

Compal Confidential

KIUN0 Schematics Document

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

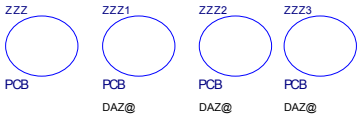
2009-03-31

REV: 1.0

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				Size B	Document Number
				LA-4421P	
Date: Monday, April 06, 2009				Sheet 1	of 42
				Rev 0.2	

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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

FSB
400/533MHz
H_A#(3..31)
H_D#(0..63)

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

Memory BUS(DDRII)
1.8V DDRII 400/533

DDRII-SO-DIMM
page 13

DMI
X2 mode

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

PCI-Express

USB
HDA

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

SPI ROM
page 27

Int.KBD
page 29

Touch Pad
page 29

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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				B	LA-4421P	0.1
				Date	Monday, April 06, 2009	ISheet 2 of 42

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

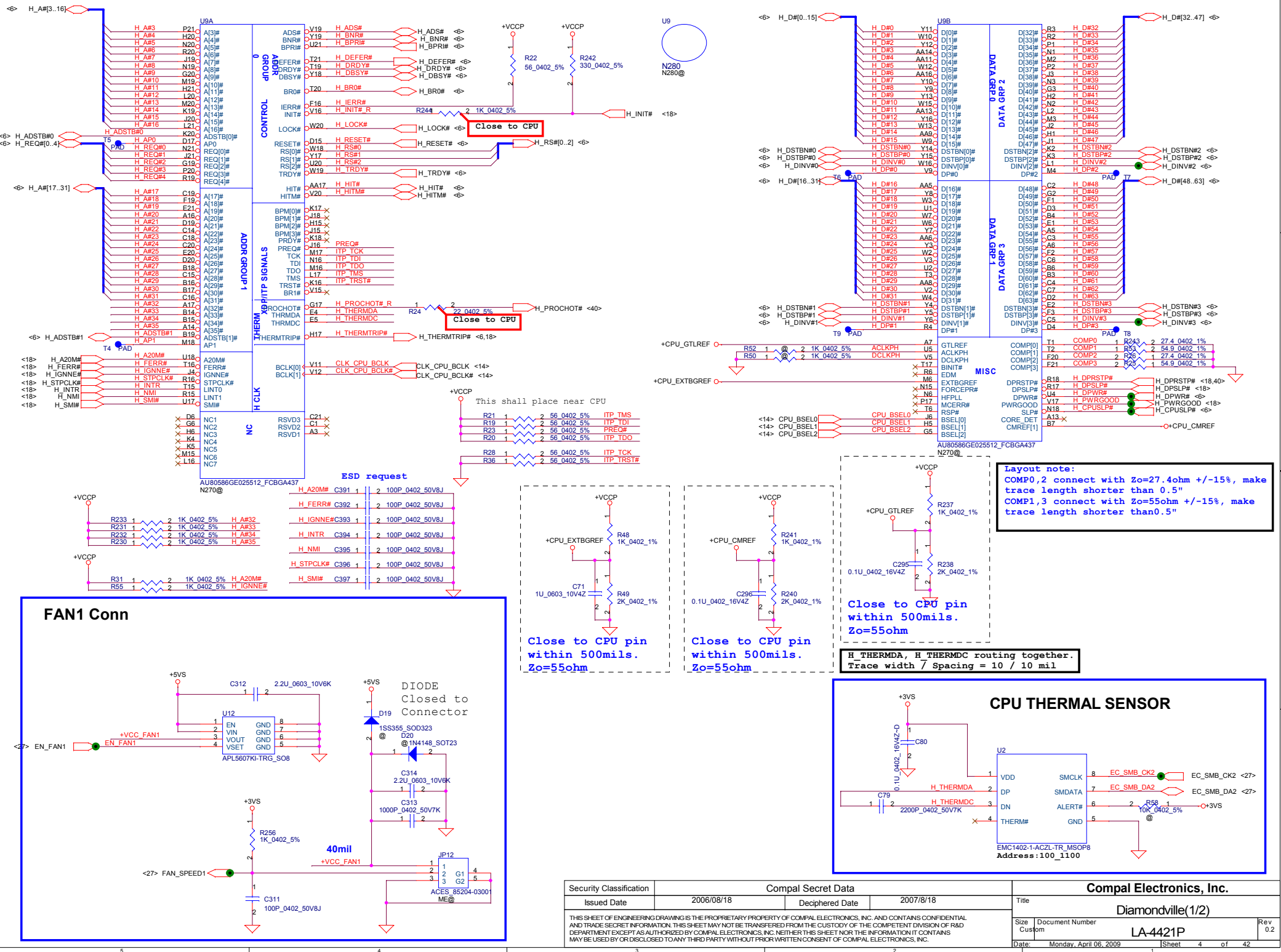
EC SM Bus1 address

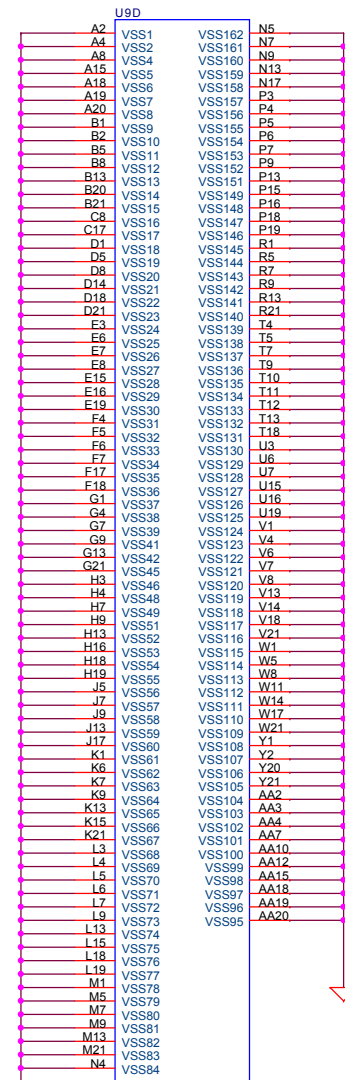
Device	Address	Device	Address
Smart Battery	0001 011X b	EMC1402	100_1100

EC SM Bus2 address

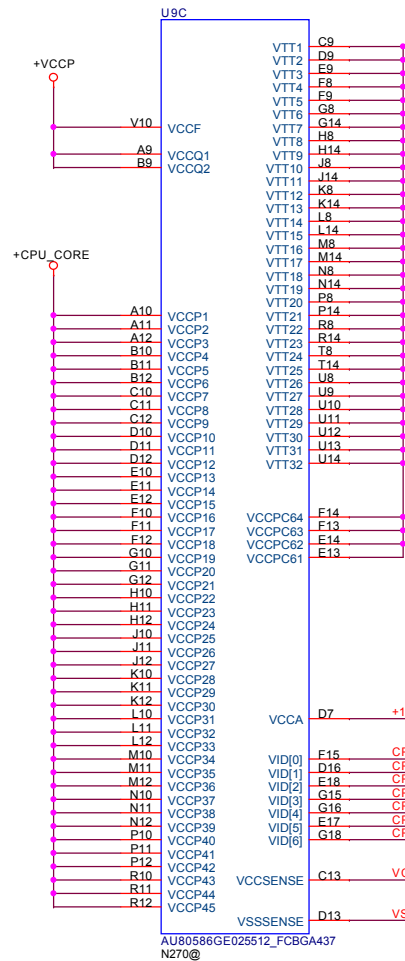
ICH7M SM Bus address

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

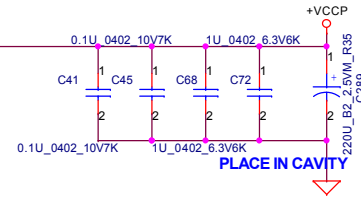




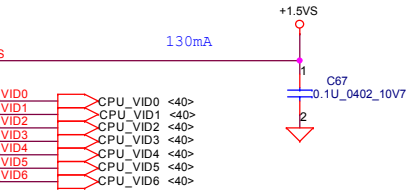
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N270@



AU80586GE025512_FCBGA437
N270@

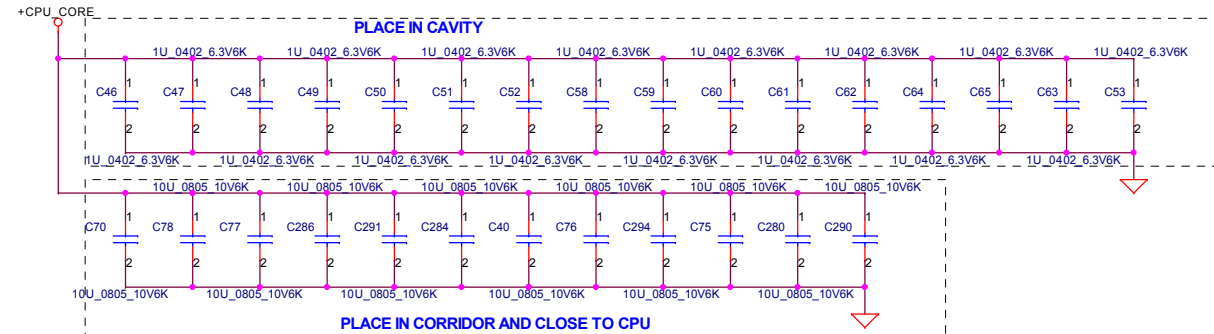


PLACE IN CAVITY

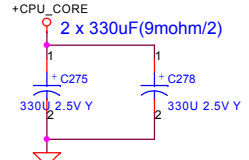


130mA

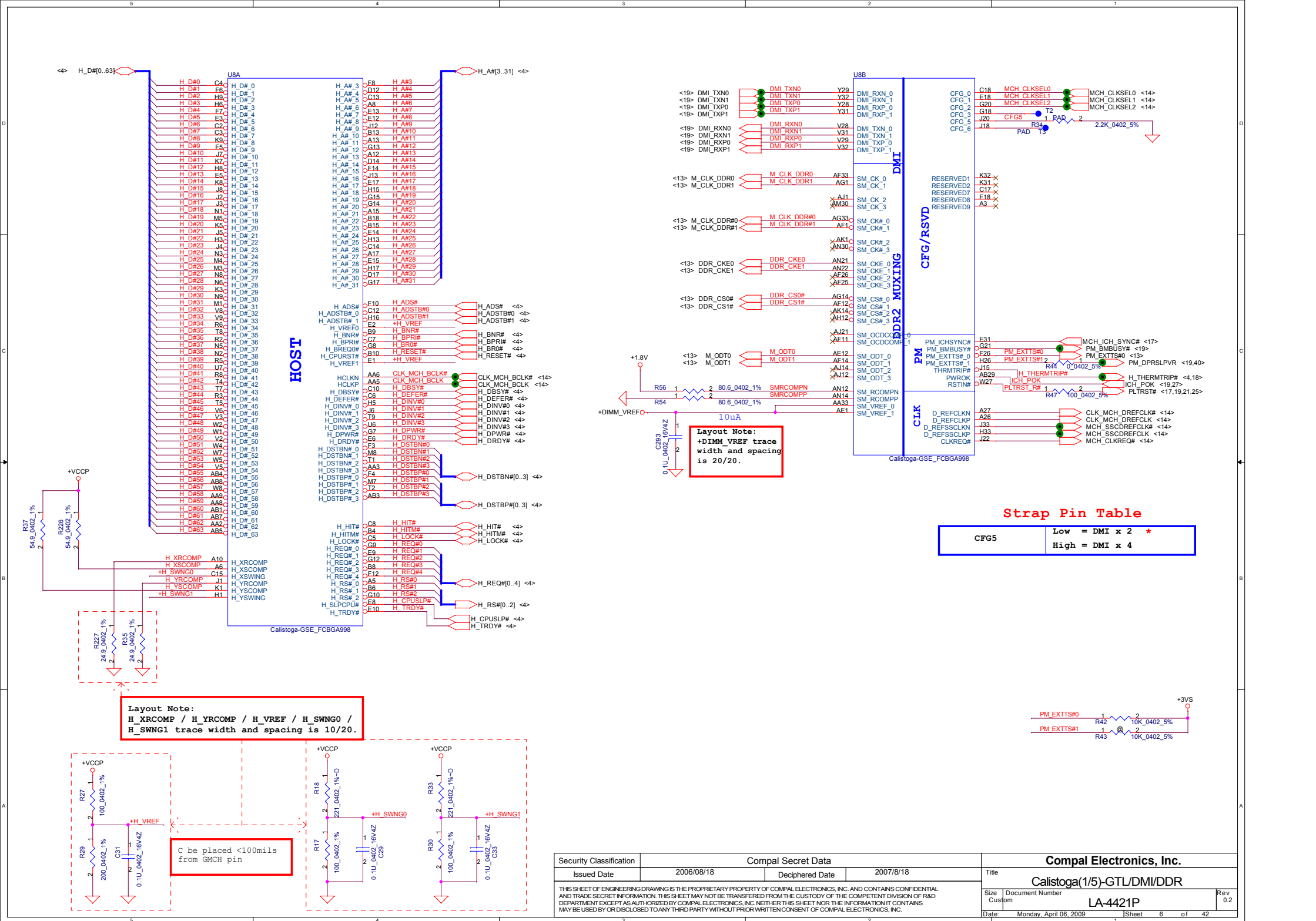
Length match within 25 mils
The trace space 7 mils,
Zo=27.4ohm

