

# Compal Confidential

## JAL90 M/B Schematics Document

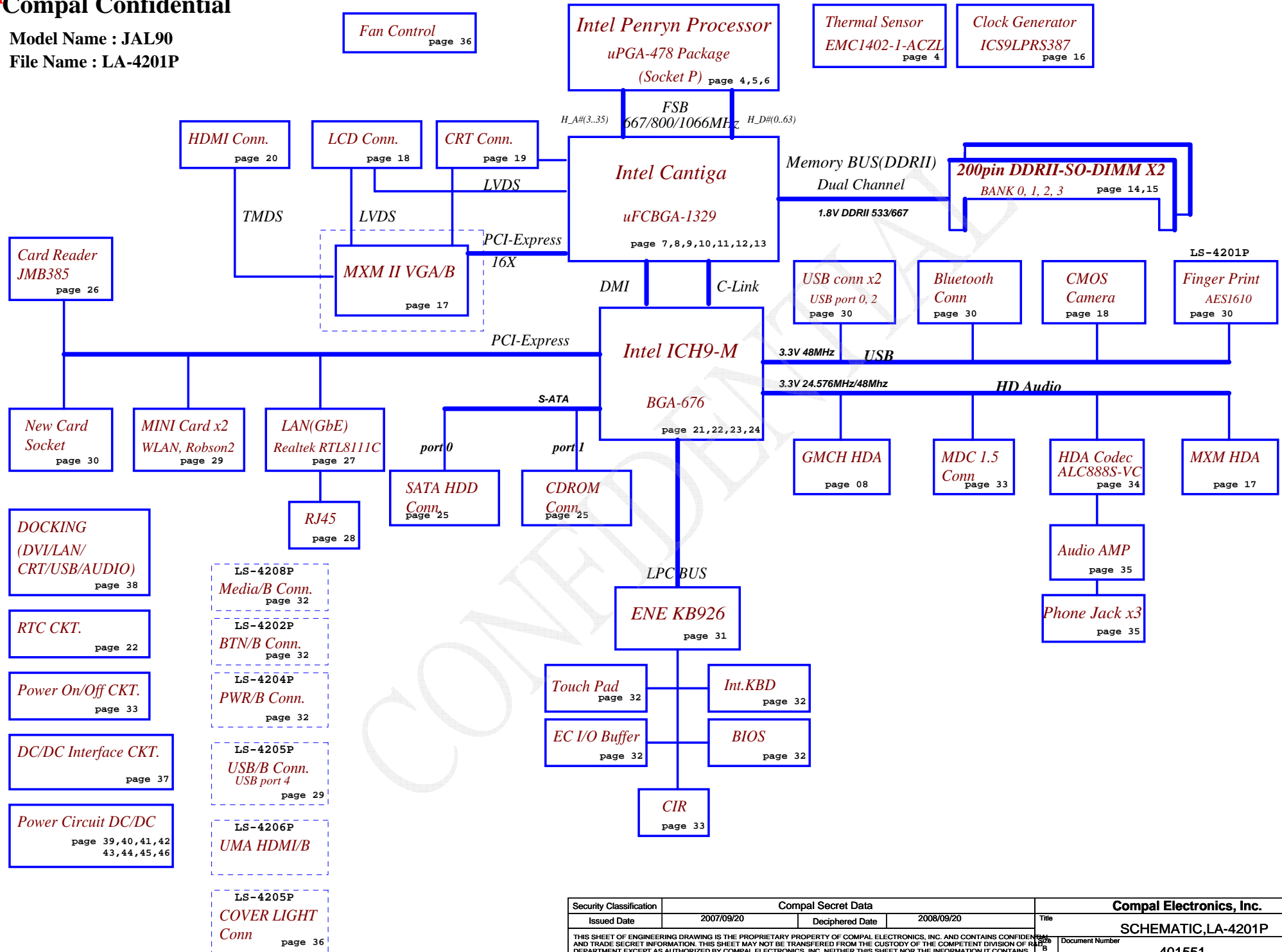
Intel Penryn Processor with Cantiga + DDRII + ICH9M

2008-07-04

REV:1.0

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Model Name : JAL90  
 File Name : LA-4201P



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### 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
+1.05VS	1.05V switched power rail	ON	OFF	OFF
+1.25VS	1.25V switched power rail	ON	OFF	OFF
+1.5V	1.5V power rail for HDA	ON	ON	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+1.8V	1.8V power rail for DDR	ON	ON	OFF
+1.8VS	1.8V switched power rail	ON	OFF	OFF
+2.5VS	2.5V switched power rail	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON*
+3V	3.3V power rail for SB	ON	ON	X
+3V_LAN	3.3V power rail for LAN	ON	ON	X
+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*
+RTCVC	RTC power	ON	ON	ON*

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

### External PCI Devices

Device	IDSEL#	REQ#/GNT#	Interrupts

### EC SM Bus1 address

Device	Address
Smart Battery	0001 011X b
EEPROM(24C16/02)	1010 000X b
GMT G781-1	1001 101X b

### EC SM Bus2 address

Device	Address
ADI ADT7421	1001 100X b

### ICH9M SM Bus address

Device	Address
Clock Generator (ICS9LPRS367, SLG8SP556V)	1101 001Xb
DDR DIMM0	1001 000Xb
DDR DIMM2	1001 010Xb

STATE	SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON		HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1(Power On Suspend)		LOW	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)		LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)		LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)		LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

### Board ID / SKU ID Table for AD channel

Vcc	3.3V +/- 5%			
Ra/Rc/Re	100K +/- 5%			
Board ID	Rb / Rd / Rf	VAD_BID min	VAD_BID typ	VAD_BID max
0	0	0 V	0 V	0.155 V
1	8.2K +/- 5%	0.168 V	0.250 V	0.362 V
2	18K +/- 5%	0.375 V	0.503 V	0.621 V
3	33K +/- 5%	0.634 V	0.819 V	0.945 V
4	56K +/- 5%	0.958 V	1.185 V	1.359 V
5	100K +/- 5%	1.372 V	1.650 V	1.838 V
6	200K +/- 5%	1.851 V	2.200 V	2.420 V
7	NC	2.433 V	3.300 V	3.300 V

### BOARD ID Table

Board ID	PCB Revision
0	0.1
1	0.2
2	0.3
3	1.0
4	1A
5	
6	
7	

### BTO Option Table

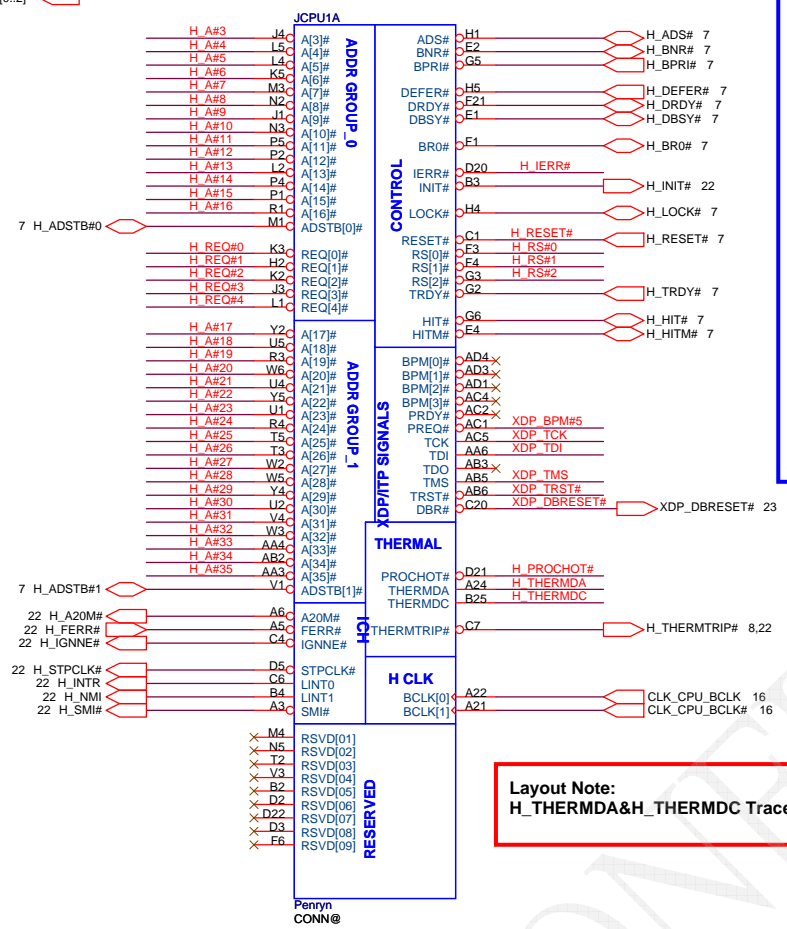
BTO Item	BOM Structure
JAL90	JAL90@
JAW50/KAW00	JAW50@
UMA	GM@
JAL90-UMA	JAL90GM@
JAW50/KAW00 Discrete	GLPM@
Discrete	PM@
ALC888VC	888VC@
ALC888VB	888VB@
8111C	8111C@
8102E	8102E@
ALC268	268@
JAL90/JAW50	ABO@
KAW00	EM@
JAL90/JAW50 KAW00	JAL9050@
JAL90-DIS	JAL90PM@
JAW50-DIS	JAW50PM@
JAW50-UMA	JAW50GL@

### BOM Configuration Table

Project	BOM Configuration
JAL90-UMA	431551BOL01:JAL90GM@/JAL9050@/JAL90@/GM@/888VC@/8111C@/ABO@
JAL90-Dis	431551BOL02:PM@/JAL90PM@/JAL9050@/JAL90@/GLPM@/888VC@/8111C@/ABO@
JAW50-UMA	431551BOL11:JAW50@/JAW50GL@/JAL9050@/GM@/GLPM@/8111C@/268@/ABO@
JAW50-DIS	431551BOL12:PM@/JAW50@/JAW50PM@/JAL9050@/GLPM@/8111C@/268@/ABO@
KAW00	431551BOL31:JAW50@/JAW50GL@/JAL9050@/GM@/GLPM@/8111C@/268@/EM@

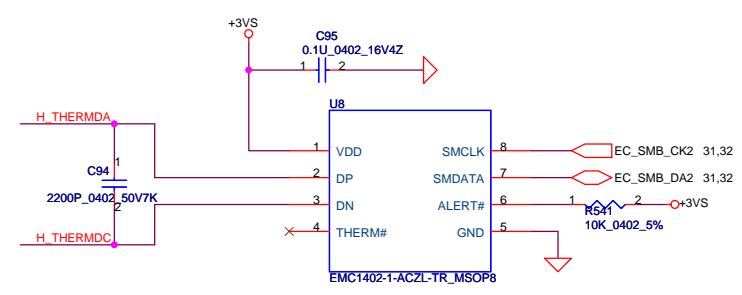
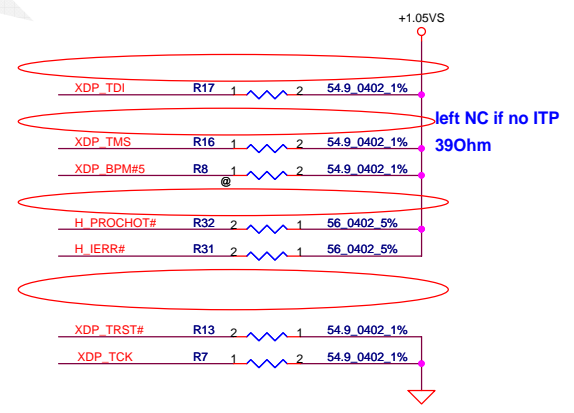
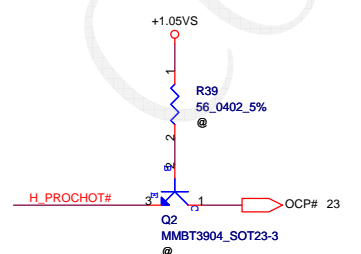
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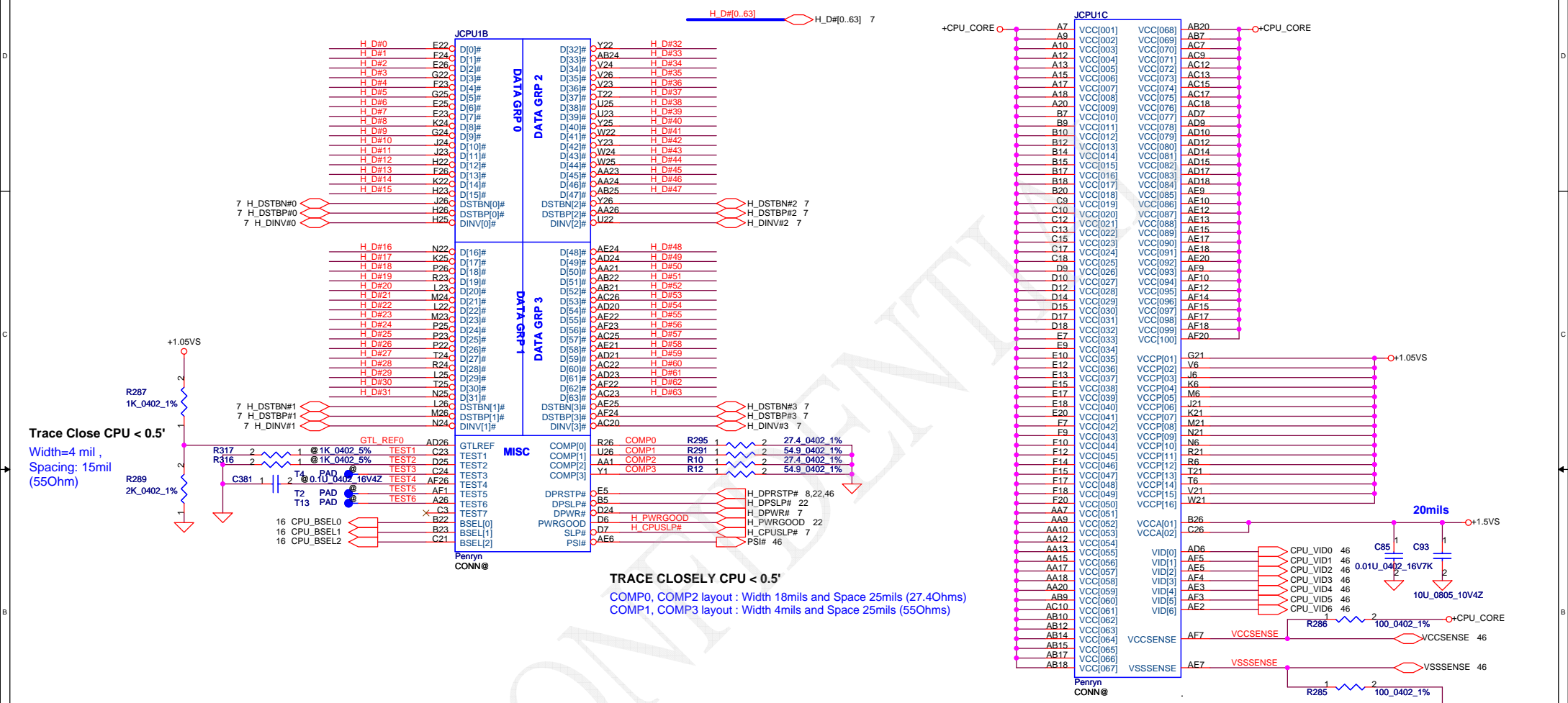
- 7 H\_A#(3..35) H\_A#(3..35)
- 7 H\_REQ#(0..4) H\_REQ#(0..4)
- 7 H\_RS#(0..2) H\_RS#(0..2)



**Layout Note:**  
H\_THERMDA&H\_THERMDC Trace / Space = 10 / 10 mil

BSEL2	BSEL1	BSEL0	BCLK
0	0	0	266
0	1	0	200
0	1	1	166

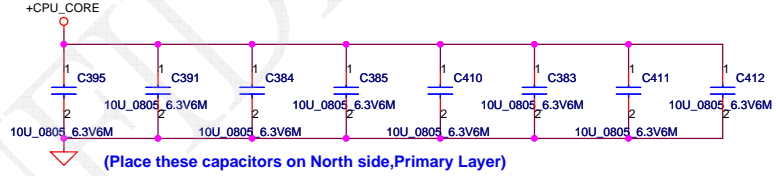
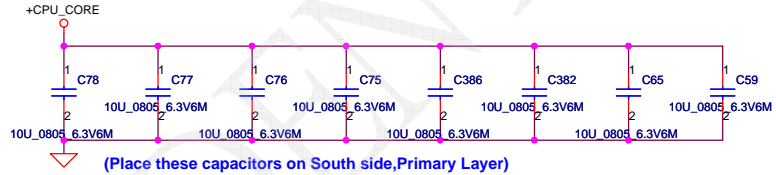
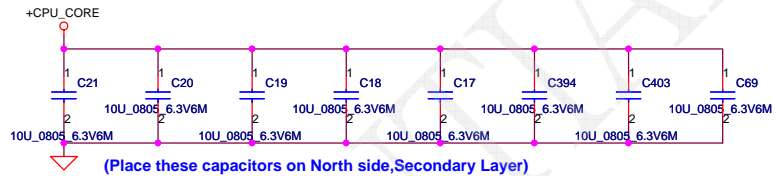
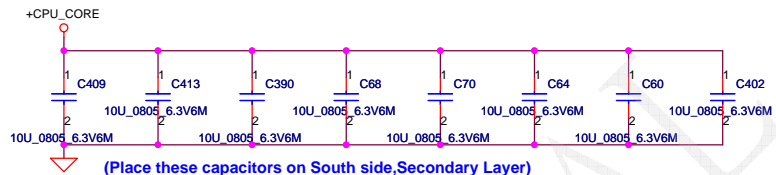
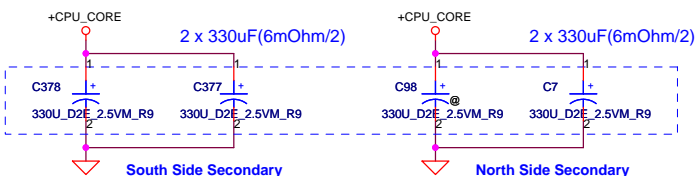




