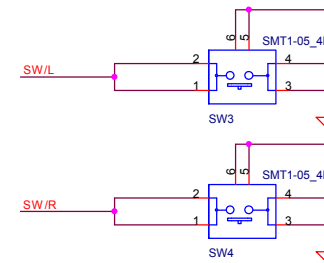
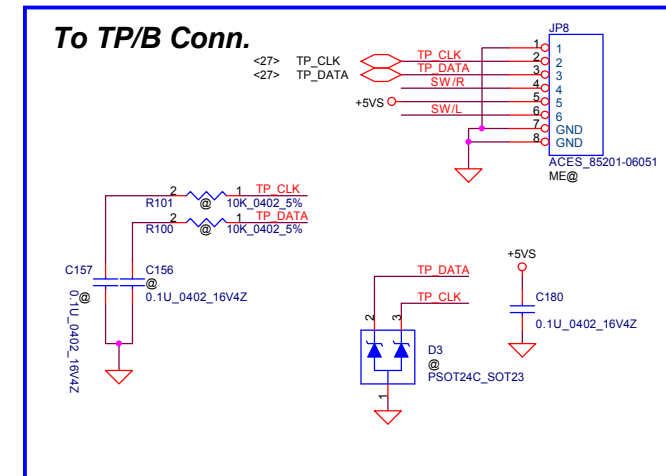
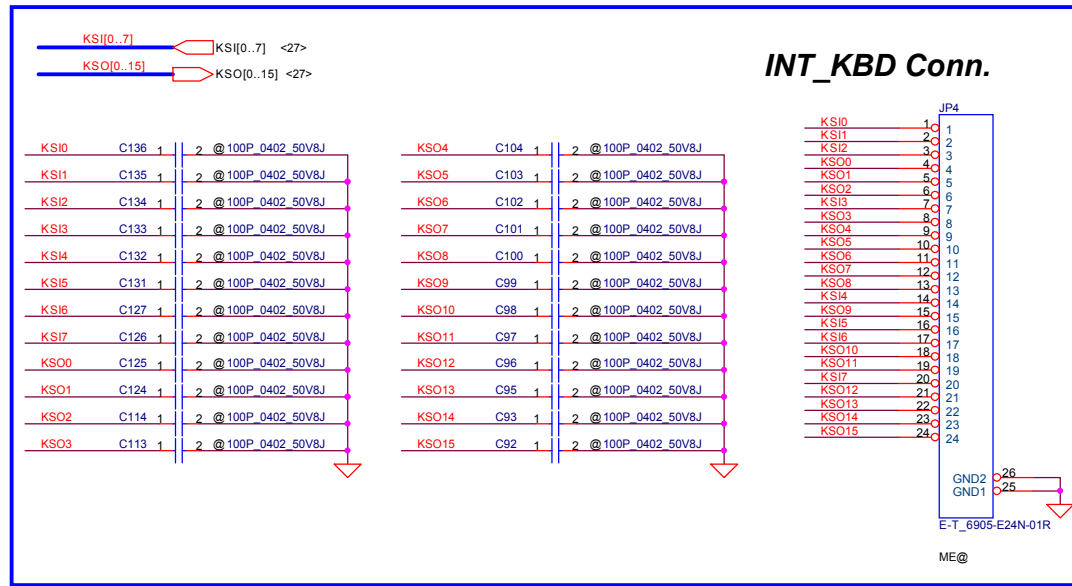
Security Classification		Compal Secret Data		Compal Electronics, Ltd.	
Issued Date	2008/03/25	Deciphered Date	2008/04/	Title	AMP, Audio speaker CONN
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				Custom	Rev
				Date: Monday, April 06, 2009	0.1
				Sheet	23 of 42



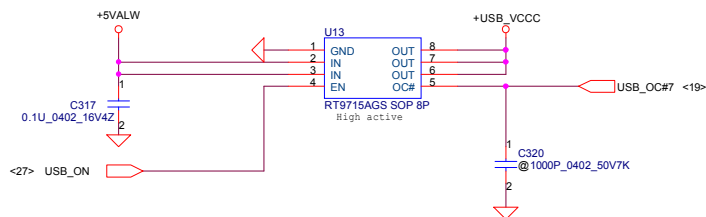
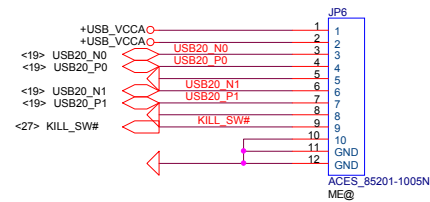
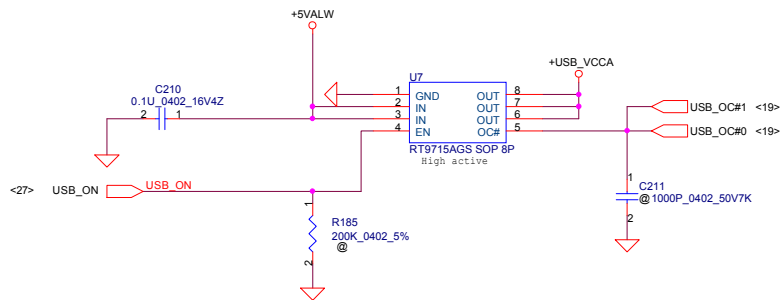
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Issued Date	2006/08/04	Deciphered Date	2006/10/06	Title RTL8103EL		
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				Custom		
				Date: Monday, April 06, 2009	Sheet 25 of 42	