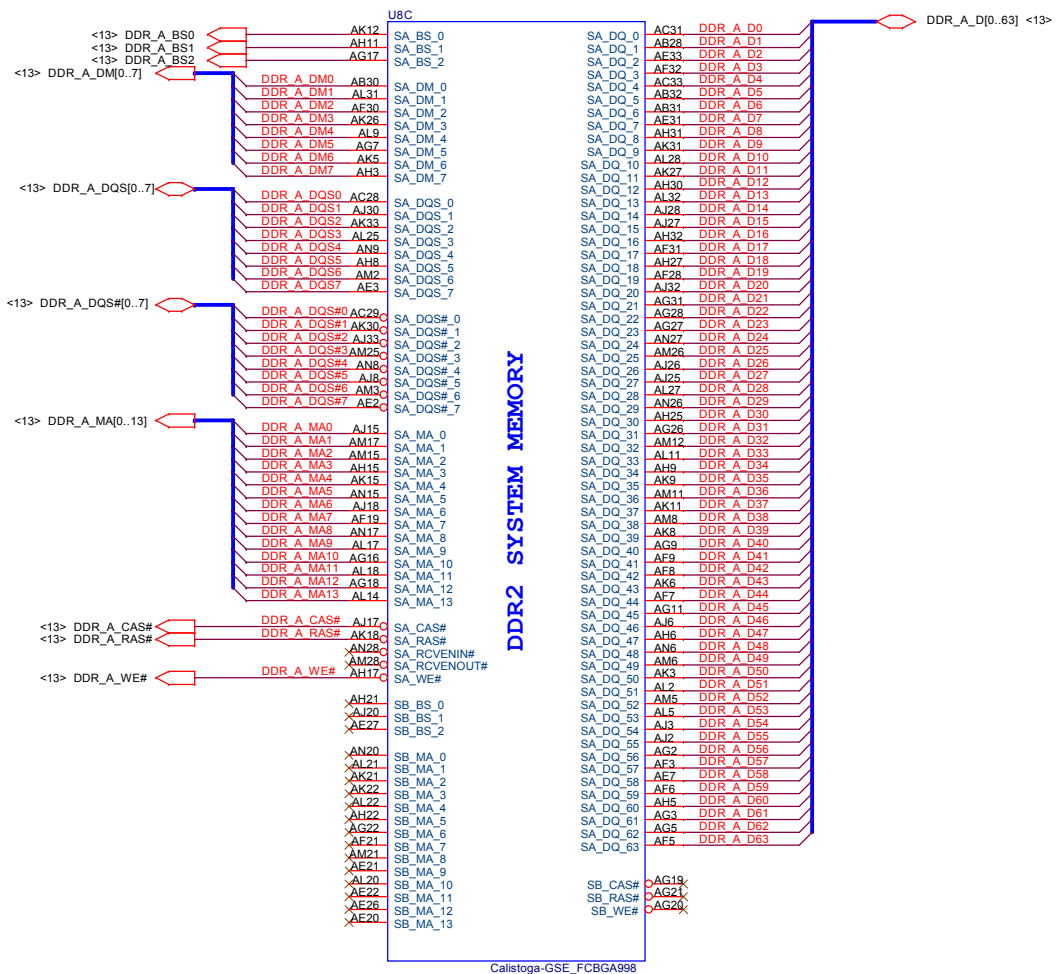


PLACE IN CORRIDOR AND CLOSE TO CPU

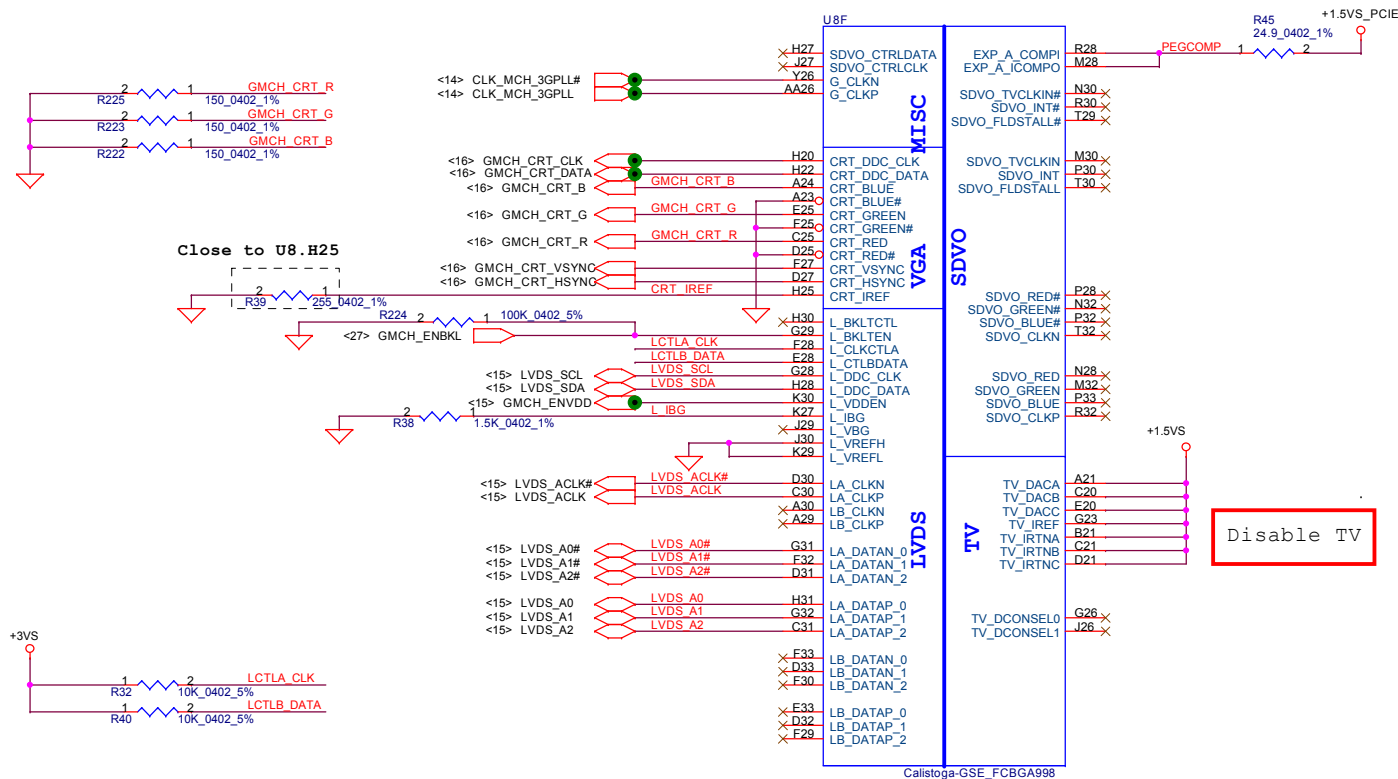


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								Size B	Document Number			LA-4421P			Rev 0.2
								Date:	Monday, April 06, 2009			Sheet	5	of	42

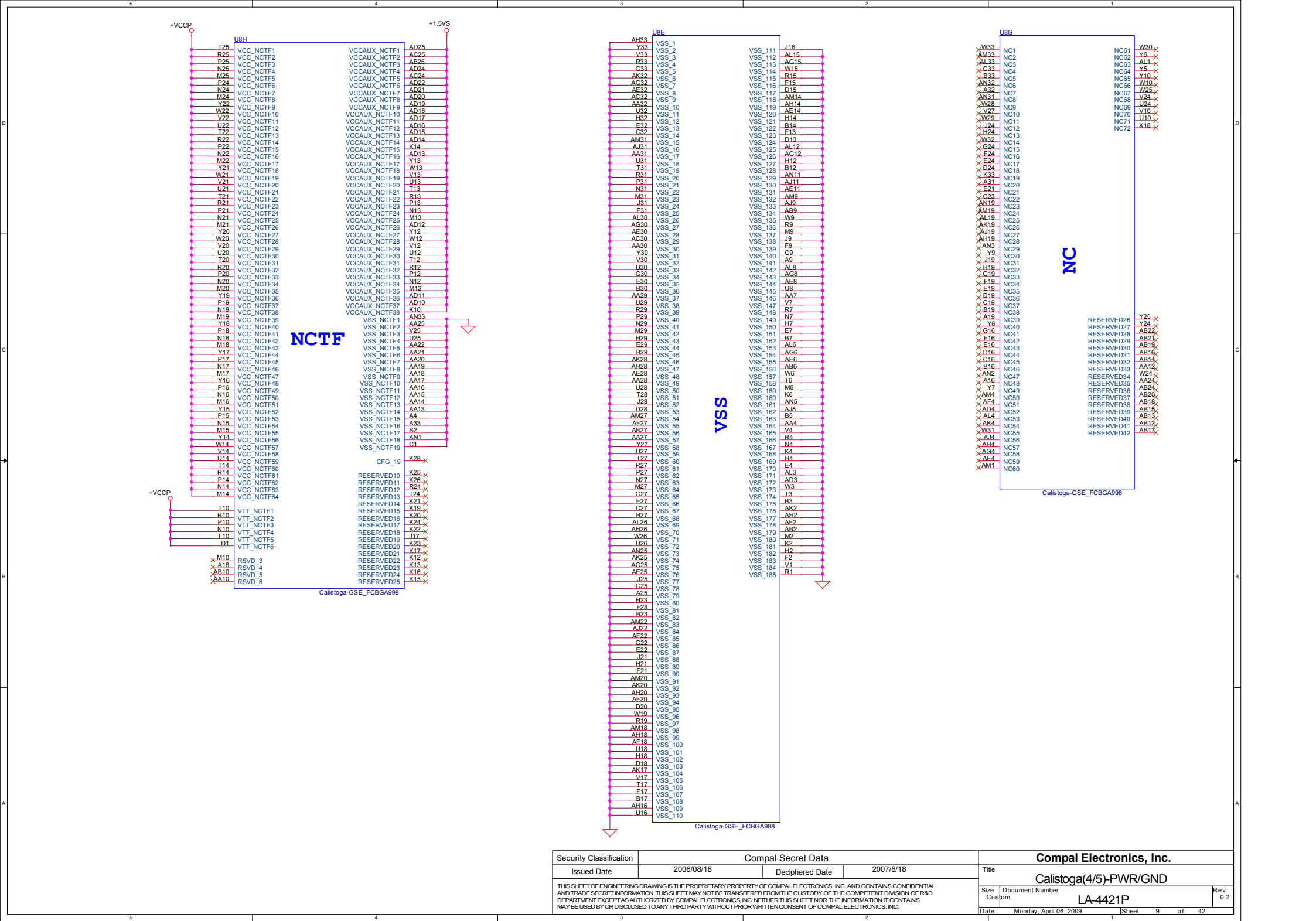




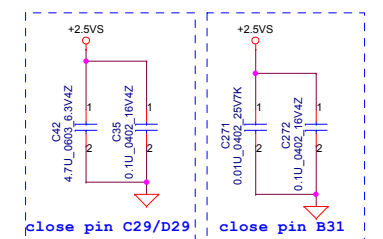
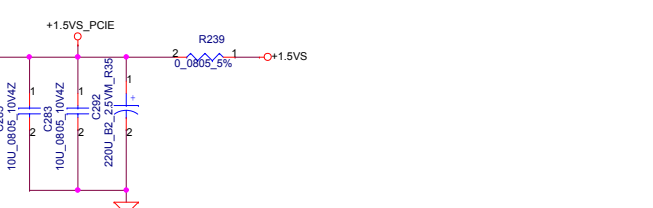
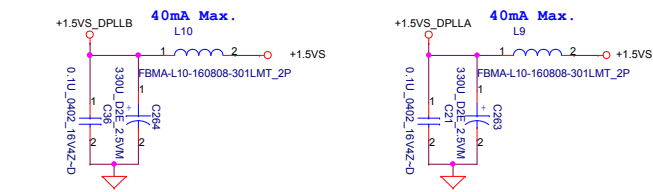
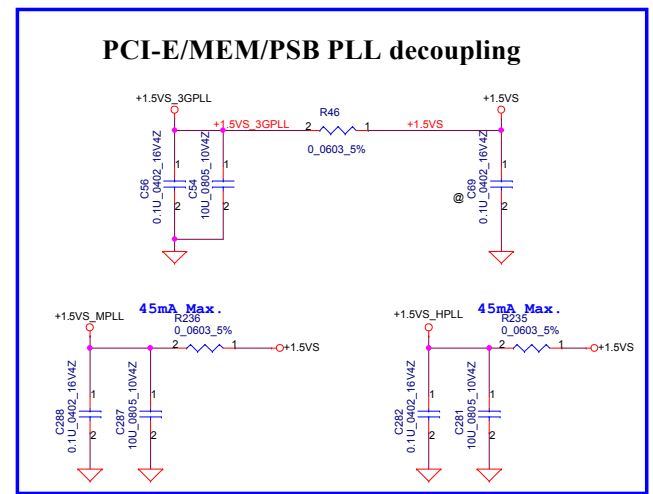
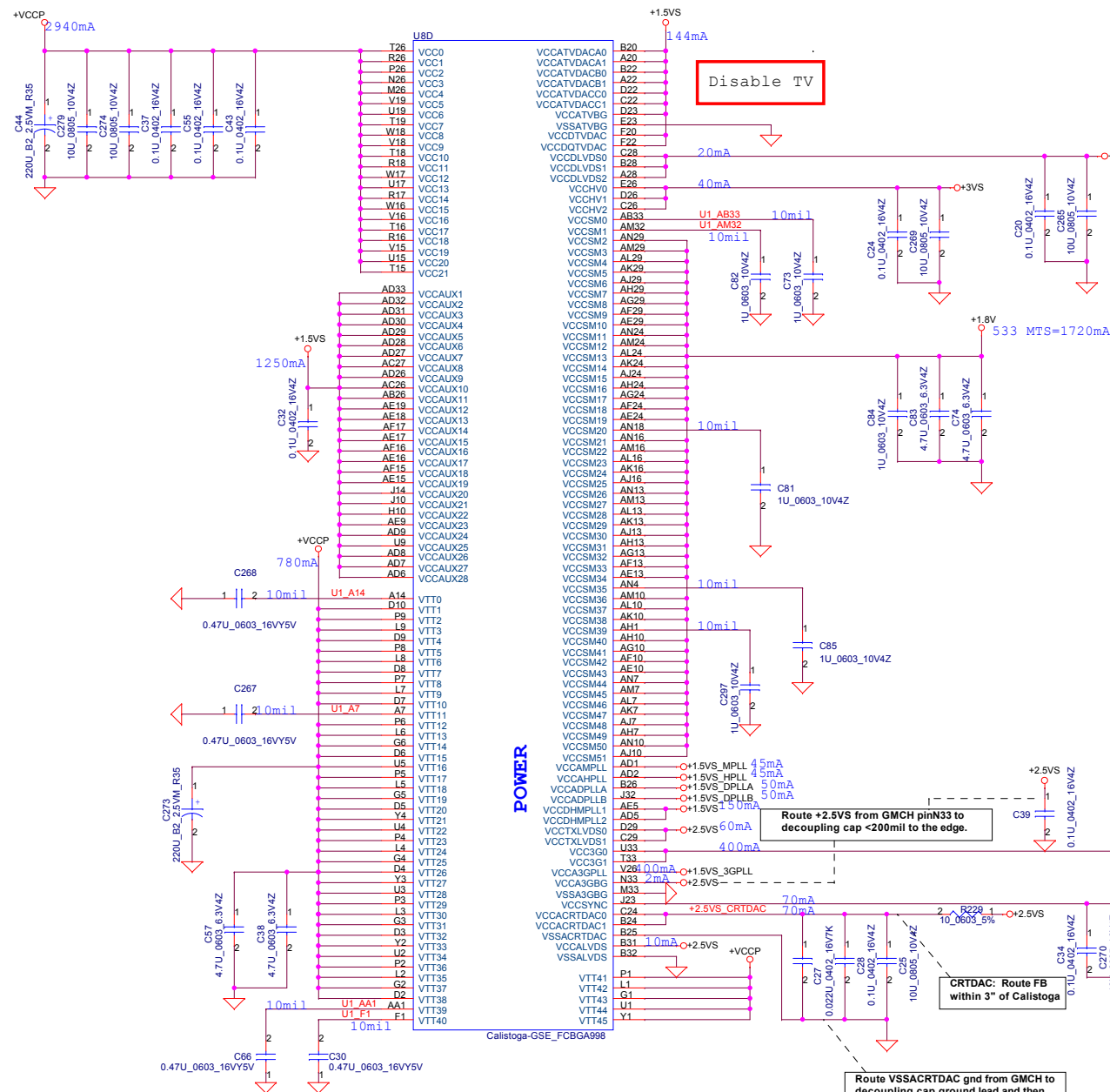
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Size		Document Number		Rev	
Custom		LA-4421P		0.2	
Date		Monday, April 06, 2009		Sheet 7 of 42	