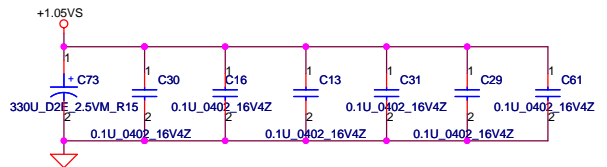
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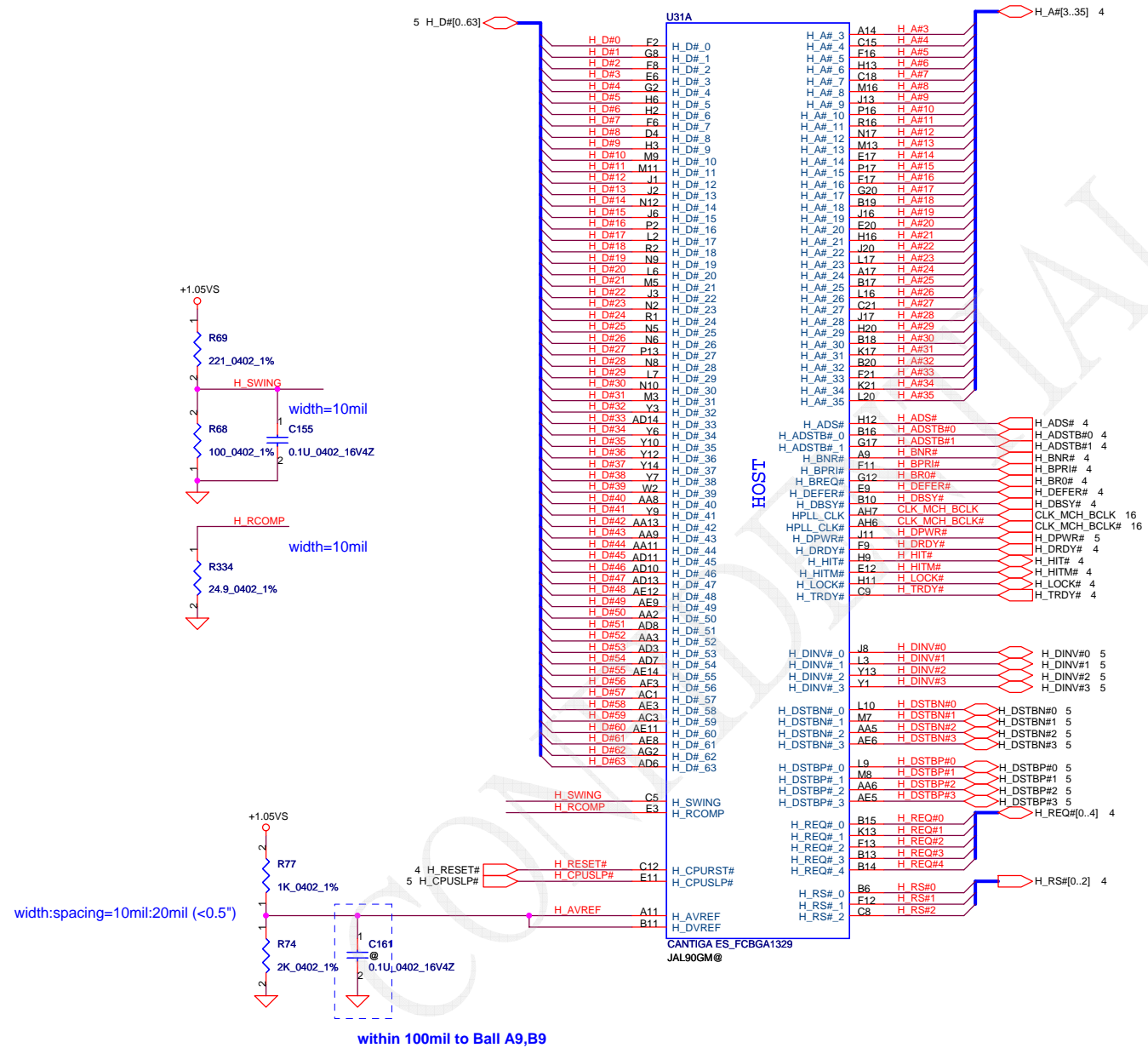
JCPU1D	
A4	VSS[001]
A8	VSS[002]
A11	VSS[003]
A14	VSS[004]
A16	VSS[005]
A19	VSS[006]
A23	VSS[007]
AF2	VSS[008]
B6	VSS[009]
B8	VSS[010]
B11	VSS[011]
B13	VSS[012]
B16	VSS[013]
B19	VSS[014]
B21	VSS[015]
B24	VSS[016]
C5	VSS[017]
C8	VSS[018]
C11	VSS[019]
C14	VSS[020]
C16	VSS[021]
C19	VSS[022]
C2	VSS[023]
C22	VSS[024]
C25	VSS[025]
D1	VSS[026]
D4	VSS[027]
D8	VSS[028]
D11	VSS[029]
D13	VSS[030]
D16	VSS[031]
D19	VSS[032]
D23	VSS[033]
D26	VSS[034]
E3	VSS[035]
E6	VSS[036]
E8	VSS[037]
E11	VSS[038]
E14	VSS[039]
E16	VSS[040]
E19	VSS[041]
E21	VSS[042]
E24	VSS[043]
F5	VSS[044]
F8	VSS[045]
F11	VSS[046]
F13	VSS[047]
F16	VSS[048]
F19	VSS[049]
F2	VSS[050]
F22	VSS[051]
F25	VSS[052]
G4	VSS[053]
G1	VSS[054]
G23	VSS[055]
G26	VSS[056]
H3	VSS[057]
H6	VSS[058]
H21	VSS[059]
H24	VSS[060]
J2	VSS[061]
J22	VSS[062]
J25	VSS[063]
K1	VSS[064]
K4	VSS[065]
K23	VSS[066]
K26	VSS[067]
L3	VSS[068]
L6	VSS[069]
L21	VSS[070]
L24	VSS[071]
M2	VSS[072]
M5	VSS[073]
M22	VSS[074]
M25	VSS[075]
N1	VSS[076]
N4	VSS[077]
N23	VSS[078]
N26	VSS[079]
P3	VSS[080]
	VSS[081]
	VSS[162]
	VSS[163]

Pennyn  
CONN@



+CPU-CORE Decoupling	C, uF	ESR, mohm	ESL, nH
SPCAP, Polymer	4X330uF	6m ohm/4	1.8nH/6
MLCC 0805 X5R	32X22uF	3m ohm/32	0.6nH/32
	32X10uF	3m ohm/32	0.6nH/32



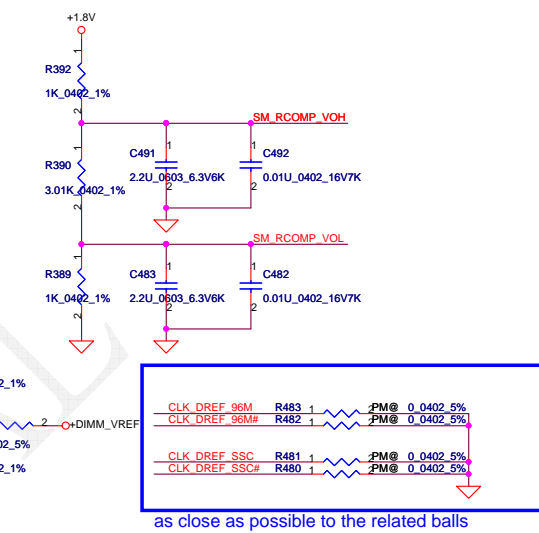
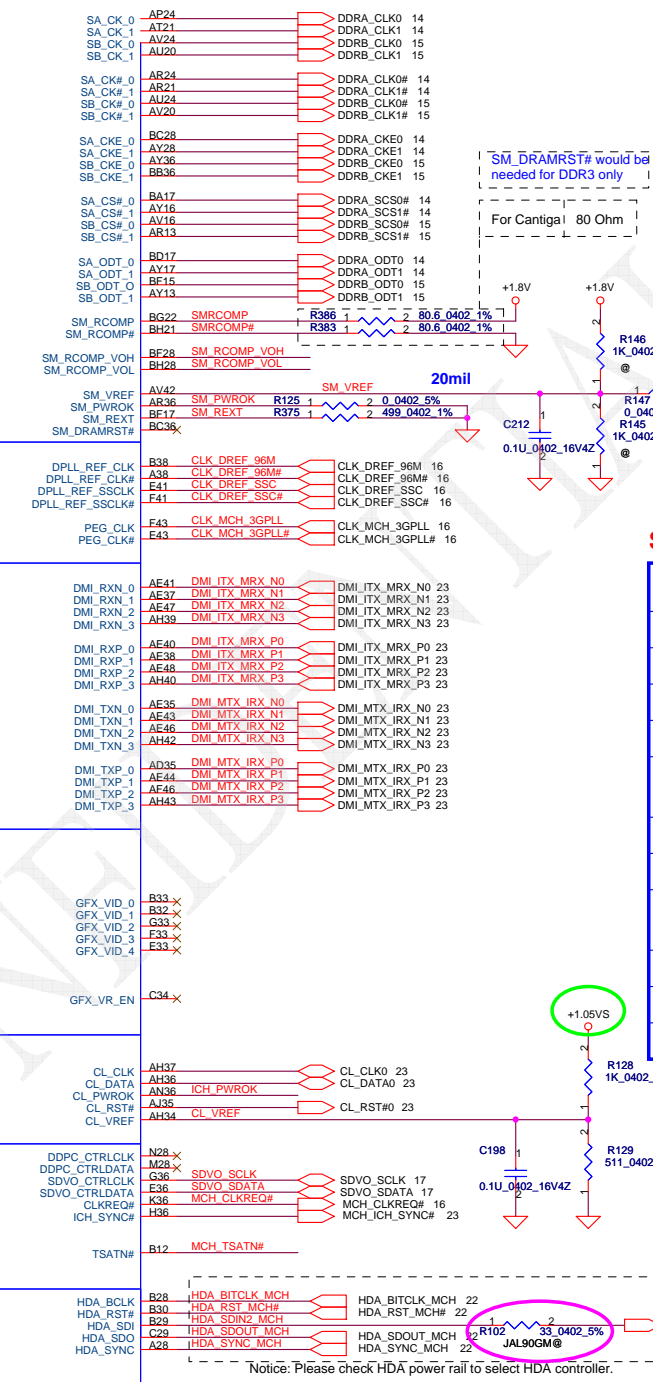


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U31B

- M36 RSVD1
- N36 RSVD2
- R33 RSVD3
- T33 SB\_CLK\_0
- AH9 RSVD5
- AH10 RSVD6
- AH12 RSVD7
- AH13 RSVD8
- K12 RSVD9
- AL34 RSVD10
- AK34 RSVD11
- AN35 RSVD12
- AM35 RSVD13
- T24 RSVD14
- B31 RSVD15
- B2 RSVD16
- M1 RSVD17
- AV21 RSVD20
- BC23 RSVD22
- BE23 RSVD23
- BH18 RSVD24
- BE18 RSVD25
- BC23 SM\_RCAMP
- BE23 SM\_RCAMP#
- BH18 SM\_RCAMP\_VOH
- BE18 SM\_RCAMP\_VOL
- BC23 SM\_VREF
- BE23 SM\_PWROK
- BH18 SM\_REXT
- BE18 SM\_DRAMRST#
- BC36
- B38 CLK\_DREF\_96M
- A38 CLK\_DREF\_96M#
- E41 CLK\_DREF\_SSC
- F41 CLK\_DREF\_SSC#
- E43 CLK\_MCH\_3GPLL
- F43 CLK\_MCH\_3GPLL#
- AE41 DMI\_ITX\_MRX\_N0
- AE37 DMI\_ITX\_MRX\_N1
- AE47 DMI\_ITX\_MRX\_N2
- AH39 DMI\_ITX\_MRX\_N3
- AE40 DMI\_ITX\_MRX\_P0
- AE38 DMI\_ITX\_MRX\_P1
- AE48 DMI\_ITX\_MRX\_P2
- AH40 DMI\_ITX\_MRX\_P3
- AE35 DMI\_MTX\_IRX\_N0
- AE43 DMI\_MTX\_IRX\_N1
- AE46 DMI\_MTX\_IRX\_N2
- AH42 DMI\_MTX\_IRX\_N3
- AD35 DMI\_MTX\_IRX\_P0
- AE44 DMI\_MTX\_IRX\_P1
- AE46 DMI\_MTX\_IRX\_P2
- AH43 DMI\_MTX\_IRX\_P3
- B33 GFX\_VID\_0
- B32 GFX\_VID\_1
- G33 GFX\_VID\_2
- F33 GFX\_VID\_3
- E33
- C34 GFX\_VR\_EN
- AH37 CL\_CLK
- AH36 CL\_DATA
- AN38 ICH\_PWROK
- AJ35 CL\_RST#
- AH34 CL\_VREF
- N28 DDPC\_CTRLCLK
- M28 DDPC\_CTRLDATA
- G36 SDVO\_SCLK
- E36 SDVO\_SCLK#
- K36 MCH\_CLKREQ#
- H36 MCH\_CLKREQ#
- H36 MCH\_CLKREQ#
- H36 MCH\_CLKREQ#
- B12 MCH\_TSATN#
- B28 HDA\_BCLK
- B30 HDA\_RST#
- B31 HDA\_RST#
- B29 HDA\_SDN2#
- C29 HDA\_SDOUT\_MCH
- A28 HDA\_SYNC\_MCH

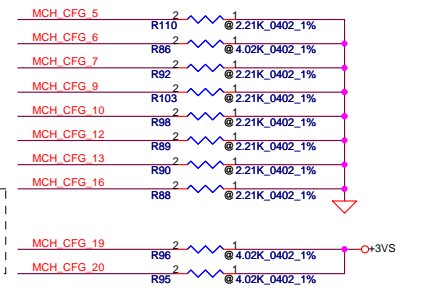
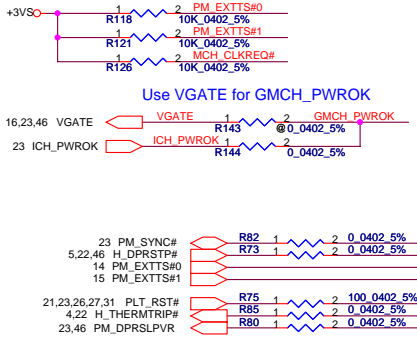
RSVD  
RSPD  
DDR CLK / CONTROL / COMPENSATION  
CLK  
DMI  
CFG  
GRAPHICS VID  
PM  
ME  
MISC  
HDA



Strap Pin Table

CFG[2:0]	011 = FSB667 010 = FSB800 000 = FSB1067
CFG5	0 = DMI x 2 1 = DMI x 4 * (Default)
CFG6	0 = iTPM Host Interface is enabled 1 = iTPM Host Interface is Disabled * (Default)
CFG9	0 = Lane Reversal Enable 1 = Normal Operation * (Default)
CFG10	0 = PCIe Loopback Enable 1 = Disable * (Default)
CFG[13:12]	00 = Reserved 01 = XOR Mode Enabled 10 = All Z Mode Enabled 11 = Normal Operation * (Default)
CFG16	0 = Dynamic ODT Disabled 1 = Dynamic ODT Enabled * (Default)
CFG19	0 = Normal Operation 1 = DMI Lane Reversal Enable
CFG20 (PCIe/SDVO select)	0 = Only PCIe or SDVO is operational. (Default) 1 = PCIe/SDVO are operating simu.
SDVO_CTRLDATA	0 = No SDVO Card Present * (Default) 1 = SDVO Card Present
L_DDC_DATA	0 = LFP Disable 1 = LFP Card Present; PCIe disable * (Default)
DDPC_CTRLDATA	0 = Digital DisplayPort Disable 1 = Digital DisplayPort Device Present * (Default)

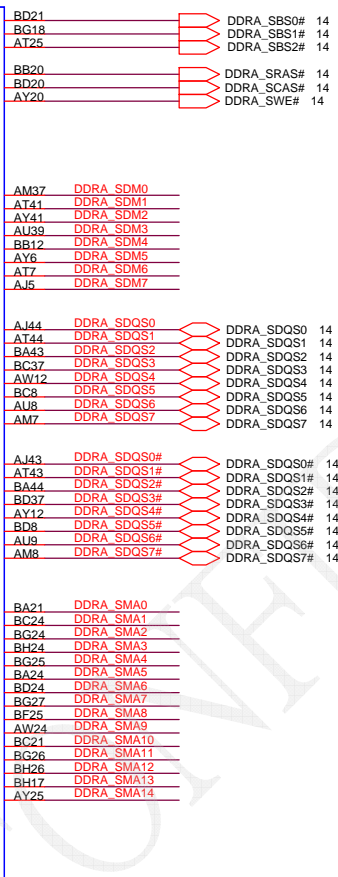
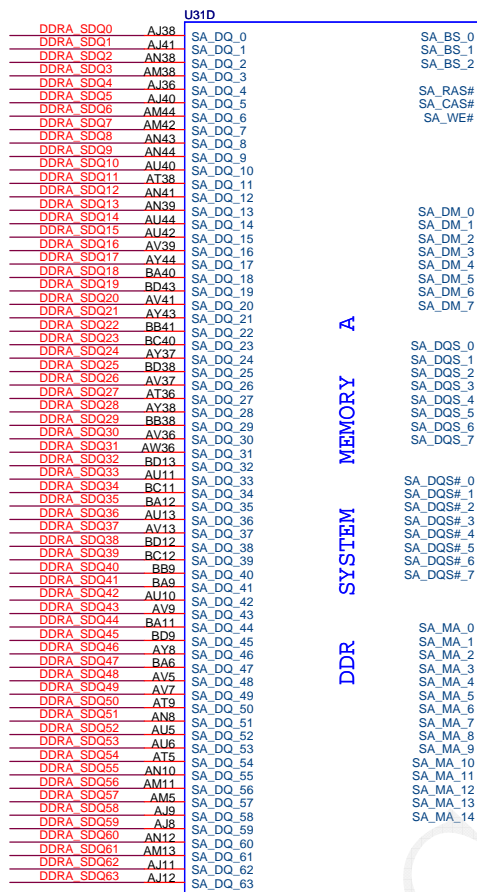
All RSVD balls on GMCH should be left No Connect.



Notice: Please check HDA power rail to select HDA controller.

