

Compal Confidential

Buffalo KAVAA

LA-5121P Schematics Document

Intel Diamondville Processor/ Calistoga(945GSE)/ ICH7M

2009-03-10

REV: 1.0

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Fan Control
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Thermal Sensor
EMC1402
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Clock Generator
SLG8SP556VTR
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400/533MHz
H_A#(3..31) H_D#(0..63)

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LED Conn.
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LVDS
ONE CHANNEL

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1.8V DDRII 400/533

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USB port 4
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PCleMini Card
WLAN
PCle port 2
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PCleMini Card
3G
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PCleMini Card
GPS
USB port 5
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USB
5V 480MHz
PCle 1x [2,4]
1.5V 2.5GHz(250MB/s)

Intel ICH7M
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5V 480MHz

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PCle 1x
1.5V 2.5GHz(250MB/s)

SATA port 0
5V 1.5GHz(150MB/s)

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Card Reader
RTS5159 2IN1
USB port 3
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USB
5V 480MHz

LPC BUS
3.3V 33 MHz

HD Audio
3.3V 24.576MHz/48MHz

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Voltage Rails

Power Plane	Description	S1	S3	S5	G3
VIN	Adapter power supply (19V)	ON	ON	ON	OFF
B+	AC or battery power rail for power circuit.	ON	ON	ON	ON
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF	OFF
+0.9VS	0.9V switched power rail for DDR terminator	ON	OFF	OFF	OFF
+1.05VS	VCCP switched power rail	ON	OFF	OFF	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF	OFF
+1.8V	1.8V power rail for DDR	ON	ON	OFF	OFF
+2.5VS	2.5V switched power rail	ON	OFF	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON	OFF
+3V_SB	3.3V power rail for LAN	ON	ON	OFF	OFF
+3V_LAN	3.3V power rail for LAN	ON	ON	OFF	OFF
+3V_WLAN	3.3V power rail for LAN	ON	ON	OFF	OFF
+3VS	3.3V switched power rail	ON	ON	OFF	OFF
+5VALW	5V always on power rail	ON	OFF	ON	OFF
+5V_SB	5V power rail for SB	ON	ON	OFF	OFF
+5VS	5V switched power rail	ON	OFF	OFF	ON
+VSB	VSB always on power rail	ON	ON	ON	OFF
+RTCVCC	RTC power	ON	ON	ON	OFF

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

BTO Option Table

Function	Mini PCI-E SLOT				CAMERA & MIC		BLUE TOOTH	STAR	G-SENSOR
description									
explain	Wi-Fi	WiMax	3GGPS	3G	CAMERA	MIC	BLUE TOOTH	POWER SAVING	HDD PROTECT
BTO	WLAN@	WIMAX@	3GGPS@	3G@	CAM@	MIC@	BT@	STAR@	GSENSOR@

Function			
description			
explain			
BTO			

EC SM Bus1 address

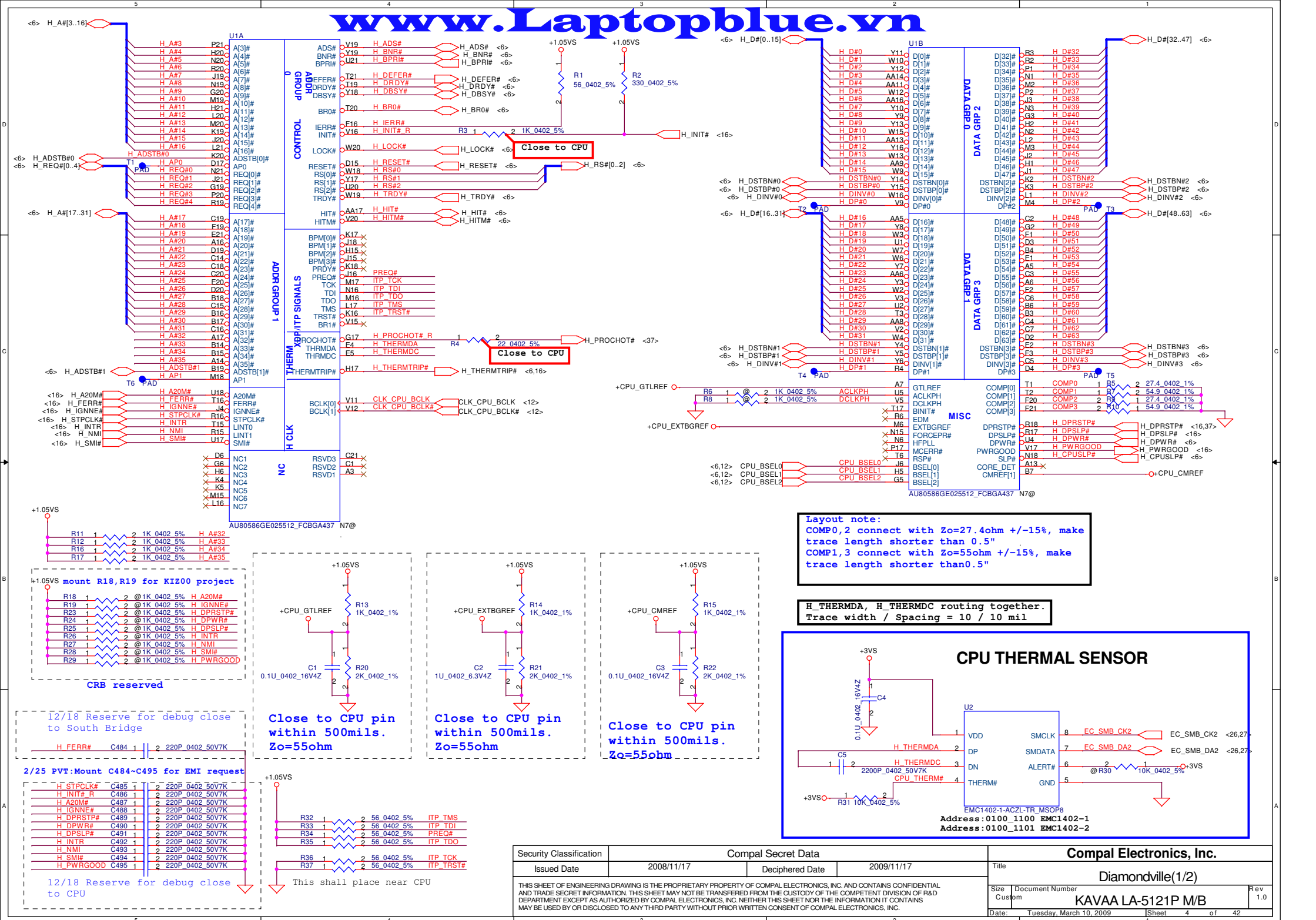
EC SM Bus2 address

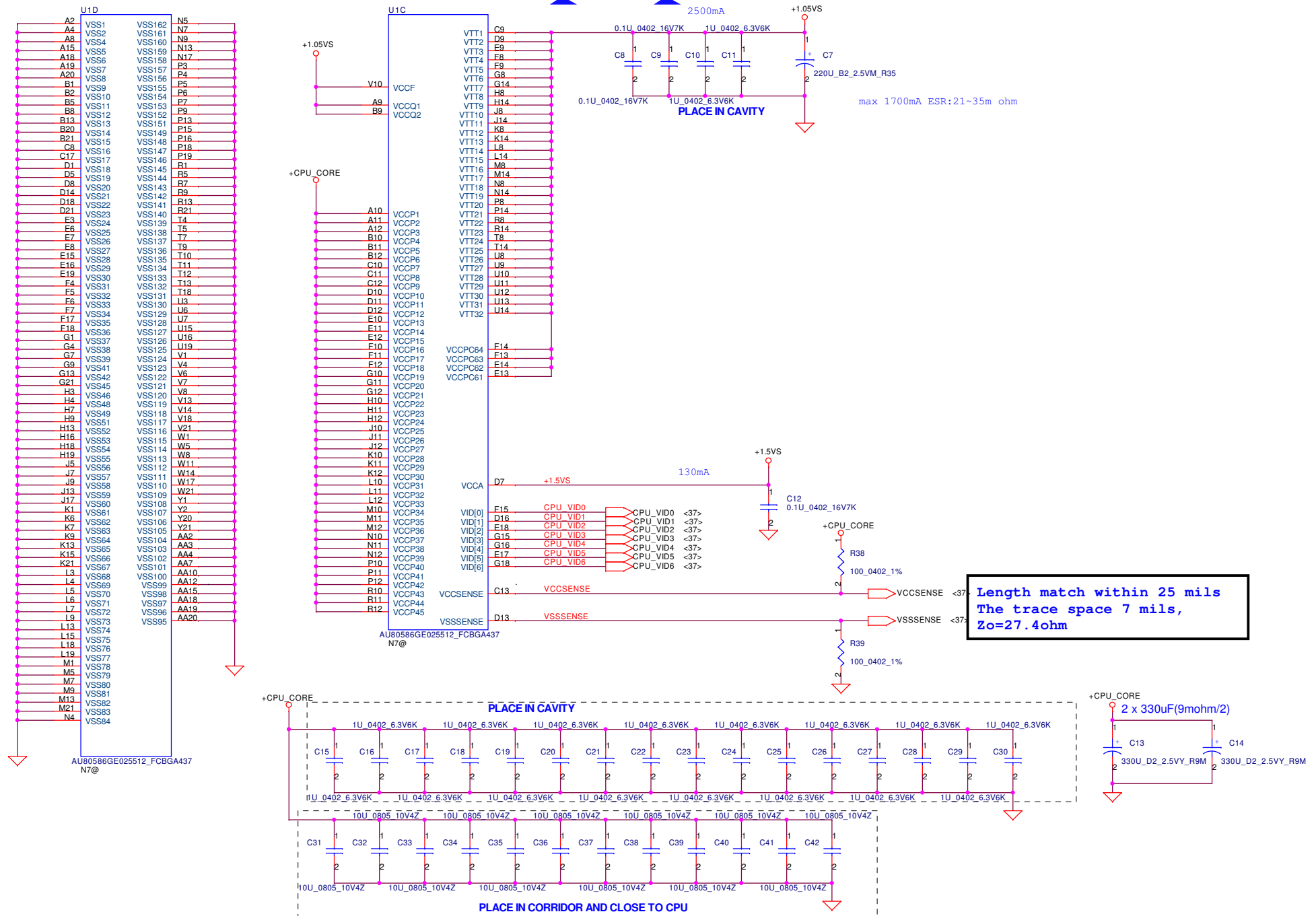
Device	Address	Device	Address
Smart Battery	0001 011X b	EMC1402	1001 010X b

ICH7M SM Bus address

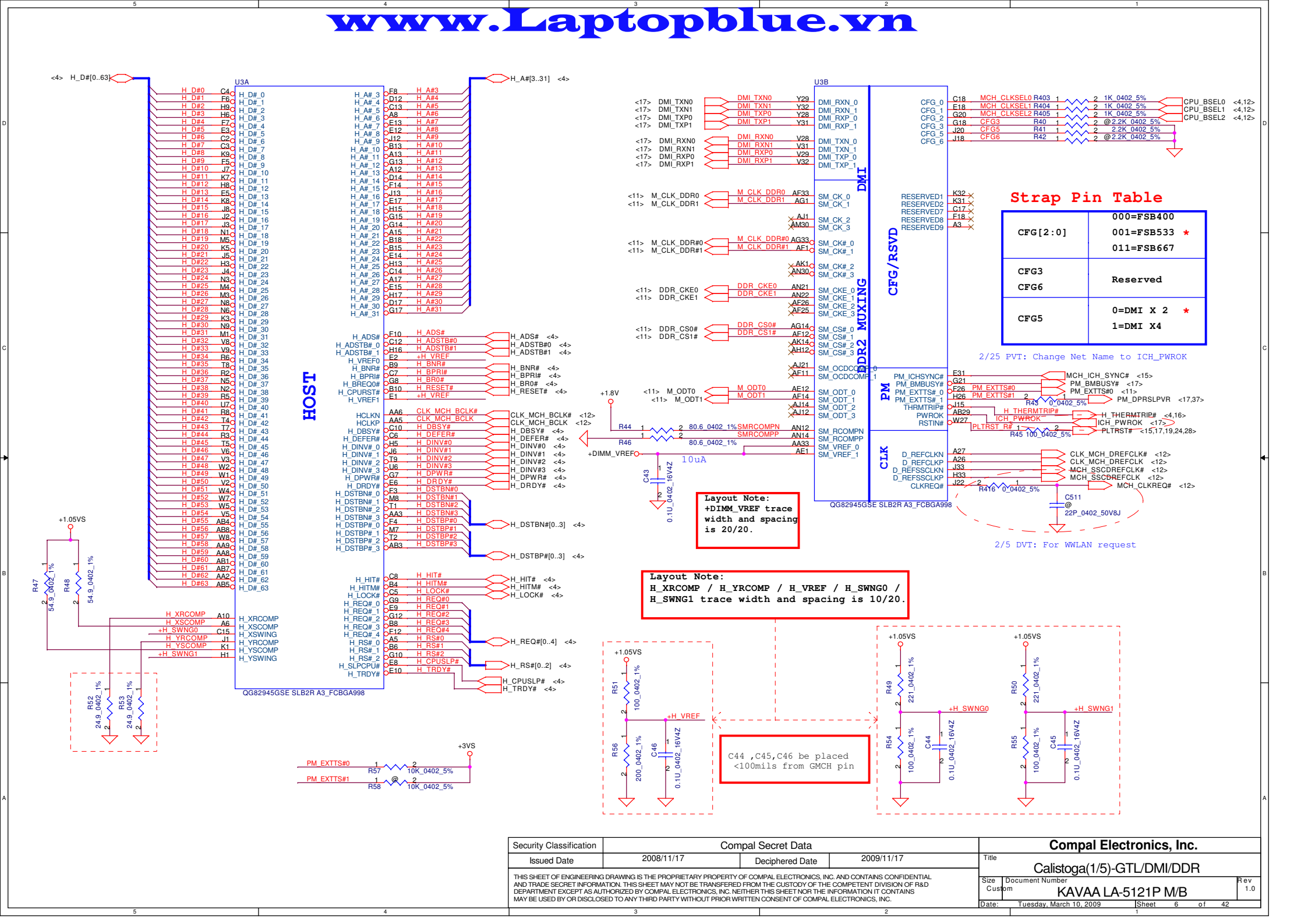
Device	Address
Clock Generator (SLG8SP556VTR)	1101 001Xb
DDR DIMMA	1010 000Xb