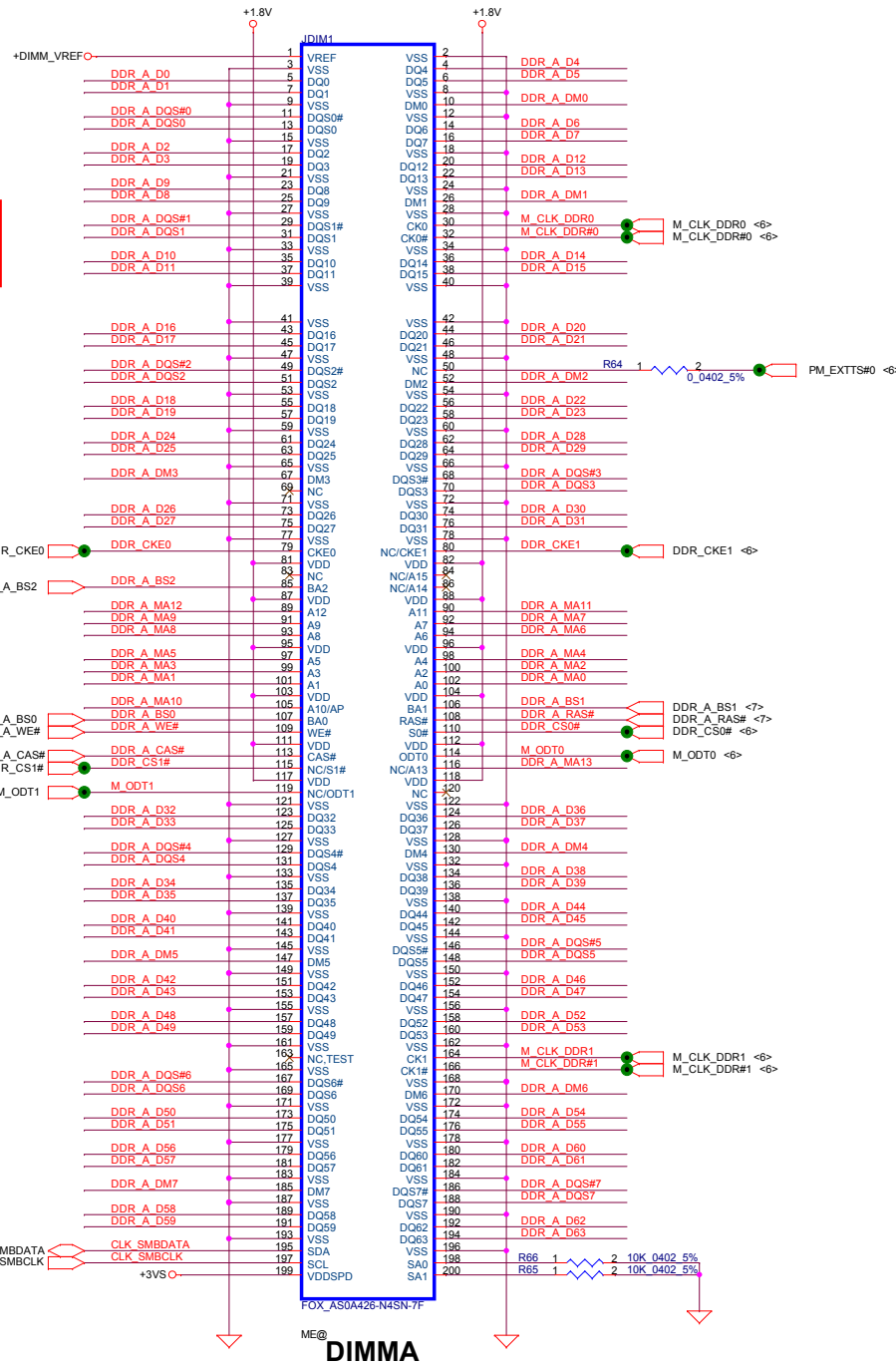
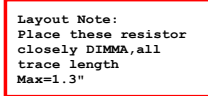
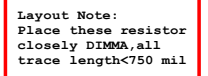
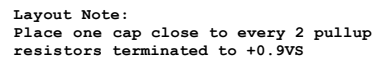
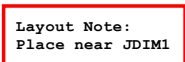
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Size B	Document Number	LA-4421P		Rev	0.2
Date:	Monday, April 06, 2009	Sheet	8 of 42		



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Size	Document Number	Rev		Date	
Custom	LA-4421P	0.2		Monday, April 06, 2009	
1		9		of 42	

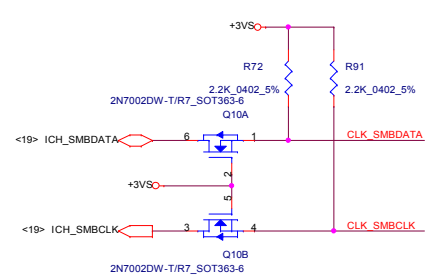
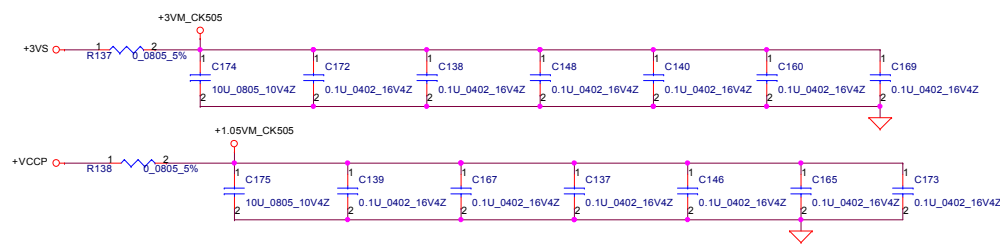


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Date: Monday, April 06, 2009				Sheet 10	of 42

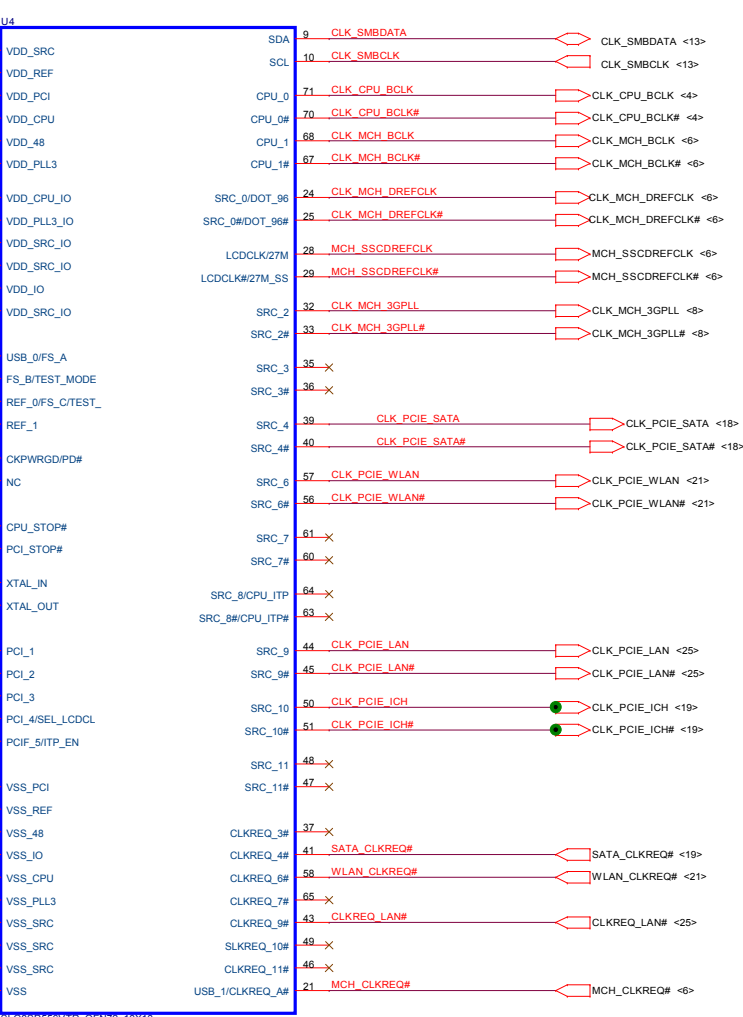
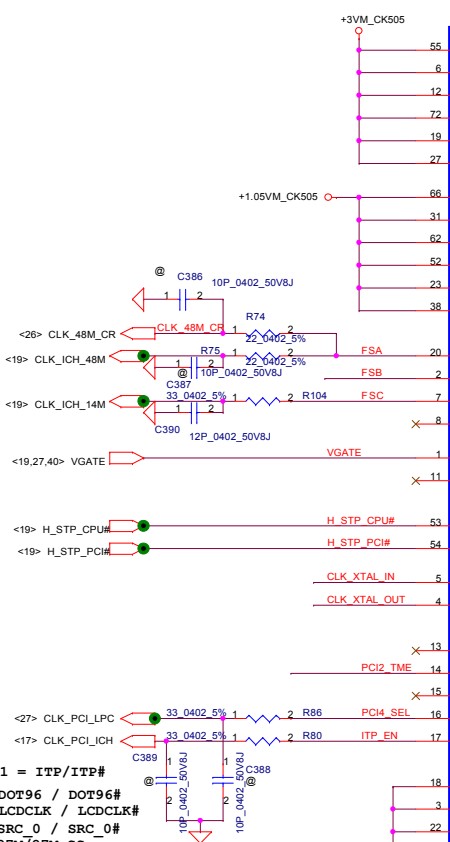
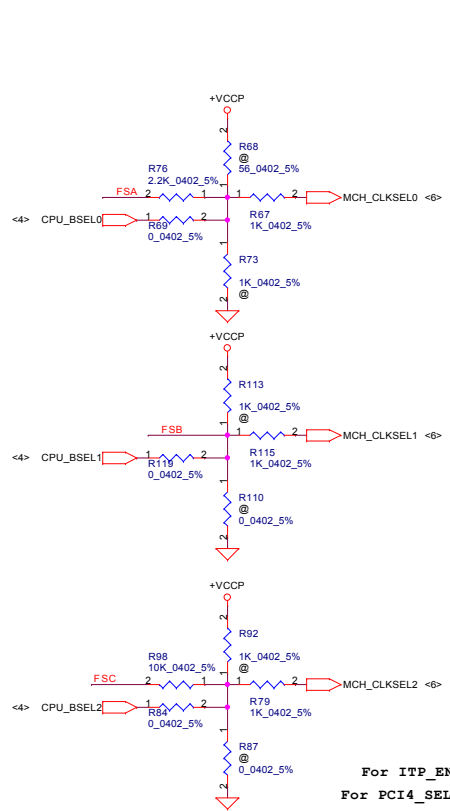


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				LA-4421P Date: Monday, April 06, 2009 Sheet 13 of 42		

FSC	FSB	FSA	CPU	SRC	PCI	REF	DOT_96	USB
CLKSEL2	CLKSEL1	CLKSEL0	MHz	MHz	MHz	MHz	MHz	MHz
0	0	0	266	100	33.3	14.318	96.0	48.0
0	0	1	133	100	33.3	14.318	96.0	48.0
0	1	0	200	100	33.3	14.318	96.0	48.0
0	1	1	166	100	33.3	14.318	96.0	48.0
1	0	0	333	100	33.3	14.318	96.0	48.0
1	0	1	100	100	33.3	14.318	96.0	48.0
1	1	0	400	100	33.3	14.318	96.0	48.0
1	1	1	Reserved					



SA000020K00 (Silego : SLG8SP556VTR)
SA000020H10 (ICS : ICS9LPRS387AKLFT)

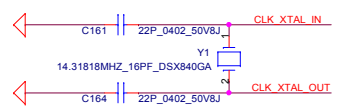


SRC PORT LIST

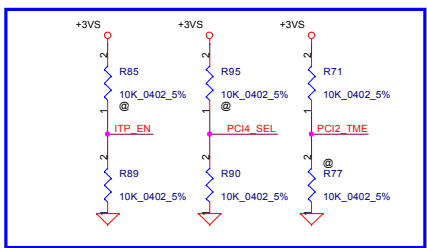
PORT	DEVICE
SRC0	MCH_DREFCLK
SRC2	MCH_3GPLL
SRC3	
SRC4	PCIE SATA
SRC6	PCIE WLAN
SRC7	
SRC8	
SRC9	PCIE LAN
SRC10	PCIE ICH
SRC11	

For ITP_EN, 0 =SRC8/SRC8#; 1 = ITP/ITP#
For PCI4_SEL, 0 = Pin24/25 : DOT96 / DOT96#
Pin28/29 : LCDCLK / LCDCLK#
1 = Pin24/25 : SRC_0 / SRC_0#
Pin28/29 : 27M/27M_SS

For PCI2_TME:0=Overclocking of CPU and SRC allowed
(ICS only) 1=Overclocking of CPU and SRC NOT allowed



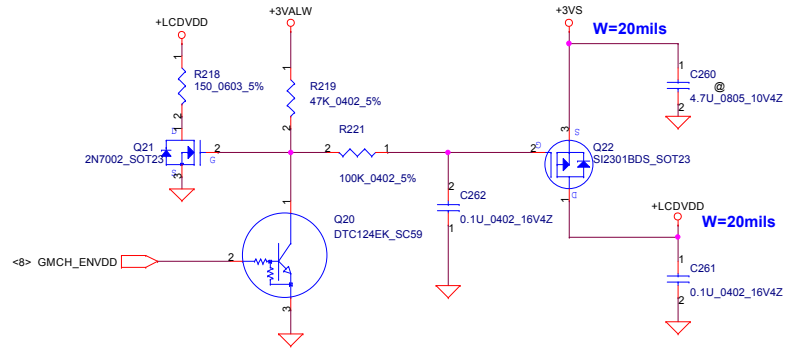
Routing the trace at least 10mil



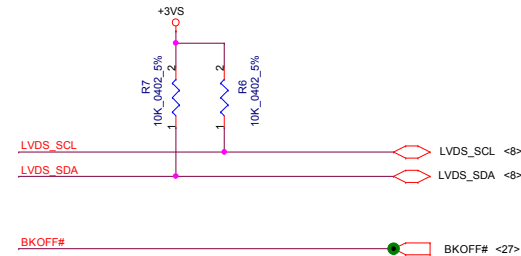
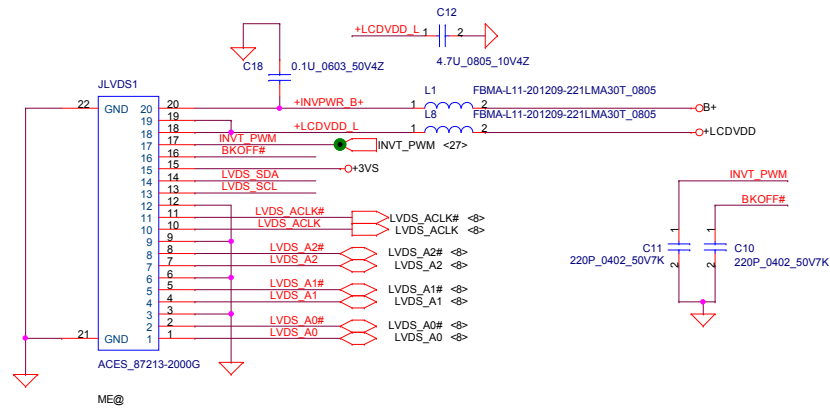
REQ PORT LIST