CANTIGA ES\_FCBGA1329  
JAL90GM@

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DDR SYSTEM MEMORY A

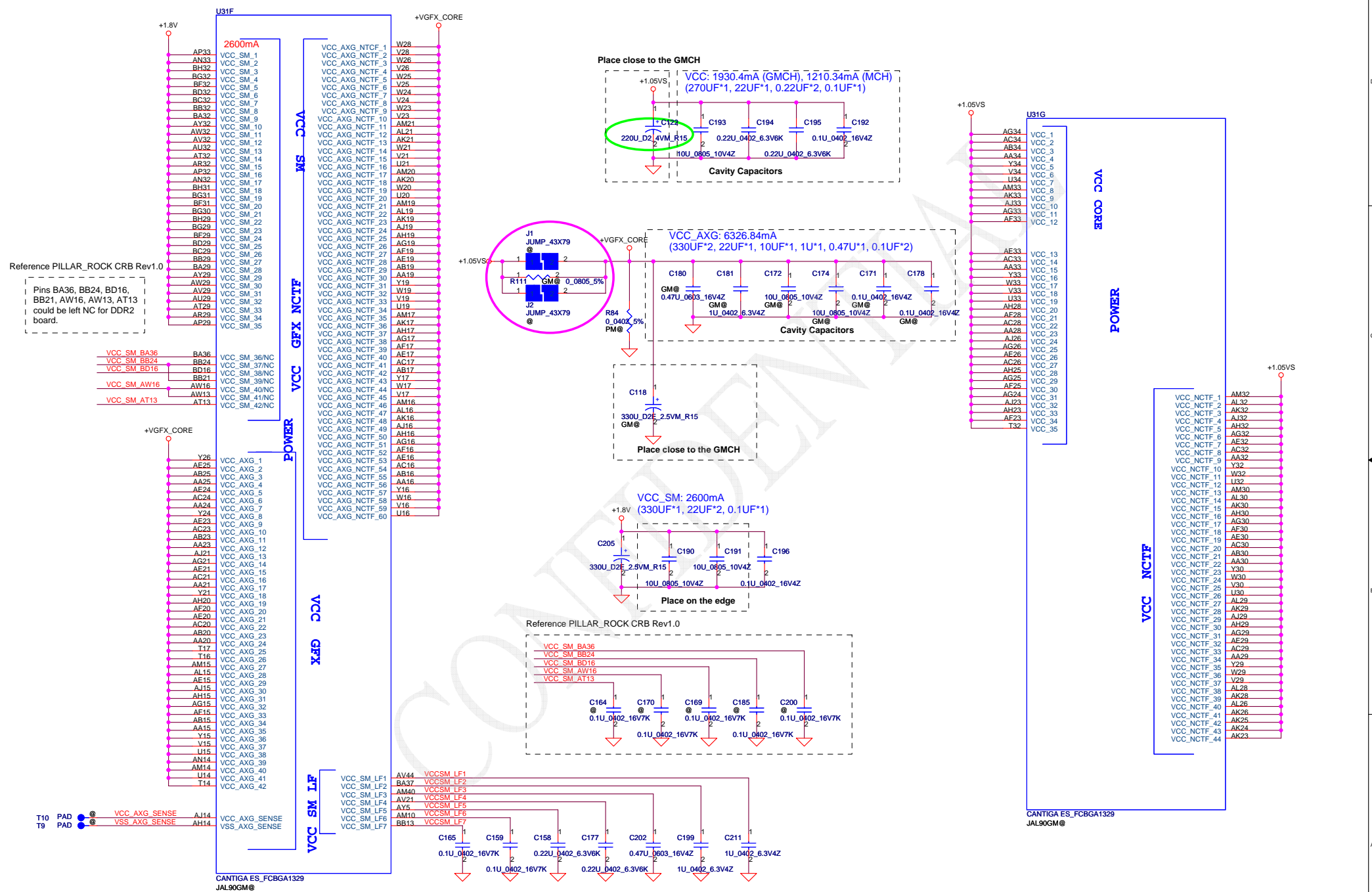
DDR SYSTEM MEMORY B

CANTIGA ES\_FCBGA1329  
JAL90GM@

CANTIGA ES\_FCBGA1329  
JAL90GM@

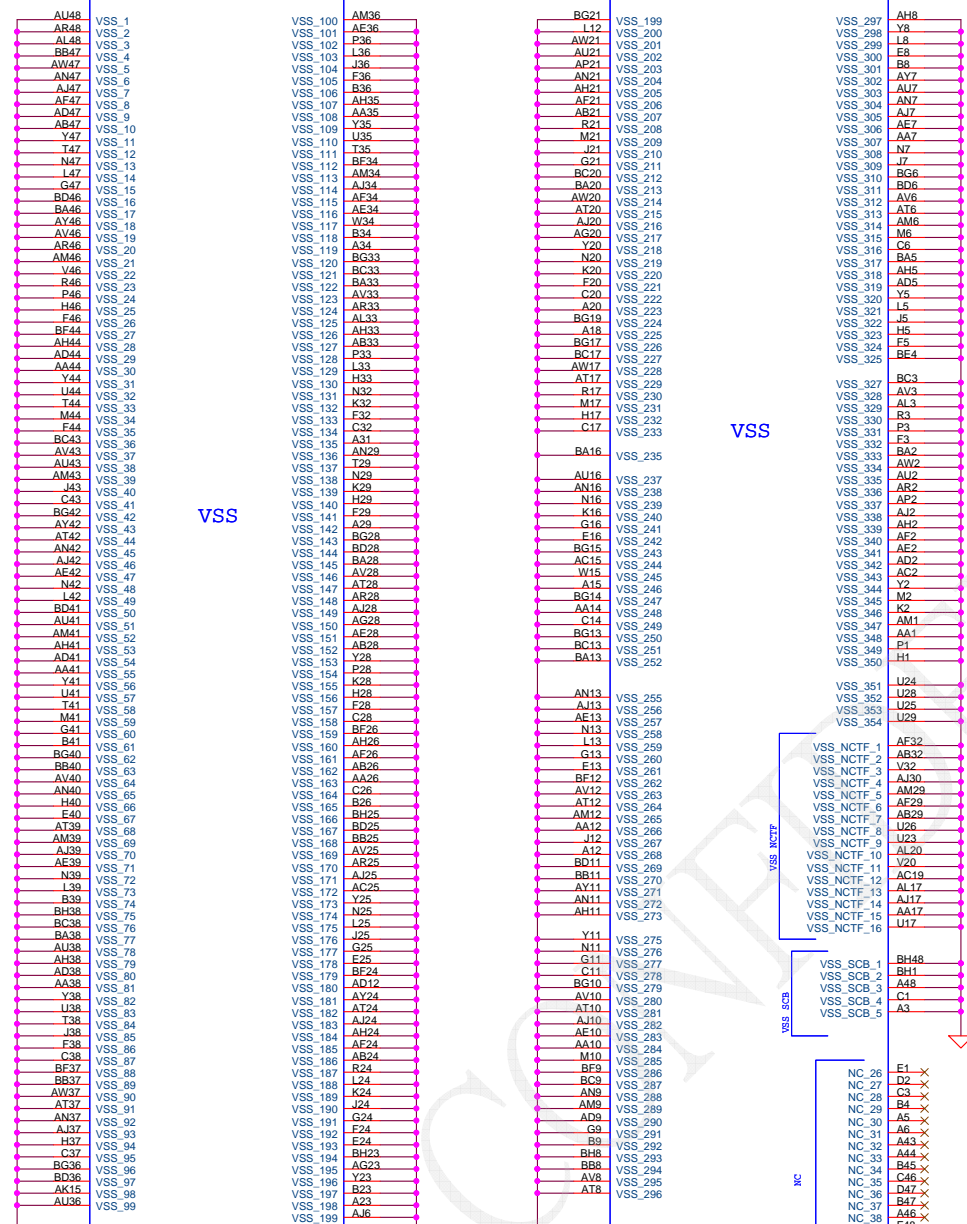
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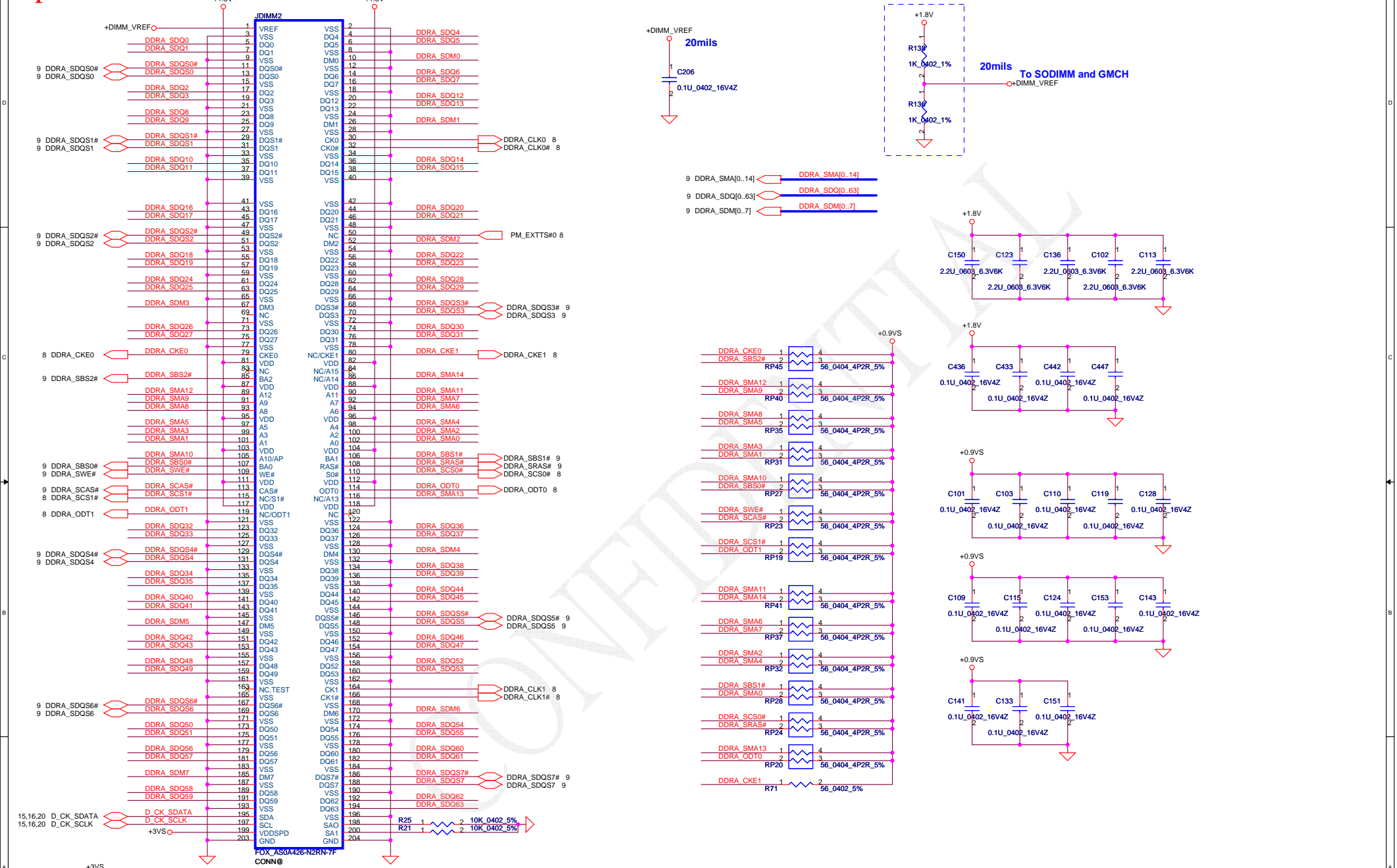




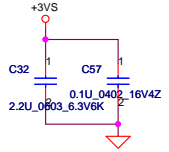
CANTIGA ES\_FCBGA1329  
JAL90GM®

CANTIGA ES\_FCBGA1329  
JAL90GM®

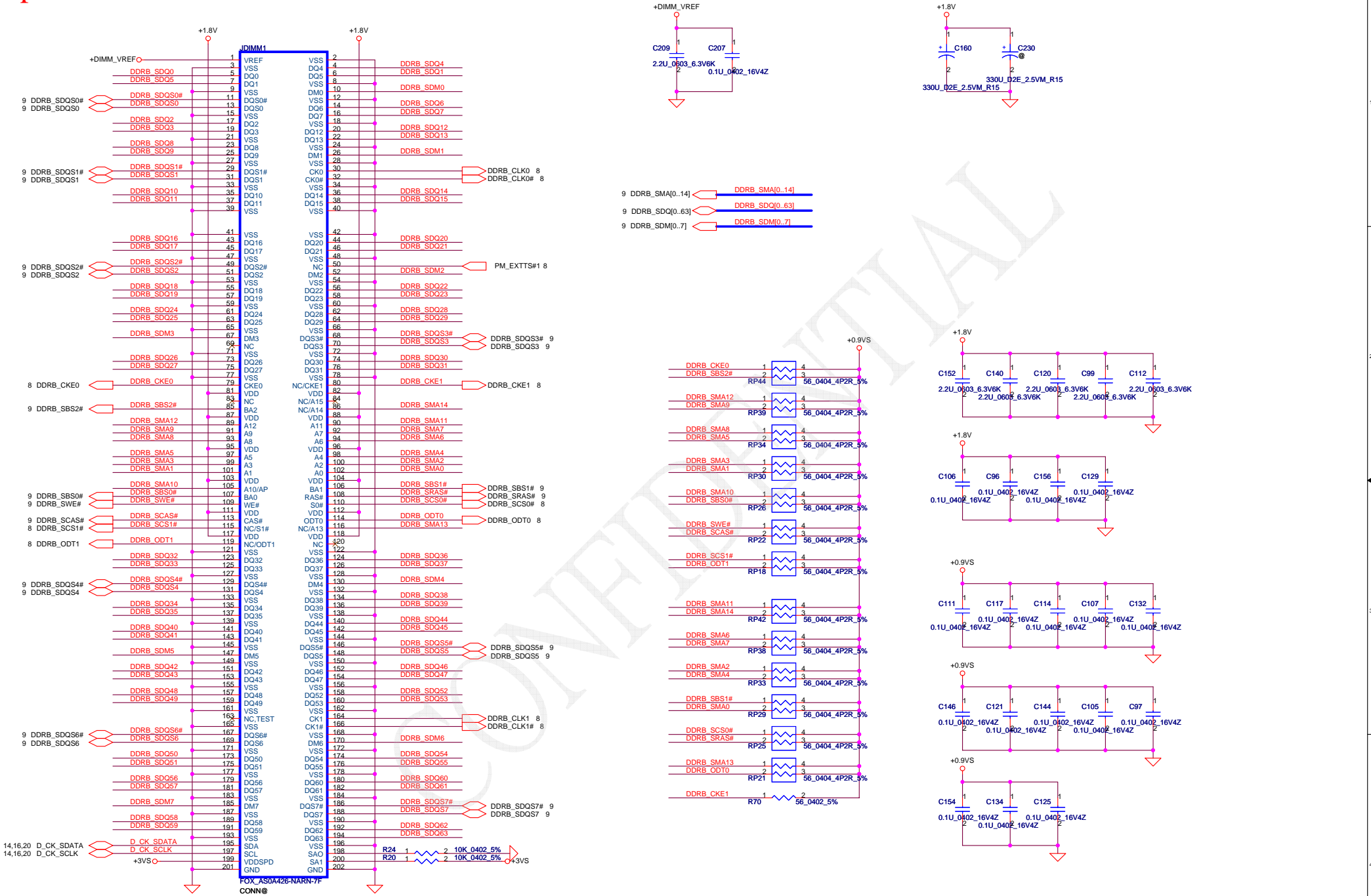
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**DIMM0 REV H:5.2mm (BOT)**



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DIMM1 REV H:9.2mm (BOT)

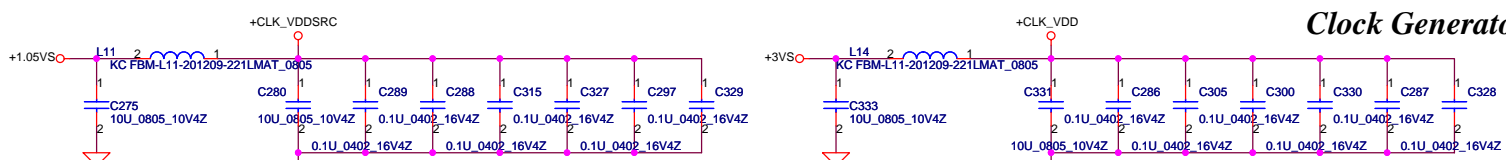
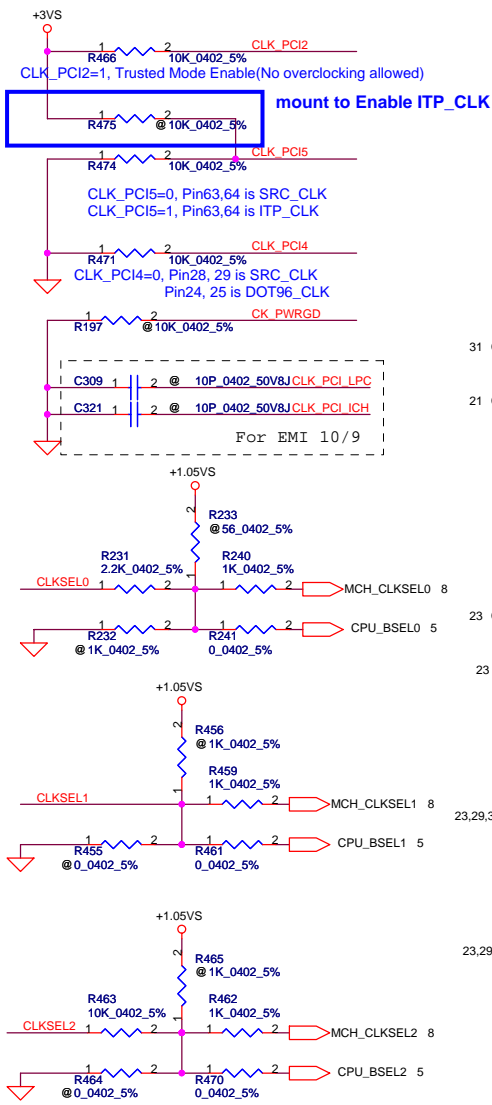
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FSLC	FSLB	FSLA	CPU	PCI
CLKSEL2	CLKSEL1	CLKSEL0	MHz	MHz
0	0	0	266	100
0	1	0	200	100
0	1	1	166	100

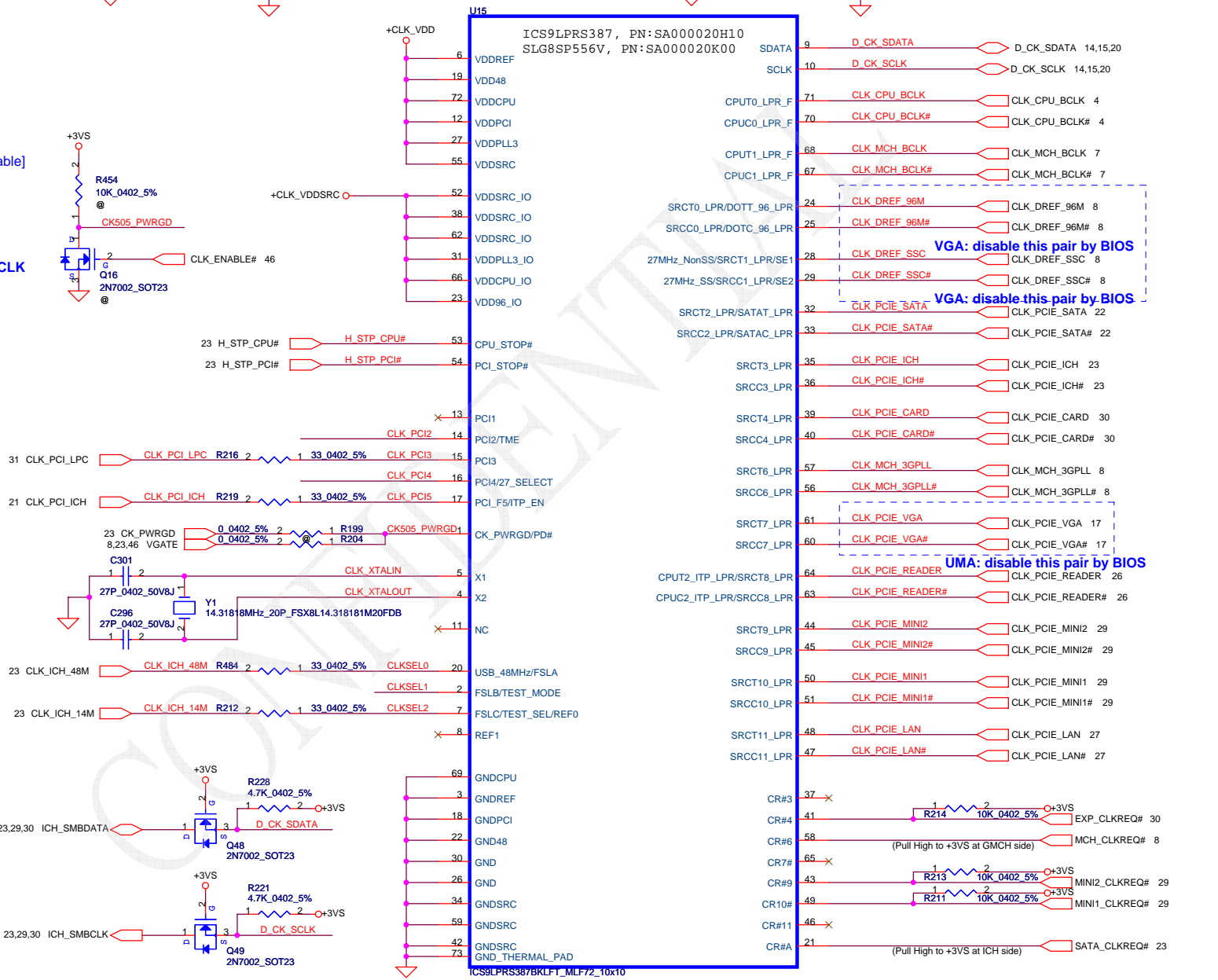
Table : ICS9LPRS387

CLK_REQ#	Control	Free-Run
CR#_10(WLAN)	PCIEX10	PCIEX0
CR#_6(MCH)	PCIEX6	PCIEX1
CR#_4(NEW CARD)	PCIEX4	
CR#_9(MINI CARDII)	PCIEX9	