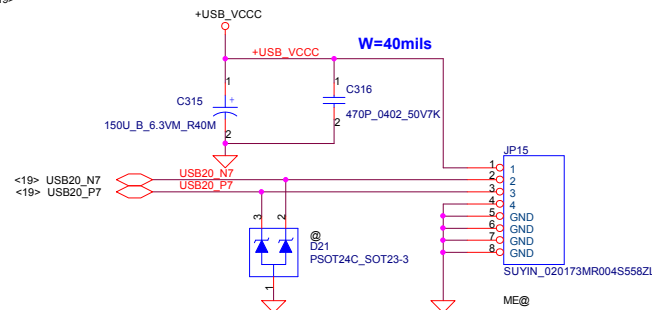
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								Size	Document Number	Rev			
								B	LA-4421P	0.2			
								Date:	Monday, April 06, 2009	Sheet	28	of	42



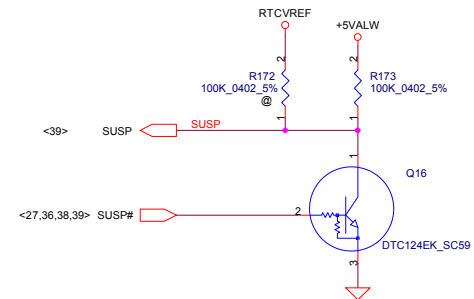
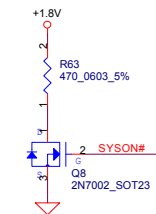
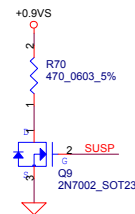
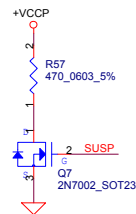
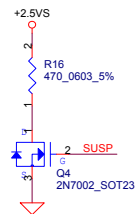
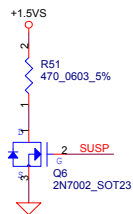
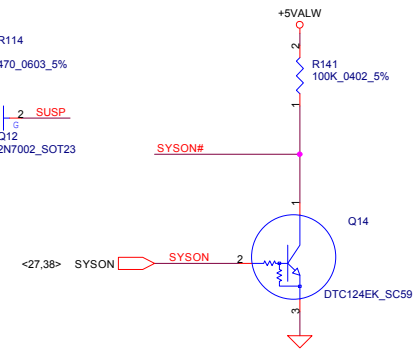
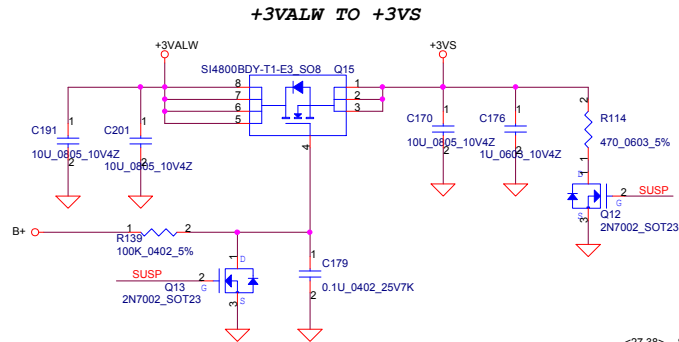
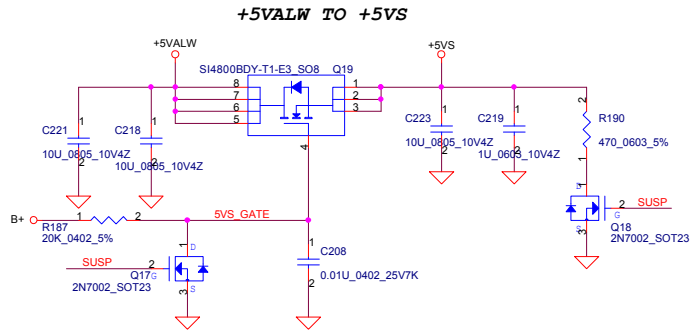
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Size	Document Number	LA-4421P		Rev	0.2
Date:	Monday, April 06, 2009	Sheet	29 of 42		



USB CONN. 3



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				LA-4421P		
				Date	Monday, April 06, 2009	Sheet 30 of 42