PORT	DEVICE
REQ_3#	
REQ_4#	PCIE SATA
REQ_6#	PCIE WLAN
REQ_7#	
REQ_9#	PCIE LAN
REQ_10#	
REQ_11#	
REQ_A#	MCH_3GPLL

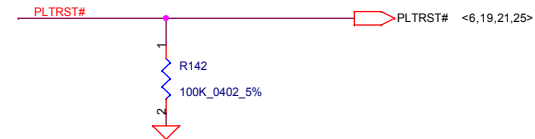
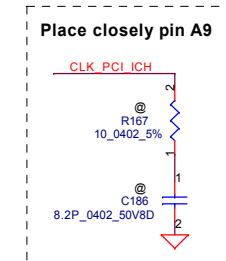
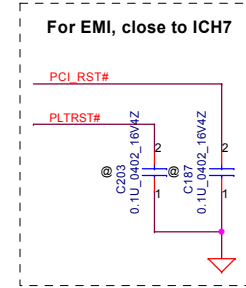
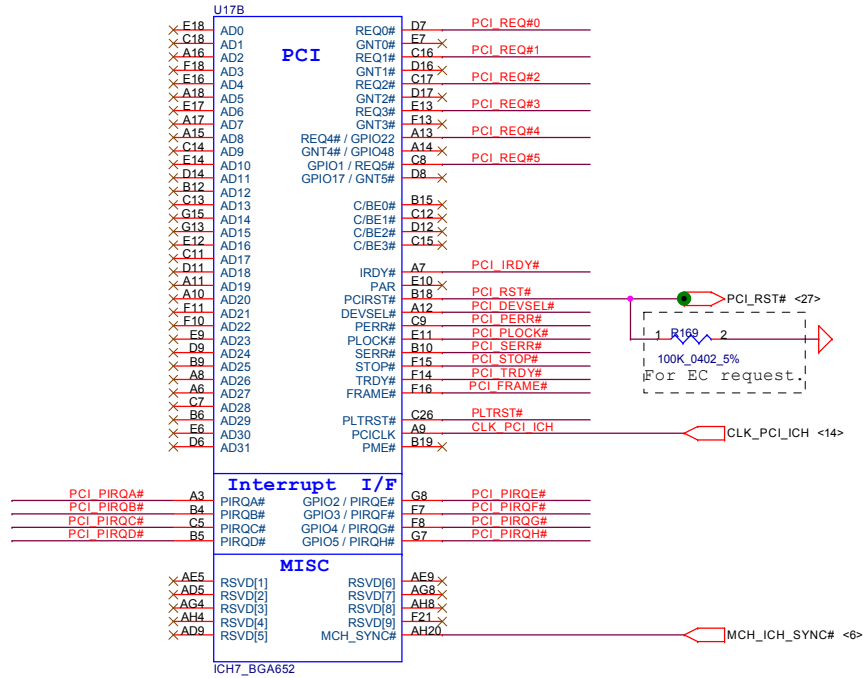
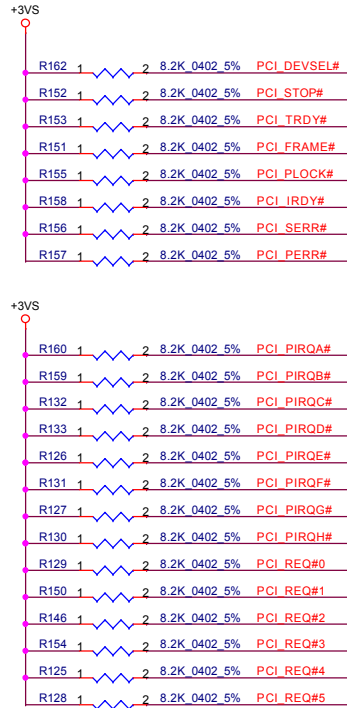
LCD POWER CIRCUIT



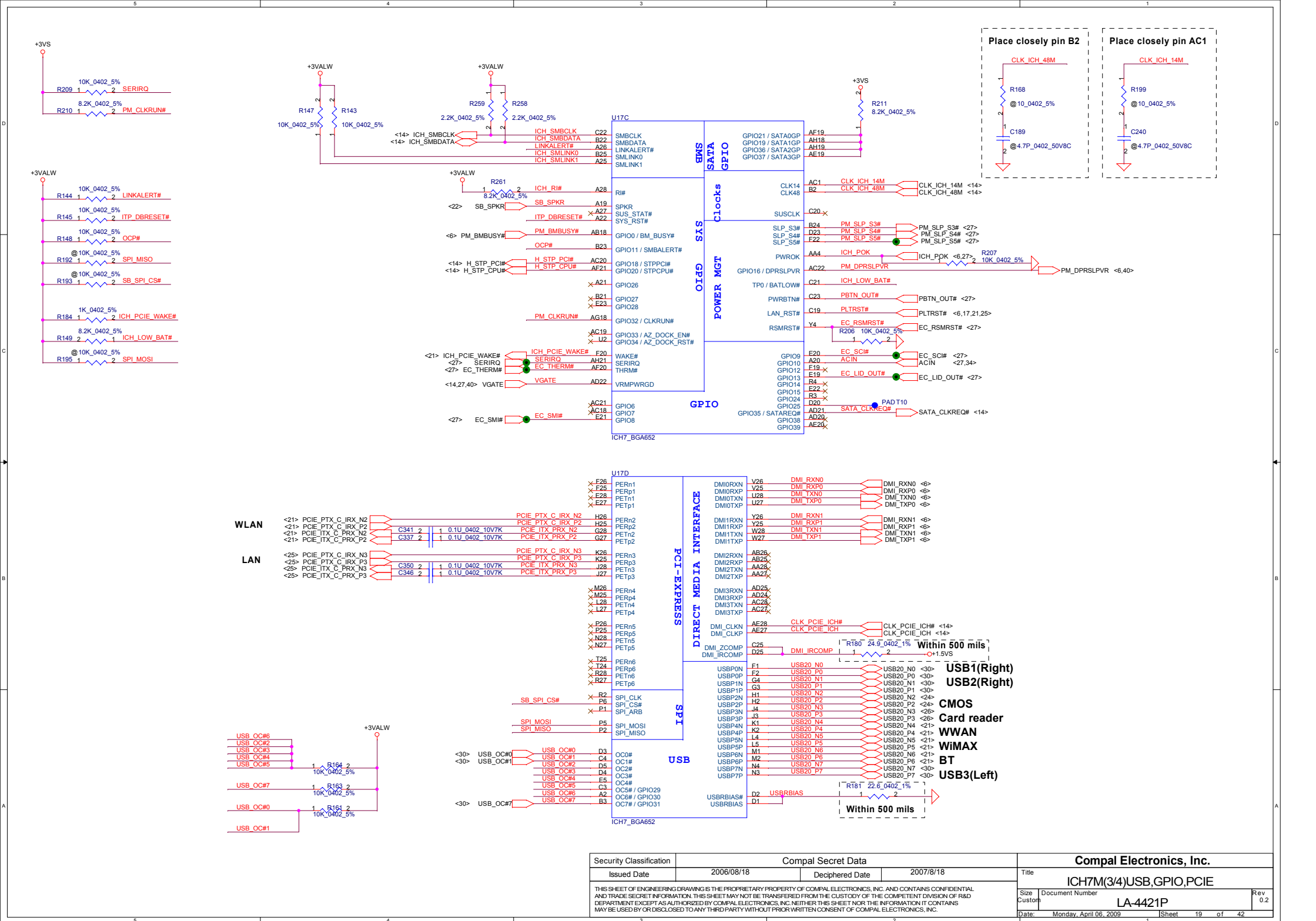
LCD/PANEL BD. Conn.

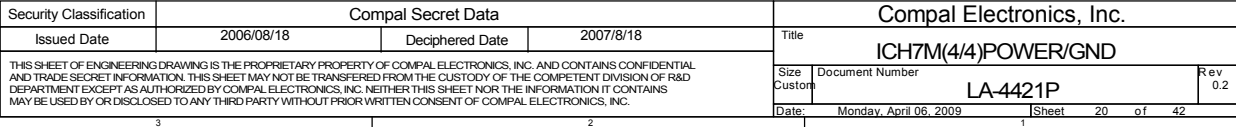


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				LA-4421P	
				Date	Monday, April 06, 2009
				Sheet	15 of 42
				Rev	0.2

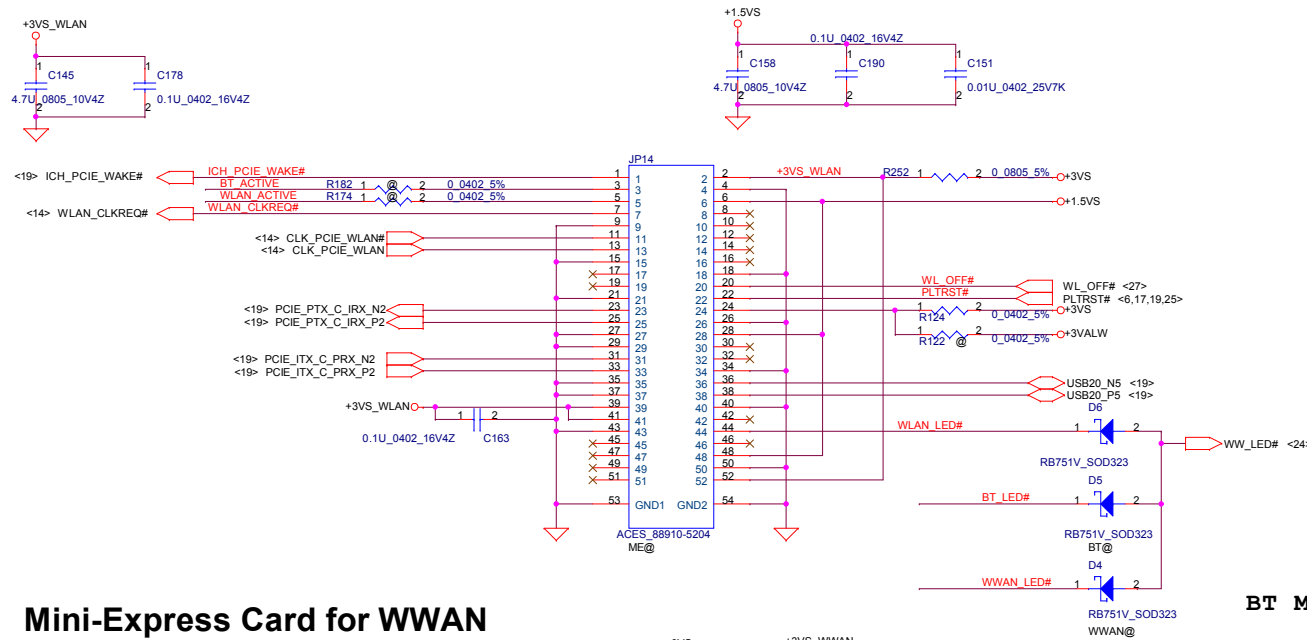


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Size		Document Number		Rev	
		LA-4421P		0.2	
Date:		Monday, April 06, 2009		Sheet 17 of 42	