SRC7(VGA\_CLK): Discrete VGA[Enable] UMA[Disable]



Clock Generator

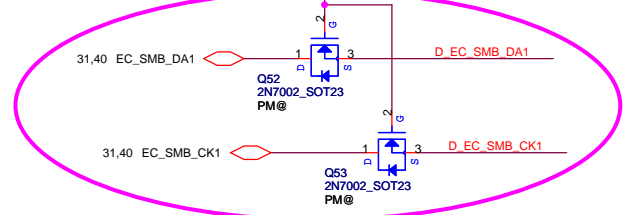
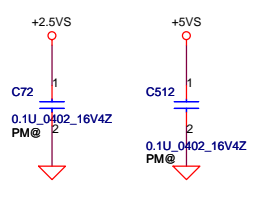
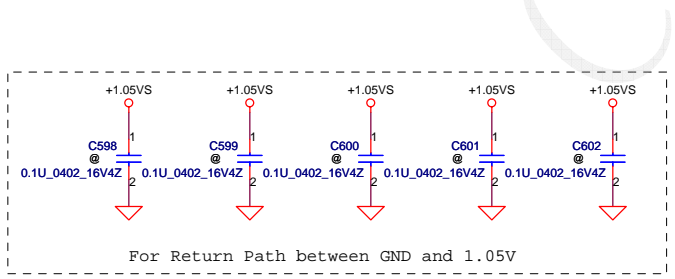
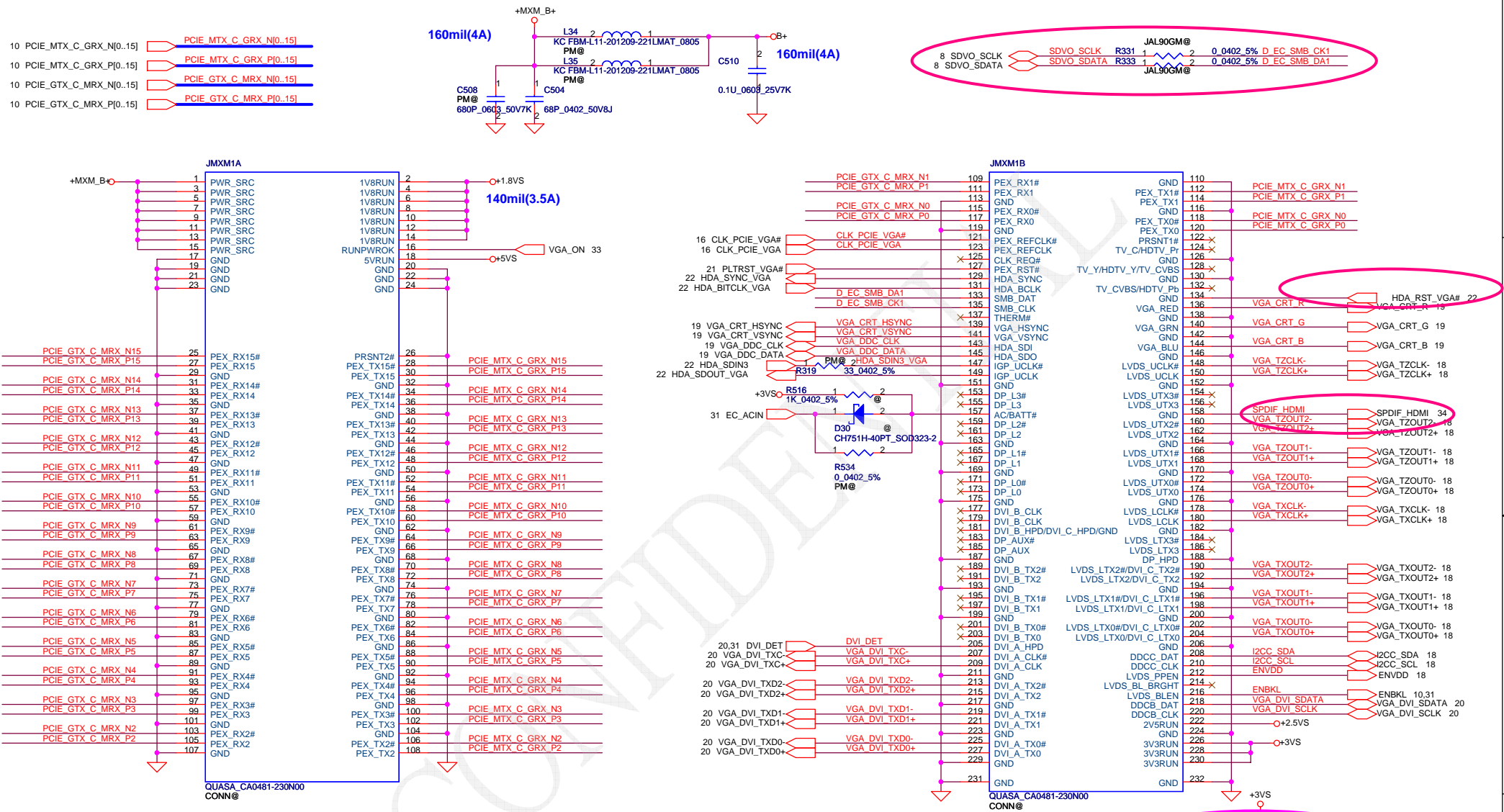


VGA: disable this pair by BIOS

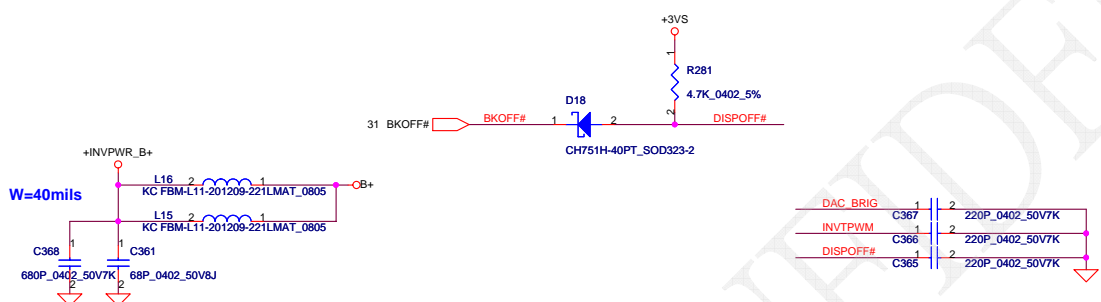
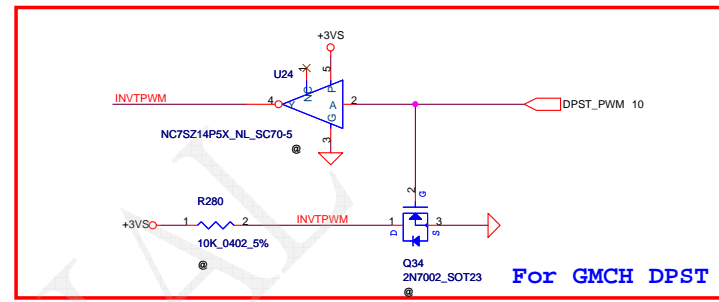
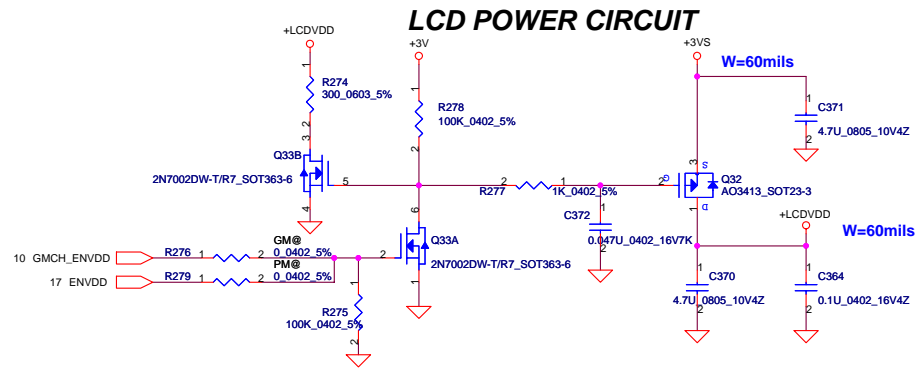
VGA: disable this pair by BIOS

UMA: disable this pair by BIOS

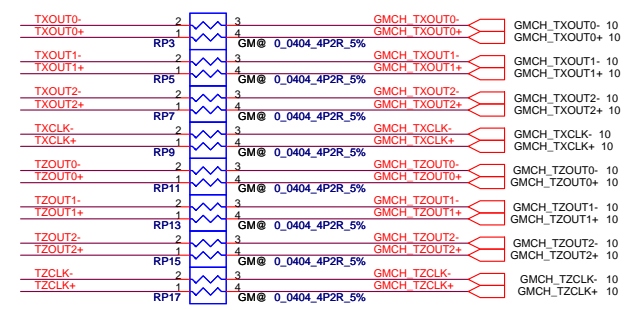
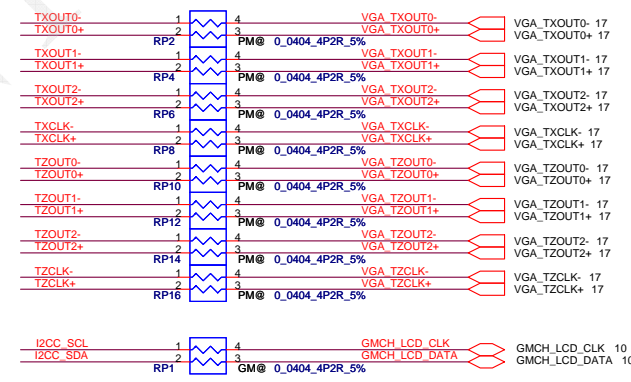
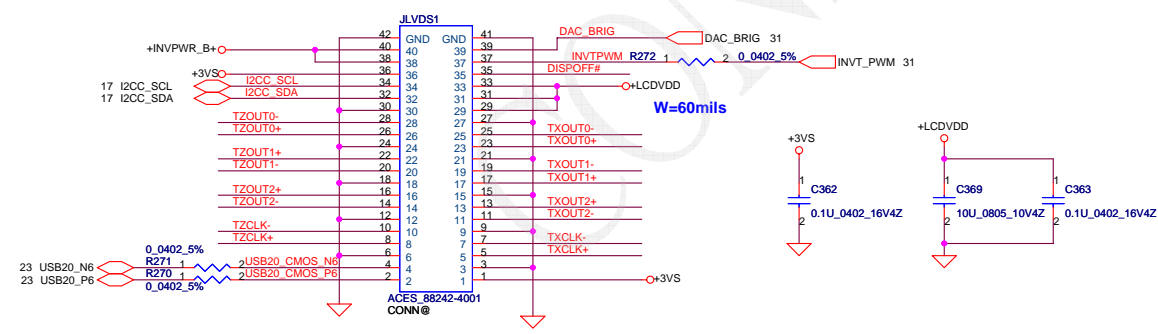
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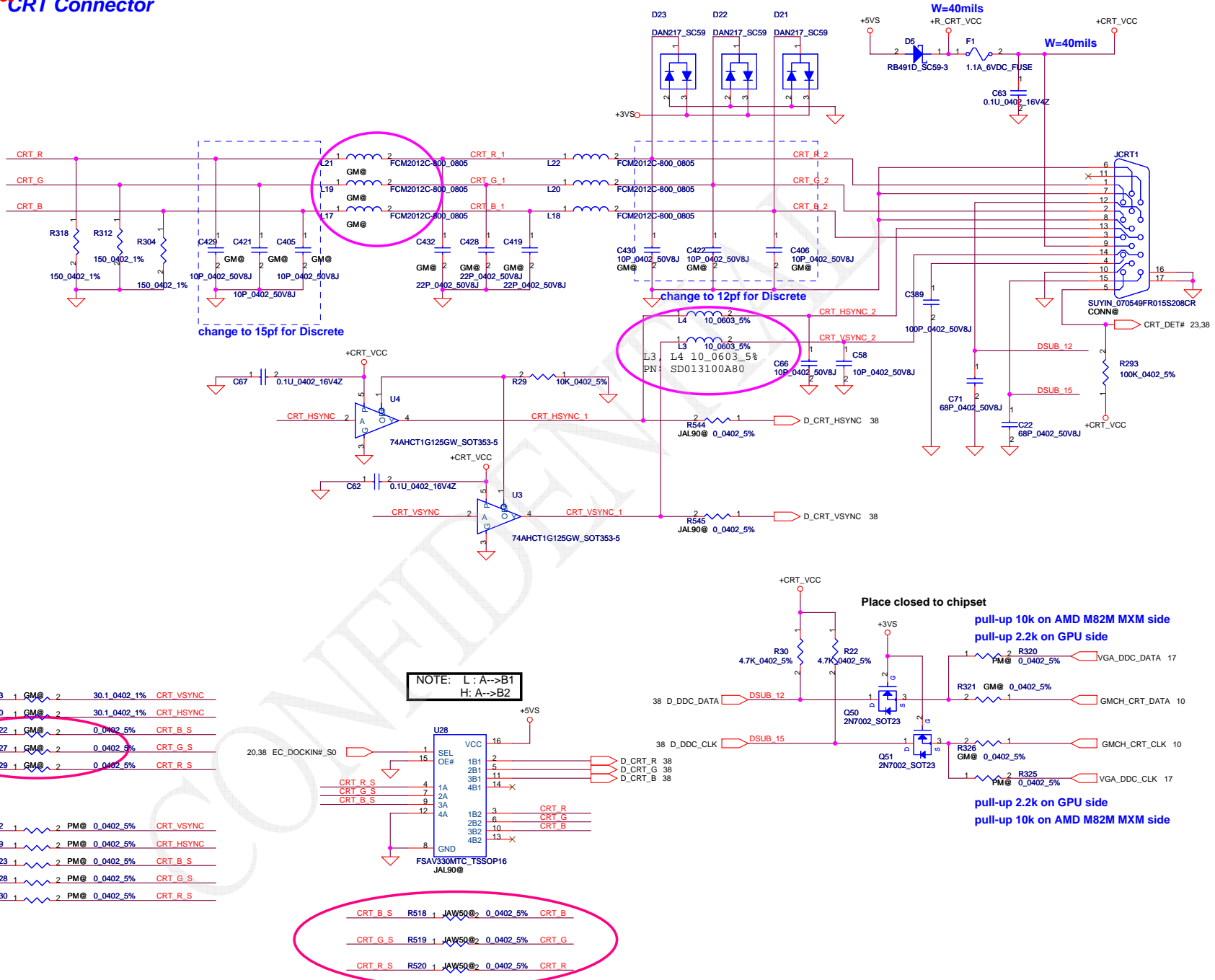
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### LCD/PANEL BD. Conn.