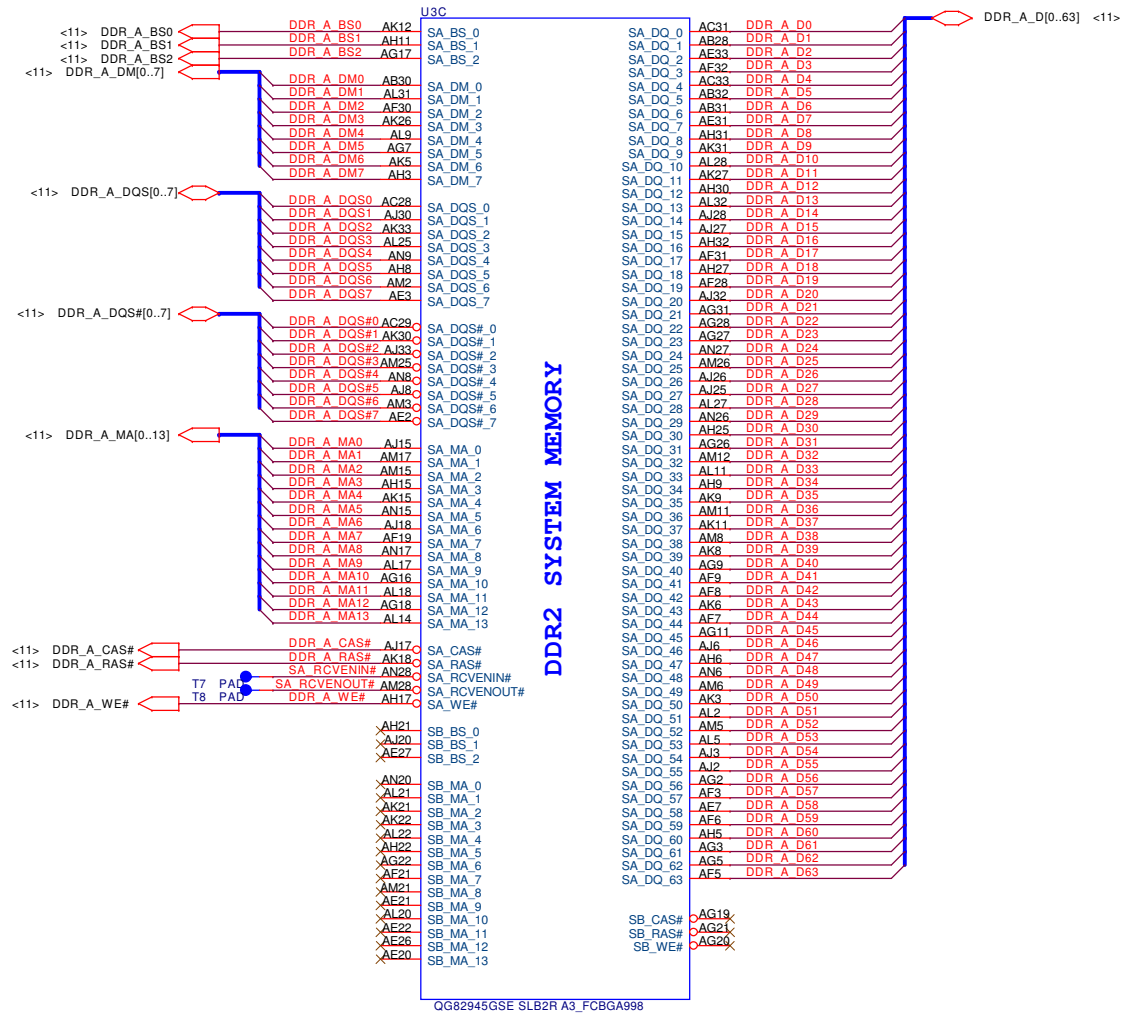
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				Diamondville(2/2)				
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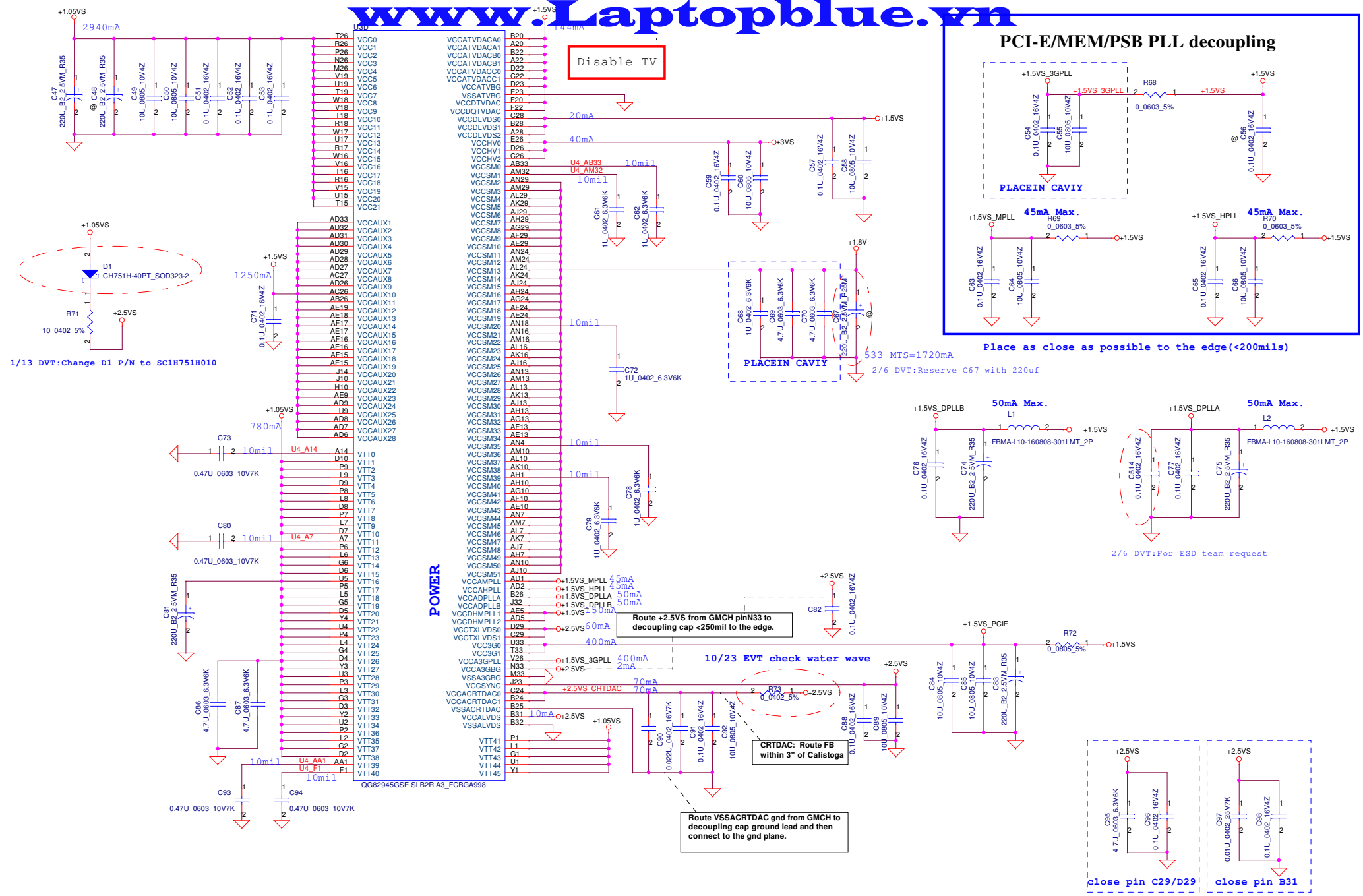
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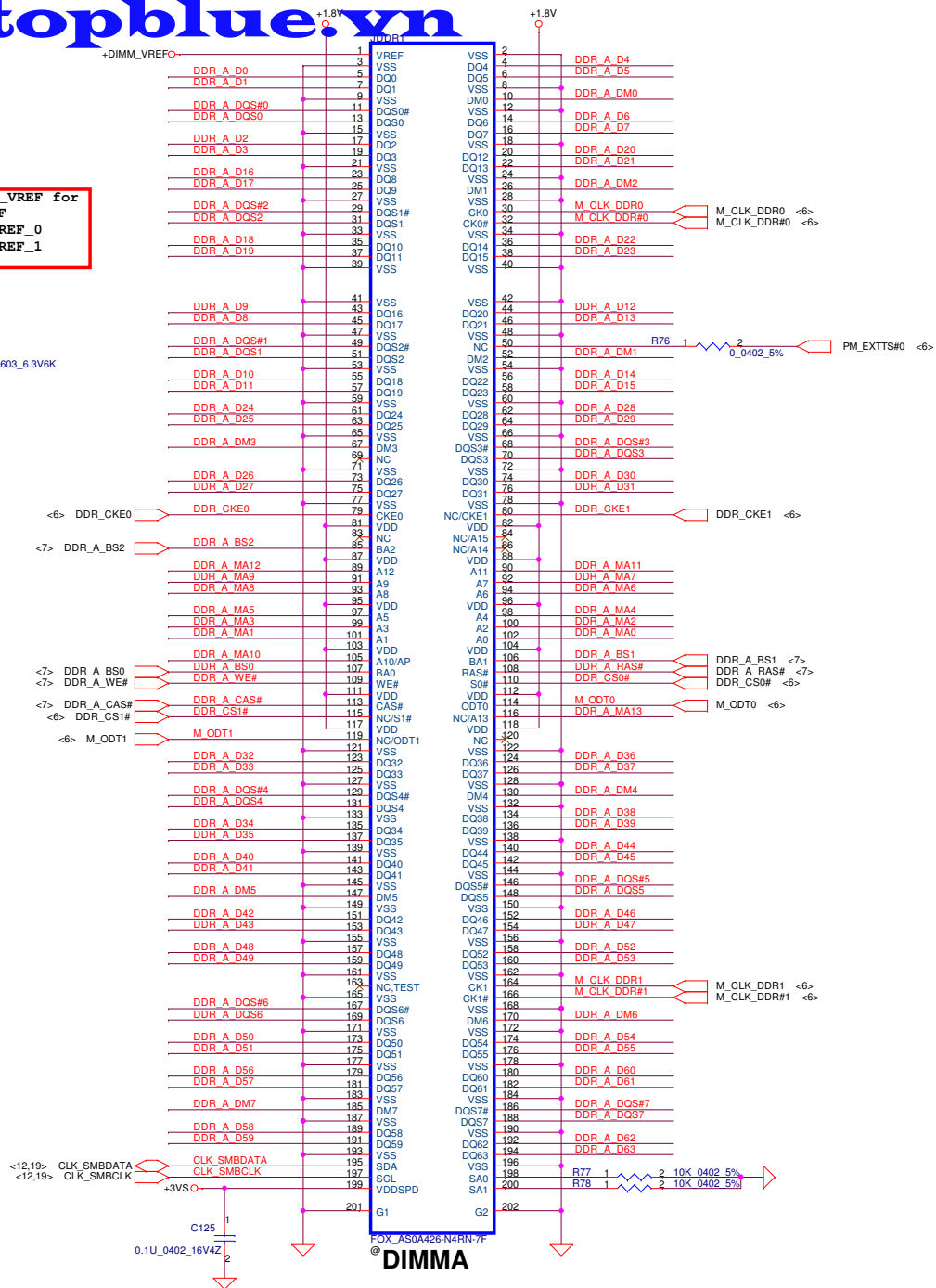
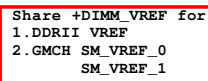
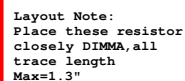
Diagram showing the pin connections for the QG82945GSE SLB2R A3, FCBGA998 package. The package is a 20x20 grid. The pins are labeled with their functions and the package name.

Pin Connections:

- Top Row (Pins 1-20):** T25, R25, P25, N25, M25, P24, N24, M24, Y22, W22, V22, U22, T22, R22, P22, N22, M22, V21, W21, U21, T21, R21, P21, N21, M21, Y20, W20, V20, U20, T20, R20, P20, N20, M20, Y19, V19, W19, U19, T19, R19, P19, N19, M19, Y18, V18, W18, U18, T18, R18, P18, N18, M18, Y17, V17, W17, U17, T17, R17, P17, N17, M17, Y16, V16, W16, U16, T16, R16, P16, N16, M16, Y15, V15, W15, U15, T15, R15, P15, N15, M15, Y14, V14, W14, U14, T14, R14, P14, N14, M14, Y13, V13, W13, U13, T13, R13, P13, N13, M13, Y12, V12, W12, U12, T12, R12, P12, N12, M12, Y11, V11, W11, U11, T11, R11, P11, N11, M11, Y10, V10, W10, U10, T10, R10, P10, N10, M10, Y09, V09, W09, U09, T09, R09, P09, N09, M09, Y08, V08, W08, U08, T08, R08, P08, N08, M08, Y07, V07, W07, U07, T07, R07, P07, N07, M07, Y06, V06, W06, U06, T06, R06, P06, N06, M06, Y05, V05, W05, U05, T05, R05, P05, N05, M05, Y04, V04, W04, U04, T04, R04, P04, N04, M04, Y03, V03, W03, U03, T03, R03, P03, N03, M03, Y02, V02, W02, U02, T02, R02, P02, N02, M02, Y01, V01, W01, U01, T01, R01, P01, N01, M01, Y00, V00, W00, U00, T00, R00, P00, N00, M00, Y-01, V-01, W-01, U-01, T-01, R-01, P-01, N-01, M-01, Y-02, V-02, W-02, U-02, T-02, R-02, P-02, N-02, M-02, Y-03, V-03, W-03, U-03, T-03, R-03, P-03, N-03, M-03, Y-04, V-04, W-04, U-04, T-04, R-04, P-04, N-04, M-04, Y-05, V-05, W-05, U-05, T-05, R-05, P-05, N-05, M-05, Y-06, V-06, W-06, U-06, T-06, R-06, P-06, N-06, M-06, Y-07, V-07, W-07, U-07, T-07, R-07, P-07, N-07, M-07, Y-08, V-08, W-08, U-08, T-08, R-08, P-08, N-08, M-08, Y-09, V-09, W-09, U-09, T-09, R-09, P-09, N-09, M-09, Y-10, V-10, W-10, U-10, T-10, R-10, P-10, N-10, M-10, Y-11, V-11, W-11, U-11, T-11, R-11, P-11, N-11, M-11, Y-12, V-12, W-12, U-12, T-12, R-12, P-12, N-12, M-12, Y-13, V-13, W-13, U-13, T-13, R-13, P-13, N-13, M-13, Y-14, V-14, W-14, U-14, T-14, R-14, P-14, N-14, M-14, Y-15, V-15, W-15, U-15, T-15, R-15, P-15, N-15, M-15, Y-16, V-16, W-16, U-16, T-16, R-16, P-16, N-16, M-16, Y-17, V-17, W-17, U-17, T-17, R-17, P-17, N-17, M-17, Y-18, V-18, W-18, U-18, T-18, R-18, P-18, N-18, M-18, Y-19, V-19, W-19, U-19, T-19, R-19, P-19, N-19, M-19, Y-20, V-20, W-20, U-20, T-20, R-20, P-20, N-20, M-20, Y-21, V-21, W-21, U-21, T-21, R-21, P-21, N-21, M-21, Y-22, V-22, W-22, U-22, T-22, R-22, P-22, N-22, M-22, Y-23, V-23, W-23, U-23, T-23, R-23, P-23, N-23, M-23, Y-24, V-24, W-24, U-24, T-24, R-24, P-24, N-24, M-24, Y-25, V-25, W-25, U-25, T-25, R-25, P-25, N-25, M-25, Y-26, V-26, W-26, U-26, T-26, R-26, P-26, N-26, M-26, Y-27, V-27, W-27, U-27, T-27, R-27, P-27, N-27, M-27, Y-28, V-28, W-28, U-28, T-28, R-28, P-28, N-28, M-28, Y-29, V-29, W-29, U-29, T-29, R-29, P-29, N-29, M-29, Y-30, V-30, W-30, U-30, T-30, R-30, P-30, N-30, M-30, Y-31, V-31, W-31, U-31, T-31, R-31, P-31, N-31, M-31, Y-32, V-32, W-32, U-32, T-32, R-32, P-32, N-32, M-32, Y-33, V-33, W-33, U-33, T-33, R-33, P-33, N-33, M-33, Y-34, V-34, W-34, U-34, T-34, R-34, P-34, N-34, M-34, Y-35, V-35, W-35, U-35, T-35, R-35, P-35, N-35, M-35, Y-36, V-36, W-36, U-36, T-36, R-36, P-36, N-36, M-36, Y-37, V-37, W-37, U-37, T-37, R-37, P-37, N-37, M-37, Y-38, V-38, W-38, U-38, T-38, R-38, P-38, N-38, M-38, Y-39, V-39, W-39, U-39, T-39, R-39, P-39, N-39, M-39, Y-40, V-40, W-40, U-40, T-40, R-40, P-40, N-40, M-40, Y-41, V-41, W-41, U-41, T-41, R-41, P-41, N-41, M-41, Y-42, V-42, W-42, U-42, T-42, R-42, P-42, N-42, M-42, Y-43, V-43, W-43, U-43, T-43, R-43, P-43, N-43, M-43, Y-44, V-44, W-44, U-44, T-44, R-44, P-44, N-44, M-44, Y-45, V-45, W-45, U-45, T-45, R-45, P-45, N-45, M-45, Y-46, V-46, W-46, U-46, T-46, R-46, P-46, N-46, M-46, Y-47, V-47, W-47, U-47, T-47, R-47, P-47, N-47, M-47, Y-48, V-48, W-48, U-48, T-48, R-48, P-48, N-48, M-48, Y-49, V-49, W-49, U-49, T-49, R-49, P-49, N-49, M-49, Y-50, V-50, W-50, U-50, T-50, R-50, P-50, N-50, M-50, Y-51, V-51, W-51, U-51, T-51, R-51, P-51, N-51, M-51, Y-52, V-52, W-52, U-52, T-52, R-52, P-52, N-52, M-52, Y-53, V-53, W-53, U-53, T-53, R-53, P-53, N-53, M-53, Y-54, V-54, W-54, U-54, T-54, R-54, P-54, N-54, M-54, Y-55, V-55, W-55, U-55, T-55, R-55, P-55, N-55, M-55, Y-56, V-56, W-56, U-56, T-56, R-56, P-56, N-56, M-56, Y-57, V-57, W-57, U-57, T-57, R-57, P-57, N-57, M-57, Y-58, V-58, W-58, U-58, T-58, R-58, P-58, N-58, M-58, Y-59, V-59, W-59, U-59, T-59, R-59, P-59, N-59, M-59, Y-60, V-60, W-60, U-60, T-60, R-60, P-60, N-60, M-60, Y-61, V-61, W-61, U-61, T-61, R-61, P-61, N-61, M-61, Y-62, V-62, W-62, U-62, T-62, R-62, P-62, N-62, M-62, Y-63, V-63, W-63, U-63, T-63, R-63, P-63, N-63, M-63, Y-64, V-64, W-64, U-64, T-64, R-64, P-64, N-64, M-64, Y-65, V-65, W-65, U-65, T-65, R-65, P-65, N-65, M-65, Y-66, V-66, W-66, U-66, T-66, R-66, P-66, N-66, M-66, Y-67, V-67, W-67, U-67, T-67, R-67, P-67, N-67, M-67, Y-68, V-68, W-68, U-68, T-68, R-68, P-68, N-68, M-68, Y-69, V-69, W-69, U-69, T-69, R-69, P-69, N-69, M-69, Y-70, V-70, W

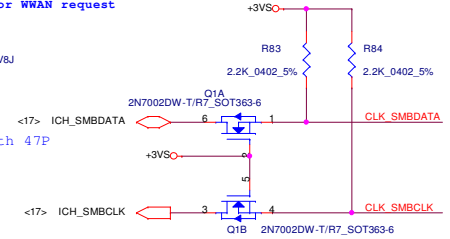
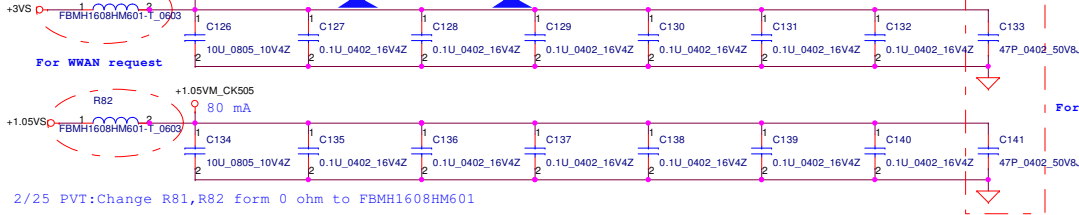


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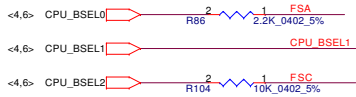
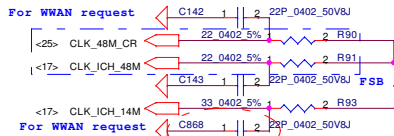
FSC	FSB	FSA	CPU	SRC	PCI	REF	DOT_96	U
CLKSEL2	CLKSEL1	CLKSEL0	MHz	MHz	MHz	MHz	MHz	MHz
0	0	0	266	100	33.3	14.318	96.0	48.0
0	0	1	133	100	33.3	14.318	96.0	48.0
0	1	0	200	100	33.3	14.318	96.0	48.0
0	1	1	166	100	33.3	14.318	96.0	48.0
1	0	0	333	100	33.3	14.318	96.0	48.0
1	0	1	100	100	33.3	14.318	96.0	48.0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

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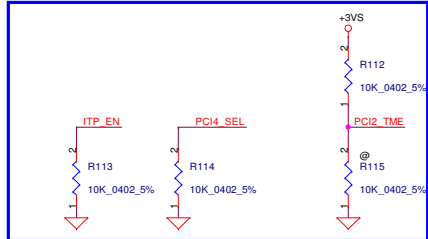
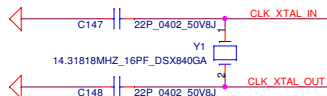
SA000020K00 (Silego : SLG8SP556VTR)
SA000020H10 (ICS : ICS9LPRS387AKLFT)

2/25 PVT:Mount C142,C143,C868 with 22P
CLK_48M_CR and CLK_ICH_48M
need to same length



2/25 PVT:Mount C144,C145,C146 with 22P

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

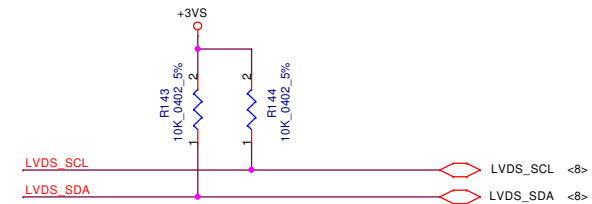


SRC PORT LIST

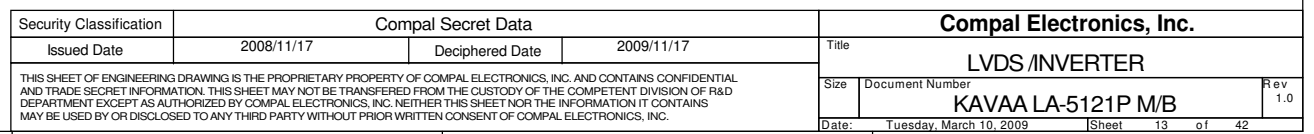
PORT	DEVICE
SRC0	MCH_DREFCLK
SRC2	PCIE_3GPLL
SRC3	PCIE_SATA
SRC4	PCIE_WWAN
SRC6	PCIE_WLAN
SRC7	
SRC8	
SRC9	PCIE_LAN
SRC10	PCIE_ICH
SRC11	