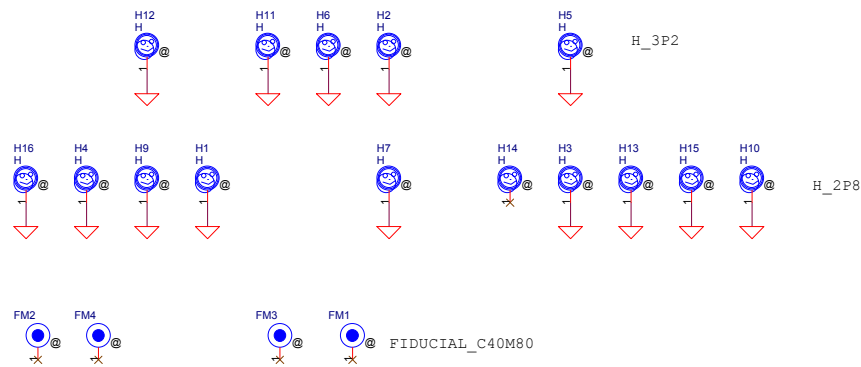


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				Date	Monday, April 06, 2009	Sheet 31 of 42

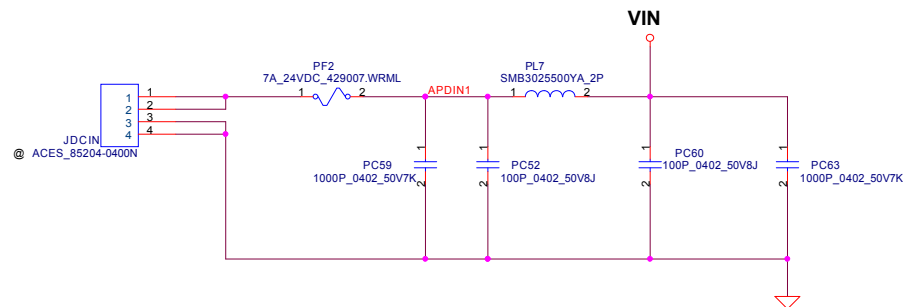
DC INTERFACE

LA-4421P

H8
H
H_3P6X5P6N



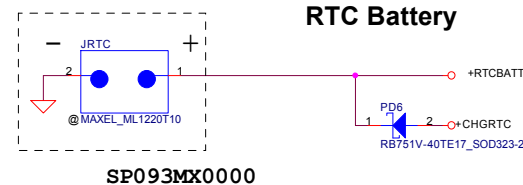
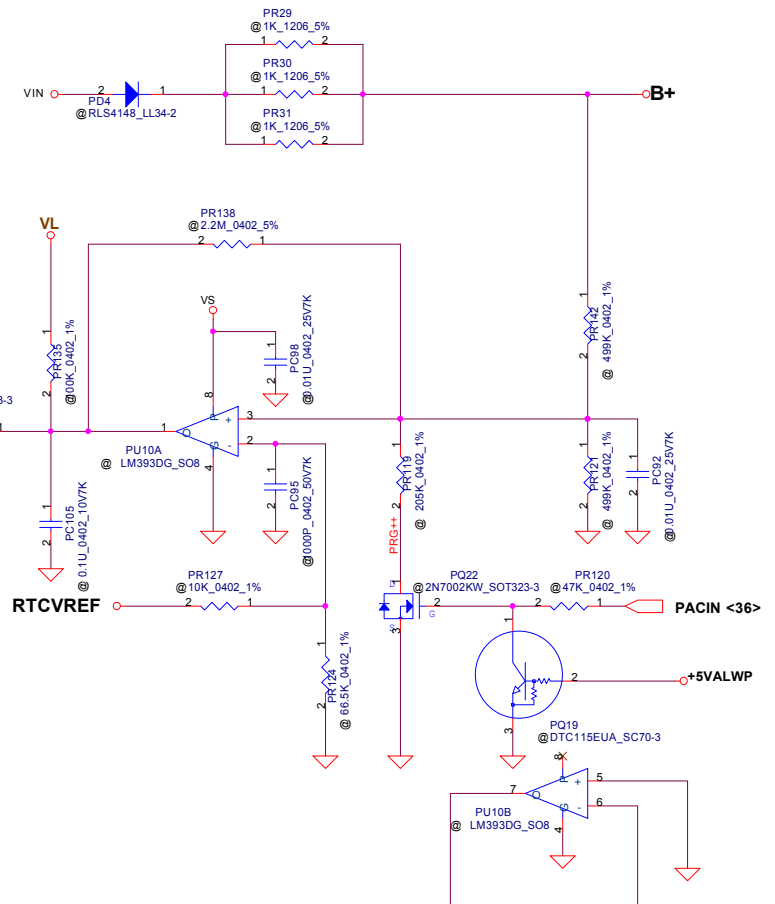
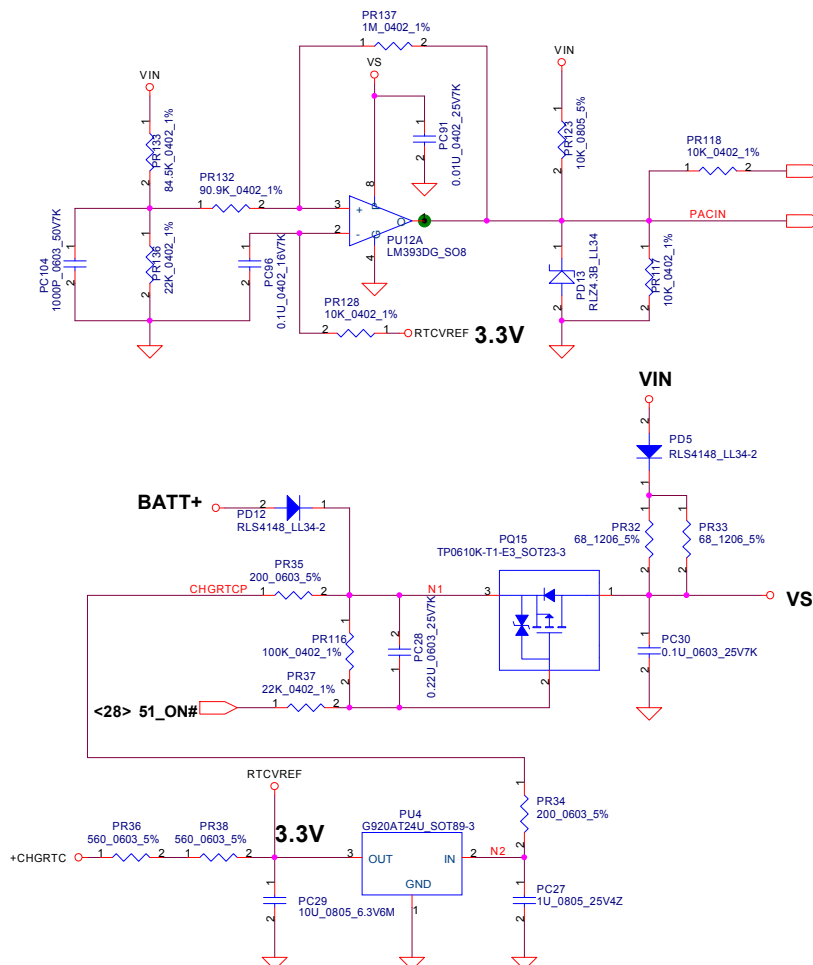
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Issued Date		2006/08/18		Deciphered Date		2007/8/18		
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				Screw				
				Size B	Document Number			Rev
				LA4421P			0.2	
Date: Monday, April 06, 2009				Sheet 33 of 43				