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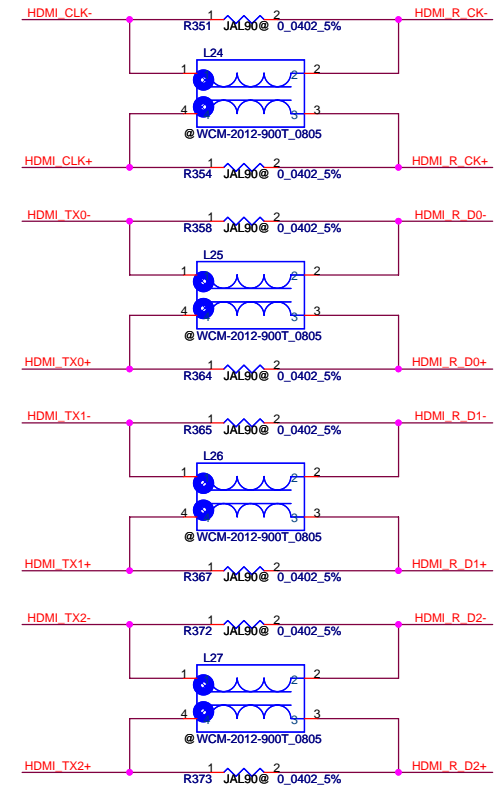
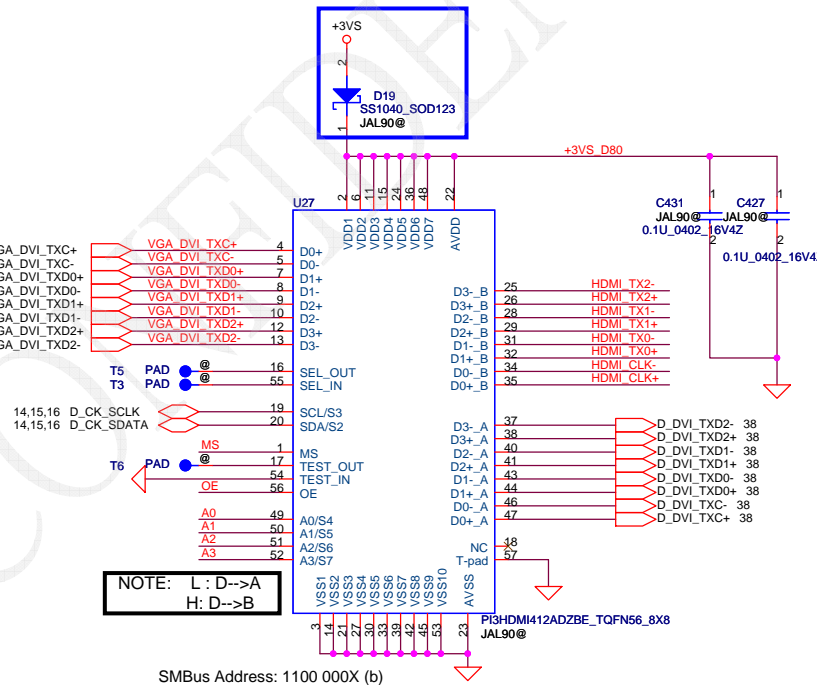
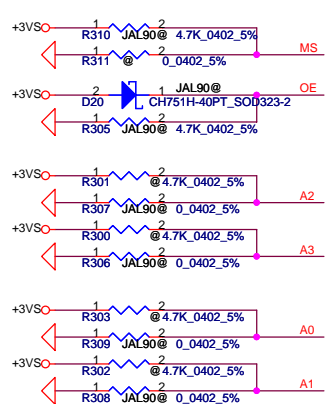
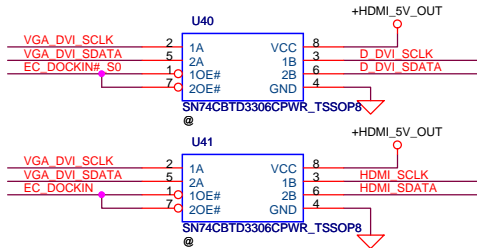
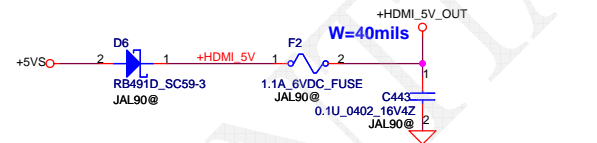
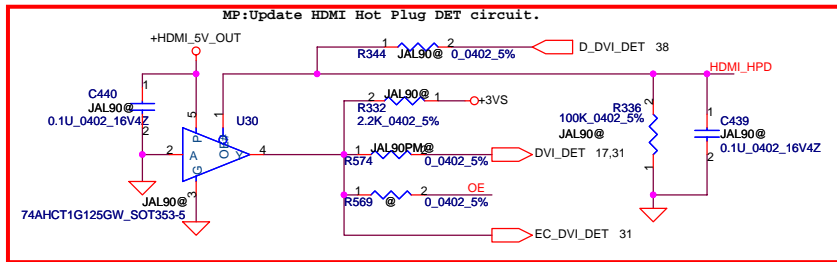
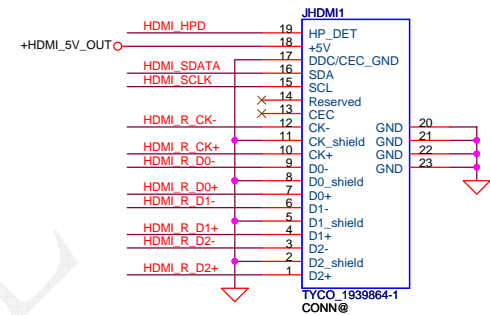
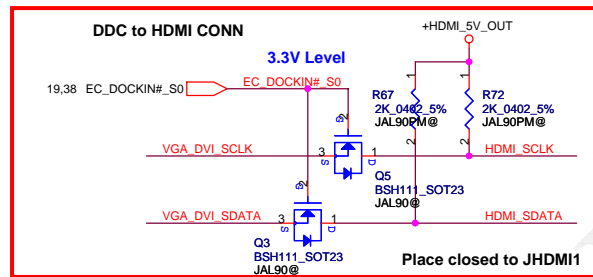
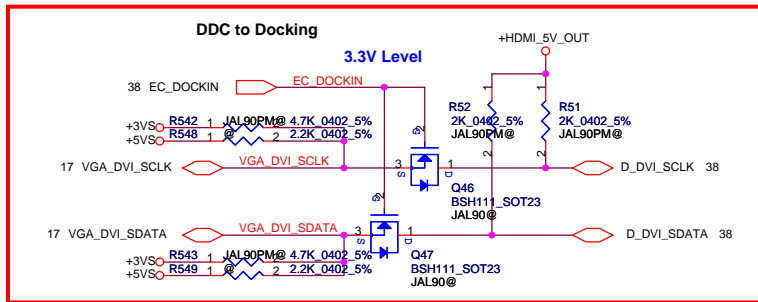


- 10 GMCH\_CRT\_VSYNC R43 1 GM@ 2 30.1\_0402\_1% CRT\_VSYNC
- 10 GMCH\_CRT\_HSYNC R50 1 GM@ 2 30.1\_0402\_1% CRT\_HSYNC
- 10 GMCH\_CRT\_B R322 1 GM@ 2 0\_0402\_5% CRT\_B\_S
- 10 GMCH\_CRT\_G R327 1 GM@ 2 0\_0402\_5% CRT\_G\_S
- 10 GMCH\_CRT\_R R329 1 GM@ 2 0\_0402\_5% CRT\_R\_S
- 17 VGA\_CRT\_VSYNC R42 1 PM@ 0.0402\_5% CRT\_VSYNC
- 17 VGA\_CRT\_HSYNC R49 1 PM@ 0.0402\_5% CRT\_HSYNC
- 17 VGA\_CRT\_B R323 1 PM@ 0.0402\_5% CRT\_B\_S
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- 17 VGA\_CRT\_R R330 1 PM@ 0.0402\_5% CRT\_R\_S

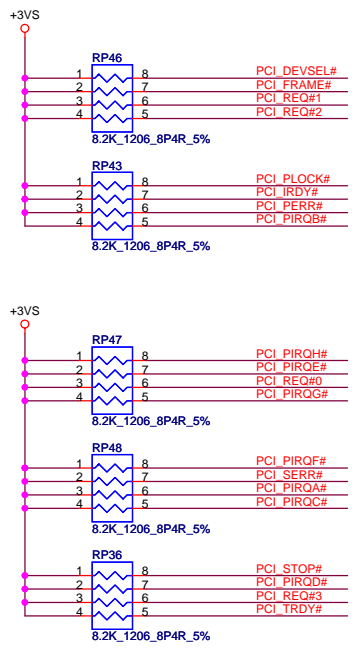
NOTE: L : A-->B1  
H: A-->B2

- CRT\_B\_S R518 1 JAW50@2 0.0402\_5% CRT\_B
- CRT\_G\_S R519 1 JAW50@2 0.0402\_5% CRT\_G
- CRT\_R\_S R520 1 JAW50@2 0.0402\_5% CRT\_R

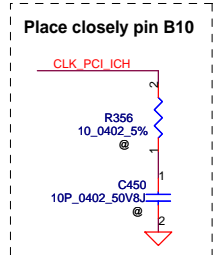
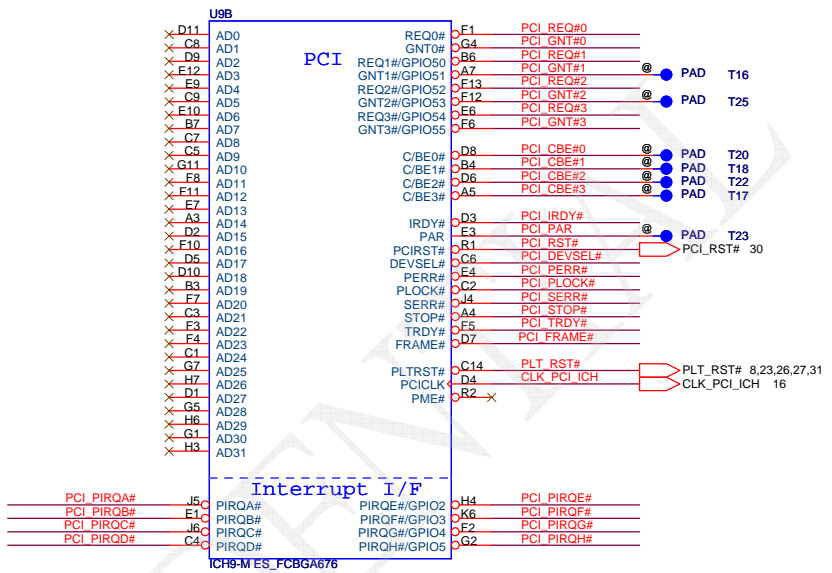
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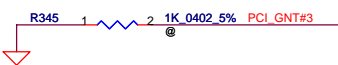
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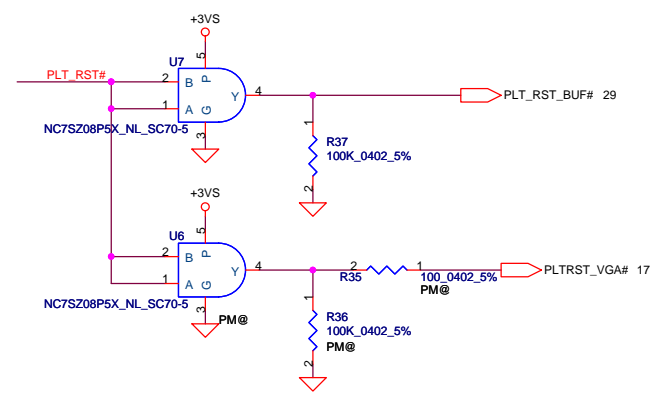
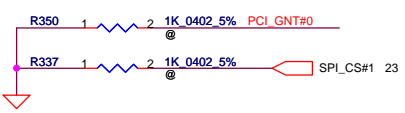
**DMI for ESI-compatible operation**  
**PCI\_GNT#1** Low= DMI for ESI-compatible operation  
 High= Default\* (Internal pull-up)



**A16 Swap Override Strap**  
**PCI\_GNT#3** Low= A16 swap override Enable  
 High= Default\*

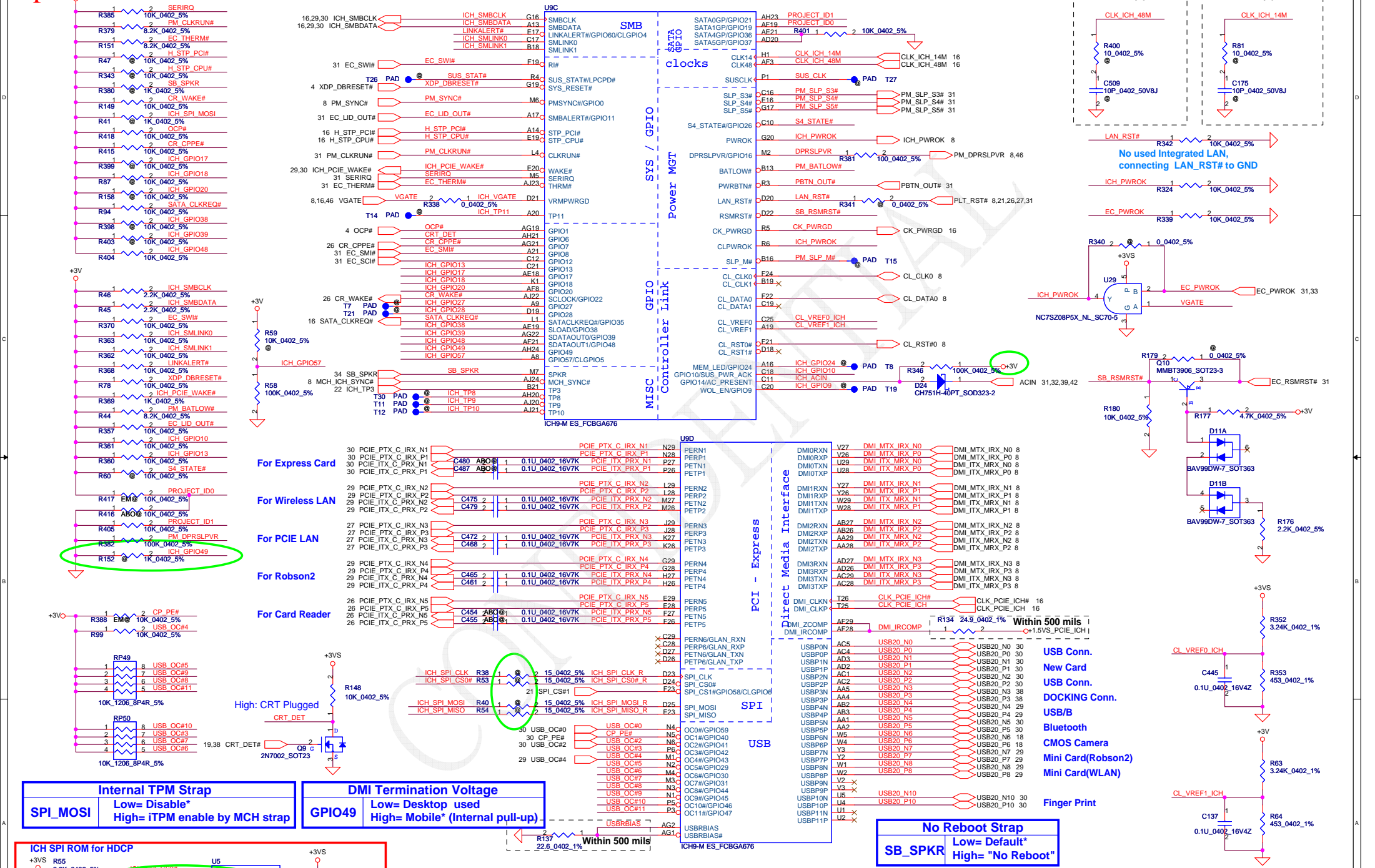


Boot BIOS Strap		
PCI_GNT#0	SPI_CS#1	Boot BIOS Location
0	1	SPI
1	0	PCI
1	1	LPC*



For VGA/B

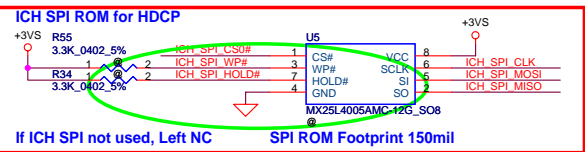




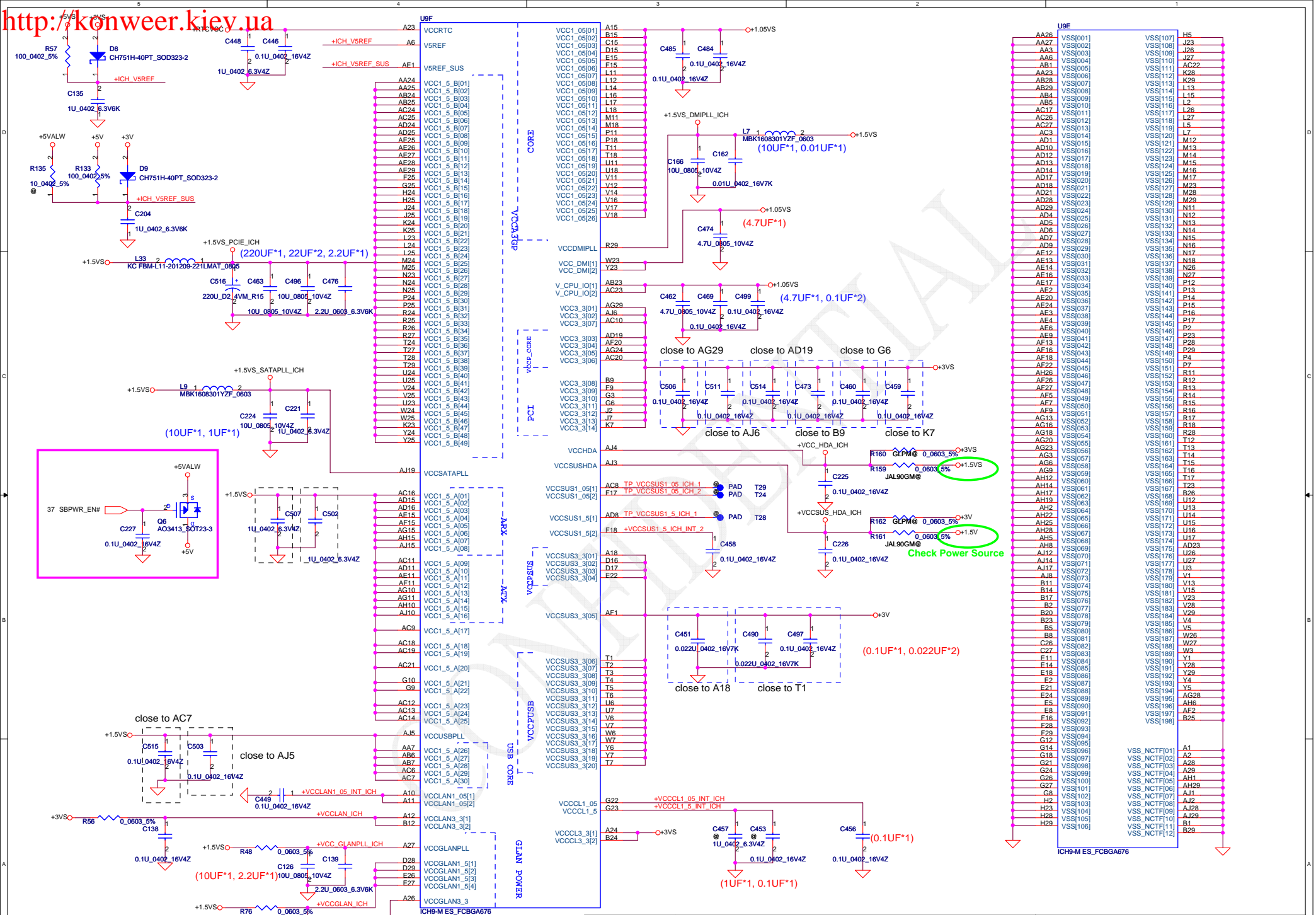
**Internal TPM Strap**  
 SPI\_MOSI Low= Disabled\*  
 High= ITAPM enable by MCH strap

**DMI Termination Voltage**  
 GPIO49 Low= Desktop used  
 High= Mobile\* (Internal pull-up)

**No Reboot Strap**  
 SB\_SPKR Low= Default\*  
 High= "No Reboot"



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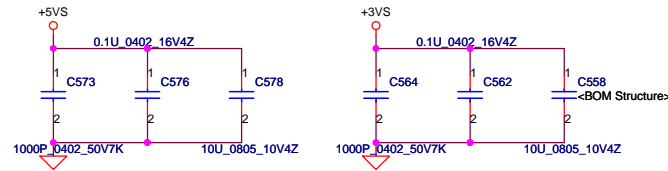
Compal Electronics, Inc.