REQ PORT LIST

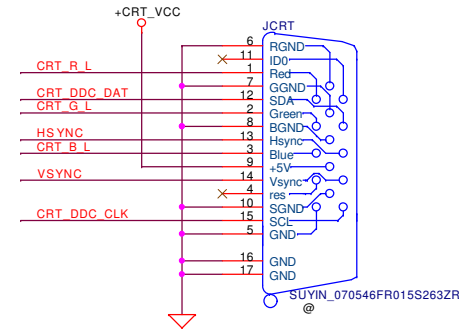
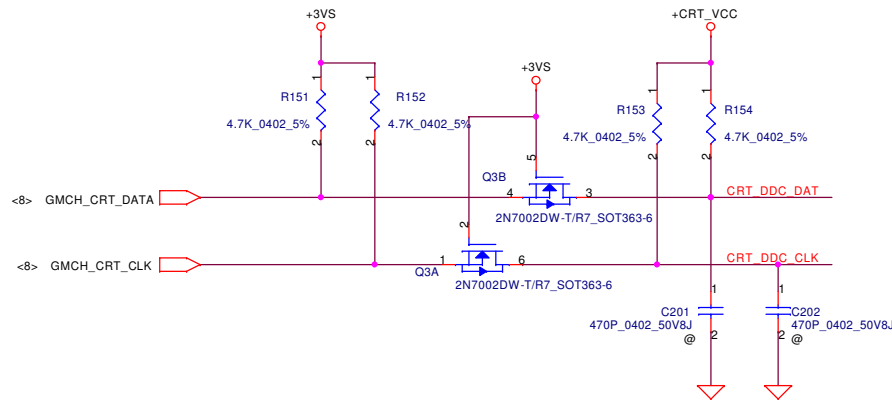
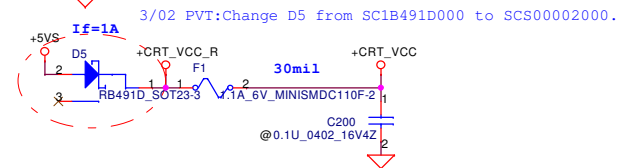
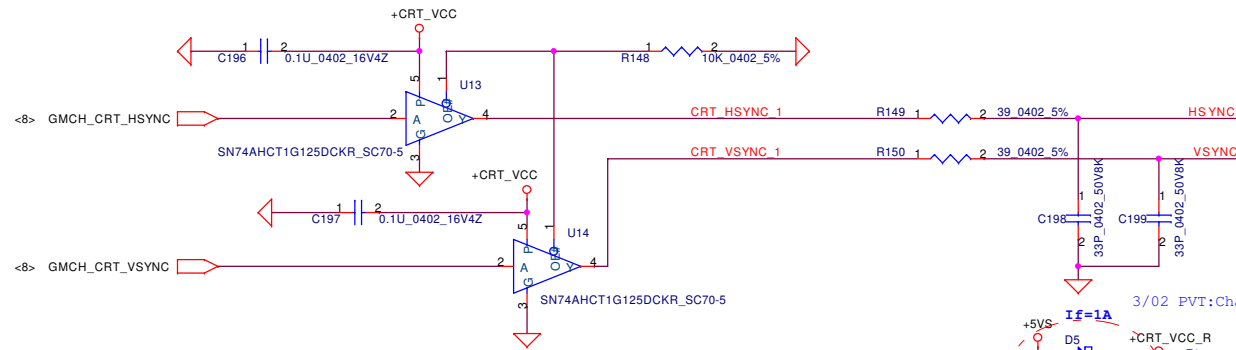
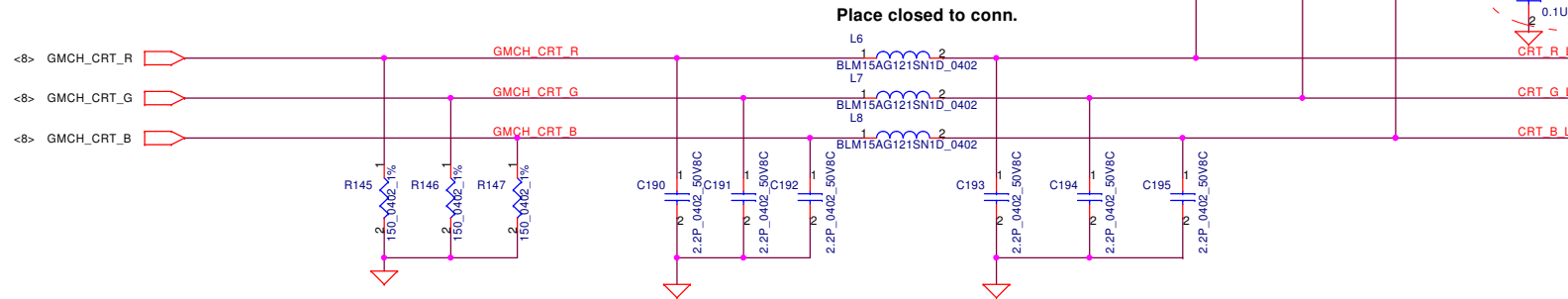
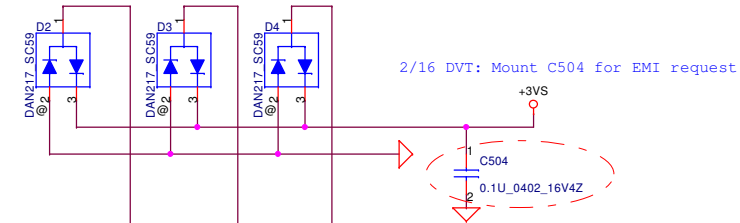
PORT	DEVICE
REQ_3#	PCIE_SATA
REQ_4#	PEIC_WWAN
REQ_6#	PEIC_WLAN
REQ_7#	
REQ_9#	PCIE_LAN
REQ_10#	
REQ_11#	
REQ_A#	MCH_3GPLL



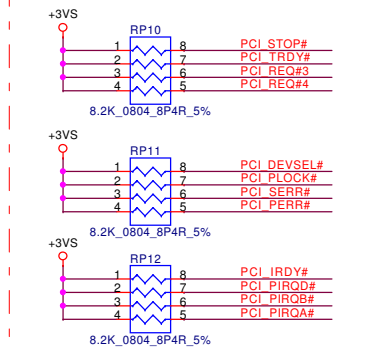
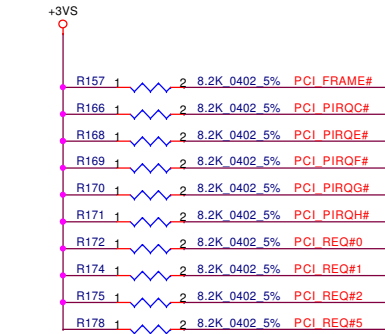
LED/PANEL BD. Conn.



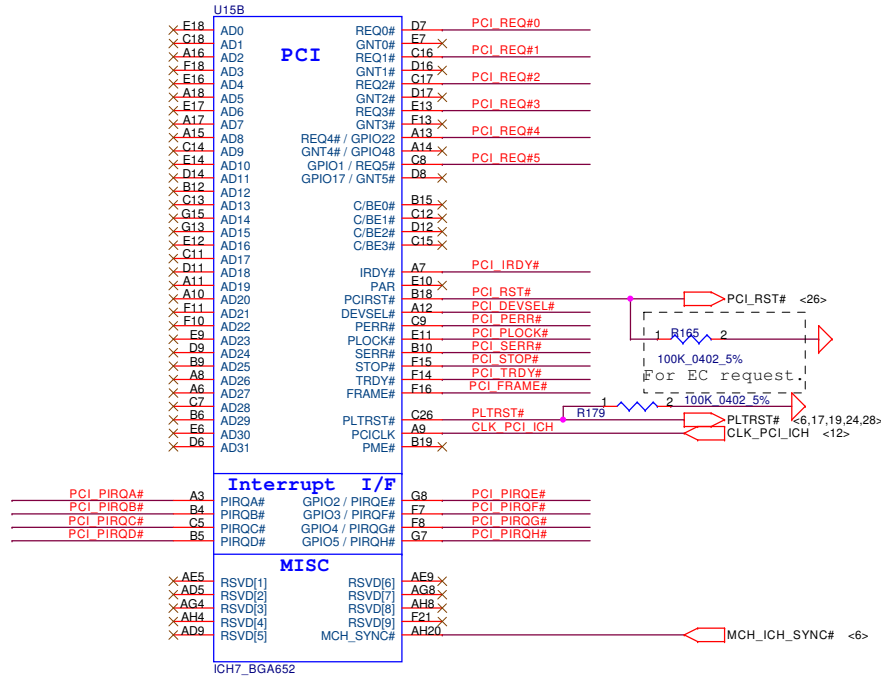
CRT CONNECTOR



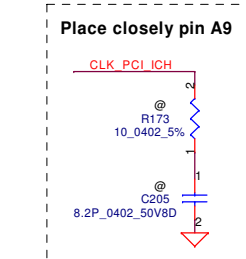
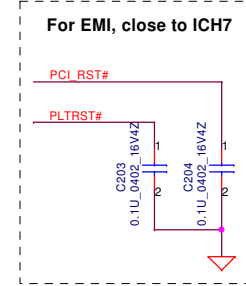
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Issued Date	2008/11/17	Deciphered Date	2009/11/17	Title	
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Size		Document Number		Rev	
		KAVAA LA-5121P M/B		1.0	
Date:		Tuesday, March 10, 2009		Sheet 14 of 42	

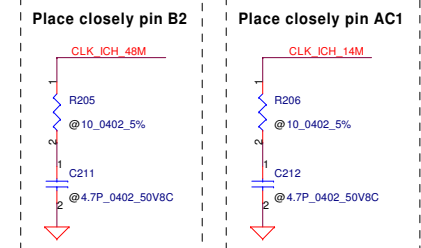
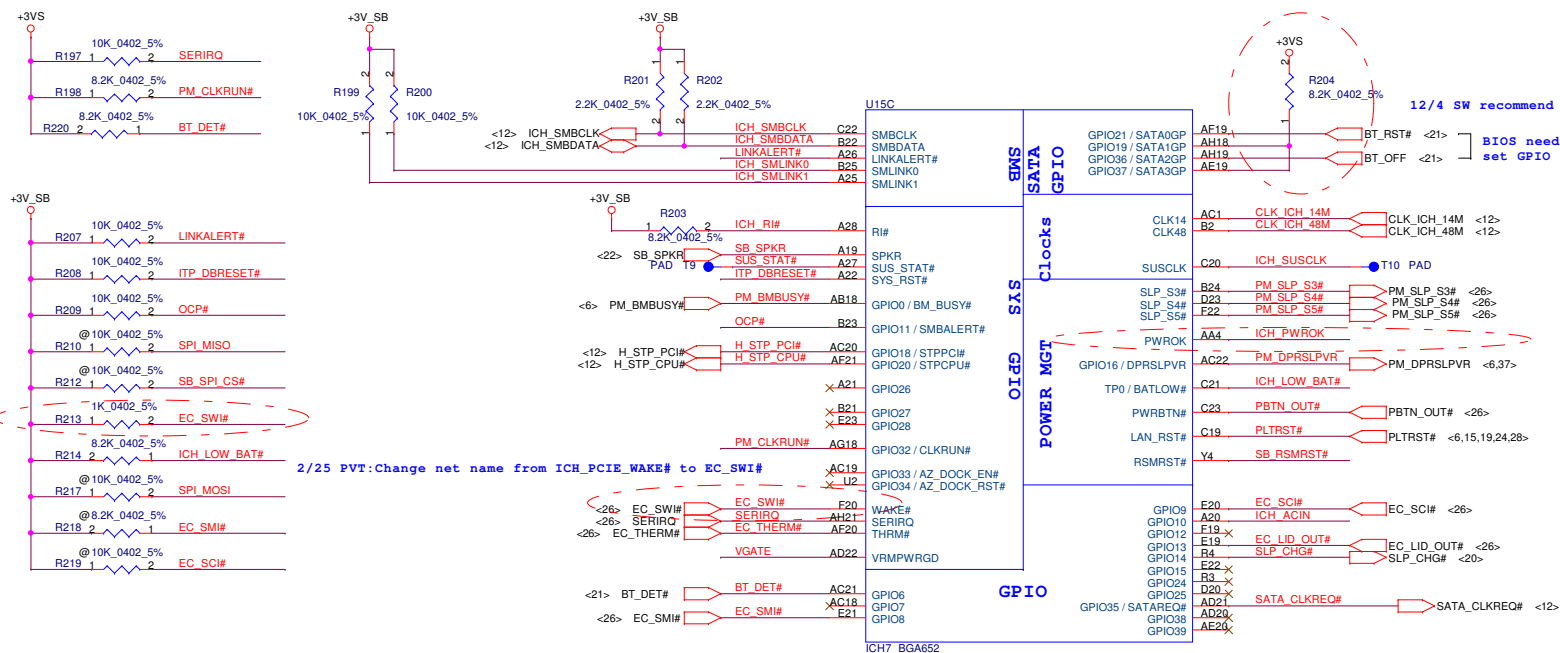


12/18 Change package to 8P4R with 8.2K

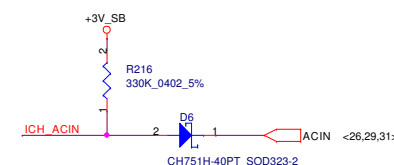
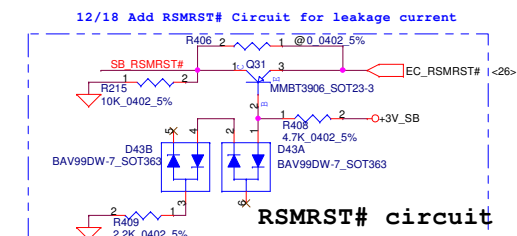
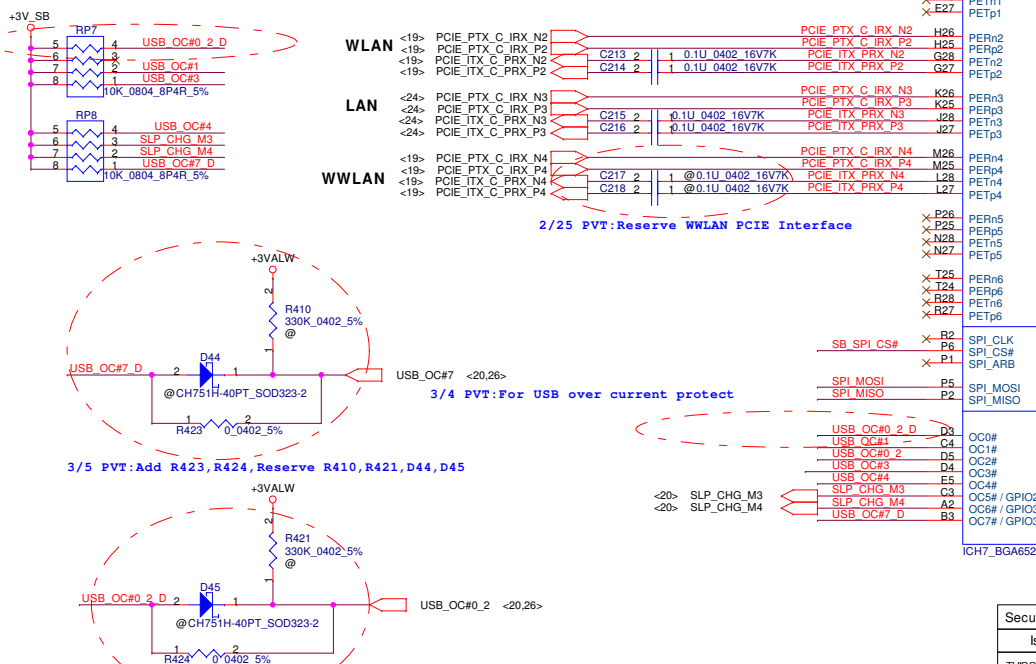
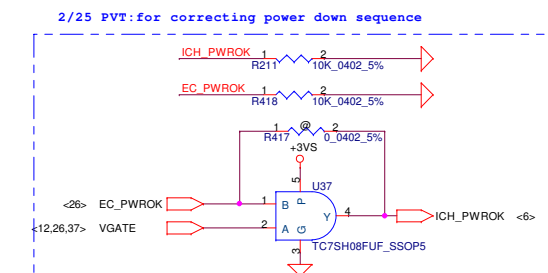


2/25 PVT:Mount C203,C204 for WWAN request





2/25 PVT:Change Net Name to ICH PWROK



- USB1(Right)
- CMOS
- USB2(Right)
- Card Reader
- WiMAX
- WWAN
- BT
- USB3(Left)

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Issued Date	2008/11/17	Deciphered Date	2009/11/17	Title ICH7M(3/4)USB,GPIO,PCIE			
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1/13 DVT:Change D7 P/N to SC1H751H010

Place closely pin D28,T28,AD28.

1/13 DVT:Change D8 P/N to SC1H751H010

Place closely pin AG28 within 100milis.

Place closely pin AG5.

12/18 Add L15 for ripple

Place closely pin AG9.

Security Classification

Compal Secret Data

Issued Date 2008/11/17 **Deciphered Date** 2009/11/17

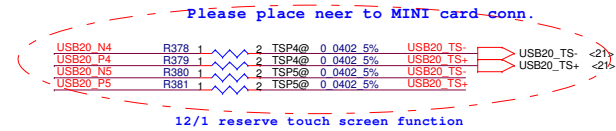
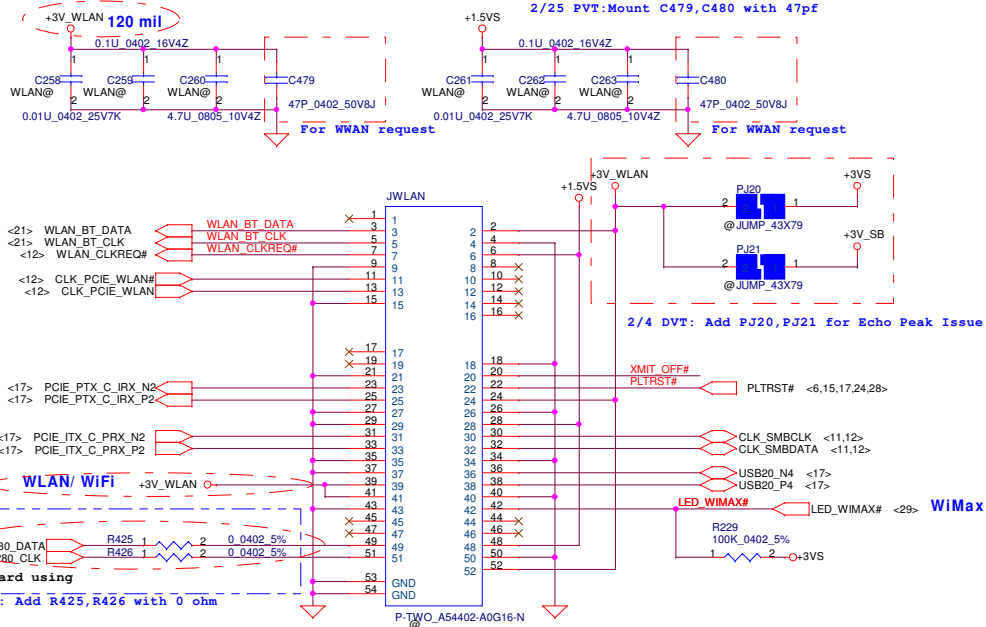
Title ICH7M(4/4)POWER/GND