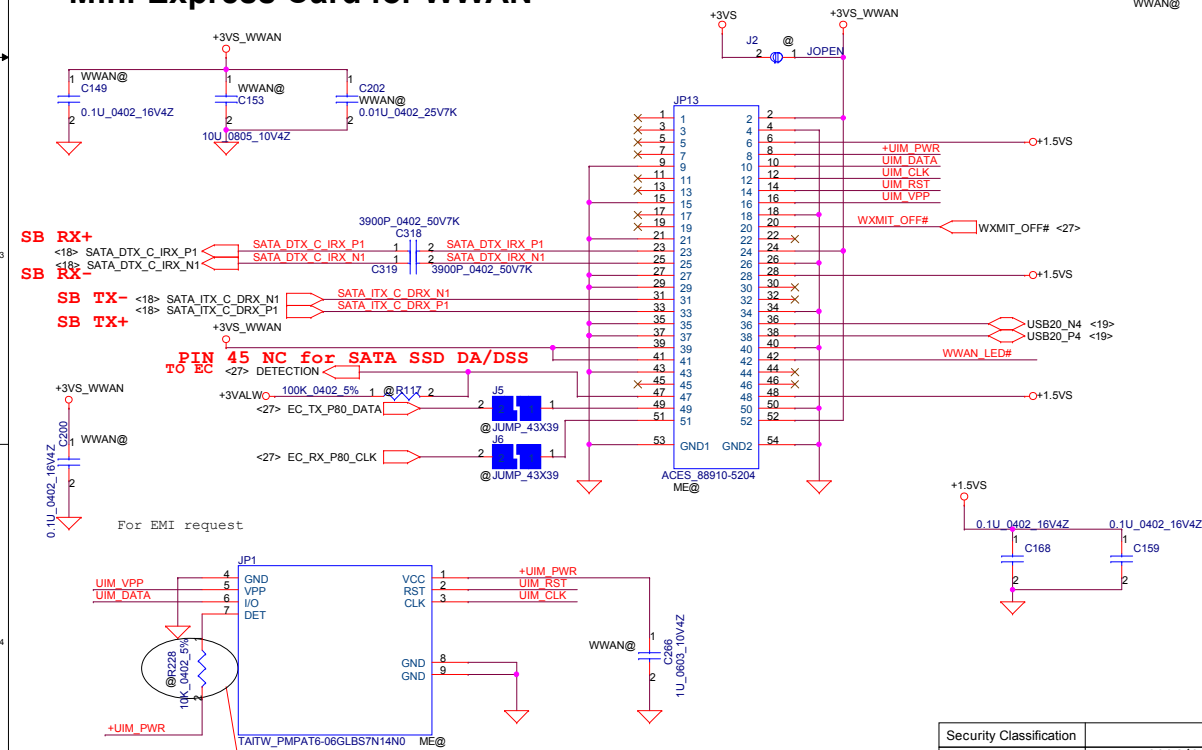




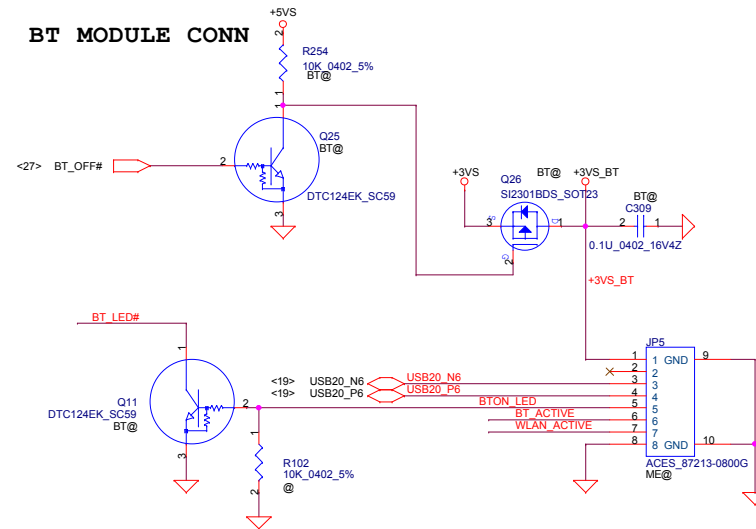
Mini-Express Card for WLAN



Mini-Express Card for WWAN

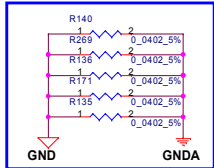
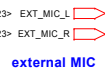
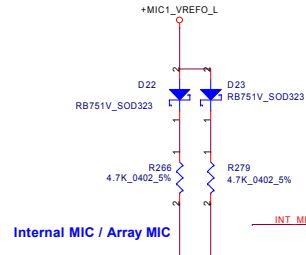
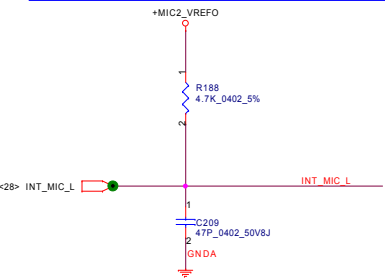
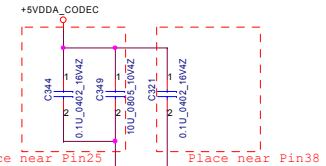
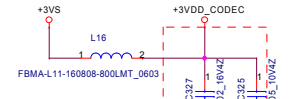
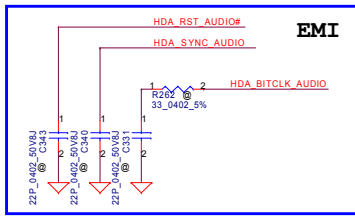
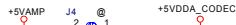
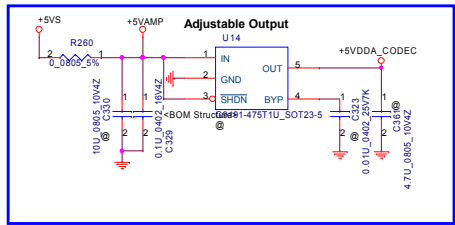


BT MODULE CONN



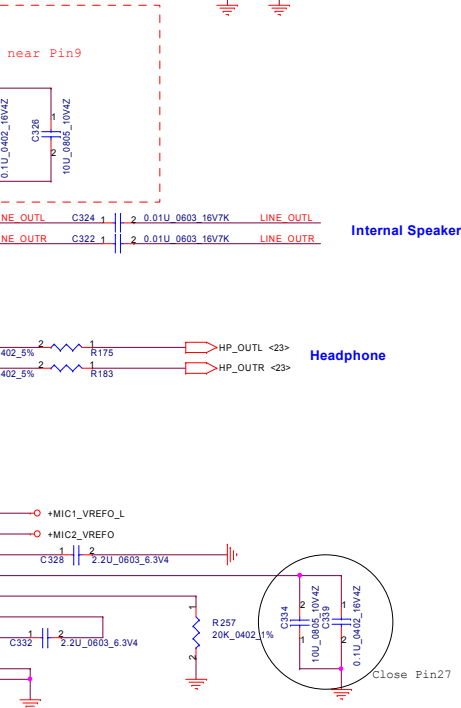
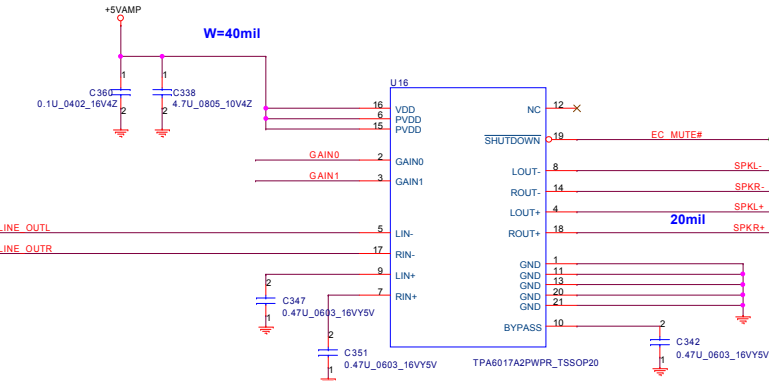
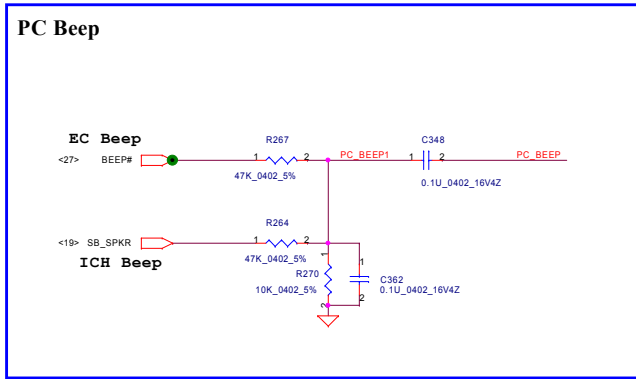
Reserve for SIM card does not meet rise time and pull-up is needed.

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Size	Document Number	LA-4421P		Rev	0.2
Date	Monday, April 06, 2009	Sheet	21	of 42	

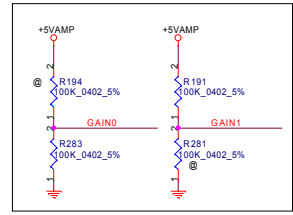


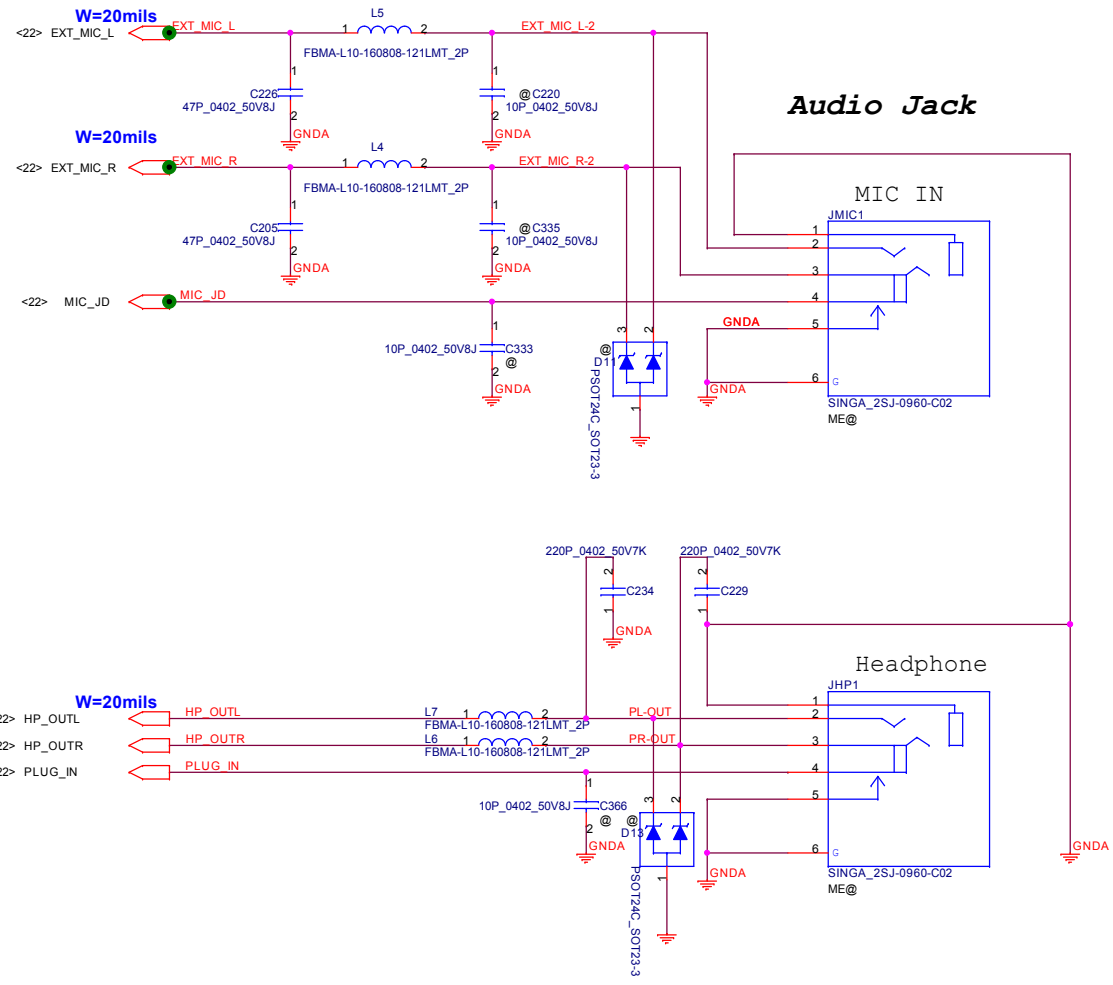
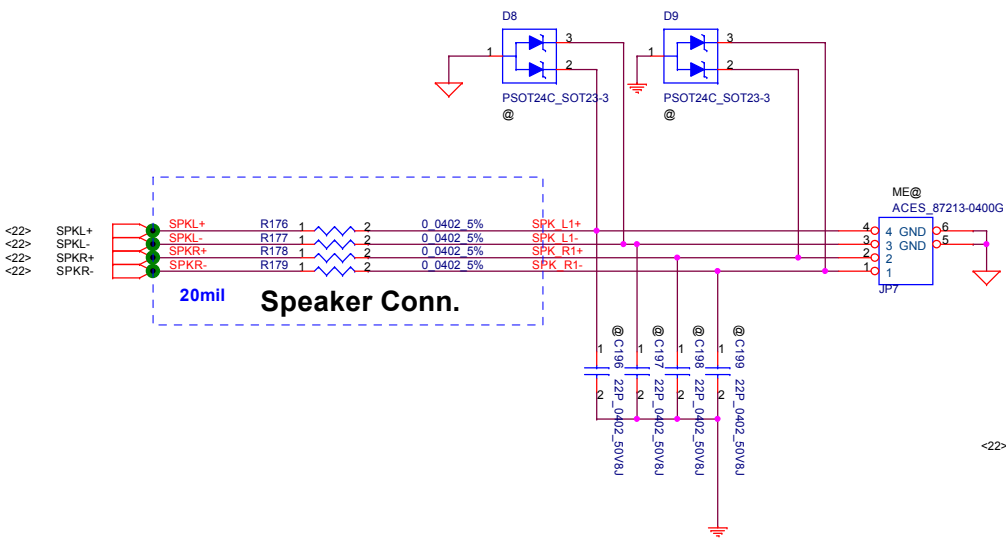
MIC Sense
R271 place near pin13
Capless HP Sense
R170 place near pin34

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

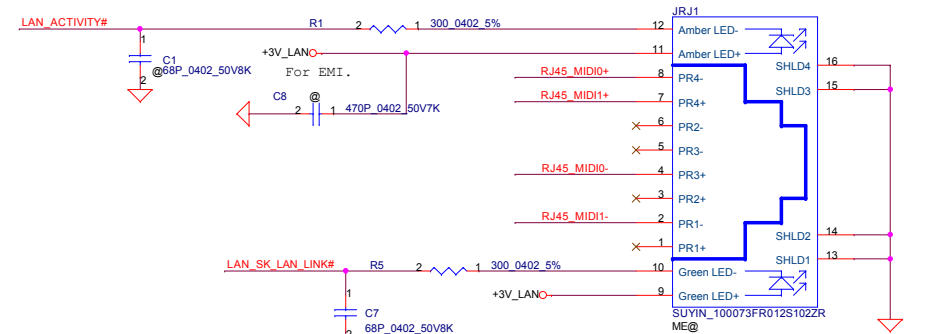
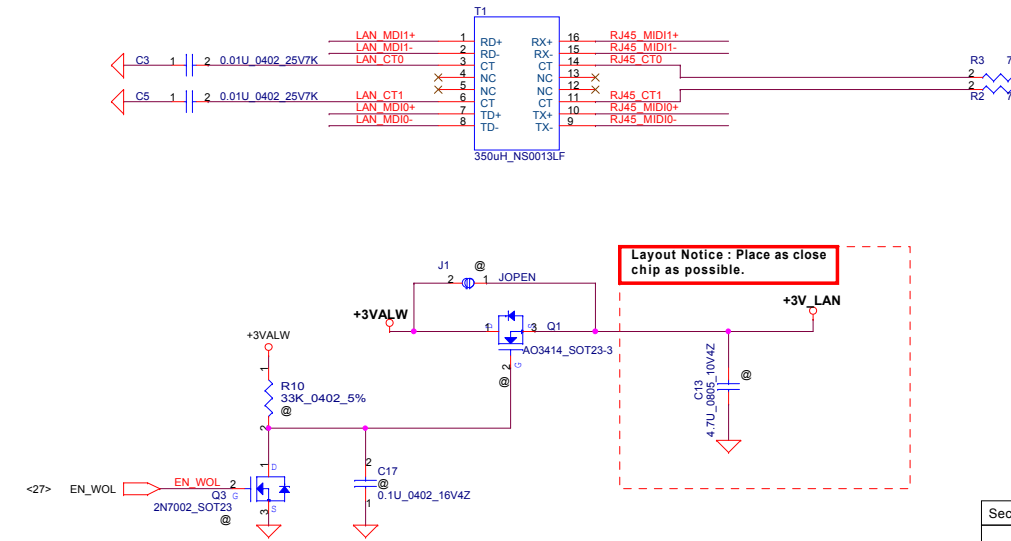
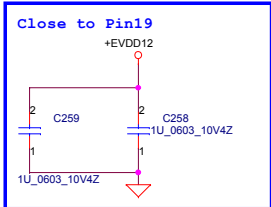
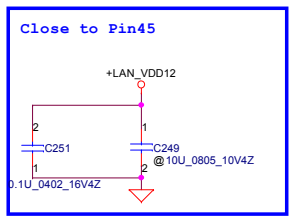
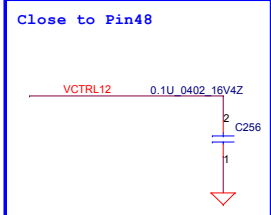
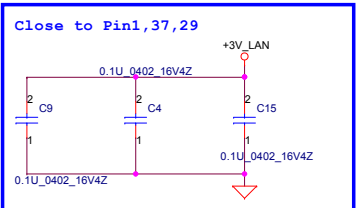
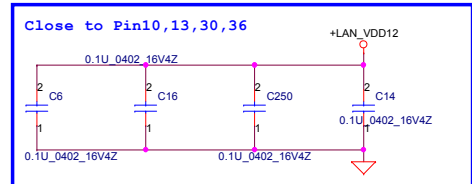
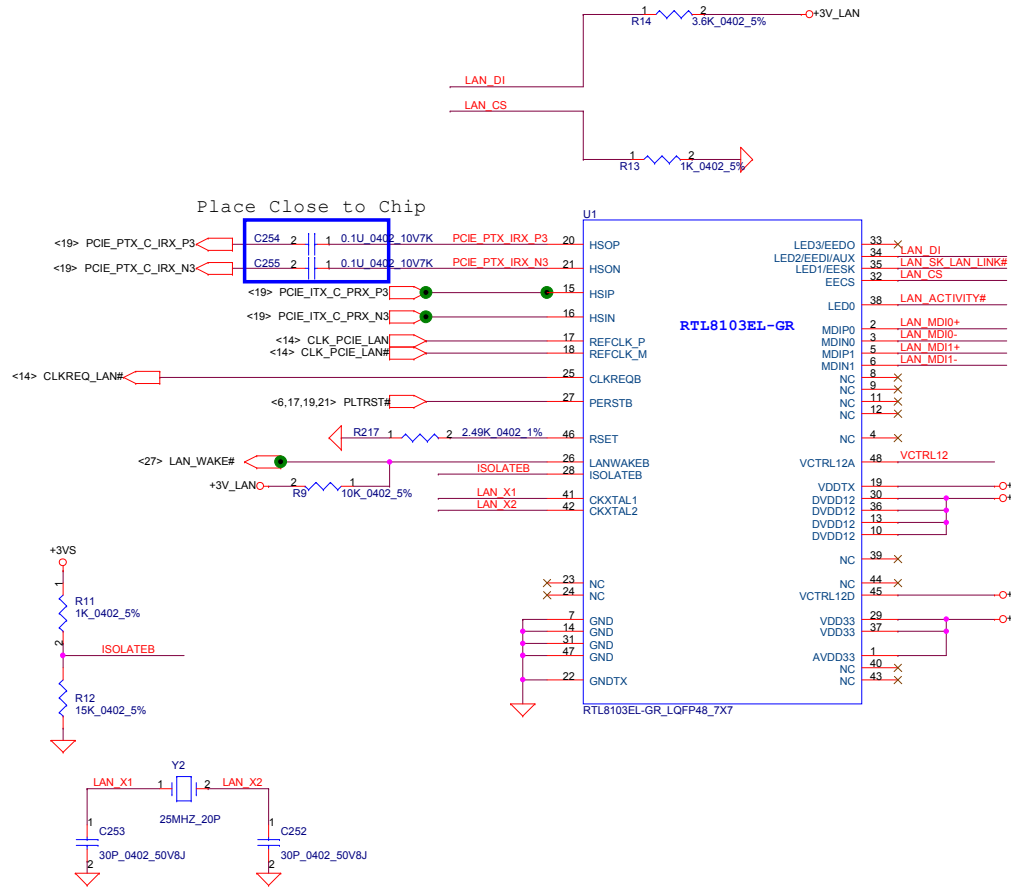