Schematic, LA-4201P

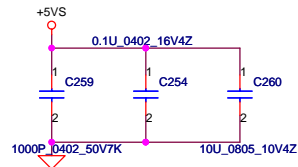
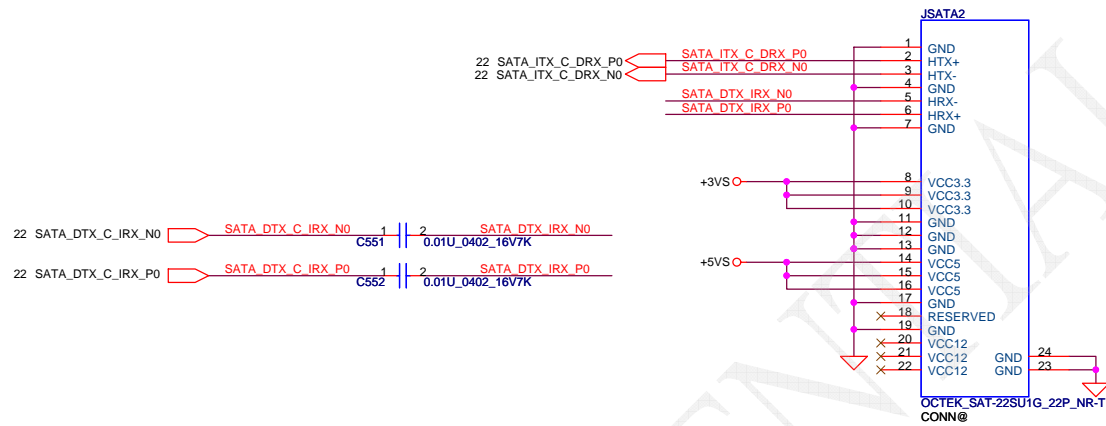
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Mondy, July 21, 2008

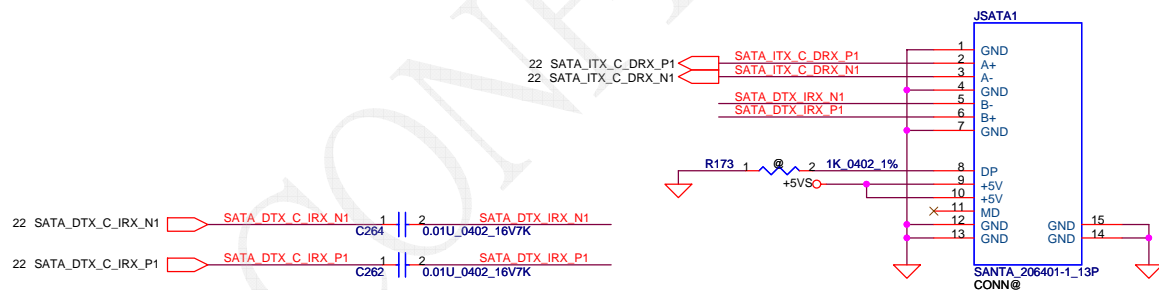
Sheet 24 of 50



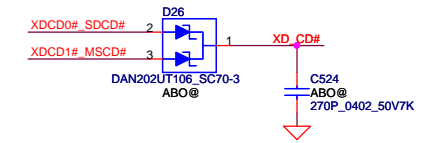
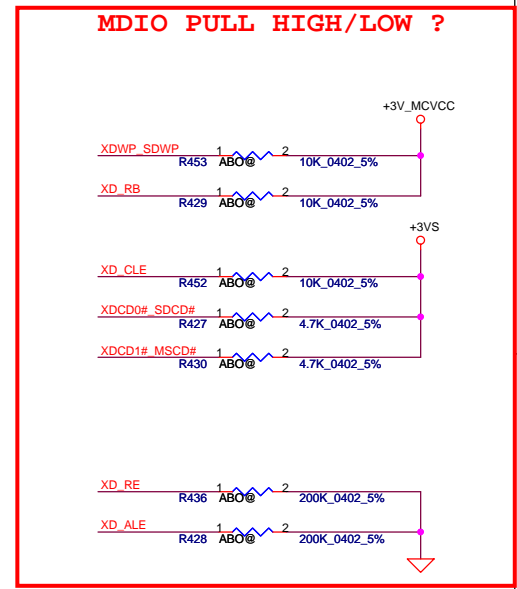
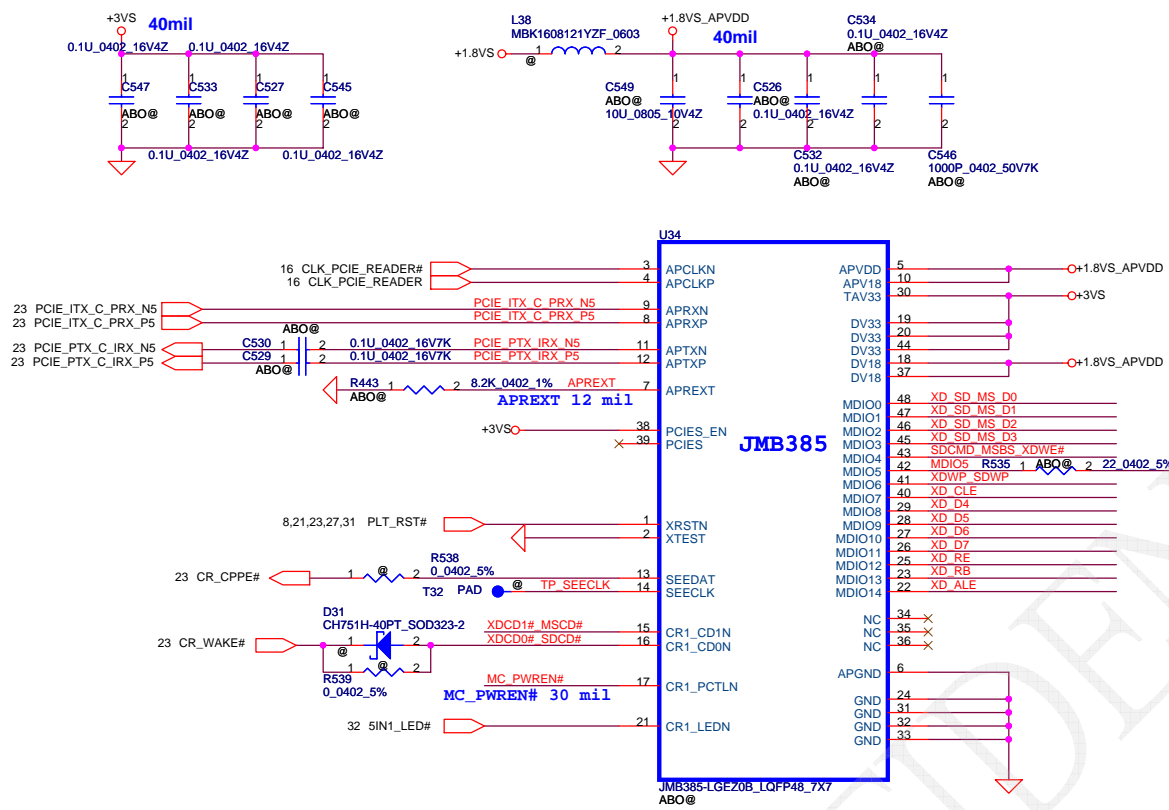
SATA HDD Conn.



SATA ODD Conn.

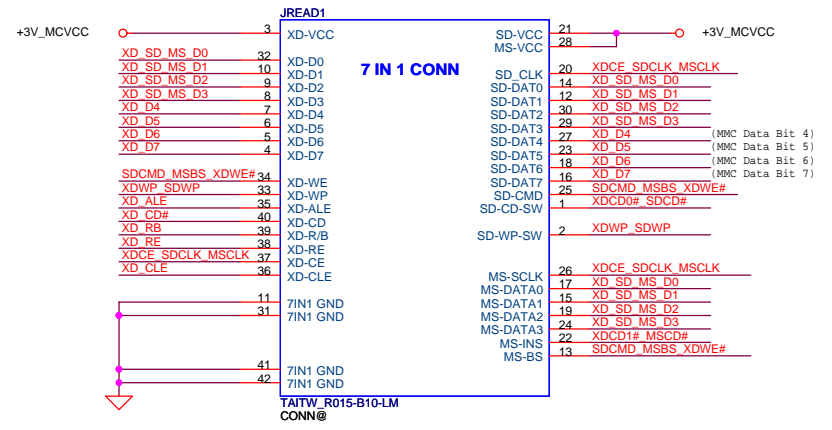
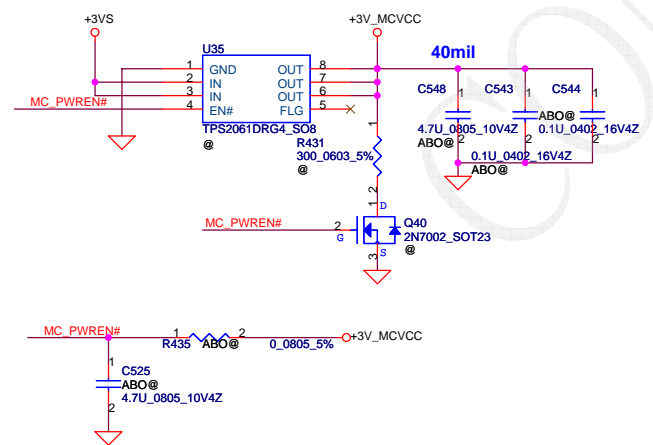


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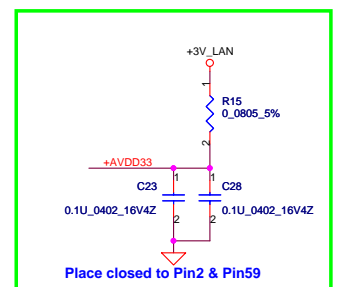
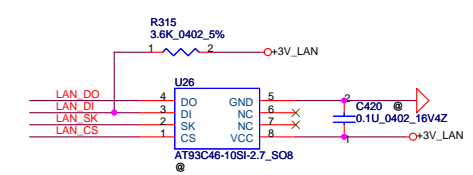
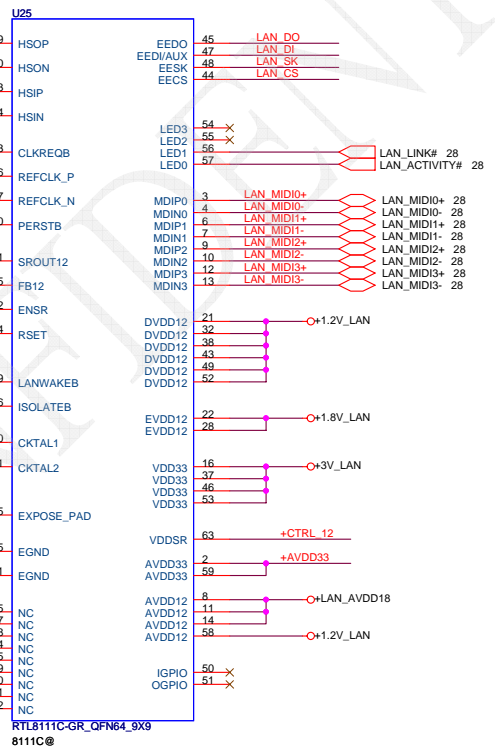
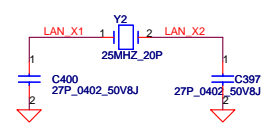
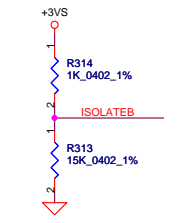
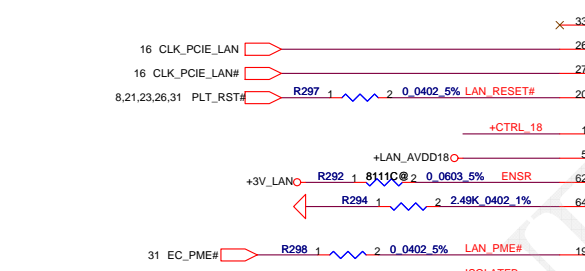
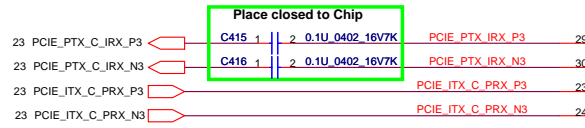
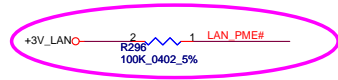
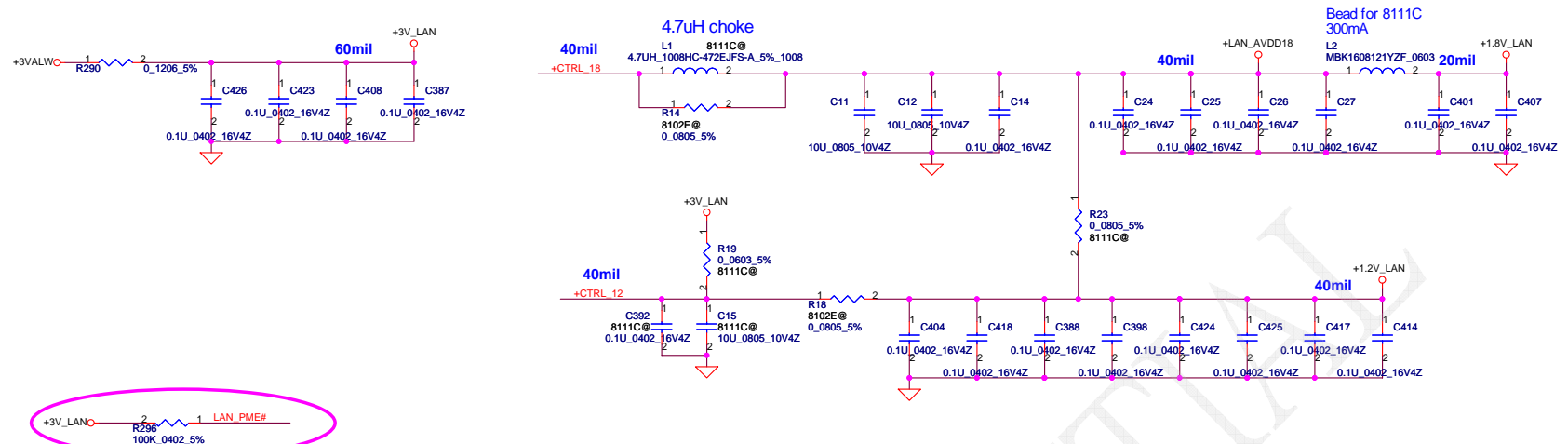


4 IN 1 Socket Push Type(New)

Memory Card Power Switch



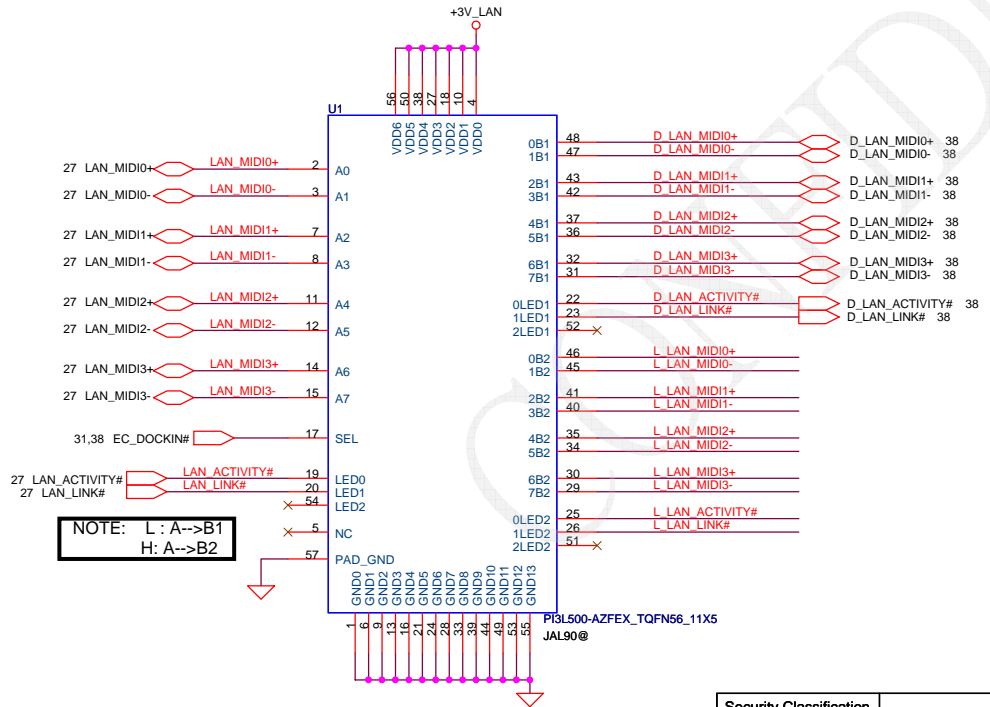
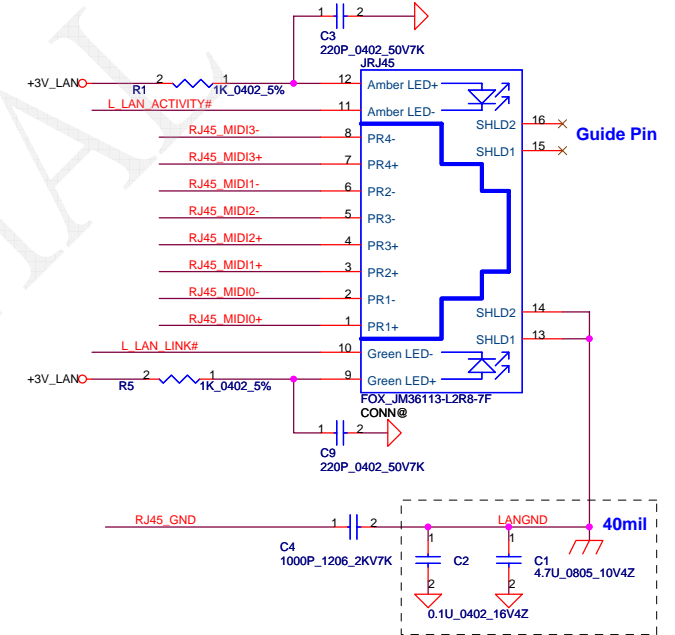
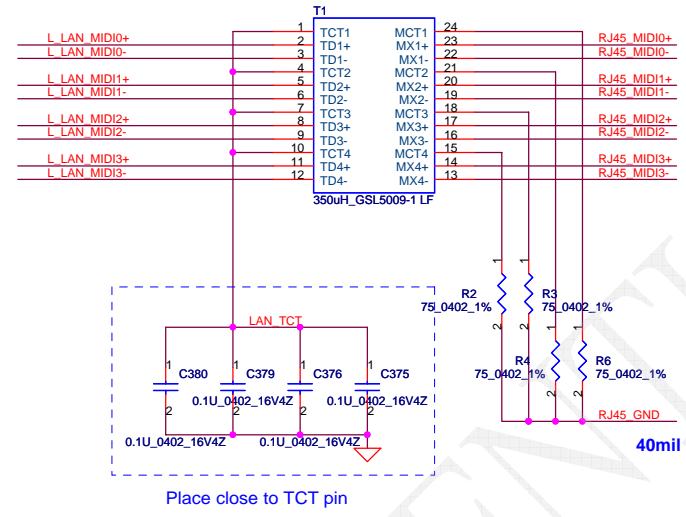
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Date: Monday, July 21, 2008				Rev I