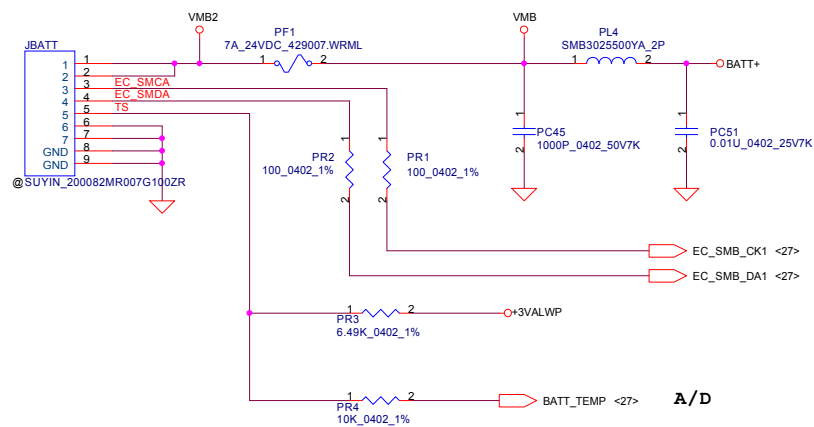
Vin Detector			
	Min.	typ.	Max.
High	17.944	17.706	17.470
Low	16.242	16.027	15.808

ACIN Precharge detector			
	Min.	typ.	Max.
High	14.936V	15.381V	15.814V
Low	13.843V	14.247V	14.636V

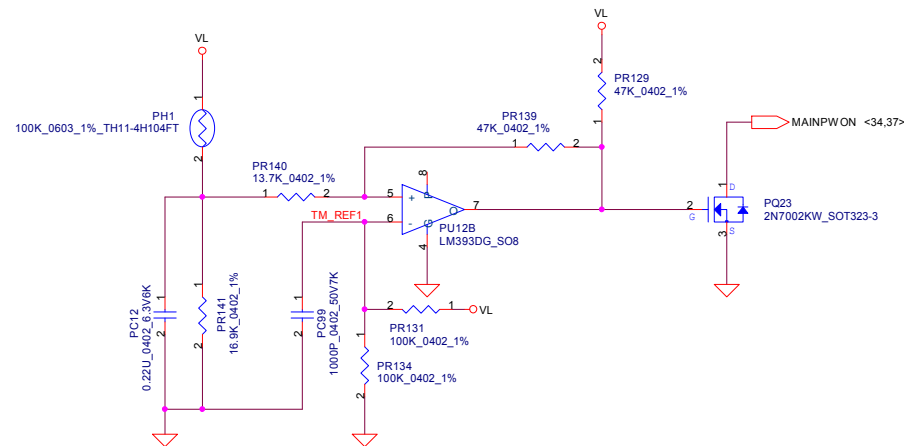
BATT ONLY Precharge detector			
	Min.	typ.	Max.
High	7.196V	7.349V	7.505V
Low	6.138V	6.214V	6.359V