GAIN0	GAIN1	Gain
0	0	6dB
0	1	10dB
1	0	15.6dB
1	1	21.6dB

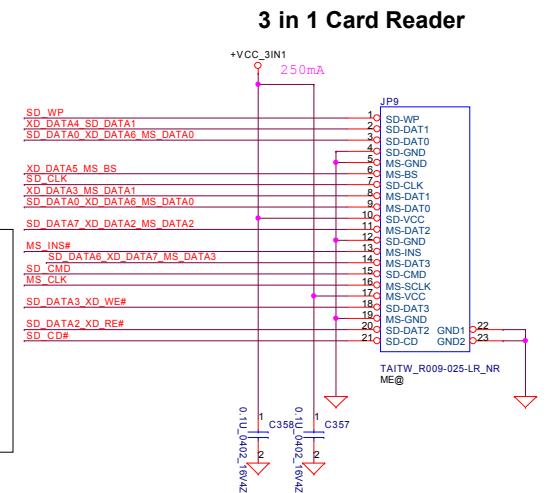
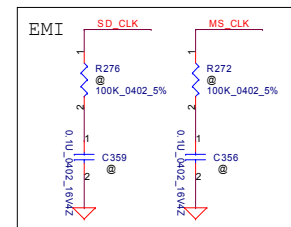
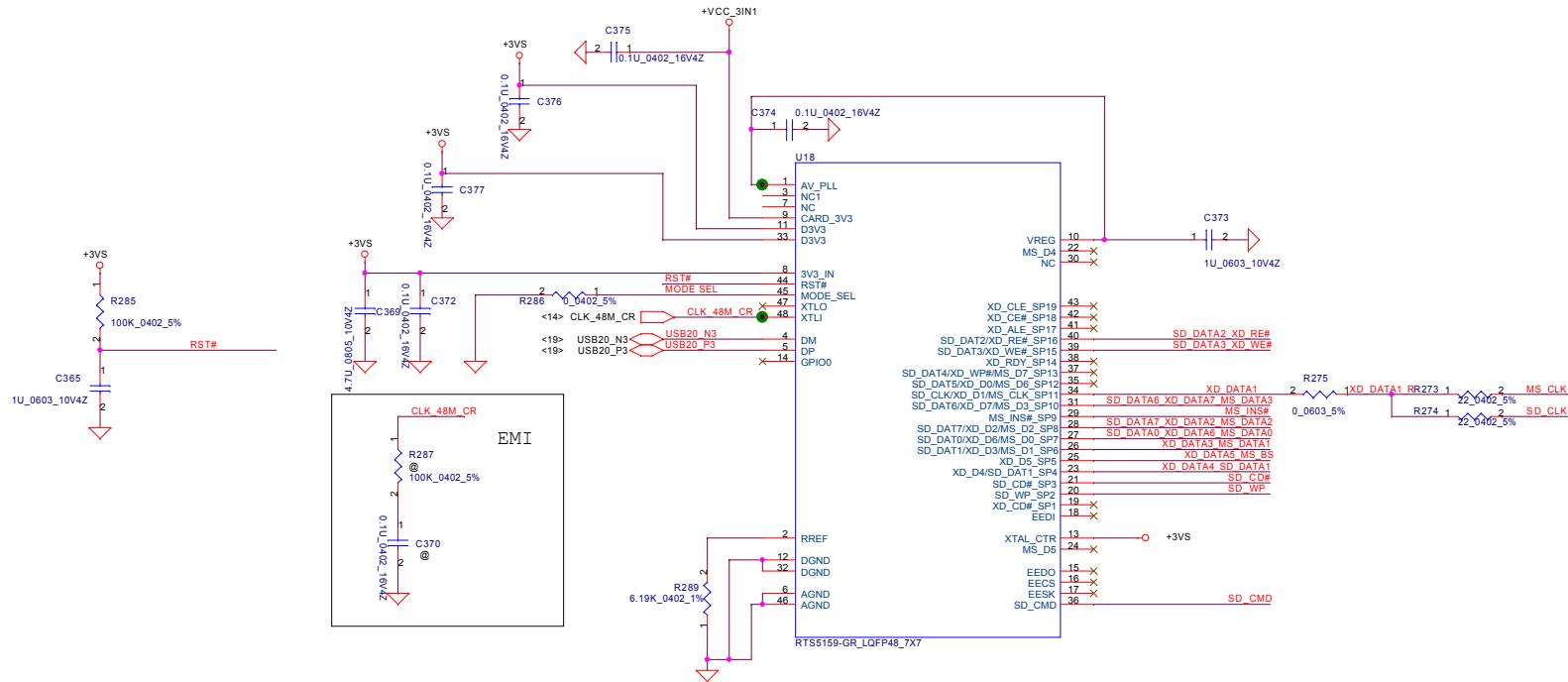




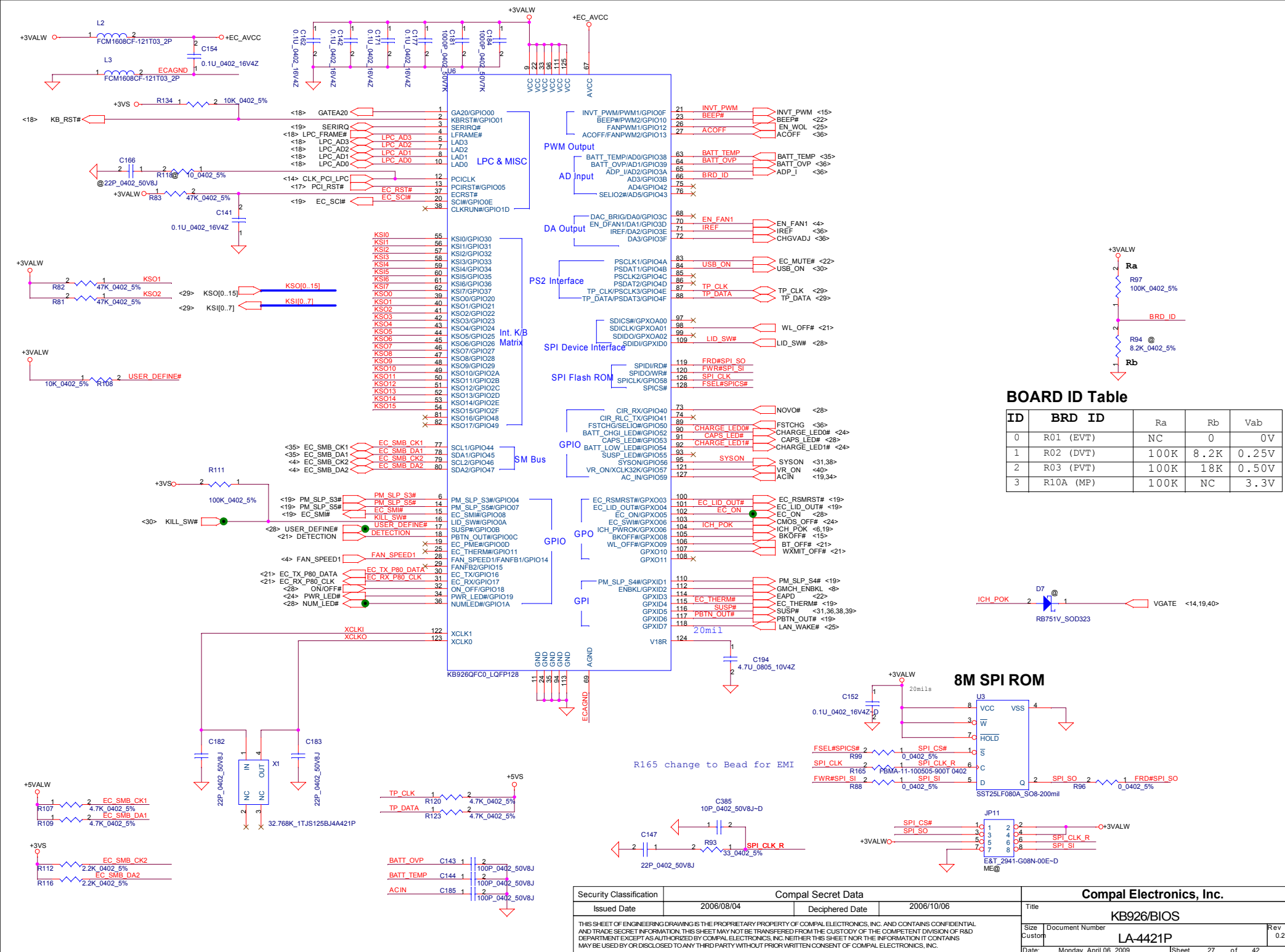
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Date: Monday, April 06, 2009				Sheet 23 of 42	



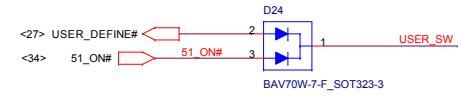
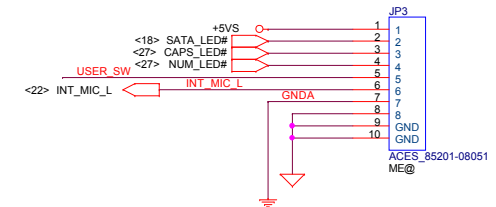
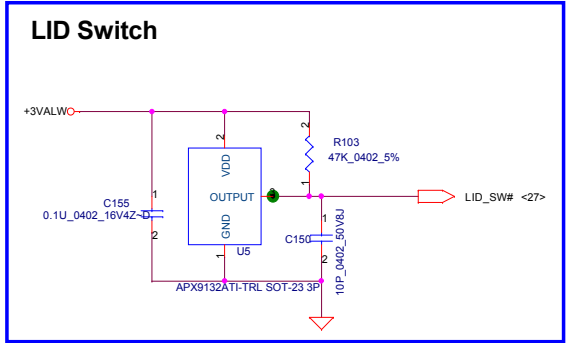
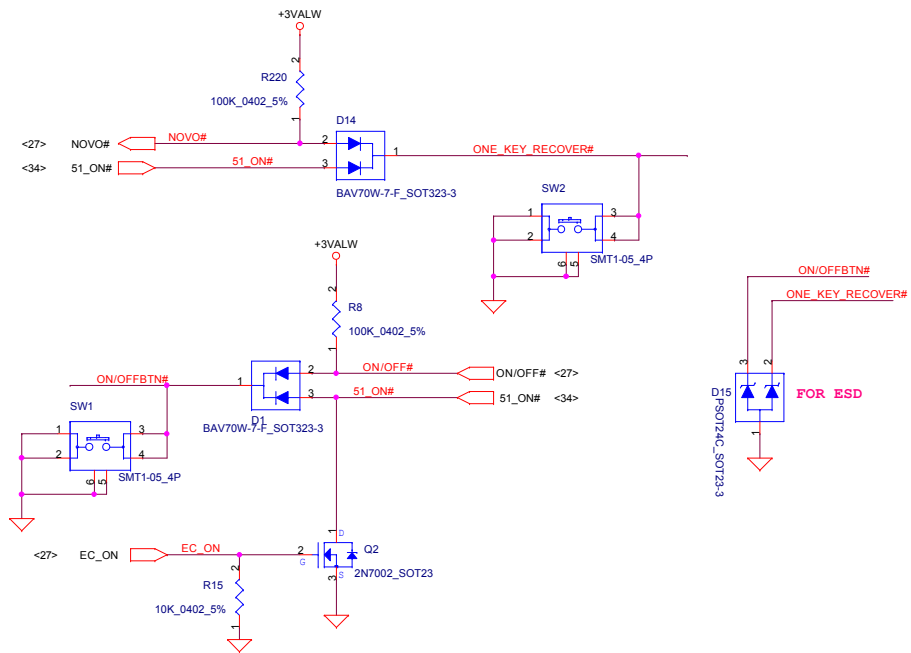
Security Classification		Compal Secret Data				Compal Electronics, Inc.									
Issued Date		2006/08/04		Deciphered Date		2006/10/06		Title							
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								Custom						0.2	
Date:		Monday, April 06, 2009				Sheet		25		of 42					