Size Document Number **Rev** 1.0

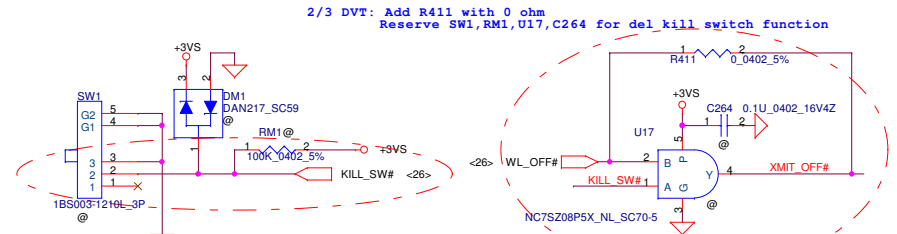
Customer KAVAA LA-5121P M/B

Date: Tuesday, March 10, 2009 **Sheet** 18 **of** 42

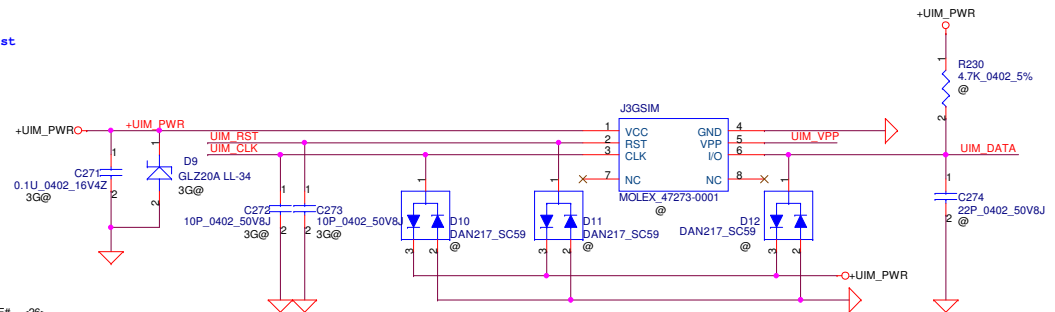
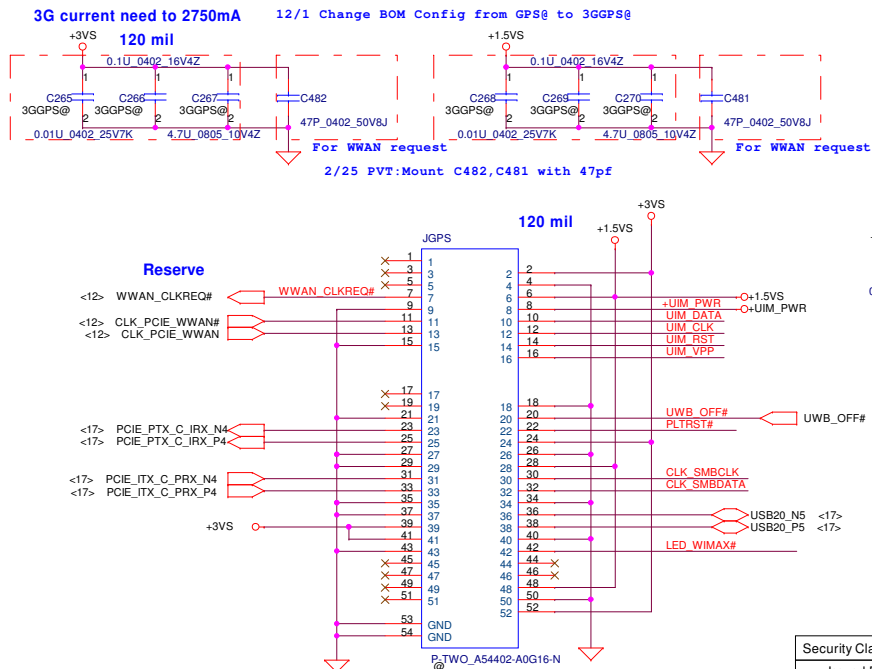
Mini-Express Card for WLAN/WiMax



Kill SWITCH

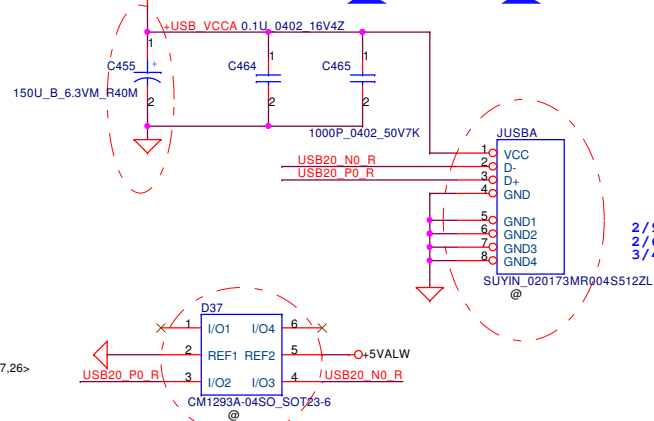
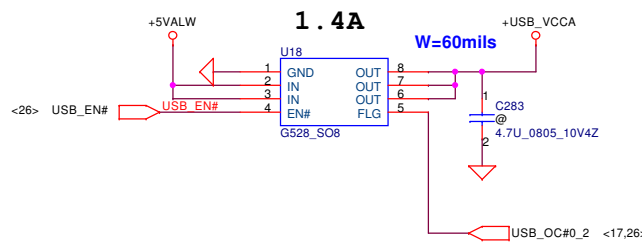


Mini-Express Card for 3G/GPS

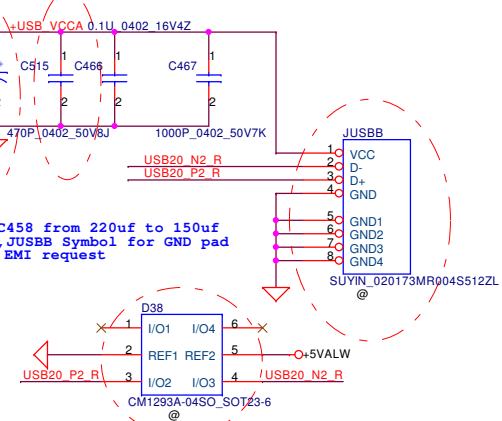


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Size		Document Number		KAVAA LA-5121P M/B	
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Sheet		19		of 42	

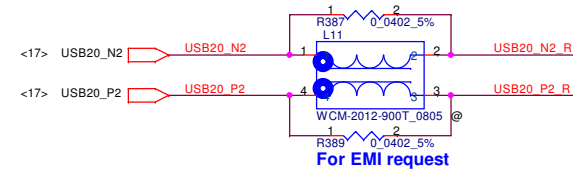
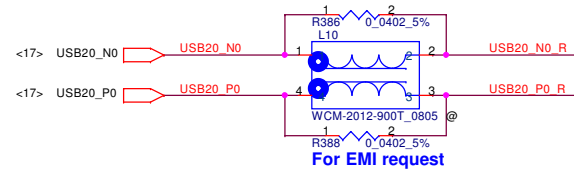
USB CONN--Right



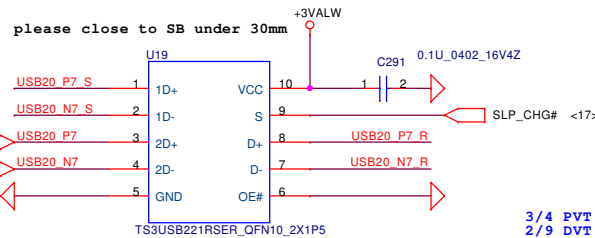
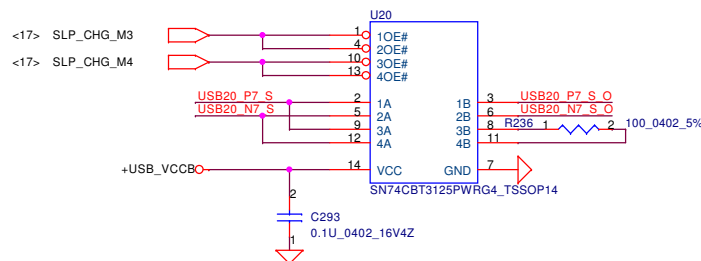
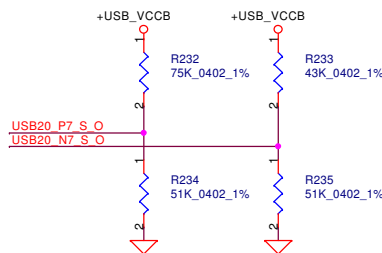
2/9 DVT:Change C455,C458 from 220uf to 150uf
2/6 DVT:Modify JUSBA,JUSBB Symbol for GND pad
3/4 PVT:Add C515 for EMI request



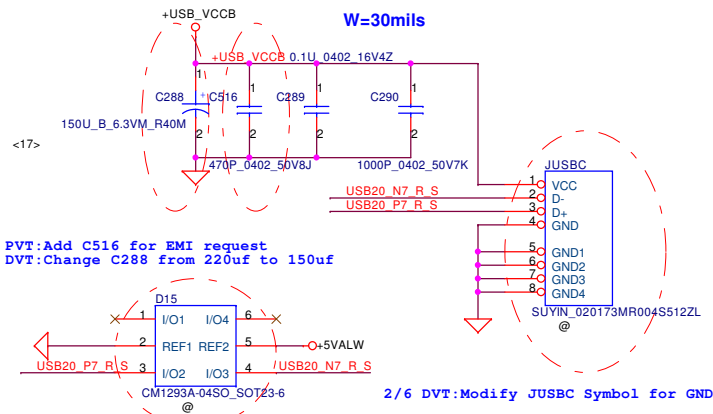
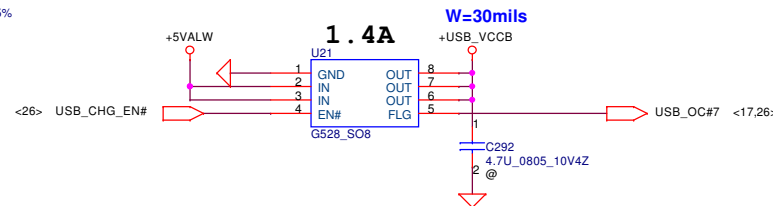
2/3 DVT: Change D38,D37 from PRTR5V0U2X_SOT143-4 to CM1293A-04SO_SOT23-6



USB Board--Left

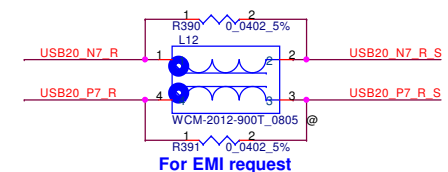


SLP_CHG	FUNCTION
LOW	D=1D
HIGH	D=2D



3/4 PVT:Add C516 for EMI request
2/9 DVT:Change C288 from 220uf to 150uf

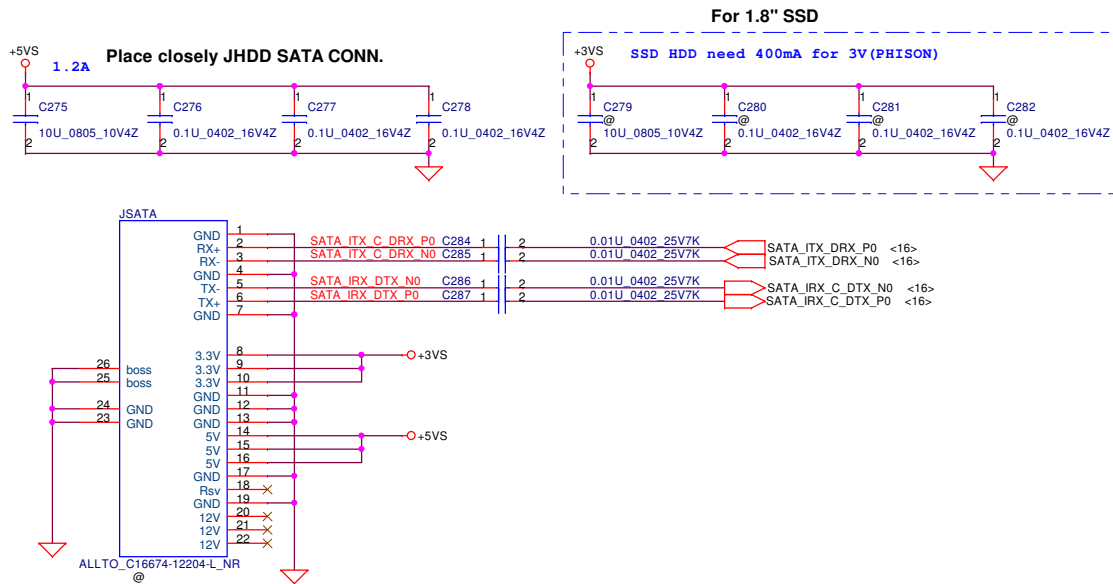
2/3 DVT: Change D15 from PRTR5V0U2X_SOT143-4 to CM1293A-04SO_SOT23-6



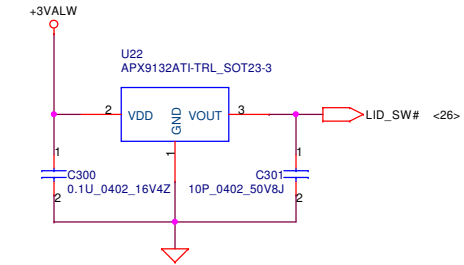
	SLP_CHG_M3	SLP_CHG_M4
Mode 3	HIGH	LOW
Mode 4	LOW	HIGH

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				KAVAA LA-5121P M/B	
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SATA Conn.

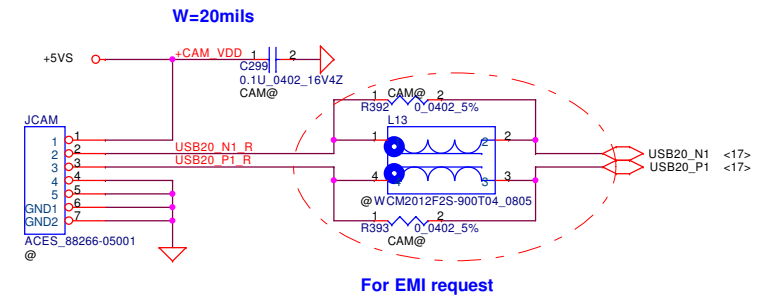


Lid SW

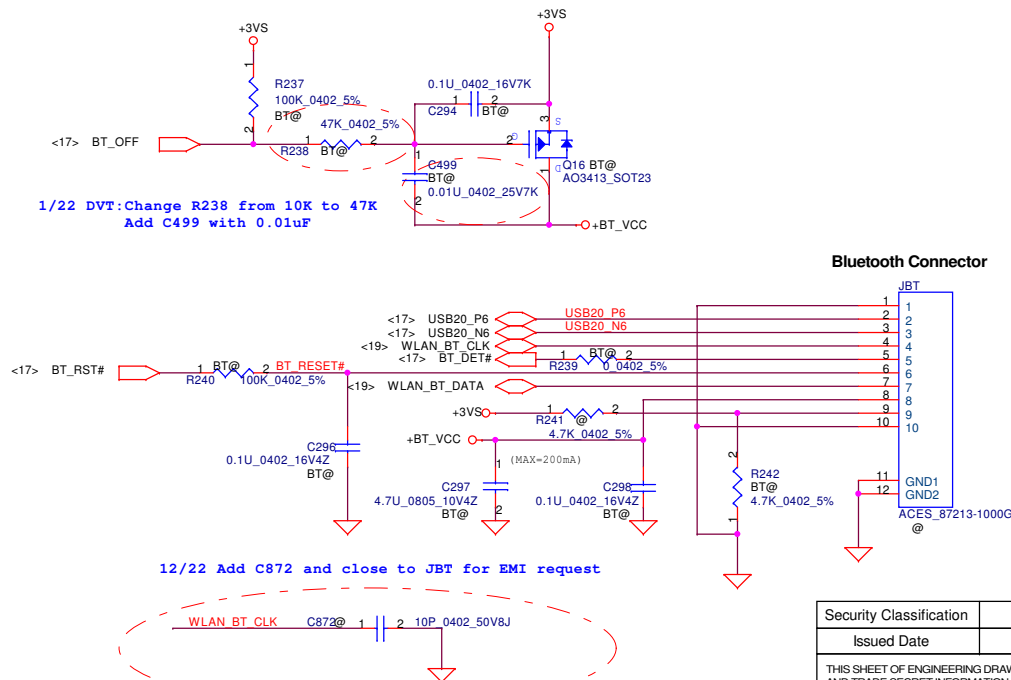


Camera Conn.

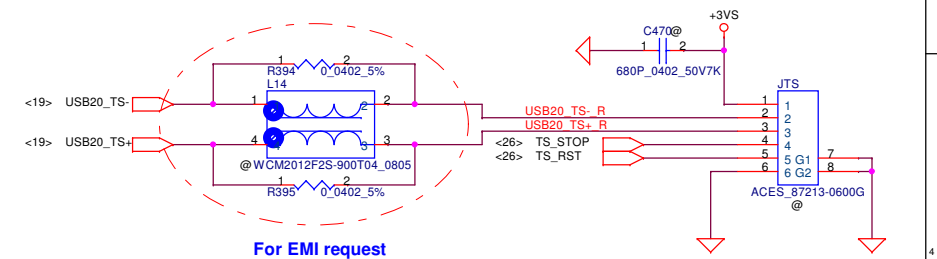
Int. Camera



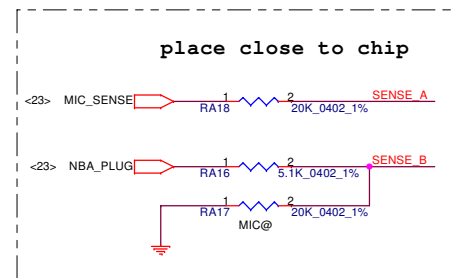
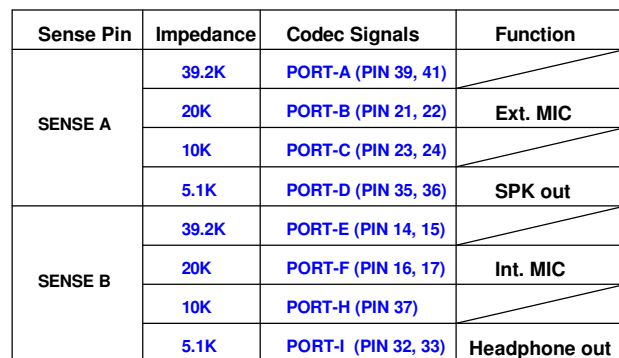
BlueTooth Interface



Touch Screen Conn.