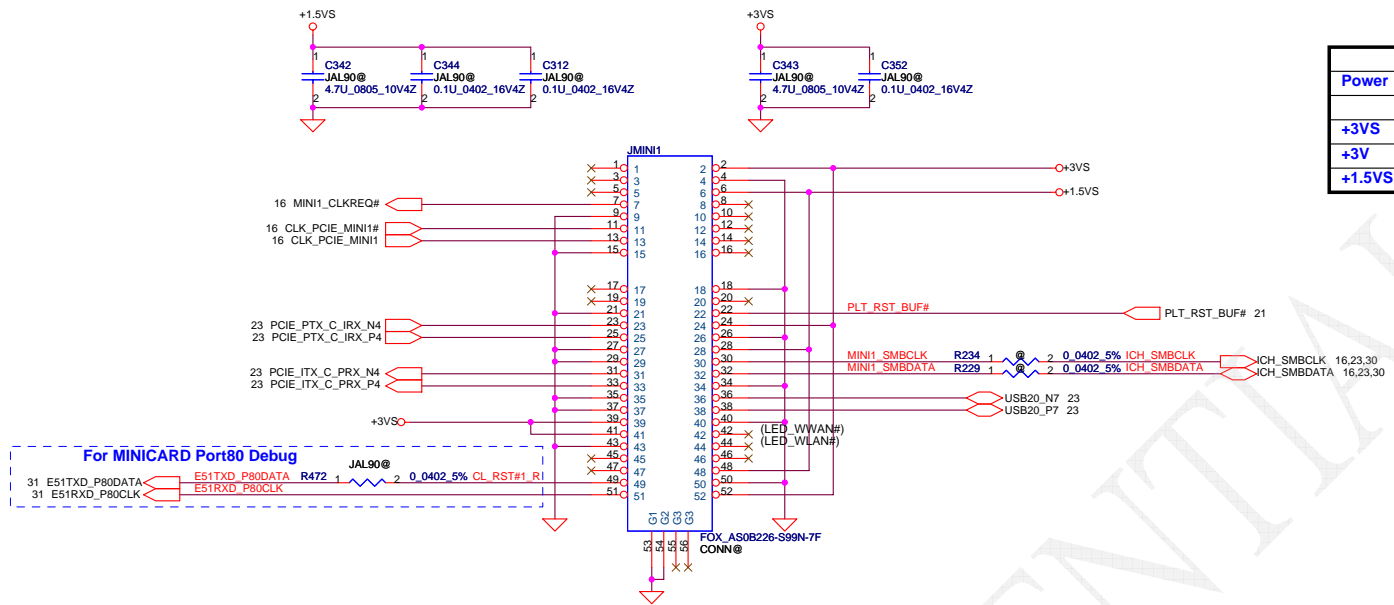
# LAN RTL8111C/8102E

- LAN\_MIDI0+ R521 1 JAW50@2 0.0402\_5% L LAN\_MIDI0+
- LAN\_MIDI0- R522 1 JAW50@2 0.0402\_5% L LAN\_MIDI0-
- LAN\_MIDI1+ R523 1 JAW50@2 0.0402\_5% L LAN\_MIDI1+
- LAN\_MIDI1- R524 1 JAW50@2 0.0402\_5% L LAN\_MIDI1-
- LAN\_MIDI2+ R525 1 JAW50@2 0.0402\_5% L LAN\_MIDI2+
- LAN\_MIDI2- R526 1 JAW50@2 0.0402\_5% L LAN\_MIDI2-
- LAN\_MIDI3+ R527 1 JAW50@2 0.0402\_5% L LAN\_MIDI3+
- LAN\_MIDI3- R528 1 JAW50@2 0.0402\_5% L LAN\_MIDI3-
- LAN\_ACTIVITY# R529 1 JAW50@2 0.0402\_5% L LAN\_ACTIVITY#
- LAN\_LINK# R530 1 JAW50@2 0.0402\_5% L LAN\_LINK#



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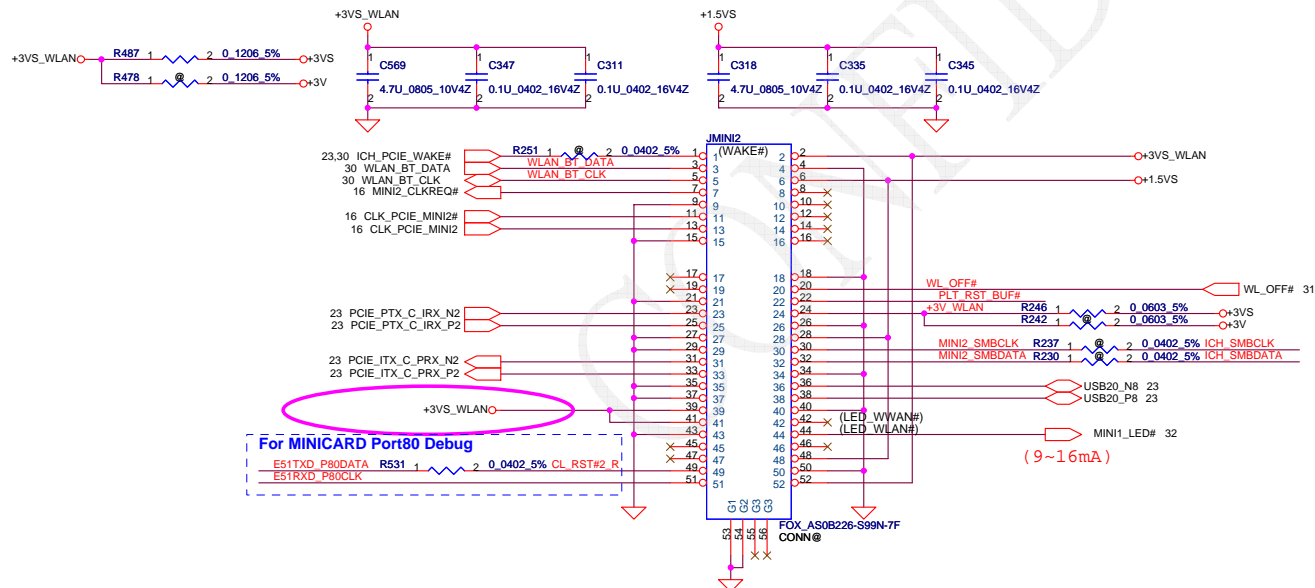
For Robson2



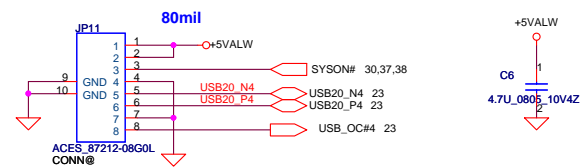
Power	Mini Card Power Rating	
	Primary Power (mA)	Auxiliary Power (mA)
+3VS	1000	750
+3V	330	250
+1.5VS	500	375

Normal (wake enable)  
5 (Not wake enable)

For Wireless LAN

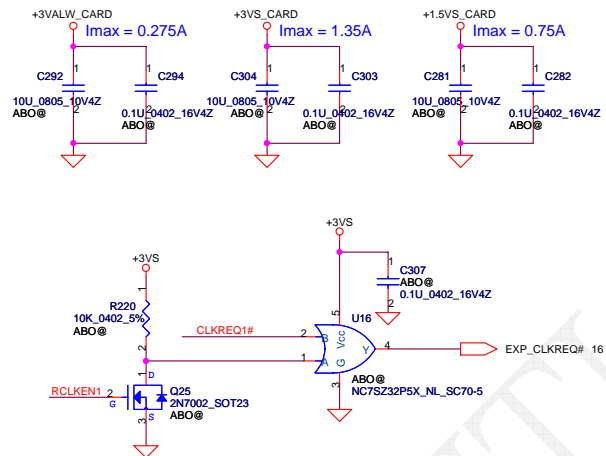
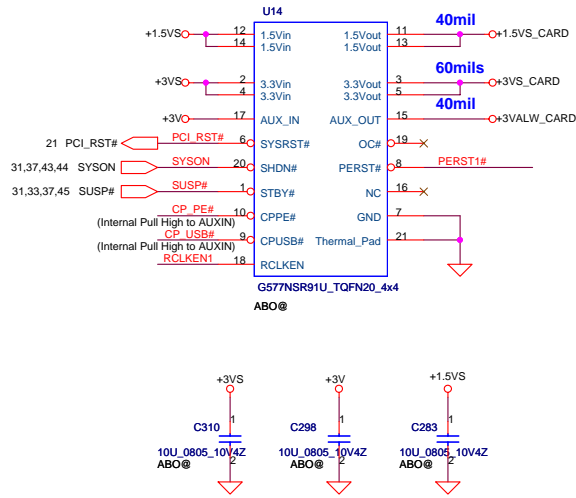


To USB/B Connector

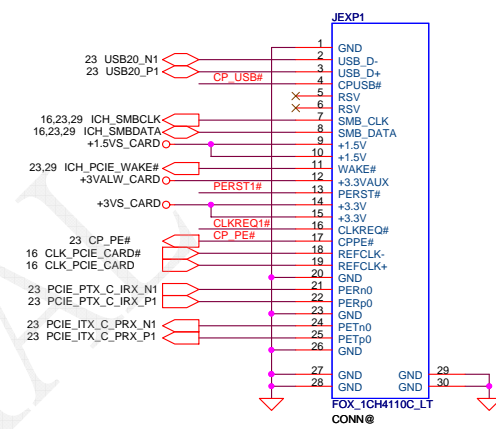


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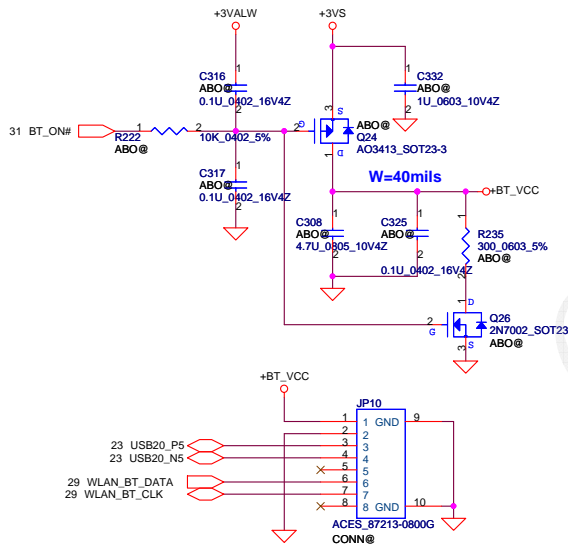
### New Card Power Switch



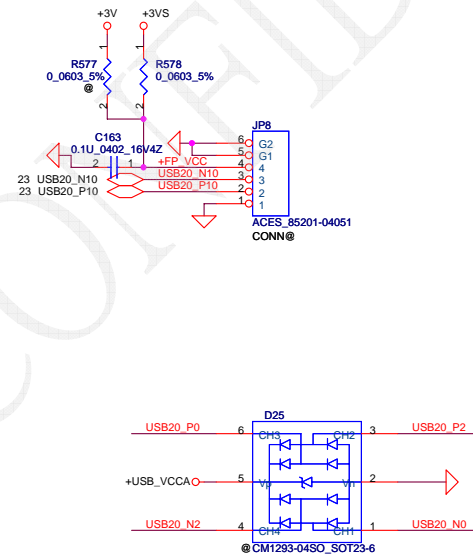
### New Card Socket (Left/TOP)



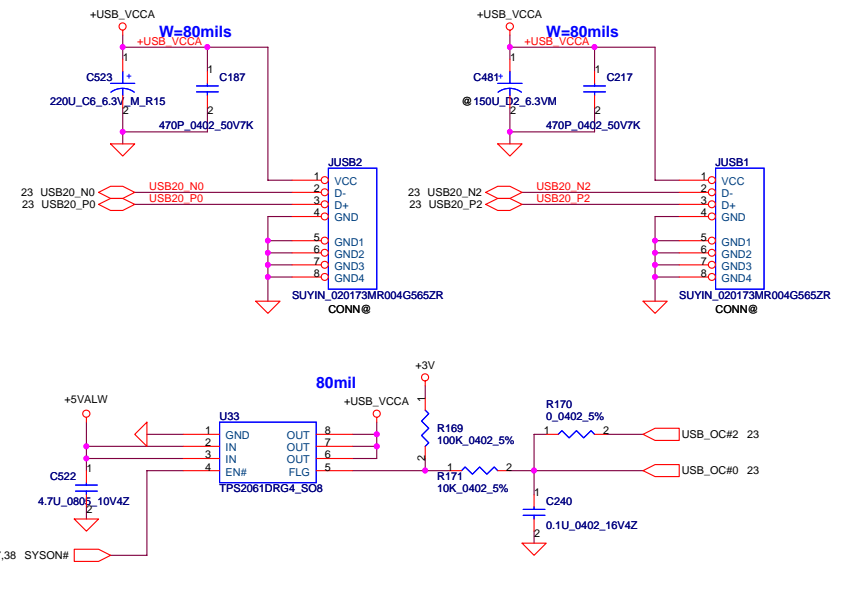
### Bluetooth Conn.



### Finger Print Conn.

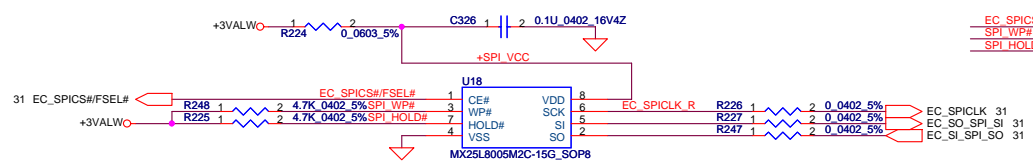


### USB CONN. (Stack-up Type)



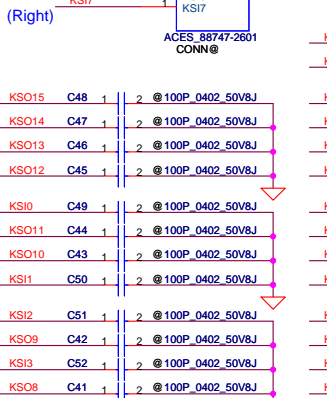
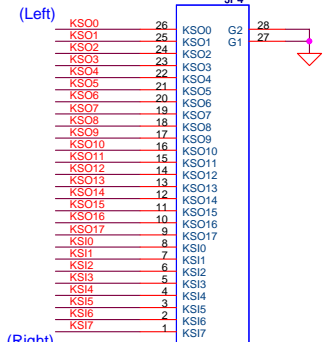
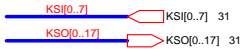
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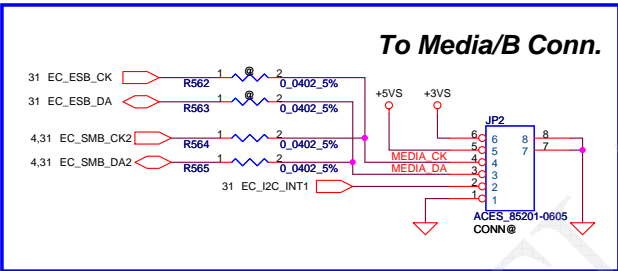
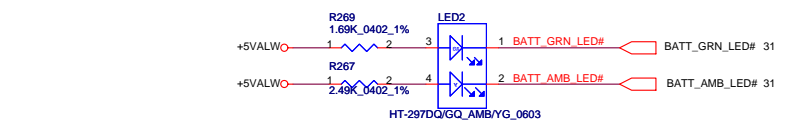
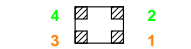


ENE suggestion SPI Frequency over 66MHz  
 SST: 50MHz  
 MXIC: 70MHz  
 ST: 40MHz

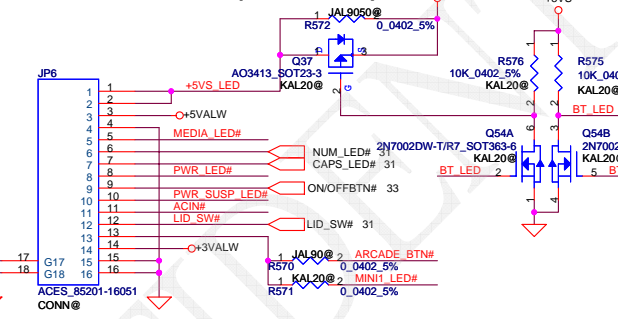
**INT\_KBD Conn.**



**Compal Footprint**

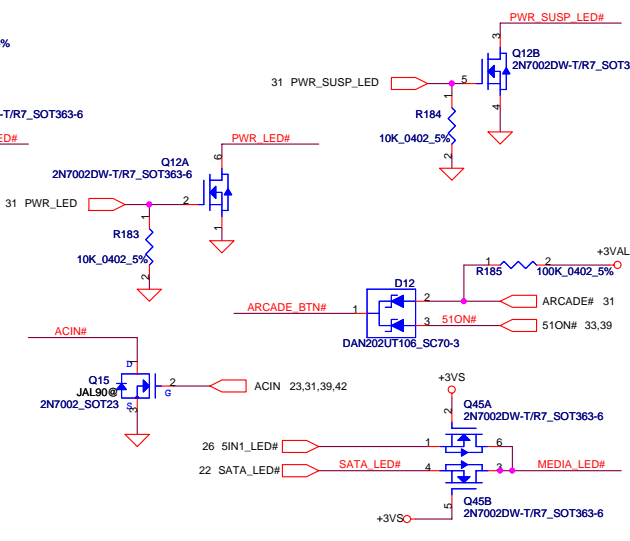
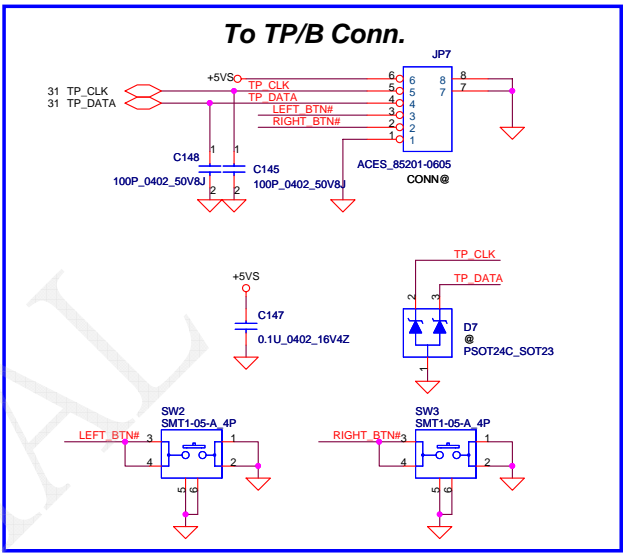
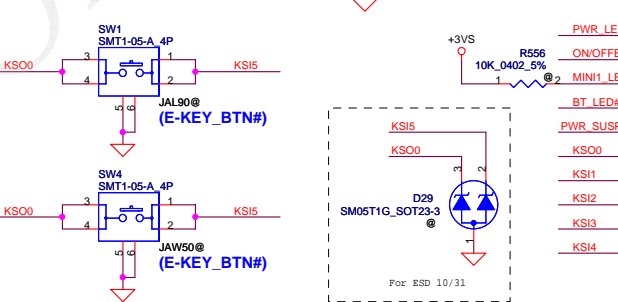


**To LED/B Conn. (POWER/B)**

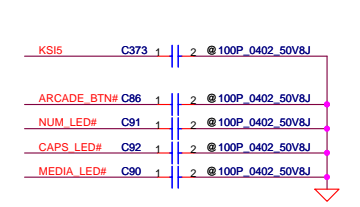


**To BTN/B Conn.**

KSO0	Signal
KSI1	WL_BTN#
KSI2	BT_BTN#
KSI3	EMAIL_BTN#
KSI4	IE_BTN#
KSI5	E-KEY_BTN#



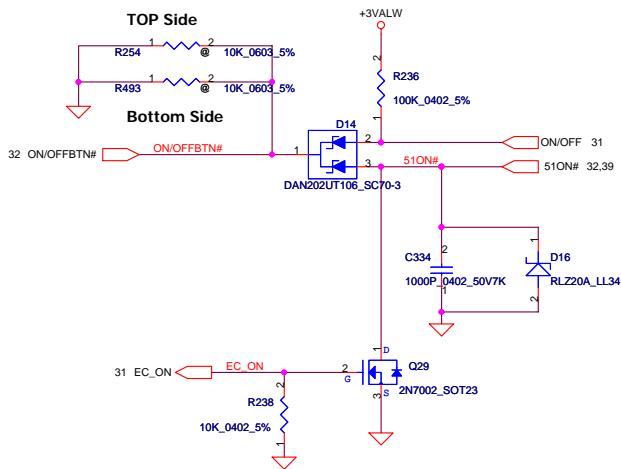
**FOR EMI**



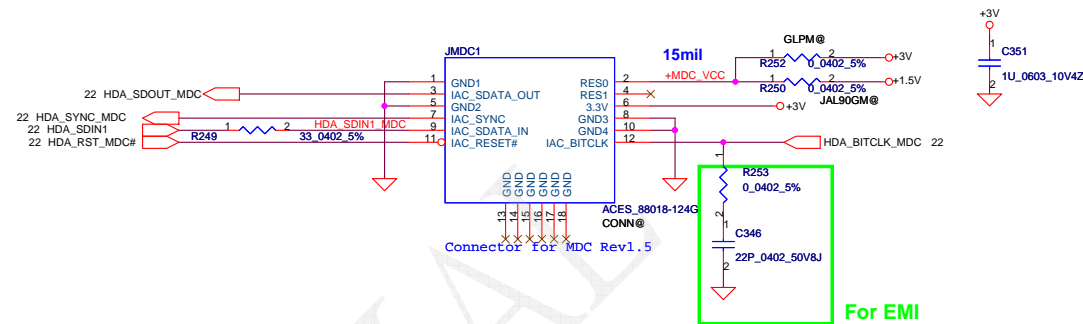
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### Power Button