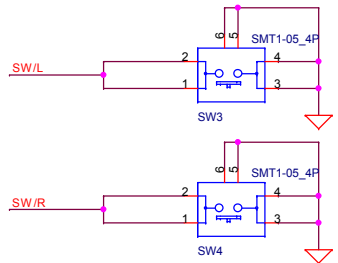
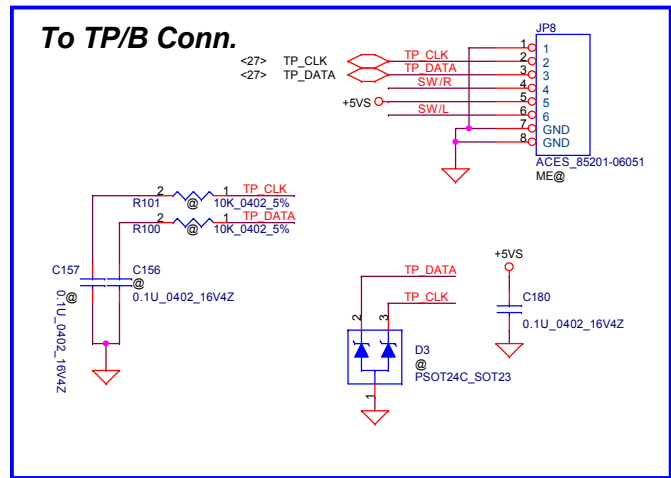
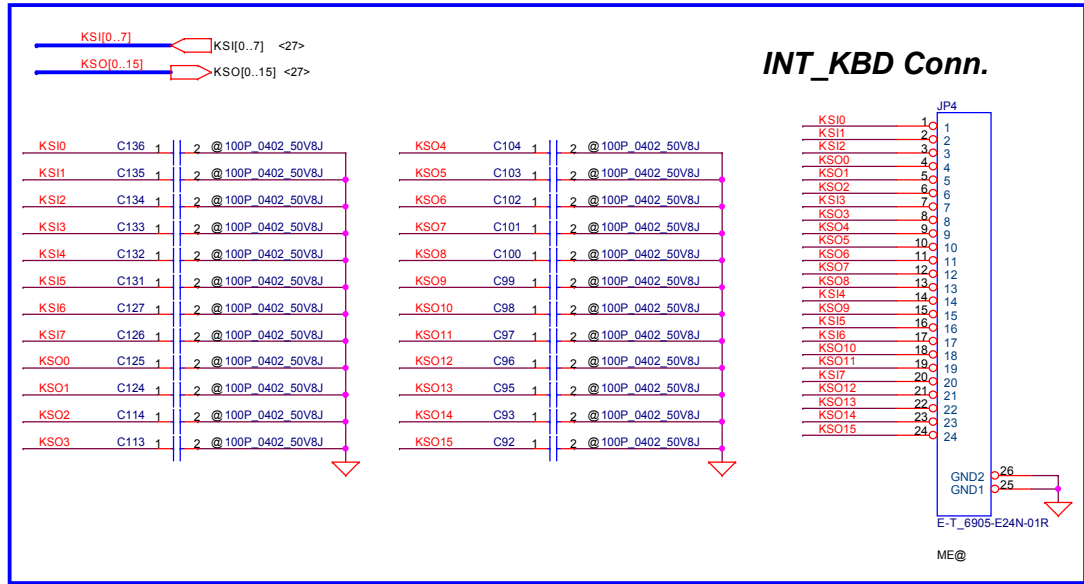
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Issued Date	2006/08/04	Deciphered Date	2006/10/06		
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				Date: Monday, April 06, 2009	Sheet 26 of 42



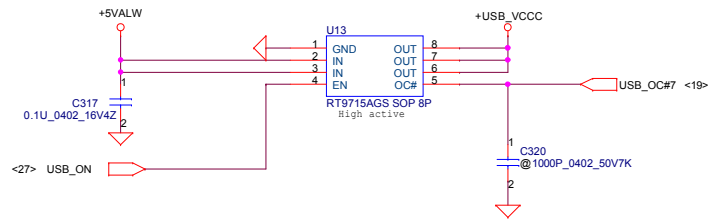
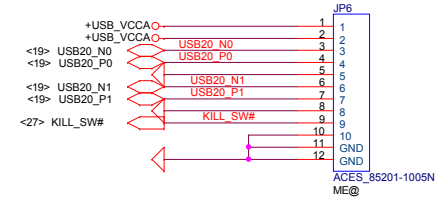
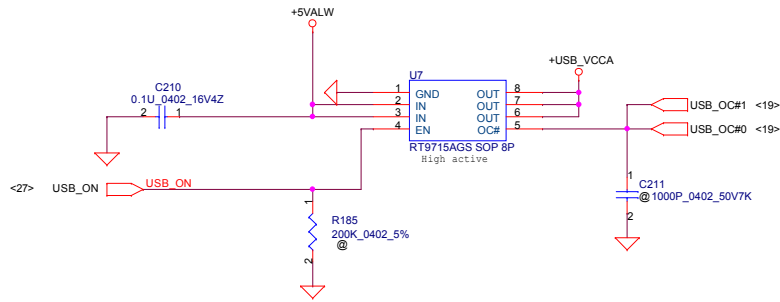
ID	BRD ID	Ra	Rb	Vab
0	R01 (EVT)	NC	0	0V
1	R02 (DVT)	100K	8.2K	0.25V
2	R03 (PVT)	100K	18K	0.50V
3	R10A (MP)	100K	NC	3.3V



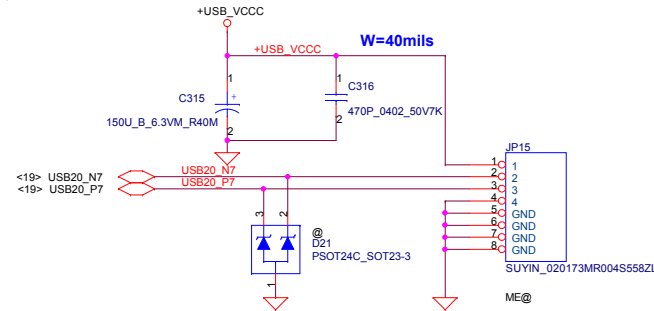
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						Size B		Document Number		LA-4421P		Rev 0.2	
						Date:		Monday, April 06, 2009		Sheet 28 of 42			



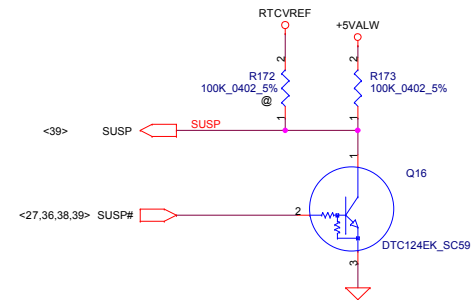
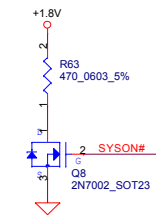
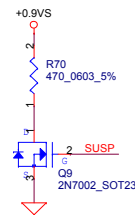
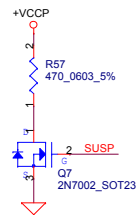
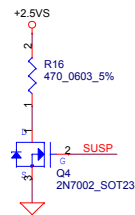
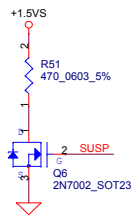
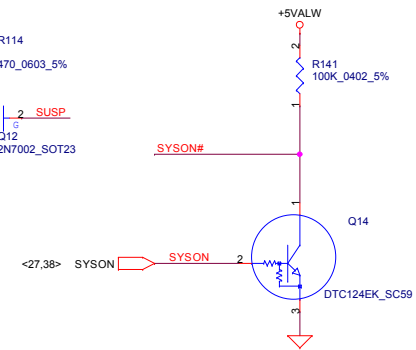
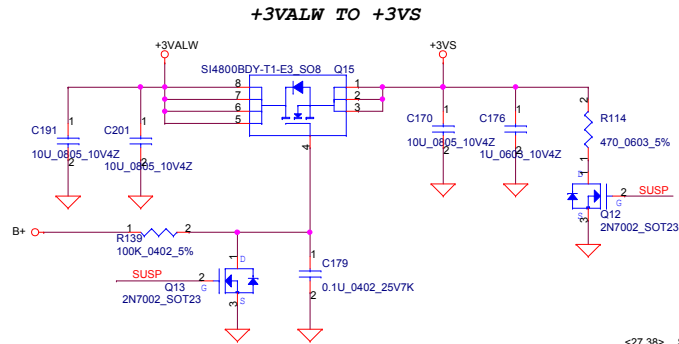
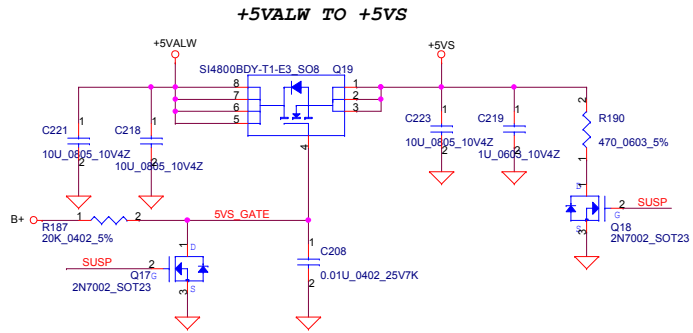
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				B	LA-4421P
				Date:	Monday, April 06, 2009
				Sheet	29 of 42
				Rev	0.2



USB CONN. 3



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				Date	Monday, April 06, 2009	Sheet 30 of 42



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								Document Number			
								LA-4421P			
								Date			
								Monday, April 06, 2009			
								Sheet 31 of 42			
								Rev 0.2			



H_3P6X5P6N



H_3P2

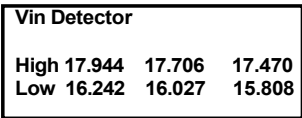


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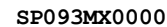
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					Size B	Document Number	Rev 0.2
					LA4421P		
Date: Monday, April 06, 2009				Sheet	33	of 43	

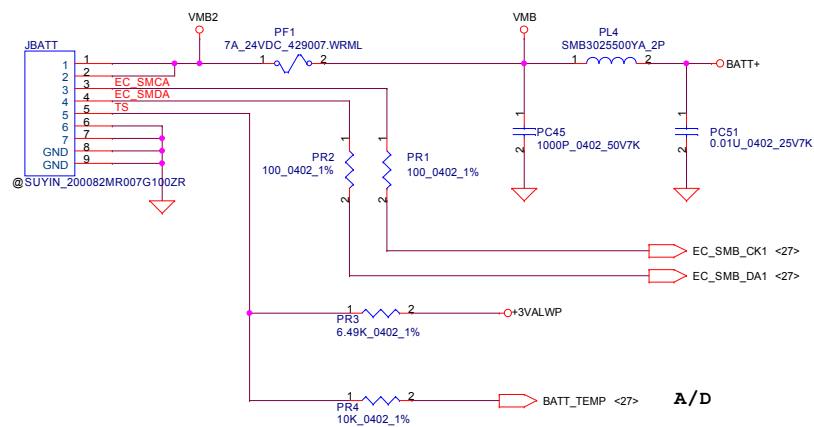


ACIN			
	Precharge detector		
	Min.	typ.	Max.
High	14.936V	15.381V	15.814V
Low	13.843V	14.247V	14.636V

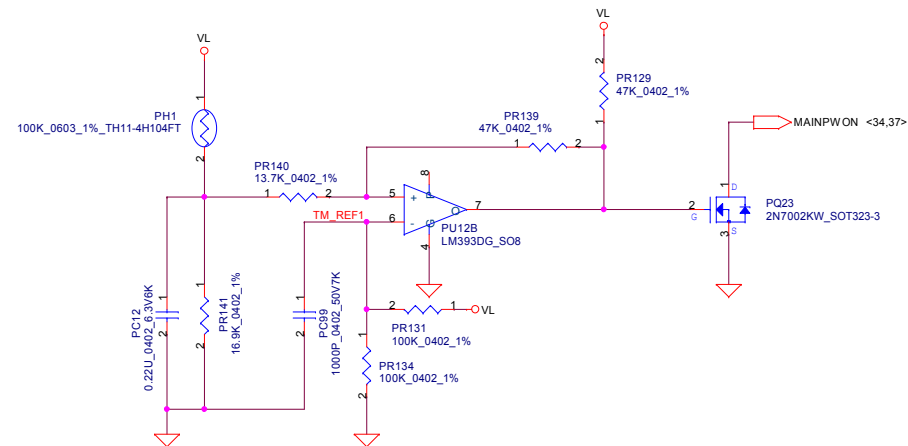
BATT ONLY			
	Precharge detector		
	Min.	typ.	Max.
High	7.196V	7.349V	7.505V
Low	6.138V	6.214V	6.359V



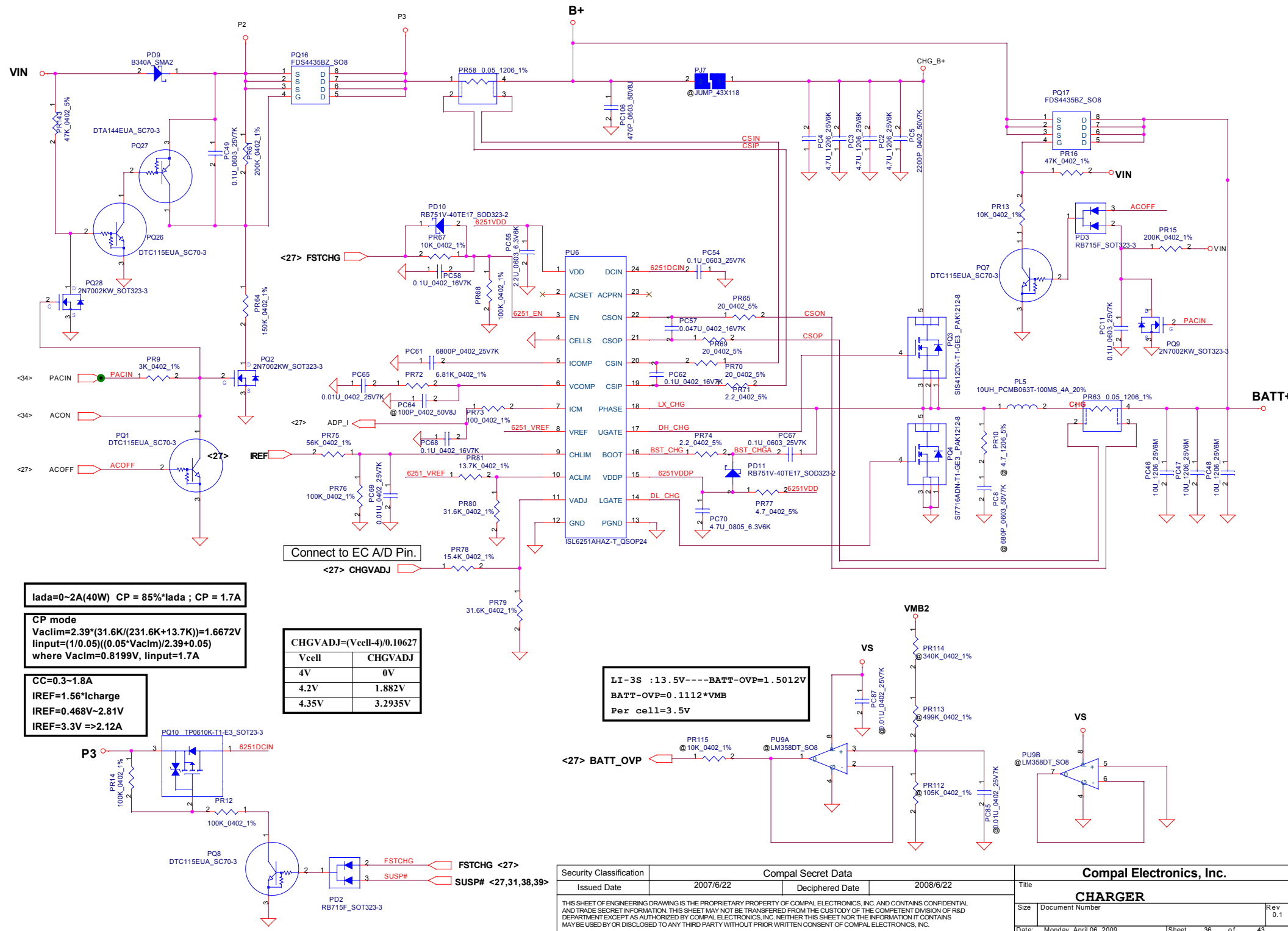
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				Custom		
				Date:	Monday, April 06, 2009	Sheet 34 of 43