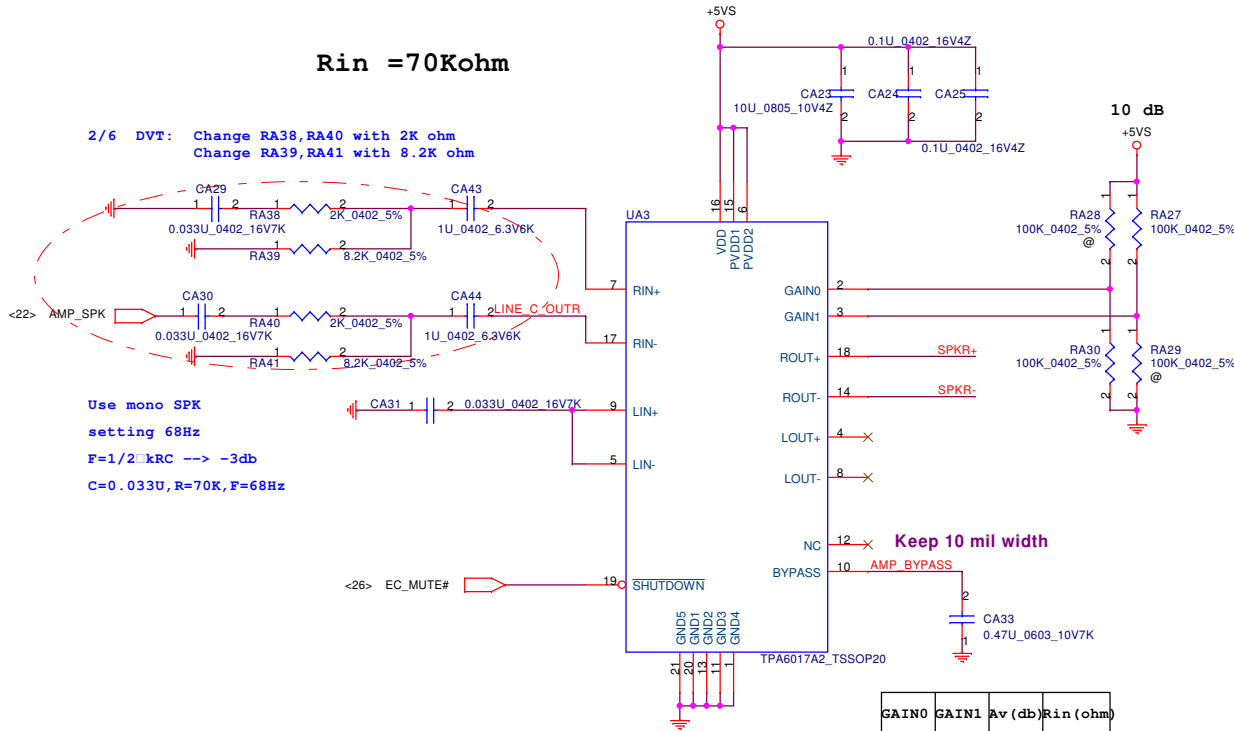
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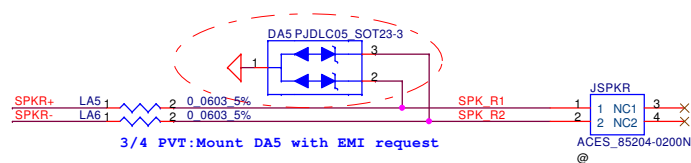
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Issued Date	2008/11/17	Deciphered Date	2009/11/17	Title	ALC272-GR Codec	
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TPA6017 Medium Range Amplifier

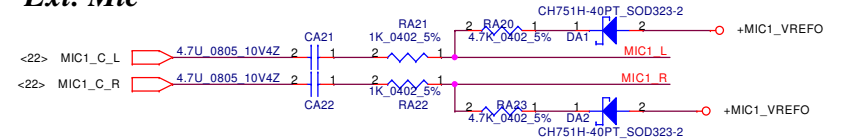
Rin = 70Kohm



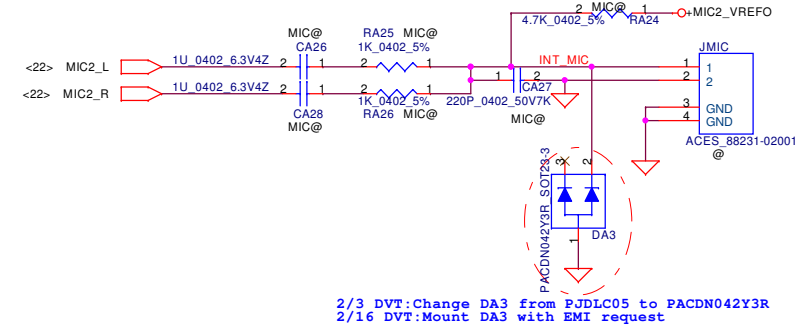
Right Speaker Connector



Ext. Mic

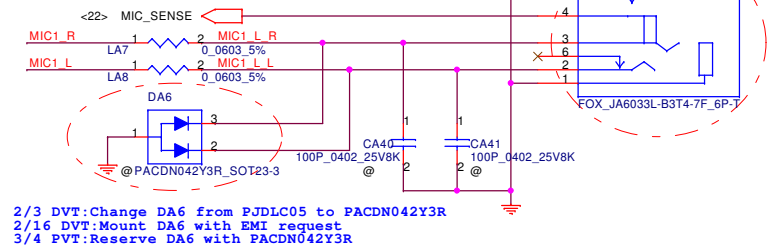


Int. Mic



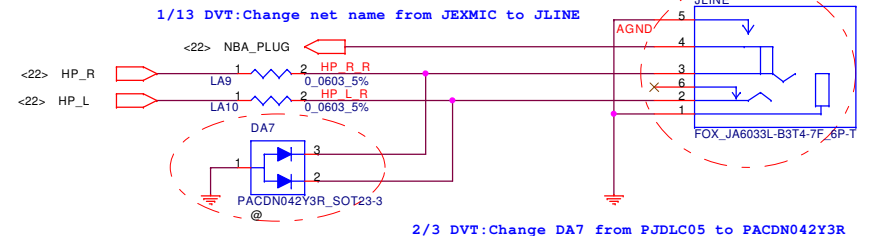
Ex.MIC JACK

2/3 DVT: Change DA7 from PJDLC05 to PACDN042Y3R

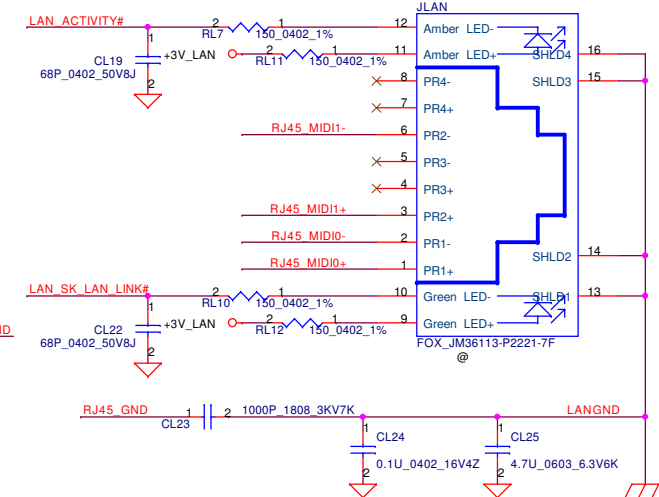
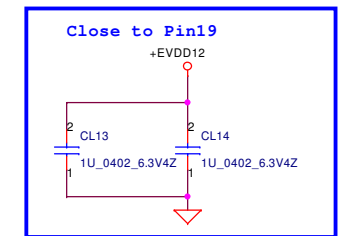
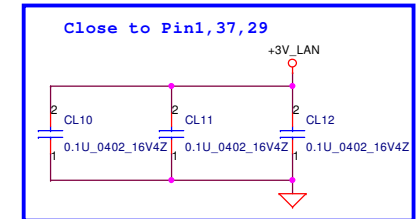
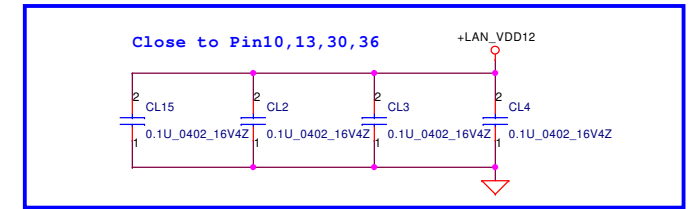


2/25 PVT: Change JEXMIC, JLINE PCB footprint

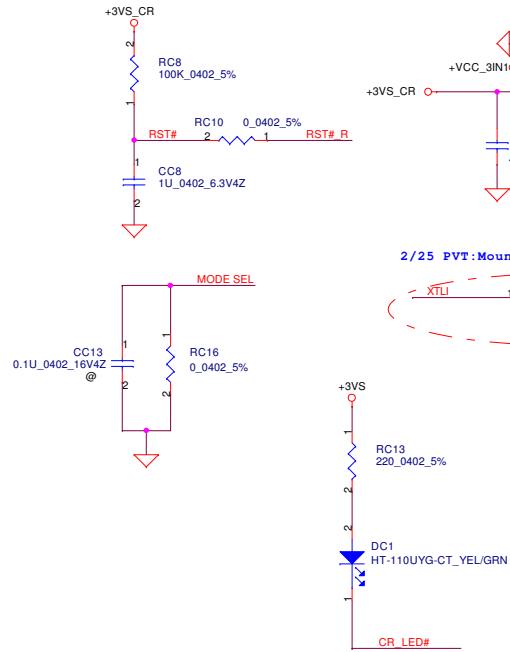
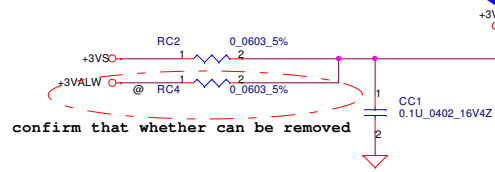
Head Phone JACK



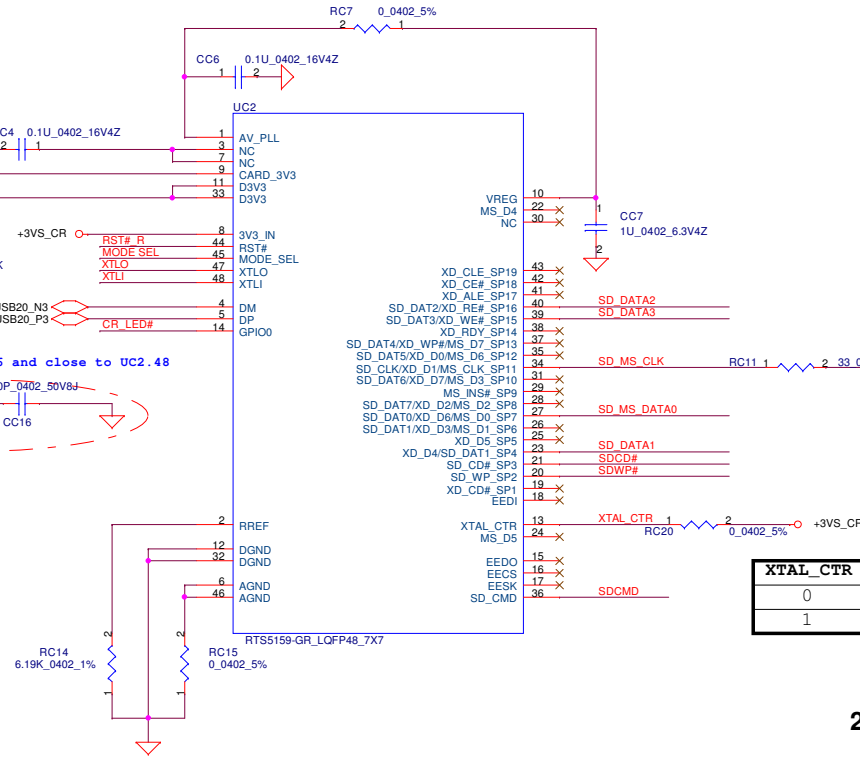
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Issued Date	2008/11/17	Deciphered Date	2009/11/17	Compal Electronics, Inc.	
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				Custom	KAVAA LA-5121P M/B	1.0	
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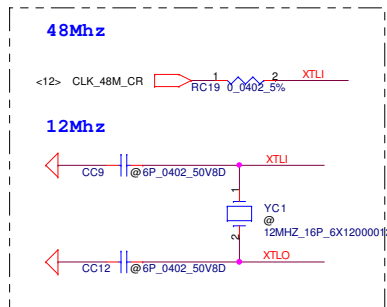
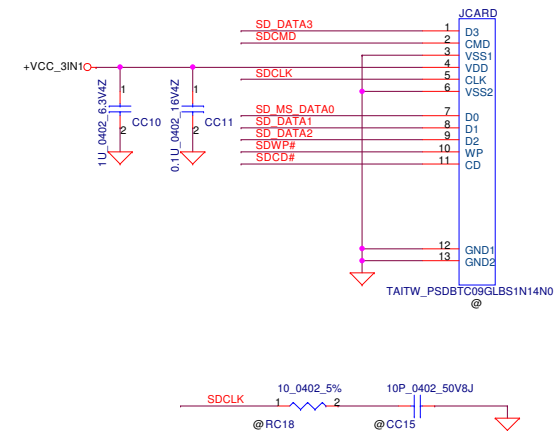


2/25 PVT: Mount RC21, CC16 and close to UC2.48



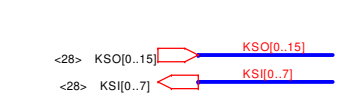
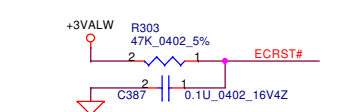
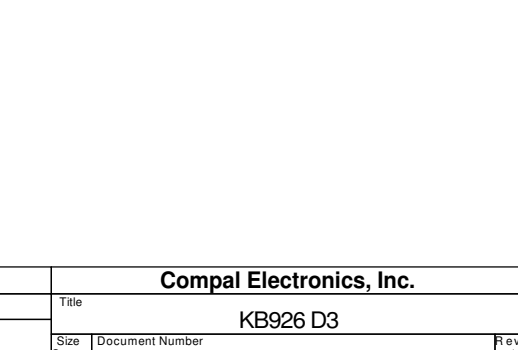
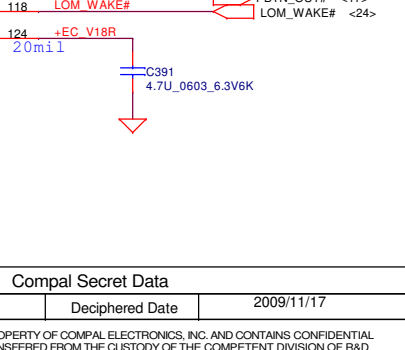
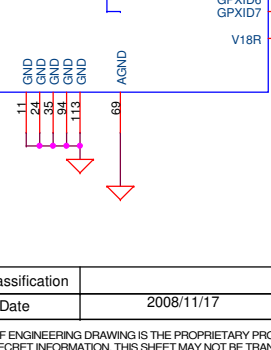
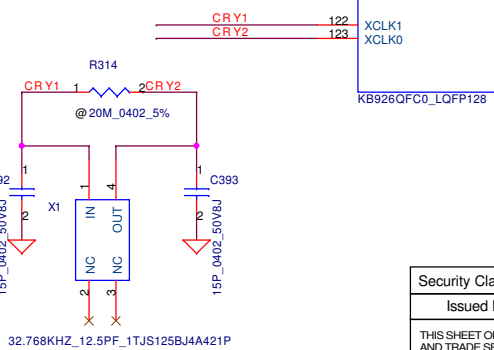
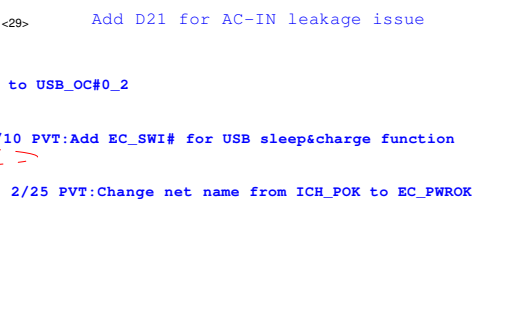
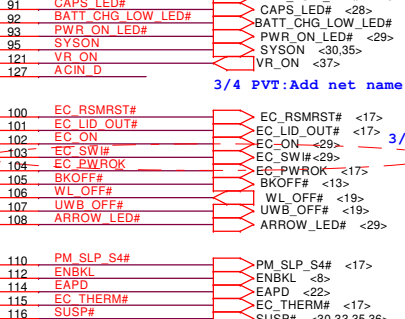
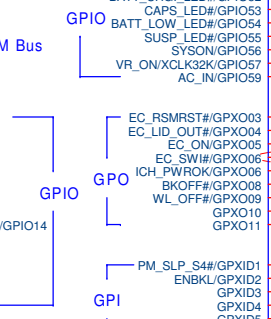
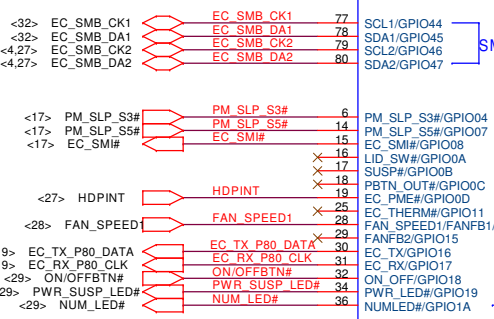
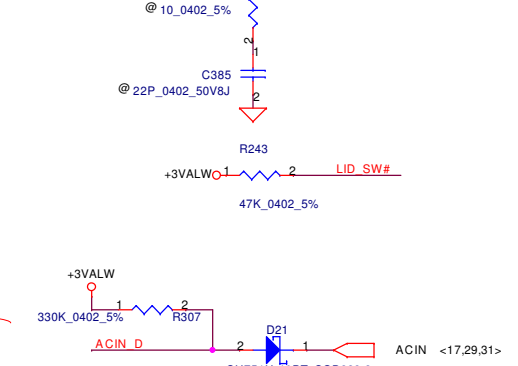
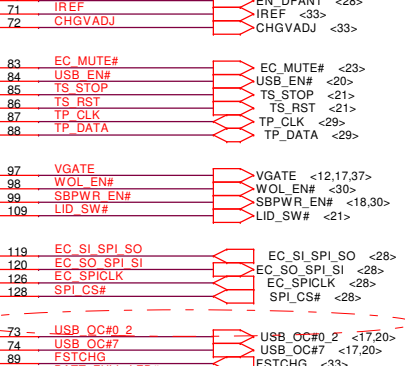
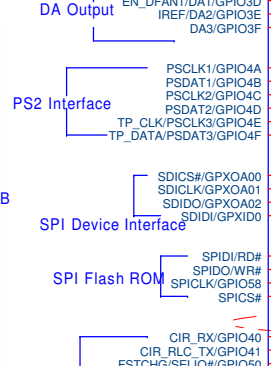
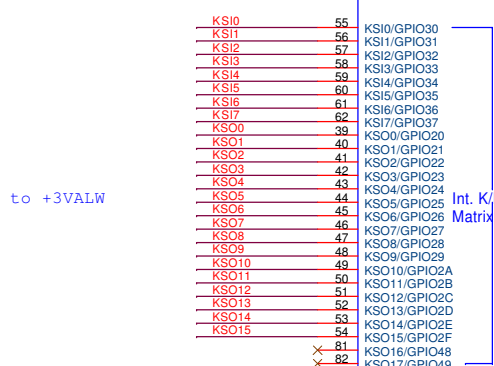
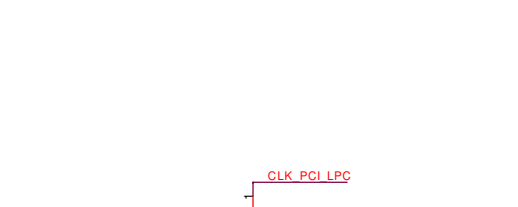
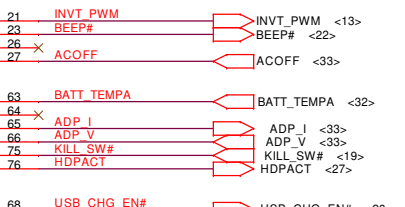
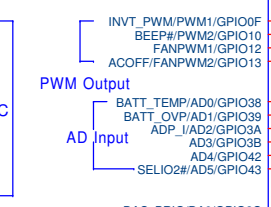
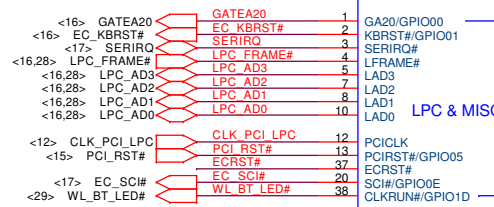
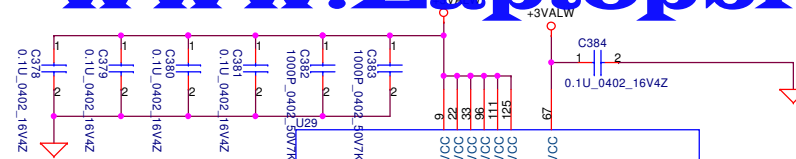
XTAL_CTR	Description
0	Use 12MHz Crystal
1	Use 48MHz CLK Gen

2 in 1 Card Reader

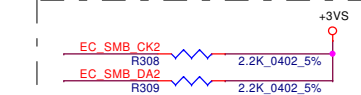
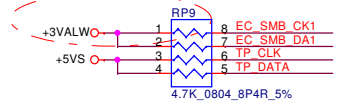