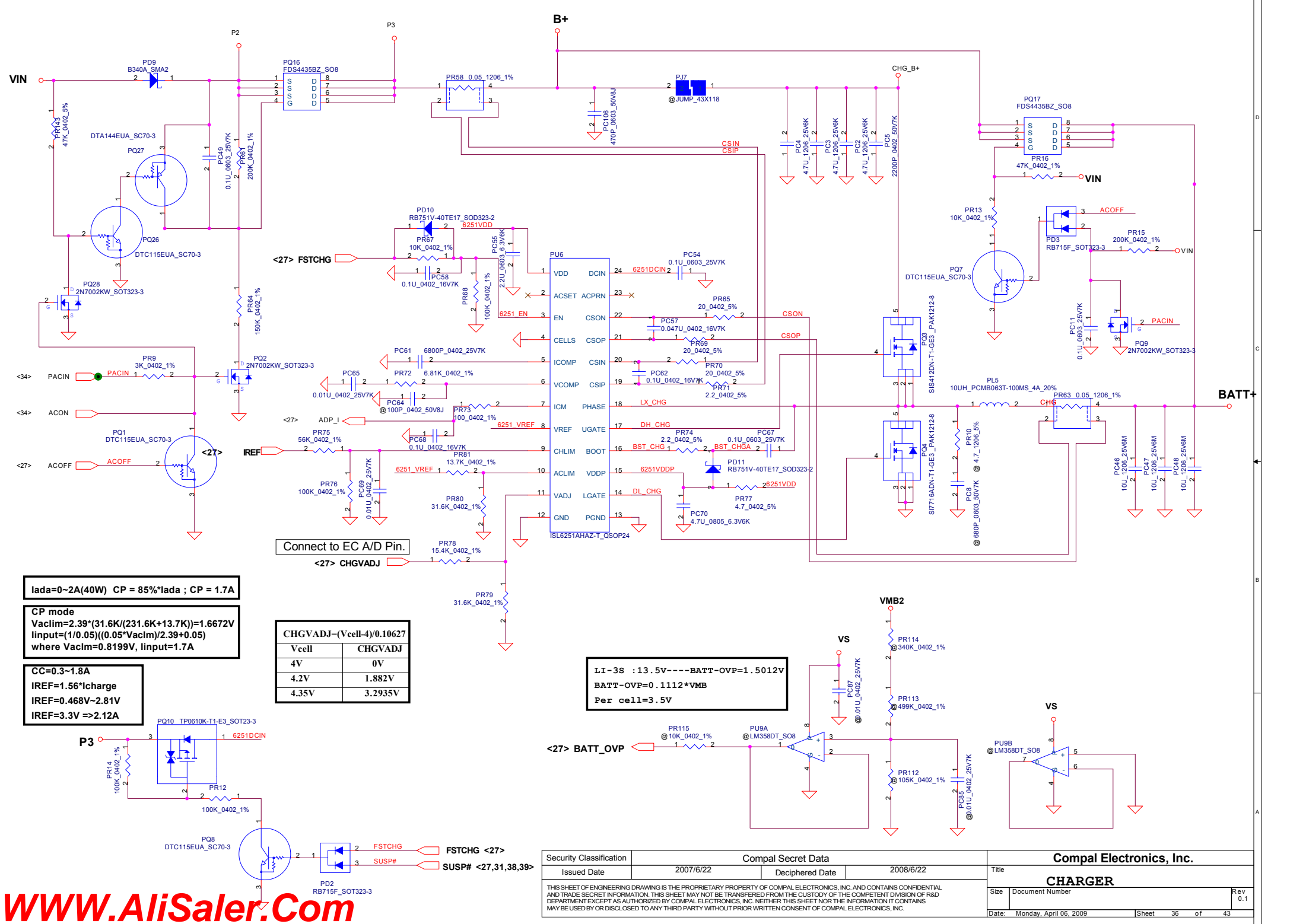
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Issued Date				2007/09/20				Title			
Deciphered Date				2008/09/20				DCIN & DETECTOR			
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Document Number				Custom				0.1			
Date				Monday, April 06, 2009				Sheet			
34				of				43			



PH3 under CPU botten side :
CPU thermal protection at 90 degree C
Recovery at 45 degree C



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				Date:	Monday, April 06, 2009
				Sheet	35 of 43
				Rev	0.1