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



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



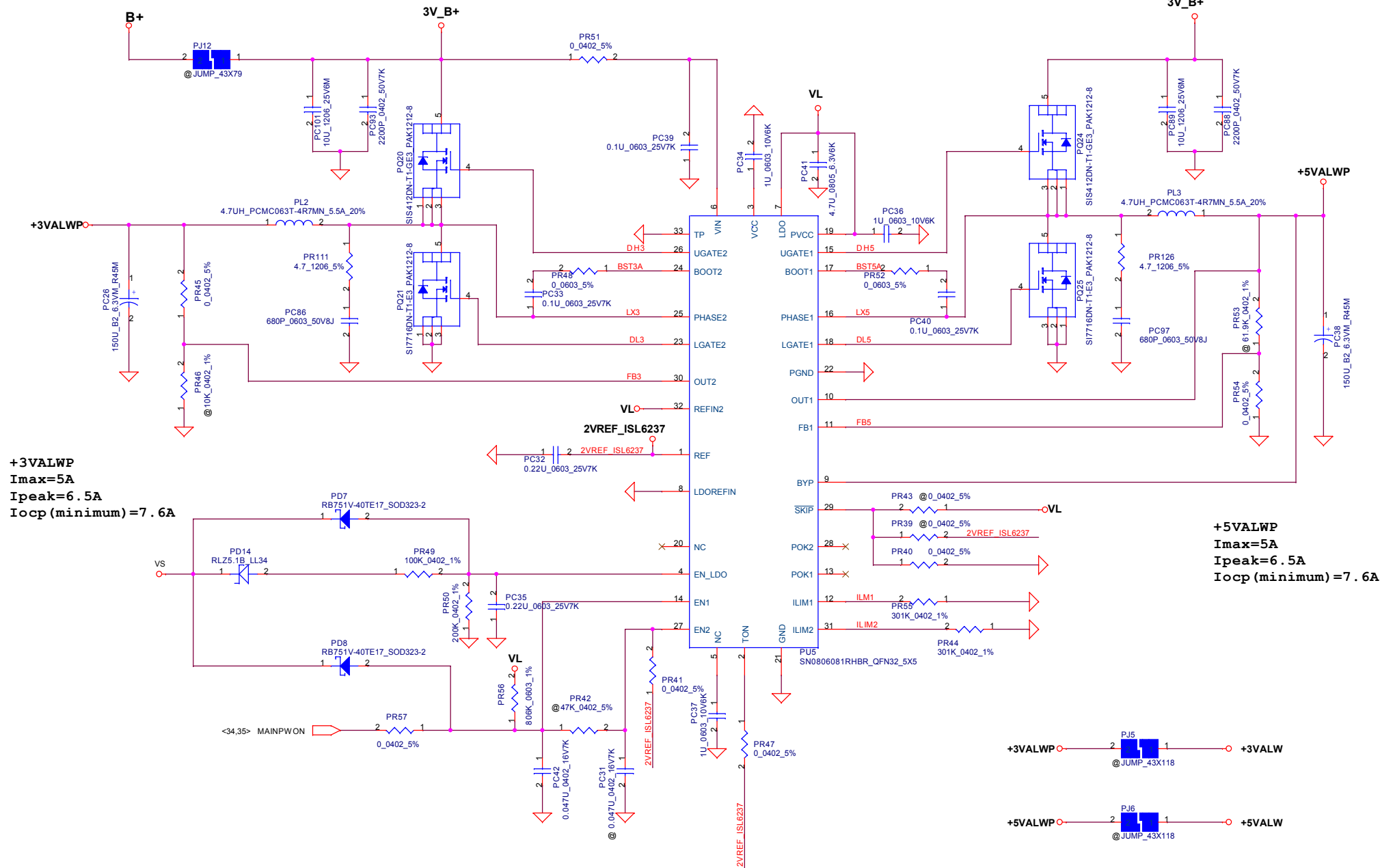
Connect to EC A/D Pin.
<27> CHGVADJ

CHGVADJ=(Vcell-4)/0.10627	
Vcell	CHGVADJ
4V	0V
4.2V	1.882V
4.35V	3.2935V

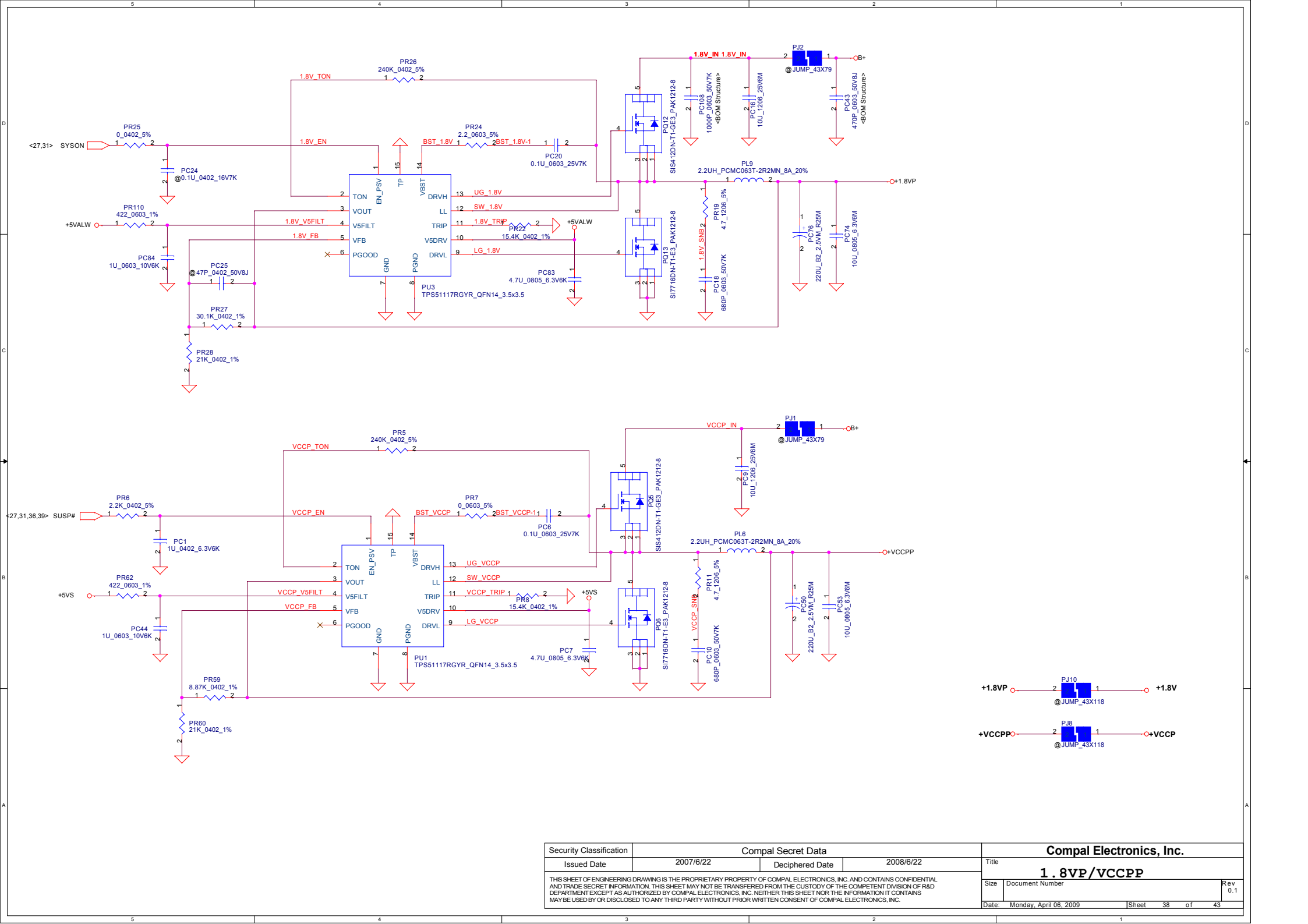
LI-3S :13.5V---BATT-OVP=1.5012V
BATT-OVP=0.1112*VMB
Per cell=3.5V

Iada=0~2A(40W) CP = 85%*Iada ; CP = 1.7A
CP mode
Vacim=2.39*(31.6K/(231.6K+13.7K))=1.6672V
input=(1/0.05)/((0.05*Vacim)/2.39+0.05)
where Vacim=0.8199V, input=1.7A
CC=0.3~1.8A
IREF=1.56*Icharge
IREF=0.468V~2.81V
IREF=3.3V =>2.12A

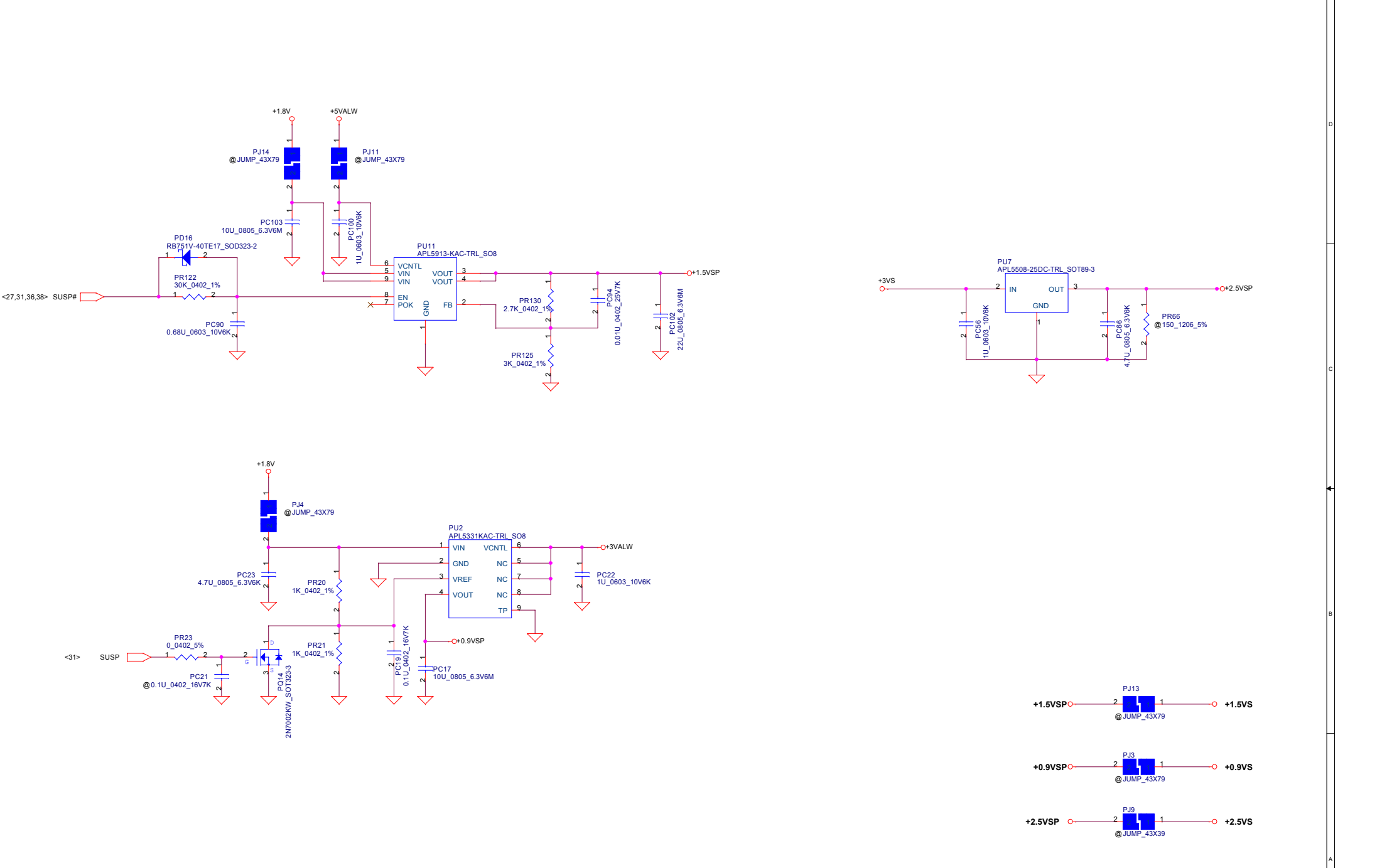
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				Date	Monday, April 06, 2009
				Sheet	36 of 43
				Rev	0.1



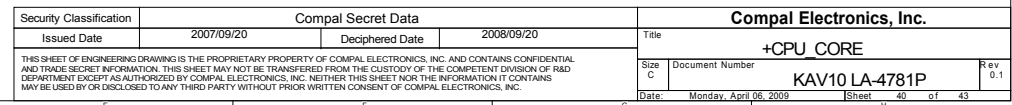
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Date:	Monday, April 06, 2009	Sheet	37	of	43



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



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Size		Document Number		Rev		
Date: Monday, April 06, 2009		Sheet 39		of 43		
				0.1		



Version change list (P.I.R. List)

Page 1 of 1

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 I00K
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 luf
15		0.2		C71 and C81 change to 0603
16	For B Phase	0.2	P27	Add R97 I00k 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,I10,87 Pop:R69,I19,84
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

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

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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		Custom	<Doc>	0.1
		Date:	Monday, April 06, 2009	Sheet 42 of 43

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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17				
18				
19				
22				

22	0.2	
23	0.2	
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Size	Document Number	Rev
LA-4421P		
Date:	Monday, April 06, 2009	Sheet 43 of 43

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