R	C	USB AUTO DE-LINK	MS FORMATTER	Description
0	NC	YES		Recommended
NC	47P	YES	YES	
NC	NC			Compatible with RTS5158E
NC	680P	YES		LED ON
10K	180P			LED ON
10K	680P		YES	

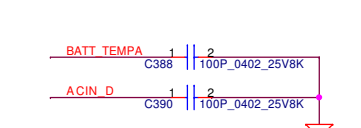
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2008/11/17	Deciphered Date	2009/11/17	Title	RTS5159 Card Reader
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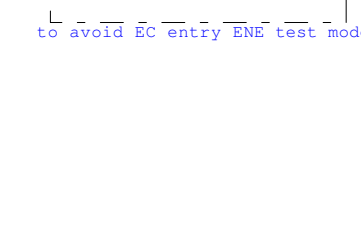
confirm battery team change +5VALW to +3VALW



For EC recommend 10/17



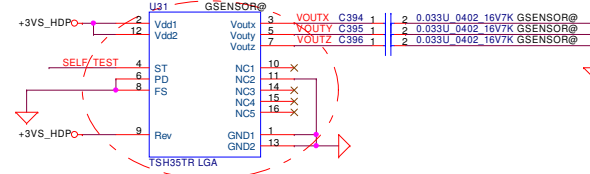
to avoid EC entry ENE test mode



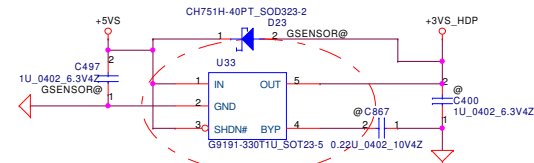
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2008/11/17	Deciphered Date	2009/11/17	Title	KB926 D3
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G-Sensor

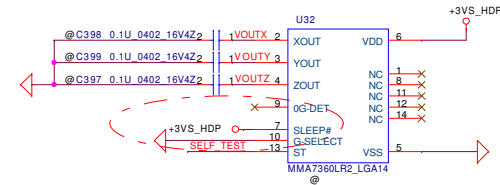
DVT phase:use SA000035U00 (TIS355AL3TR LGA)
PVT phase:use SA000039900 (TSH35TR LGA)



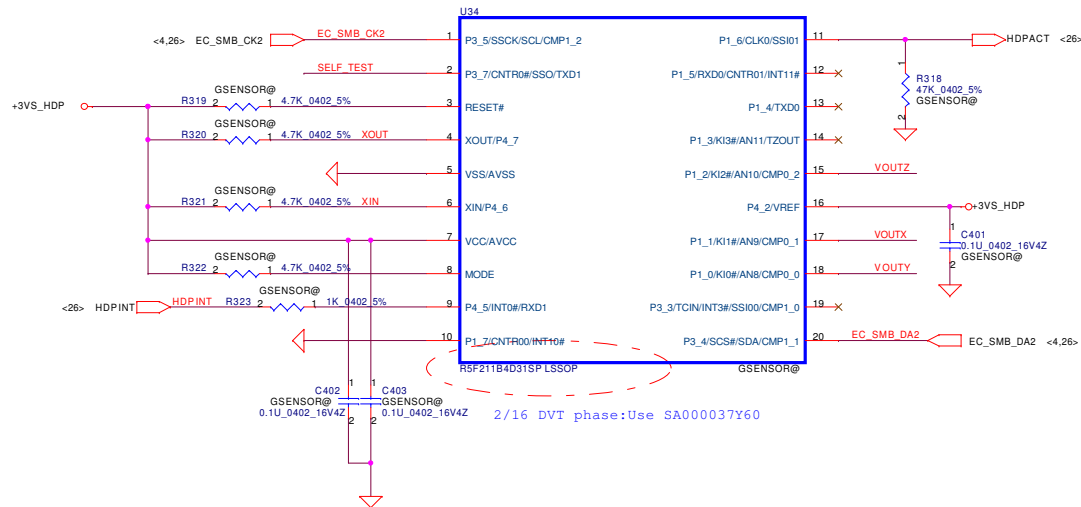
12/18 Change P/N from SA000030500 to SA000035U00
2/11 DVT:Change P/N from SA000035U00 to SA000039900



2/6 Reserve C867 with 0.22 for U33.4 NC pin
2/6 Change U33 from APL5151-33BC to G9191-3301TU

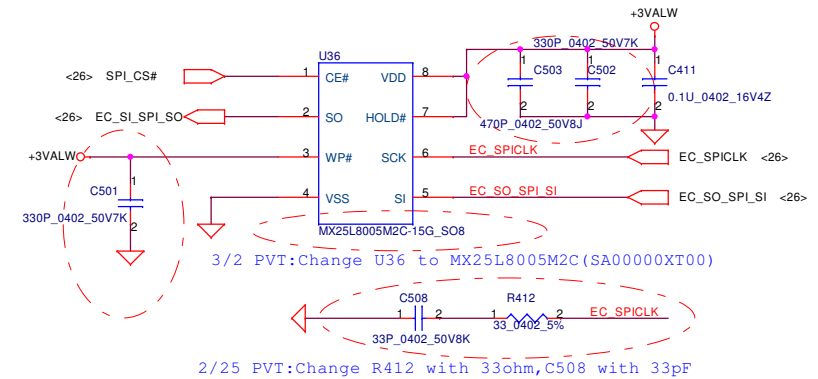
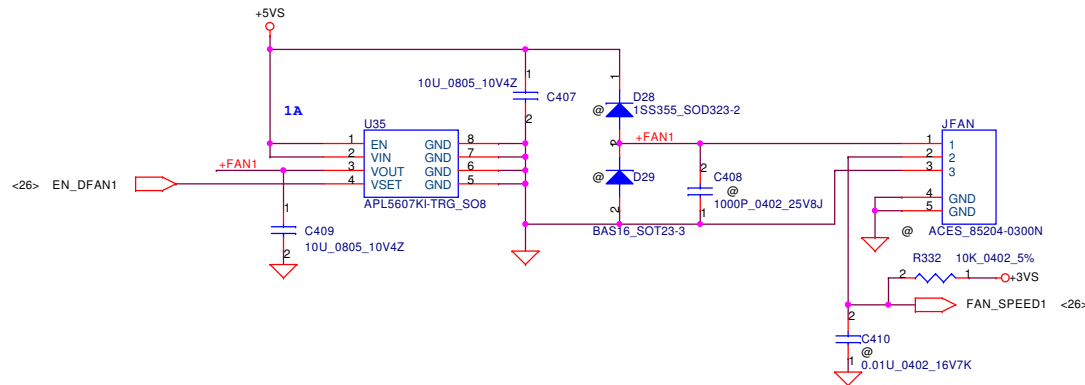


12/24 Change U32.7 link to +3VS_HDP
Change U32.9 no connect
12/25 Del R398 with 0 ohm and U32.10 link to GND



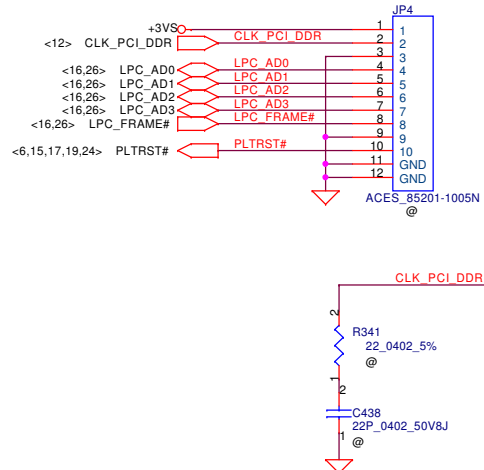
Security Classification	Compal Secret Data		Compal Electronics, Inc.	
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FAN Control Circuit

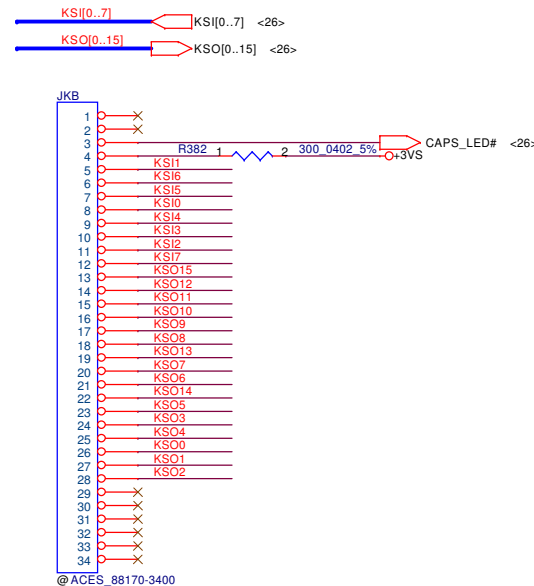


LPC Debug Port

Please place the connector neer to DDR door

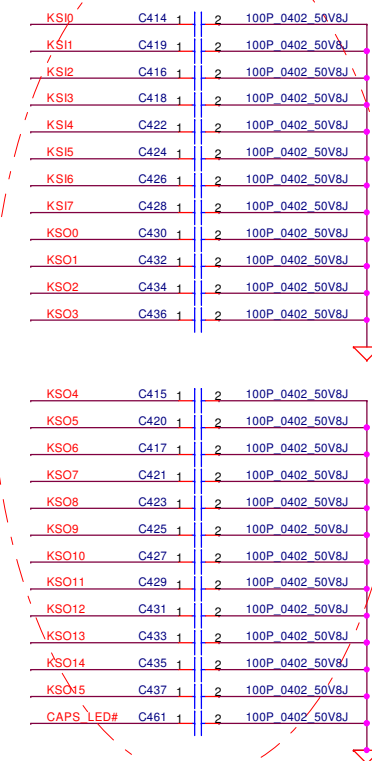


KEYBOARD CONN.



@ACES_88170-3400

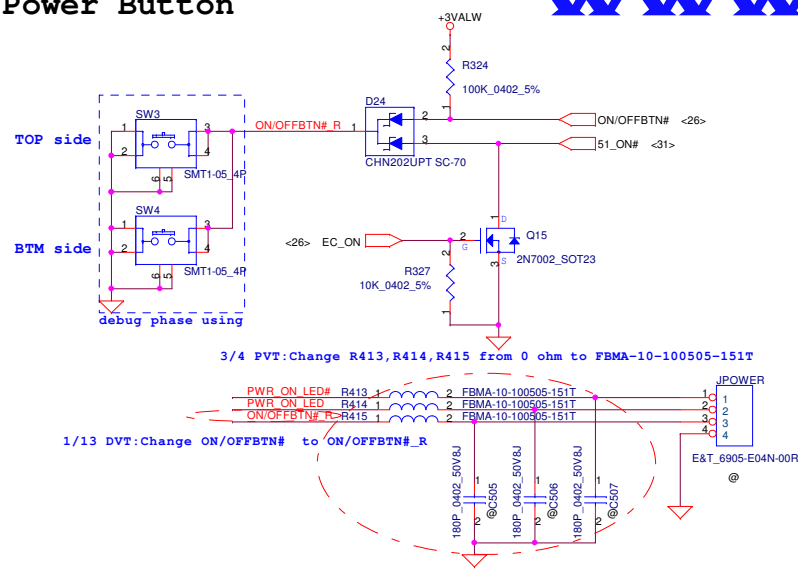
12/18 Follow KB Matrix the same to KSKAA



3/4 PVT:Mount C414~C437,C461 for EMI request

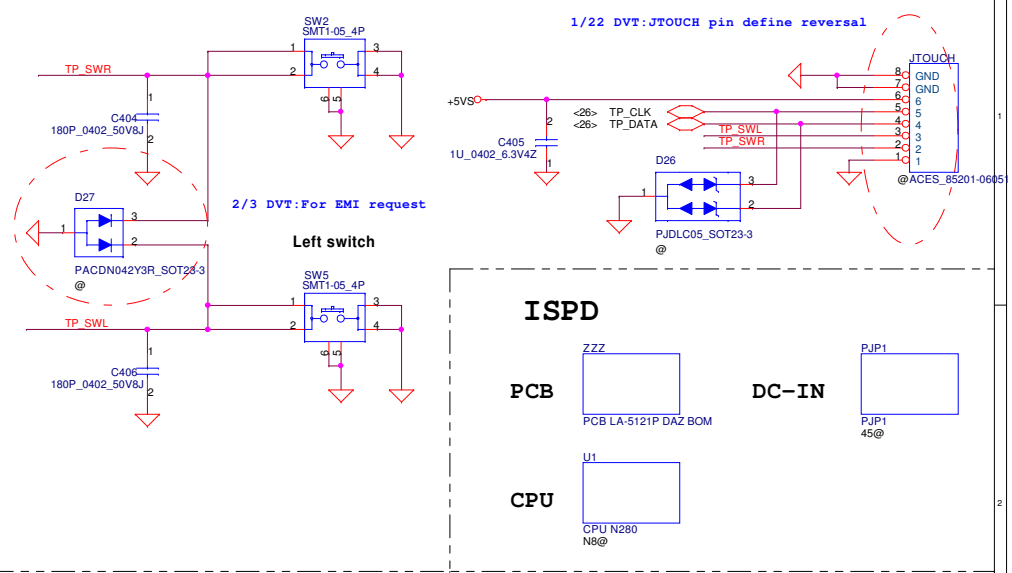
Security Classification	Compal Secret Data		Title	
Issued Date	2008/11/17	Deciphered Date	2009/11/17	SPI ROM//KB//FAN/Debug Poart
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Power Button



Right Switch

Touch/B Connector



ISPD

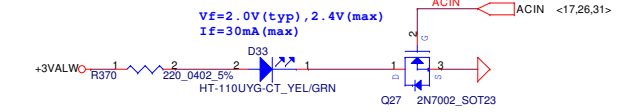
PCB

DC-IN

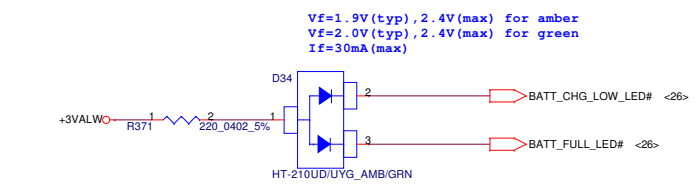
CPU

LED Conn

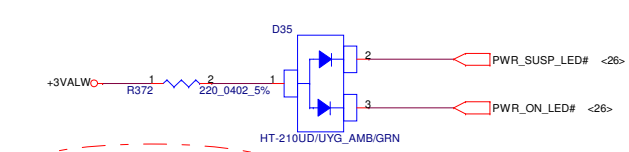
DC-IN LED



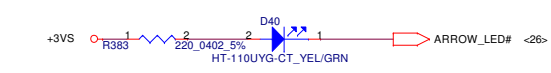
BATT CHARGE/FULL LED



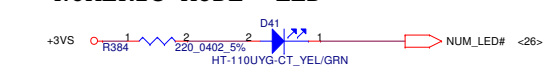
POWER/SUSPEND LED



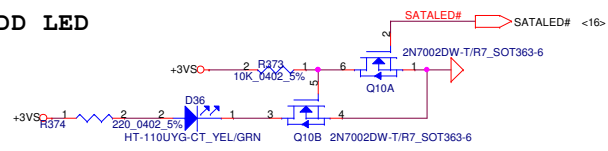
ARROW MODE LED



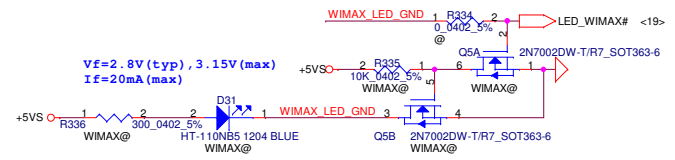
NUMERIC MODE LED



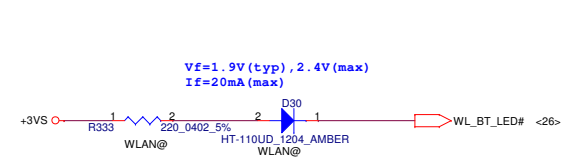
HDD LED



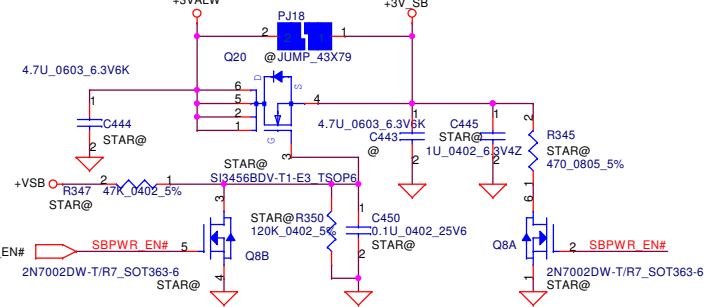
WiMAX&3G LED



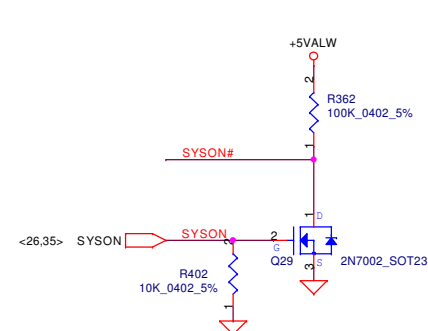
WL&BT LED



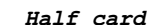
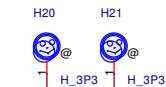
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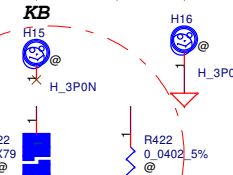
2/25 PVT:Reserve R349 with 200Kohm
Change R346 with 47Kohm



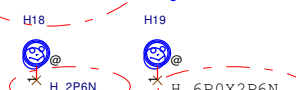
36 CUCB

 M/B 

GND



3/5 PVT:For EMI request



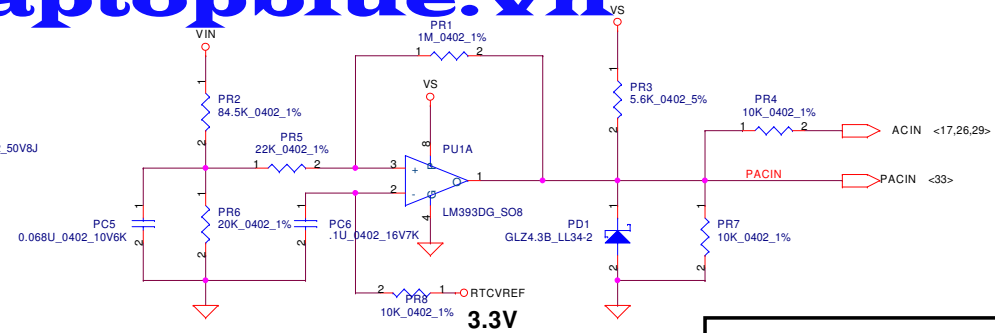
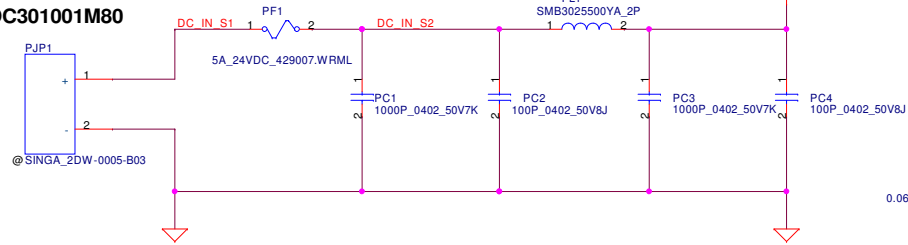
3/2 PVT:Change H19 from H_6P0X3P0N to H_6P0X2P6N