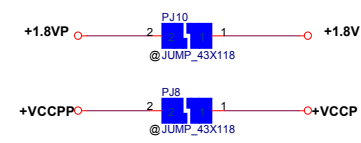
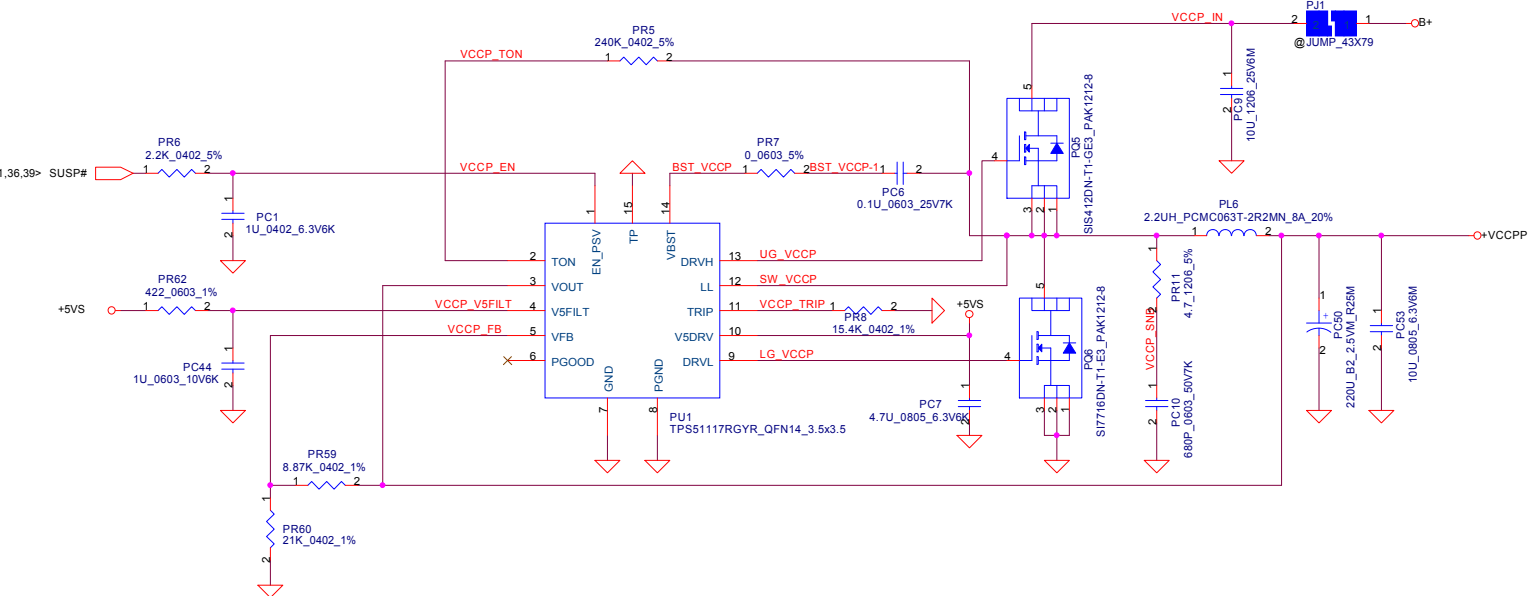
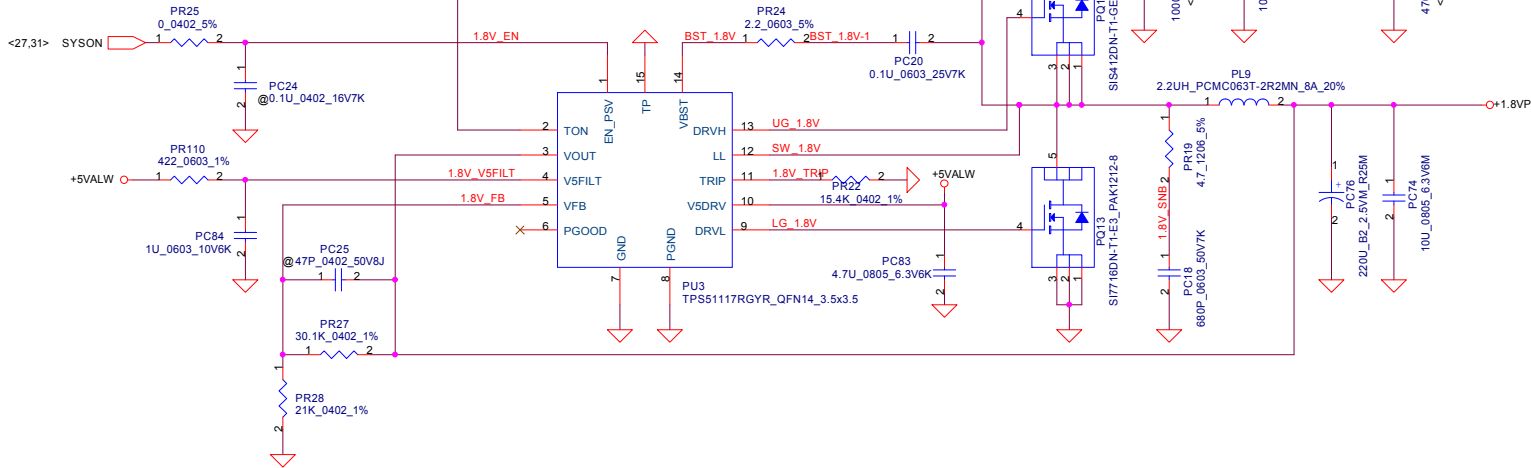
I_{ada}=0~2A(40W) CP = 85%*I_{ada} ; CP = 1.7A