FIDUCIAL C40M80



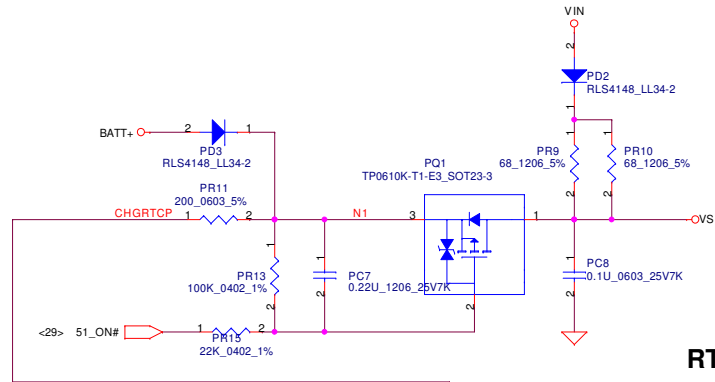
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DC301001M80

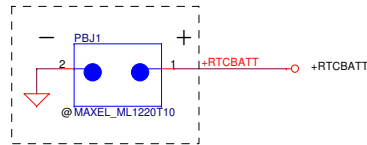


Vin Detector

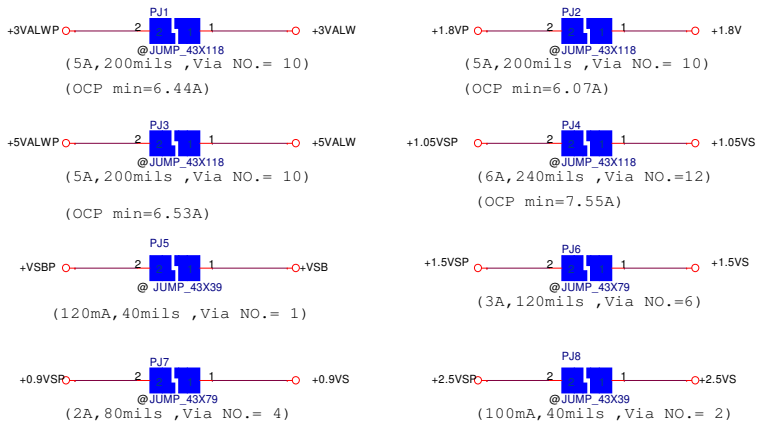
High 18.384 17.901 17.430
Low 17.728 17.257 16.976



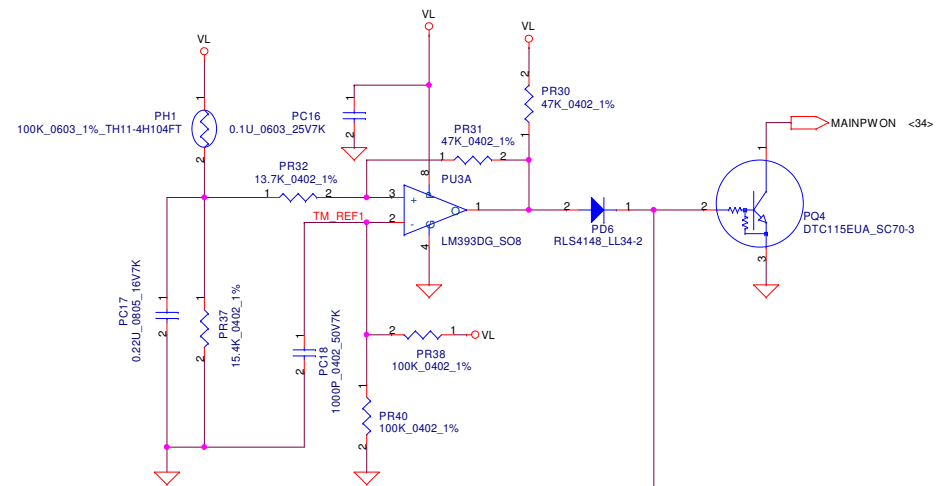
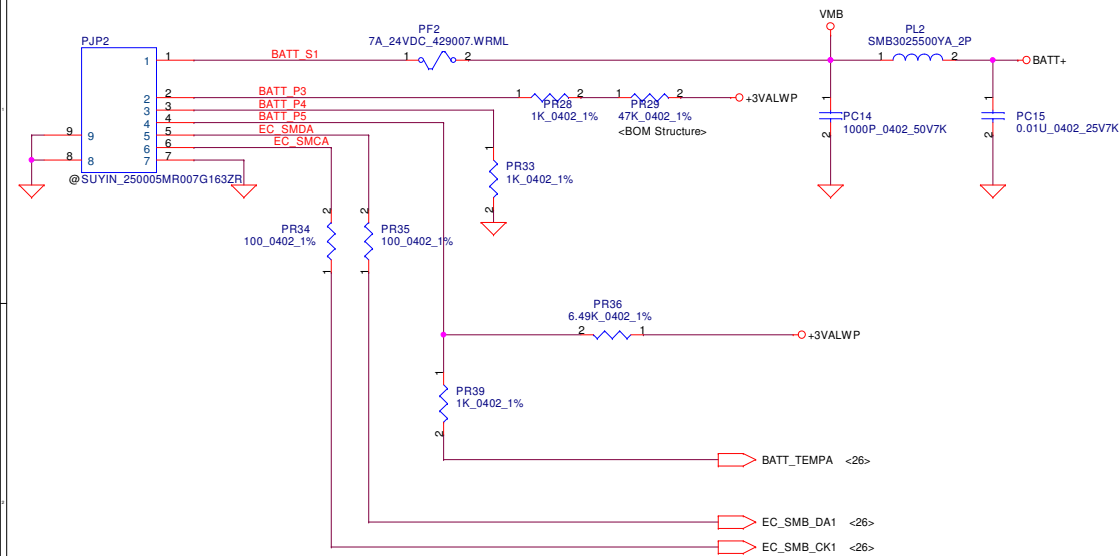
RTC Battery



SP093MX0000



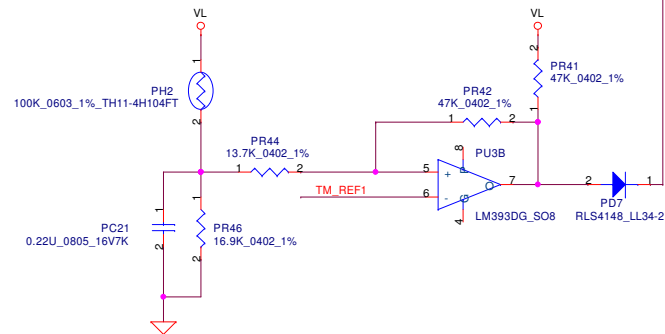
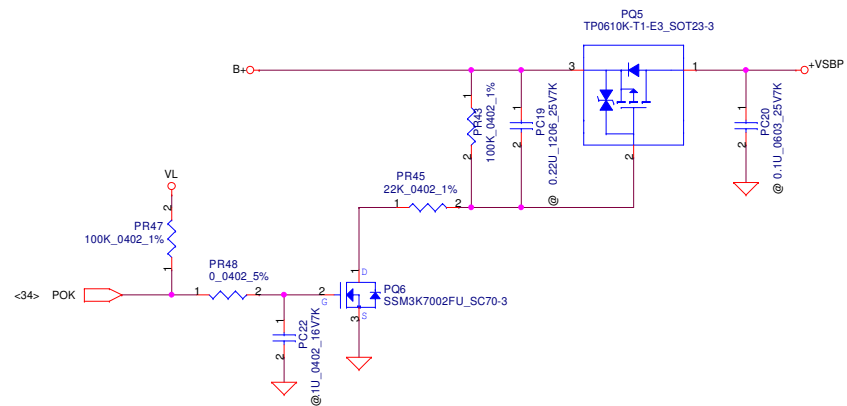
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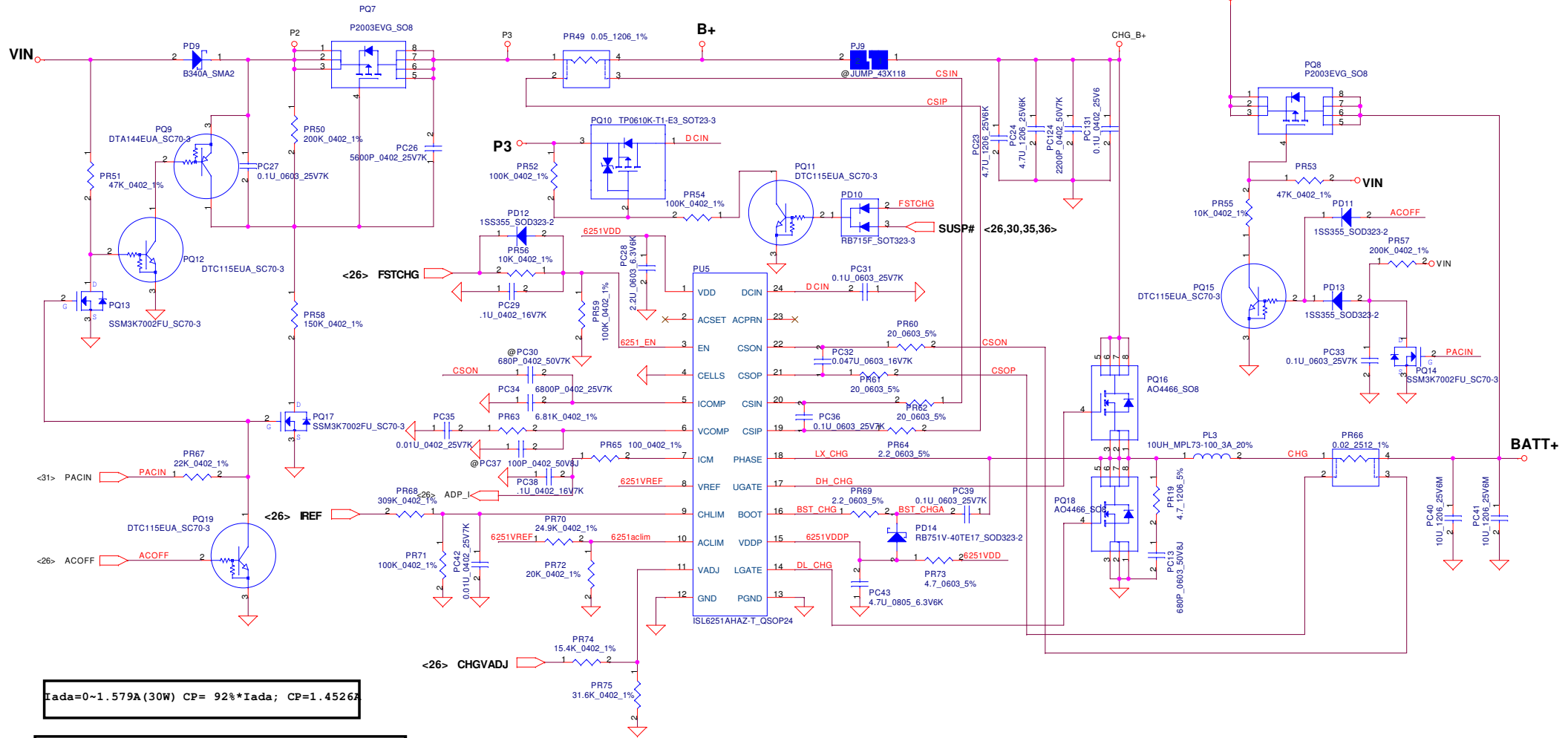


PH2 near main Battery CONN :

BAT. thermal protection at 90 degree C

Recovery at 53 degree C





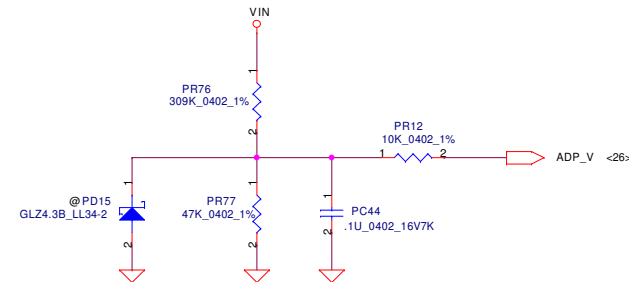
I_{ada}=0~1.579A (30W) CP= 92%*I_{ada}; CP=1.4526A

CP mode
 $V_{acim}=2.39 \times (20K//152K / (24.9K//152K+20K//152K))=1.0817V$
 $I_{input}=(1/0.05) \times ((0.05 \times V_{acim}) / 2.39 + 0.05)$
 where $V_{acim}=1.0817V$, $I_{input}=1.4526A$

CC=0.25A-2A
 IREF=1.636*I_{charge}
 IREF=0.409V~3.272V
 VCHLIM need over 95mV

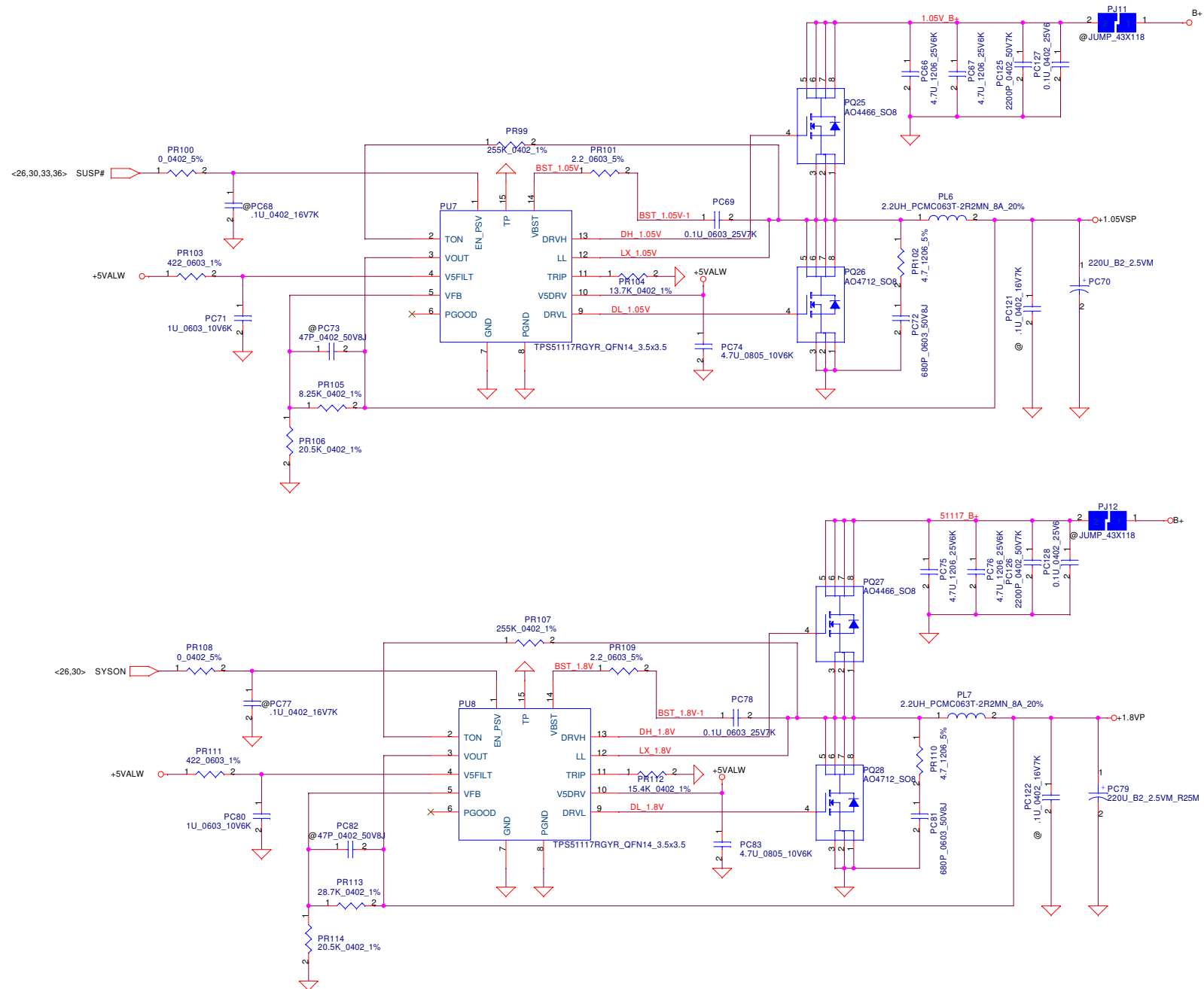
CHGVADJ=(V _{cell} -4)/0.10627	
V _{cell}	CHGVADJ
4V	0V
4.2V	1.2V
4.35V	3.3V

CELLS	VDD	GND	Float
CELL number	4	3	2

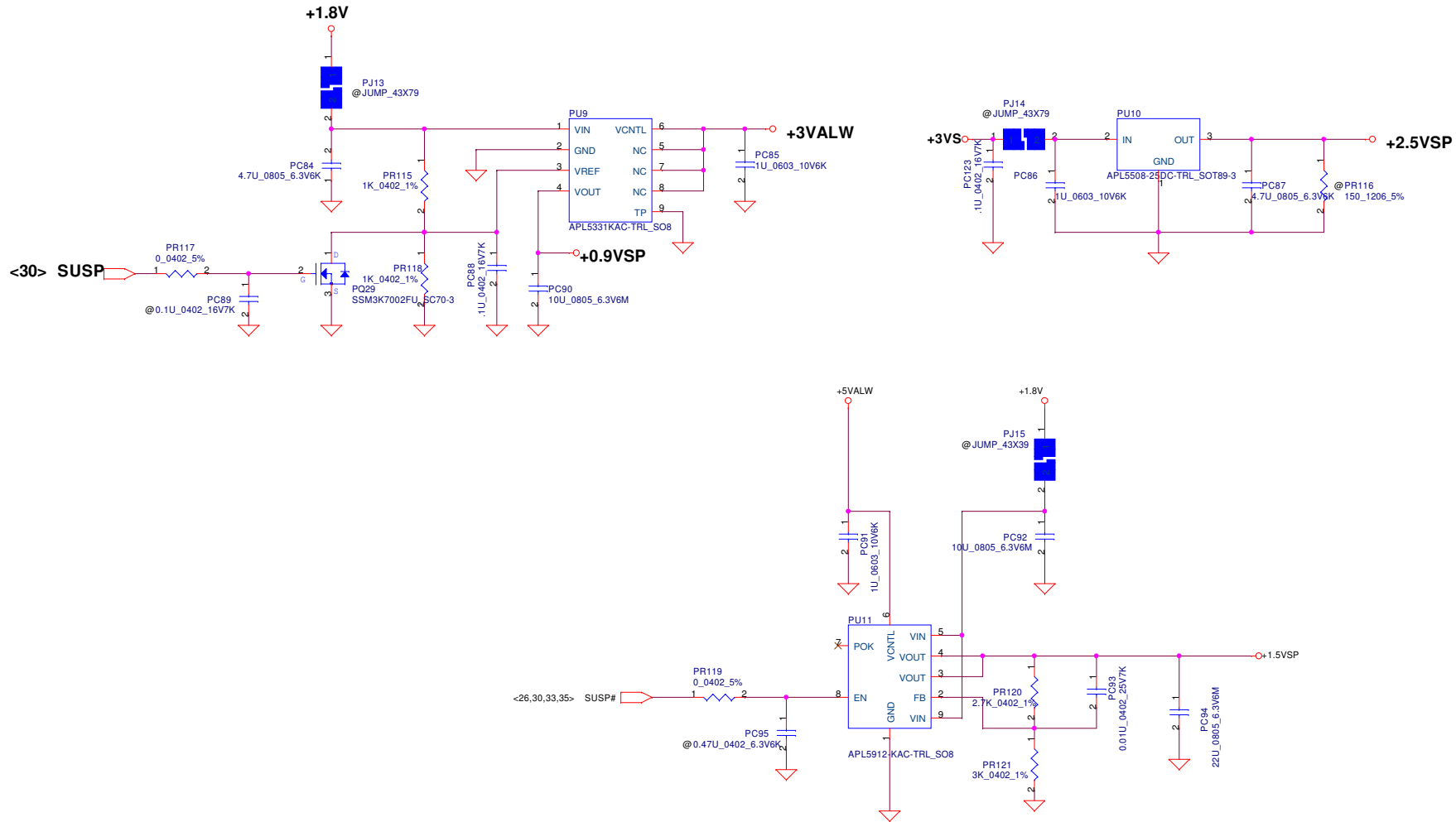


```
+5VALWP Ipeak=5.84A ; Imax=4.088A
Choke DCRmax=65.6m ohm
Rds(on)=18m ohm(max) ; Rds(on)=15m ohm(typical)
Vlimit=(5E-06 * 200K)/10=100mV
Ilimit=100mV/15m ~ 100mV/18m
      =5.55A ~ 6.66A
Iocp=Ilimit+1/2*Delta IL
      =6.53A ~ 7.64A
1/2*Delta IL=0.98A (Freq=400KHz)
```