CP mode
V_{acim}=2.39*(31.6K/(231.6K+13.7K))=1.6672V
I_{input}=(1/0.05)/((0.05*V_{acim})/2.39+0.05)
where V_{acim}=0.8199V, I_{input}=1.7A

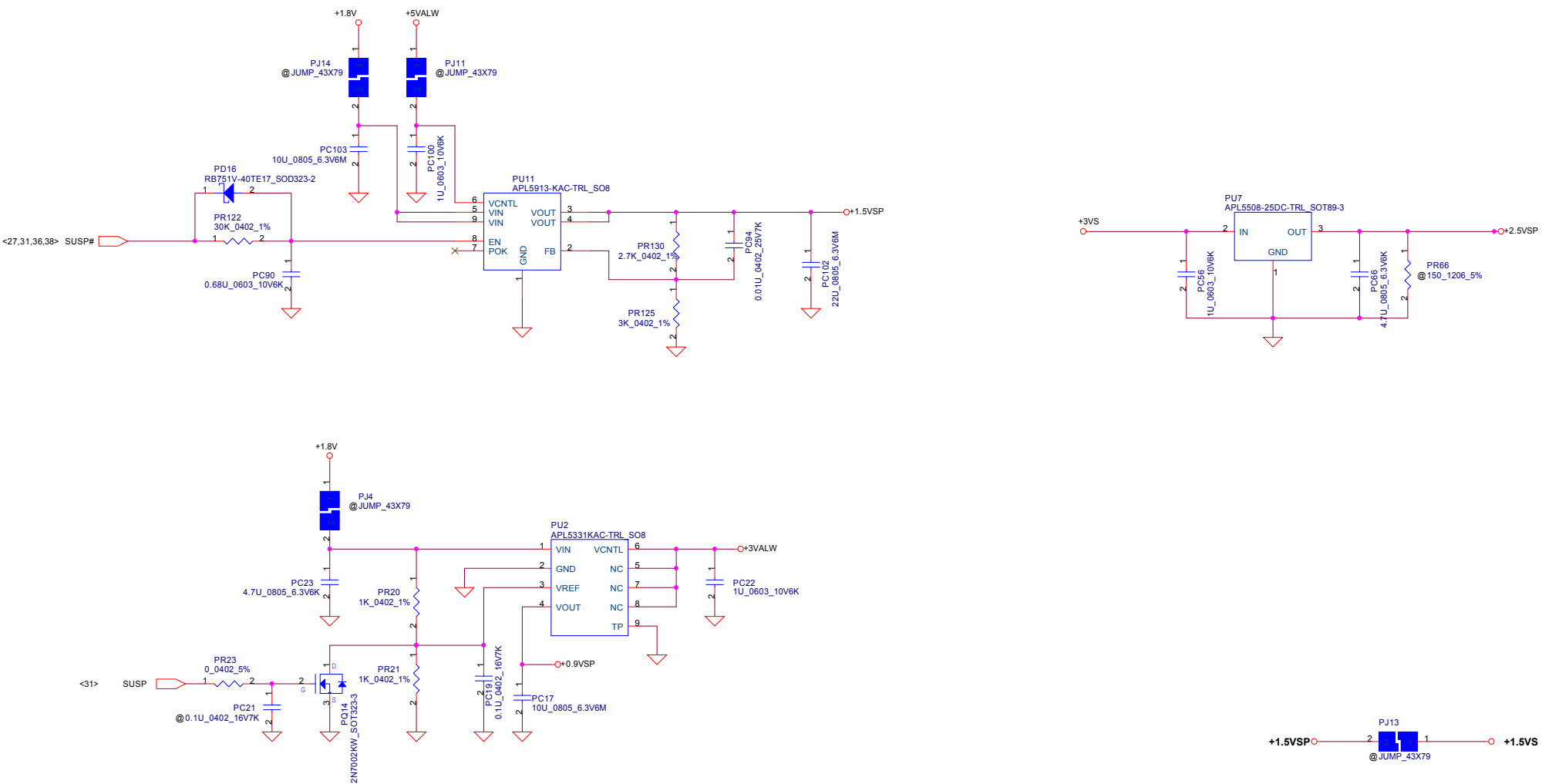
CC=0.3~1.8A
I_{REF}=1.56*I_{charge}
I_{REF}=0.468V~2.81V
I_{REF}=3.3V => 2.12A

CHGVADJ=(V _{cell} -4)/0.10627	
V _{cell}	CHGVADJ
4V	0V
4.2V	1.882V
4.35V	3.2935V

LI-3S : 13.5V---BATT-OVP=1.5012V
BATT-OVP=0.1112*VMB
Per cell=3.5V



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				Date	Monday, April 06, 2009
				Sheet	38 of 43
				Rev	0.1



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				Date:	Monday, April 06, 2009	Sheet 39 of 43