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Issued Date	2008/11/17	Deciphered Date	2009/11/17	Title	1.05VSP/1.8VP
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PVT	P33-CHARGER	add PR12 10K	Design change
PVT	P33-CHARGER	add pc131 & pc124	RF tema require
PVT	P34-3VALW/5VALW	PR83 & PR79 change to 2.2ohm	EMI tema require
PVT	P34-3VALW/5VALW	ADD PC129 & PC130	RF tema require
PVT	P35-1.05VSP/1.8VP	PR101 & PR109 chnage to 2.20hm	EMI team require
PVT	P37-+CPU_CORE	PR138 change to 2.2 ohm	EMI tema require
PVT	P35-1.05VSP/1.8VP	ADD PC128 & PC127& PC125 & PC126	RF team require
PVT	P33-CHARGER	add P09 &PR51&PQ12&PQ13	Design change
PVT	P33-CHARGER	Change PR74 & Delete PD15	Design change
PVT	P37-+CPU_CORE	PR140 & PC106 reserved	EMI tema require

Security Classification		Compal Secret Data		<i>Compal Electronics, Inc.</i> Power PIR		
Issued Date	2008/11/17	Deciphered Date	2009/11/17			
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KAVAA LA-5121P SCHEMATIC CHANGE LIST
REVISION CHANGE: 0.1

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE

08/12/15				
(1)	P15		Del C7 with 220U	For layout placement limit
(2)	P16		Change Net name R182.1 from +RTCBATT to +RTCVCC	
			Change Net name R185.1 from +RTCBATT to +RTCVCC	
			Del C210 with 0.1uf	
(3)	P18		Change Net name C244 from +RTCBATT to +RTCVCC	
(4)	P28		Reversal KB Pin define	For KB pin define difference from PCB Foorprint
08/12/11				
(1)	P25		Change Card Reader Function "3IN1" to "2IN1"	For Cost down
(2)	P26		Link Net name TS_STOP from U29.85 to JTS.4	For Touch Screen
			Link Net name TS_RES from U29.86 to JTS.5	For Touch Screen
08/12/10				
(1)	P25		Change Card Reader Footprint T-SOL_143-1400303600_21P_NR-T	
(2)	P28		Change KB Matrix from 30 pin to 34 pin	
(3)	P29		Add D40,D41 for Key board F10/F11 function	
08/12/09				
(1)	P12		Reserve C472~C478 with 47P	for WWLAN request
(2)	P19		Reserve C479~C481 with 47P	for WWLAN request
(3)	P28		Reserve R399,Q32 for test	for cost down plan
08/12/05				
(1)	P13		Reserve R468,R469 with 680pF	for EMI request
(2)	P20		Reserve L10,L11,L12 Commom choke for EMI request	for EMI request
(3)	P21		Reserve L13,L14 Common choke for EMI request	for EMI request
(4)	P22		Add PJ19 and link to +5VS	for Cost Down Plan
(5)	P22		Reserve RA31,RA37,CA34,CA42 for EMI request	for EMI request
(6)	P22		Reserve RA4 with 0 ohm for EMI request	for EMI request
(7)	P28		Reserve R396,Q31,C471,D39 for test	for cost down plan
08/12/04				
(1)	P17		Change BT_RST# from GPIO37/SATA3GP to GPIO21/SATA0GP	for SW recommend
(2)	P17		Link R204.1 to GPIO37/SATA3GP	for SW recommend
(3)	P26		Change package R749 from 0603 to 0402	for layout placement limit
(4)	P13		Change LVDS footprint to "ACES_87213-2000G_20P"	for ME request
(5)	P21		Change TOUCH SCREEN CONN. footprint to "ACES_87213-0600G_6P"	for ME request
08/12/01				
(1)	13		Change L4,L5 from Bead to 0ohm	
(2)	14		Change R151,R152 from 2.2K to 4.7K	
(3)	14		Change R153,R154 form 2.2k to 4.7K	
(4)	17		Change power source +3VALW to +3V_SB	
(5)	18		Add R385 with 0ohm	
(6)	18		Change R226 from STAR@ to @	
(6)	19		Change R229 from WINMAX@ to ALWAY	
(7)	19		Change C265~C270 form GPS@ to 3GGPS@	
(8)	19		Add R378~R381 with 0ohm for touch screen select	
(9)	20		Add D37,D38 ESD diode to USB D+/- port0,2	
(10)	21		Add Touch screen conn.	
(11)	23		Del RA31,RA32 with 0ohm	
(12)	25		Del RC21 with 0ohm	
(13)	25		Del QC1 with 2N7002	
(14)	25		Change net name CR_LED to CR_LED#	
(15)	26		Del ROM Circuit of reserve	
(16)	28		Del R368 with 300ohm	
(17)	28		Add R382~384 with 300ohm	
(18)	29		Change Q14A form SOT363 to SOT23	
(19)	30		Change R355 from 1k to 3.3k	
(20)	30		Change C451 with 0.1uf and link to +3VALW	
(21)	30		Change R353.2 link from +5VALW to +3VALW	
(22)	30		Change Q14B,Q9 form SOT363 to SOT23	

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NO	DATE	PAGE	MODIFICATION LIST	PURPOSE

08/12/30				
(1) P30			Mount R361 with 100K ohm	For SUSP pull high
08/12/26				
N0	PAGE		MODIFICATION LIST	PURPOSE
(1) P29			Add U1(SA000036K00)forN280 CPU	
08/12/25				
(1) P27			Del R398 with 0 ohm and U32.10 link to GND	For customer recommend
(2) P31			Change H3 link to GNDA	For EMI request
08/12/24				
N0	PAGE		MODIFICATION LIST	PURPOSE
(1) P27			Change U32.7 link to +3VS_HDP	
			Change U32.9 no connect	
08/12/23				
(1) P16			Add U15A.AF7 and U15A.AE7 link to GND	The unused STAT port RX signals must be properly tied to ground
08/12/22				
(1) P15			Change C203.1 Net name from PLTRST#_R to PLTRST#	
(2) P12			Reserve C868 with 10P	For Custome request
(3) P13			Reserve C871 with 10P	For Custome request
(4) P25			Reserve RC21 with 10 ohm and CC16 with 10P	For Custome request
08/12/21				
(1) P16			Change C209 Package from 0603 to 0402	For layout pacement limit
(2) P18			Change C222 Package from 0603 to 0402	For layout pacement limit
			Change C219 Package from 0603 to 0402	For layout pacement limit
(3) P25			Mount RC20 with 0 ohm	For CLK 48Mhz
08/12/18				
(1) P4			Reserve C484~C495 with 180p	For debug
(2) P6			Add R403~R405 with 1K ohm	For CPU CLK link to NB
(3) P10			Change package C61,C62,C68,C78,C79 from 0603 to 0402	For layout pacement limit
			Change package C74,C75 from D2 to B2	For layout pacement limit
(4) p11			Del C124 with 2.2U	
(5) P12			Del R85,R87,R88,R89,R92,R94,R95,R96,R102,R105,R106,R109	For CPU BSELE0~2 link to CLK Gen
			Change R90,R91 from 33 ohm to 22 ohm	For damping resistor when loading is two device
			Chagne net name FSB to CPU_BSEL1	For CPU link to CLK Gen
			Del R110,R111 with 10K ohm	For UMA platform not need to reserve
(6) P13			Change Net name R117.1 from +3V_SB to +3VS	For layout pacement
			Change C183 link from GND to +3VS	For layout pacement
			Change JLVDS pin2 from +LEDVDD to +LCDVDD_L	For LCD power consumption
(7) P14			Change C190~195 to 2.2P	For EMI request
(8) P15			Change package to 8P4R with 8.2K	For layout pacement limit
			Dell U16,R180,C206	
(9) P16			Del R190 with 8.2Kohm	For customer request
			Change R189 from 4.7K to 10K ohm	
			Change Net name from IDE_DIORDY to IDE_DIORDY_IRQ	
(10) P17			Change R216 from 100K to 330K ohm	For ACIN issue
			Add R215,R406,Q31,R408,D43,R409	For leakage current of RSMRST# Circuit
			Add R410,D44	For EC leakage current to SB
(11) P18			Add R496 with 0.1U	For soft start
(12) P18			Add L15 with MBK1608121YZF_0603	For Ripple
(13) P20			Change C455,C458,C222 from D2 to B2 with 220U	For layout placeemnt limit
			Change U21.4 from USB_EN# to USB_CHG_EN#	For customer request
			Add U21.5 link to U29.74	
(14) P21			Dell Q17 with 2N7002	For cost down
			Change R237.1 from +5VS to +3VS	
			Chagne C294.2 from GND to +3VS	
(15) P22			Reserve PJ19	
(16) P24			Dell CL6 with 10U	
			Change UL3 from HD-024A to NS681680	For cost down
(17) P25			Reserve CC9,CC12,YC1	
			Mount RC19 for 48Mhz	
			Mount RC20 For 48Mhz	
(18) P26			Del R304 with 10K ohm	
			Change R307 from 100K to 330K ohm	
			R243 please close to EC	
			Add Net Name USB_CHG_EN#	
			Del D22,R310,R311	
(19) P27			Change U31 P/N from SA000030500 to SA000035U00	
(20) P28			Chagne U36 ROM Size from 16M*1 to 8M*1	
			JBK KB Matrix the same to KSKAA	
			Del JP2	
(21) P29			Change R370,R371,R372,R375,R383,R384,R374,R333 from 120 ohm to 220 ohm	
			Del R325,R326	
(22) p30			Add R401,R402 with 10K ohm	

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KAVAA LA-5121P SCHEMATIC CHANGE LIST
REVISION CHANGE: 0.1-->0.2

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
1)	1/13	10	Change D1 to CH751H-40PT_SOD323-2	For BOM simplify
2)	1/13	18	Change D7,D8 to CH751H-40PT_SOD323-2	For BOM simplify
3)	1/13	23	Change net name from JLINE to JEXMIC	For EXMIC JACK
4)	1/13	23	Change net name from JEXMIC to JLINE	For JLINE JACK
5)	1/13	29	Chagne JPOWER.3 net name from ON/OFFBTN# to ON/OFFBTN#_R	For PWR/B can't power on with battery mode
	1/13	30	Add H20,H21	For half card
6)	1/22	13	Change R117 from 47k to 100K ohm	For LCD Soft start reduce inrush current
			Change Q11 from SI2301BDS to A03413	For LCD Soft start reduce inrush current
			Add C498 with 0.01uF	For LCD Soft start reduce inrush current
7)	1/22	19	Change SW1.3 to dummy pin	For Kill switch issue
			Change SW1.1 to GND	For Kill switch issue
8)	1/22	21	Change R238 from 10K to 47K	For BT Soft start reduce inrush current
			Add C499 with 0.01uF	For BT Soft start reduce inrush current
9)	1/22	22	Del Net name AMP_SPK_R and AMP_SPK_L	For Mono SPK
			Add Net name AMP_SPK from UA2.37 to UA3.17	For Mono SPK
		23	Del CA32 with 0.033UF	For Codec output less than 0.9V
			Add RA38,RA40 with 1K ohm	For Codec output less than 0.9V
			Add RA39,RA41 with 9.09k ohm	For Codec output less than 0.9V
			Add CA43 with 1uf	For Codec output less than 0.9V
	1/22	27	Change U34 P/N from SA00000XZ50 to SA000037Y60	For G-sensor controller chip change
		29	JTOUCH pin define reversal	For ME request assembly easy
		30	Change R355 from 3.3K to 47K	For LAN Soft start reduce inrush current
			Add C500 with 0.01uf	For LAN Soft start reduce inrush current
10)	2/3	14	Reserve C504 with 0.1uf	For EMI request
	2/3	19	Add R411 with 0 ohm	Del Kill switch function
	2/3		Reserve SW1,RM1,U17,C264 for del kill switch function	Del kill switch function
	2/3	20	Change D15,D38,D37 from PRTR5V0U2X to CM1293A-04SO	For EMI request
	2/3	23	Change DA3,DA6,DA7 from PJDLCO5 to PACDN042Y3R	For EMI request
	2/3	28	Add C501,C502 with 330pf	For EMI request
			Add C503 with 470pf	For EMI request
			Add R412 with 10 ohm	For EMI request
			Add C508 with 6pf	For EMI request
	2/3	29	Add R413,R414,R415 with 0 ohm	For EMI request
			Reserve C505,C506,C507 with 0.1uf	For EMI request
			Change D27 from PJDLCO5 to PACDN042Y3R	For EMI request
			Del D25 with PJDLCO5	For EMI request
			Change R375 from 220 to 300 ohm	For White LED of PWR/B
			Change R375.1 Net name from +3VALW to +5VALW	For White LED of PWR/B
11)	2/4	22	Change CA14 from 100pf to 0.1uf	For SPK noise issue
			Add PJ20,PJ21	For customer request(Echo Peak Issue)
		24	Change UL3 from 16pin(SP050003N00) to 24pin(SP050003P00)	For EMI issue
12)	2/5	06	Add R416 with 0 ohm	For WWLAN request
			Reserve C511 with 22pf	For WWLAN request
		12	Reserve C509,C510 with 10p	For WWLAN request
		22	Reserve UA1,CA9,CA11	For cost down plan
	2/6		Modify JUSBA,JUSBB,JUSBC Symbol for GND pad	For GND pin
		10	Reserve C67 with 220uF	For Cost down plan
			Add C514 with 0.1uF	For ESD team request
		23	Change RA38,RA40 with 2K ohm	For Codec output less than 0.9V
			Change RA39,RA41 with 8.2K ohm	For Codec output less than 0.9V
		24	Change UL3 from NS681680(SP050003N00)to 8456E(SP050005V00)	For ESD fail issue
		30	Reserve +1.5VS,+1.05VS,+0.9VS,+1.8VS discharge circuit	For Cost down plan
		27	Reserve C867 with 0.22uf	For U33.4 NC pin
			Change U33 from APL5151-33BC to G9191-330T1U	For power sequence issues on HPC
	2/9	20	Change C455,C288 from 220uf to 150uf	
			Reserve C458 with 150uf	For Cost down plan
	2/11	22	Mount RA13 with 0 ohm	For EMI requet open channel
		27	Change U31 from SA000035U00 to SA000039900	For Customer request version change
2/16	14		Mount C504 with 0.1uF	For EMI request
	23		Mount DA3/DA6 with PACDN042Y3R	For EMI request
	17		Reserve C217,C218 with 0.1uF	For Reserve WWAN PCIE interface

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NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
1)	2/25	4	Mount C484~C495 with 220pF	For EMI request
2)	2/25	6	Change Net name from ICH_POK to ICH_PWROK	For correcting power down sequence
3)	2/25	12	Change R81,R82 from 0 ohm to FBMH1608HM601-T_0603	For WWAN request
			Mount C133,C141 with 47pF	For WWAN request
			Mount C142,C143,C144,C145,C146,C868 with 22pF	For WWAN request
4)	2/25	13	Mount C871 with 10pF	For WWAN request
5)	2/25	15	Mount C203,C204 with 0.1uF	For WWAN request
6)	2/25	17	Change Net name from ICH_POK to ICH_PWROK	For correcting power down sequence
			Add R418 with 10K ohm	For correcting power down sequence
			Add U37 with TC7SH08FUF_SSOP5(SA007080100)	For correcting power down sequence
			Reserve R417 with 0 ohm	For correcting power down sequence
7)	2/25	19	Mount C479,C480,C481,C482 with 47pF	For WWAN request
8)	2/25	22	Mount RA31 with 22 ohm,CA34 with 10pF	For WWAN request
9)	2/25	23	Change JEXMIC,JLINE PCB footprint to JA6033L-B3T4-7F_6P-T	For ME request
10)	2/25	25	Mount CC16 with 10pf,RC21 with 10 ohm	For WWAN request
11)	2/25	26	Change U29.104 net name from ICH_POK to EC_PWROK	For correcting power down sequence
12)	2/25	28	Mount C508 with 33pF,R412 with 33 ohm	For WWAN request
13)	2/25	30	Reserve R349 with 200K ohm	For design change
			Change C447 from 0.01uf to 0.022uF	For design change
			Change R346 from 20K to 47K ohm	For design change
14)	3/2	14	Change D5 from SC1B491D000 to SCS00002000	For buyer recommend
		28	Change U36 to MX25L8005M2C(SA00000XT00)	For CLK frequency 75MHz
	3/2	30	Change H18 from H_3P0N to H_2P6N	For ME request
			H19 from H_6P0X3P0N to H_6P0X2P6N	For ME request
	3/4	08	Add GMCH_INV_T_PWM on U3.H30	For support DPST function
		13	Add R419 with 0 ohm	For support DPST function
			Reserve R420 with 0 ohm	For support DPST function
			Del JLVDS pin 2 for dummy pin	For prevent short B+
		23	Mount DA5 with PJDLCO5	For EMI request
		23	Reserve DA6 with PJDLCO5	For EMI request
		20	Add C515,C516 with 470pF	For EMI request
		28	Mount C414~C437,C461 with 100pF	For EMI request
		17	Add R421 with 330K ohm to +3VALW	For USB over current protect
		17	Add D45 with CH751H-40PT to USB_OC#0_2	For USB over current protect
		17	Change RP7.4 from USB_OC#0_2 to USB_OC#0_2_D	For USB over current protect
		17	Change U15.D3 from USB_OC#0_2 to USB_OC#0_2_D	For USB over current protect
		26	Add Net name to USB_OC#0_2	For USB over current protect
		29	Change R413,R414,R415 from 0 ohm to FBMA-10-100505-151T	For EMI request
		30	Add C517~C520 with 0.1uF	For ESD request
3/5		12	Reserve R427 with 0 ohm	For Silego source chip
			Add R428 with 10K ohm to +3VS	For Silego source chip
			Change U4.54 from H_STP_PCI# to H_STP_PCI#_R	For Silego source chip
3/5		17	Add R423,R424 with 0 ohm	For design change
			Reserve R410,R421 with 330 K ohm	For design change
			Reserve D44,D45 with CH751H-40PT	For design change
		19	Add R425,R426 with 0 ohm	For debug
		30	Reserve R422 with 0 ohm and PJ22 with JUMP_43X79	For EMI request
		30	Change H15 to Non-PTH hole	For design change
3/10		17	Change R214.2,U15.F20 from ICH_PCIE_WAKE# to EC_SWI#	For wakeup LAN function
		30	Add EC_SWI# and link to both U29.103 to U15.F20	For wakeup LAN function
3/10		22	Change CA18 from 10uF to 0.1uF	For Audio noise