Item	Fixed Issue	Rev.	PG#	Modify List
1	LAN JRJ1	0.2	P25	Change JRJ1 Pin define
2	Change NB,SB P/N	0.2		Change NB to SA00002KQ50 SB to SA00000ViD0
3	Customer request	0.2	P29	TP 12pin change to 6pin
4		0.2		Q26 3413 change to 2301
5		0.2	P29	SW3,4 change to SN100000K00
6	Customer request	0.2	P28	change net name NOVO_BTN# to ONE_KEY_RECOVER#
7		0.2	P22	Change C352,C353,C354,C355 to SE107225K80
8		0.2	P04	Change C312,C314 to SE000003H00
9		0.2	P13	Change C109,C110,C128,C129,C130,C112 to SE103225Z80
10	Modify LCD power squence	0.2	P15	Change R221 to 100K
11	Fix WLAN card leakage	0.2	P21	Delete WLAN port80 and cut WWAN port80
12	User define key support power on	0.2	P28	Add D24 for user define key power on and pull up change to +3valw
13	ESD request	0.2	P28	D15 change to SCA00000R00
14	Realtek recommend	0.2	P25	C258 change to 1uf
15		0.2		C71 and C81 change to 0603
16	For B Phase	0.2	P27	Add R97 100k and change R94 to 8.2K
17	EMI request	0.2	P27,15	Add R93,C385,C147,C10,C11 Change R165 to 33 ohm
18	ESD request	0.2	P4	Add C391~C397
19	For N280	0.2	P14	Unpop: R68,110,87 Pop:R69,119,84
20	Realtek recommend	0.2	P25	Delete C257
21		0.2	P10	C30 change to SE027474Z80
22	Customer request	0.2	P30	U7,30 change to high active unpop R185
23		0.2	P22	Unpop C325 POP C326
24	EC code for MP	1.0	P27	Unpop R94
25	SSD pin change	1.0	P21	JP13 32pin change to 47pin
26		1.0	P28	Change D14,D24 foorprint
27		1.0		Change BT connect
28		1.0	P16	Change D2 from SC1B491D000 to SCS00002000
29		1.0		Change C373, C297, C71, C73, C81, C82, C84 and C85 to SE052105Z80
30		1.0	P20	Unpop D12
31	EMI request	1.0	P20	Add C257,C398,C399,C400
32		1.0	P04	Unpop R58
33	SSD	1.0	P21	Unpop R117
34	EMI request	1.0	P27	R165 change to bead for EMI request
35	3G request	1.0	P14	Pop C390
36		1.0	P28	Change D1,14,24 P/N SC2N202U010 to SC6AV70W110
37		1.0	P27	Unpop D7

Compal Electronics, Inc.

Title			HW PIR
Size	Document Number	Rev	
	LA-4421P		
Date:	Monday, April 06, 2009	Sheet	41 of 43

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Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	Adjust charging current	Adjust charging current		P36	Change PR75 from 88.7K to 56K.	2008.12.30	EVT
2	EMI	EMI requests to add soltion		P40	Add PC107	2009.02.13	PVT
3	Adjust charging voltage	Adjust charging voltage		P36	Change PR78 from 18.2K to 15.4K.	2009.02.13	PVT
4	EMI	EMI requests to add soltion		P36	Add PC106	2009.02.13	PVT
5	EMI	EMI requests to add soltion		P38	Add PC108 and PC43	2009.02.13	PVT
6	Design change	Adjust +1.5VSP turn on timing		P39	Add PD16 Change PR122 from 10K to 30K. Change PC90 from 0.47u to 0.68u.	2009.02.13	PVT
7	Thermal	Adjust CPU OTP from 85 degree C to 90 degree C		P35	Change PR141 from 21.5k to 16.9k.	2009.03.13	Pre-MP
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Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date		Deciphered Date		Title	
2007/09/20		2008/09/20		PIR (PWR)	
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Item	Fixed Issue	Rev.	PG#	Modify List
1	LAN JRJ1	0.2	P25	Change JRJ1 Pin define
2	Modify LCD power squence		P15	Change R221 to 100K
3	Customer request	0.2	P29	TP 12pin change to 6pin
4	Fix WLAN card leakage	0.2	P21	Delete WLAN port80 and cut WWAN port80
5	User define key support power on	0.2		Add D24 for user define key power on and pull up change to +3valw
6	Customer request	0.2	P28	Change net name NOVO_BTN# to ONE_KEY_RECOVER#
7	ESD request	0.2	P28	DI5 change to SCA00000R00
8	Realtek recommend	0.2	P25	C258 change to 1uF
9	For B Phase	0.2	P27	Add R97 100k and change R94 to 8.2K
10	EMI request	0.2	P27,15	Add R93,C385,C147,C10,C11 Change R165 to 33 ohm
11	ESD request	0.2	P4	Add C391~C397
12	For N280	0.2	P14	Unpop: R68,110,87 Pop:R69,119,84
13	Customer request	0.2	P30	U7,30 change to high active unpop R185
14	EC code for MP	1.0	P27	Unpop R94
15	Mini SSD pin define change	1.0	P21	JP13 pin 32 change to 47 30 change to 45
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Title			HW PIR
Size	Document Number	Rev	
		LA-4421P	
Date:	Monday, April 06, 2009	Sheet	43 of 43

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