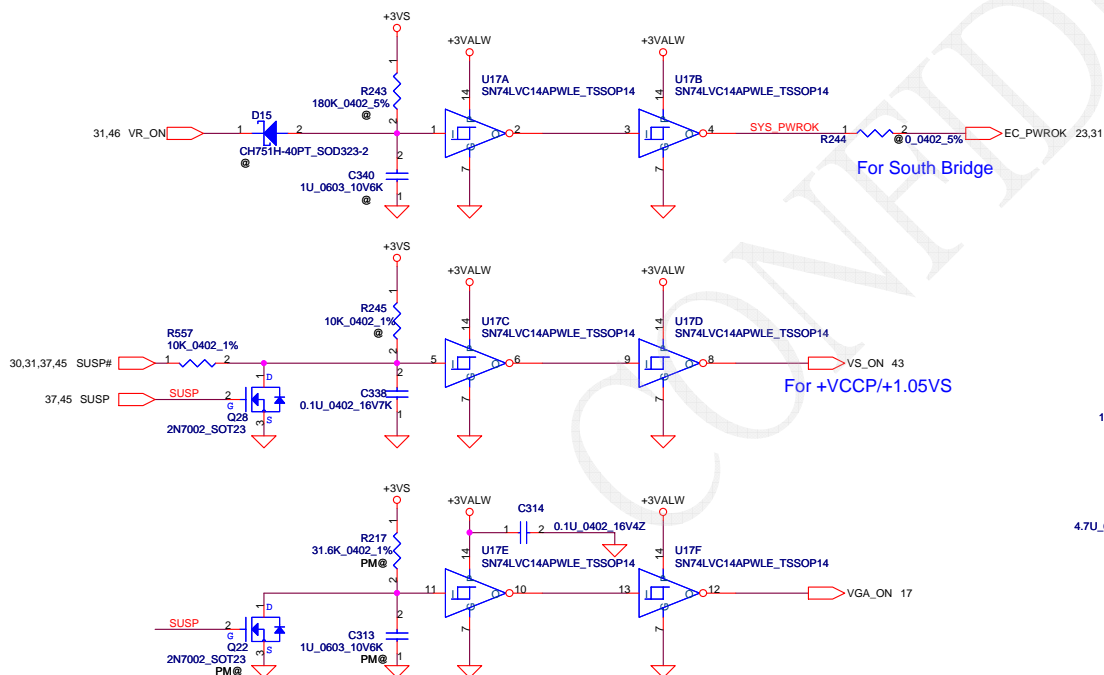
ON/OFF switch



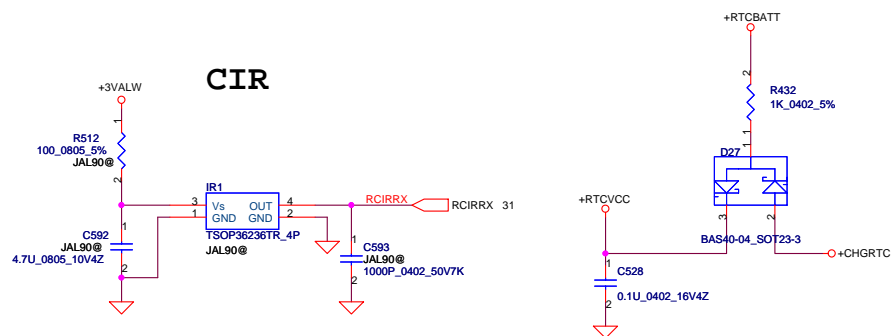
### HDA MDC Conn.



### Power ON Circuit

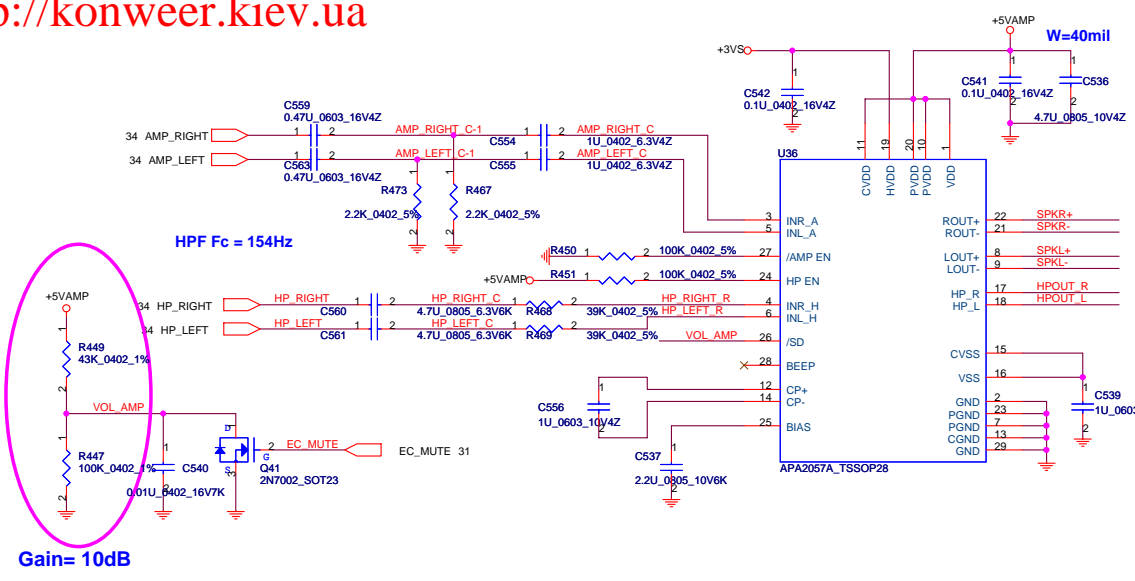


### CIR



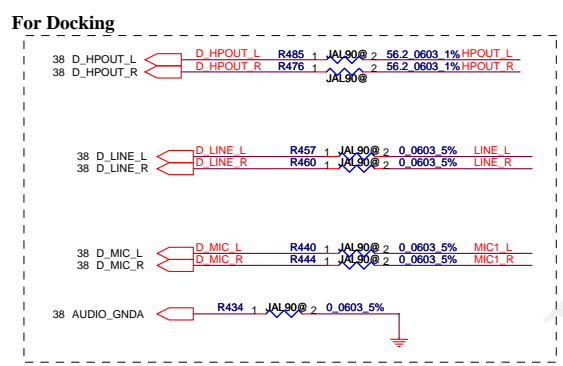
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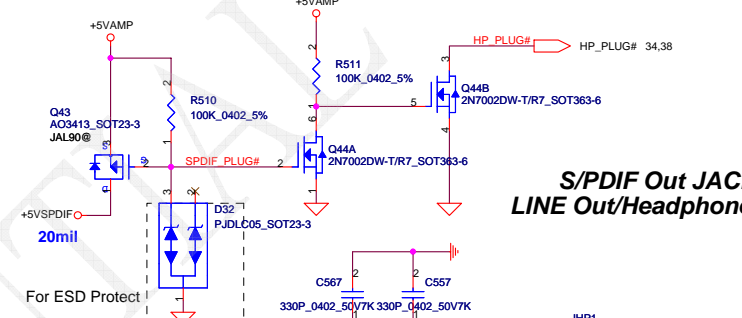
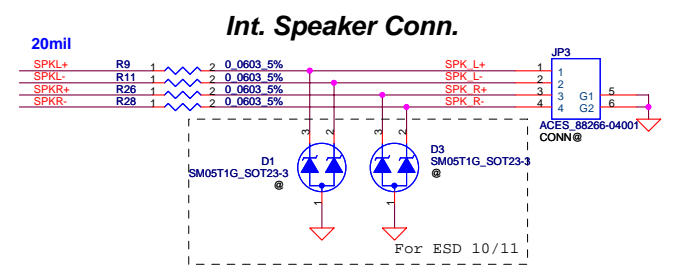
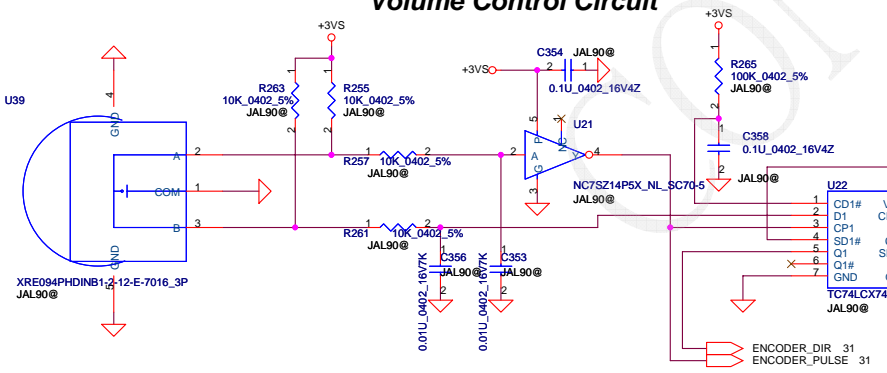


HPF Fc = 154Hz

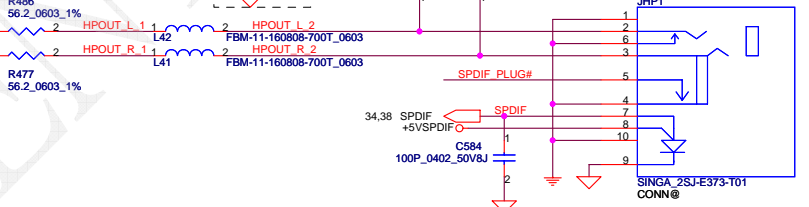
Gain= 10dB



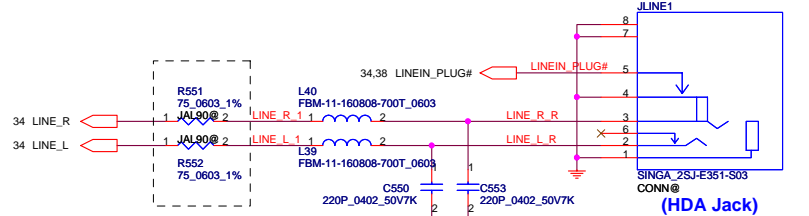
Volume Control Circuit



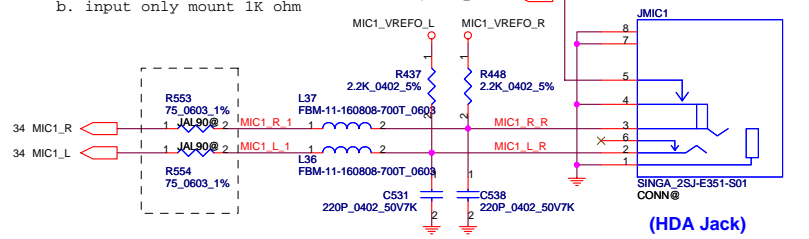
S/PDIF Out JACK  
LINE Out/Headphone Out



LINE-IN JACK



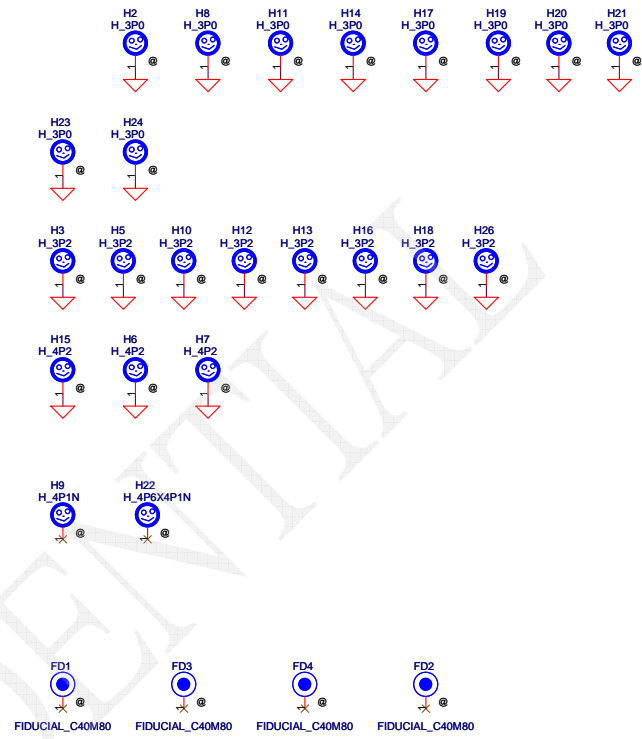
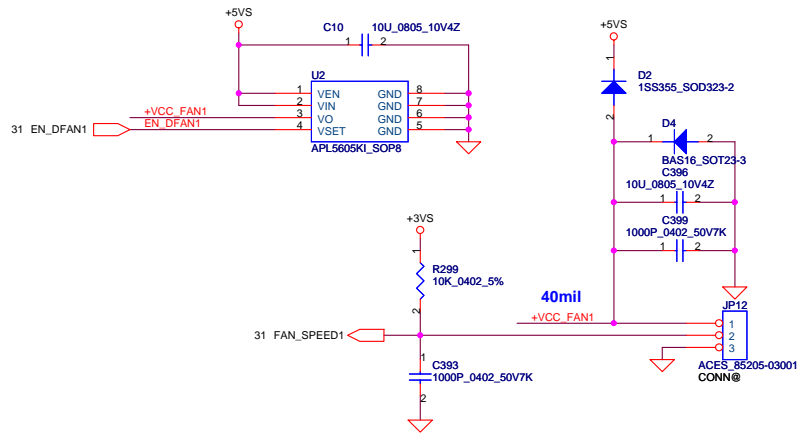
MIC JACK



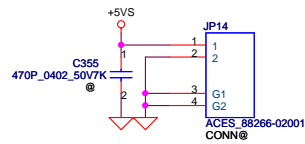
For ESD I/O status:  
a. input/output mount 75 ohm  
b. input only mount 1K ohm

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### FAN1 Conn

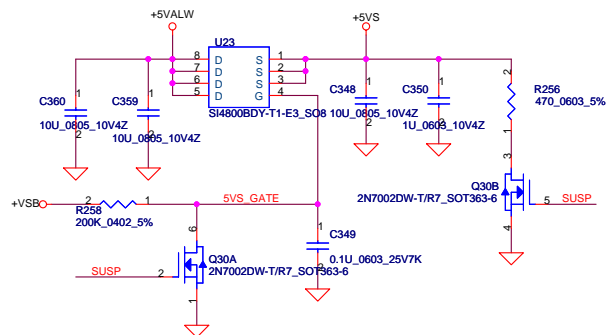


### COVER LIGHT Conn

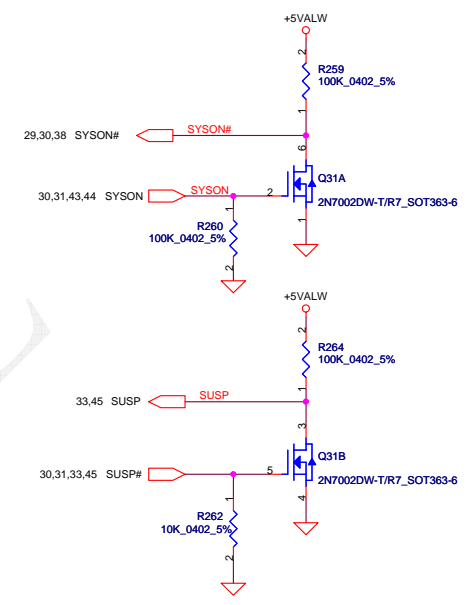
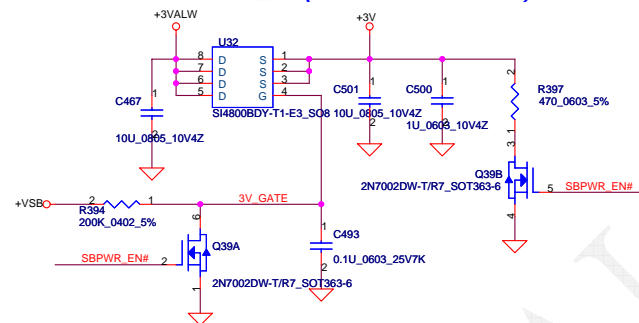


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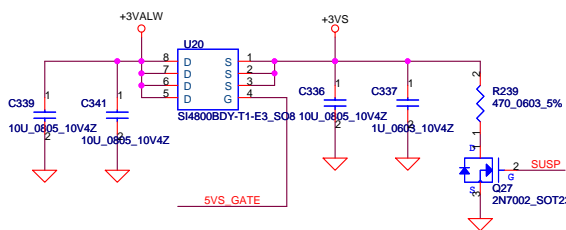
**+5VALW TO +5VS**



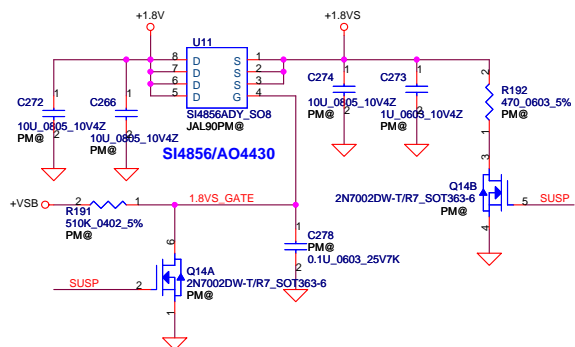
**+3VALW TO +3V\_SB(ICH8M AUX Power)**



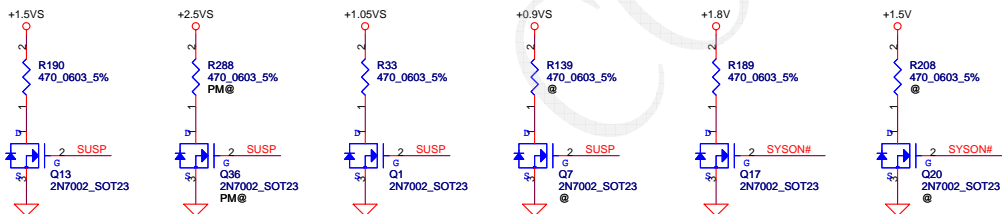
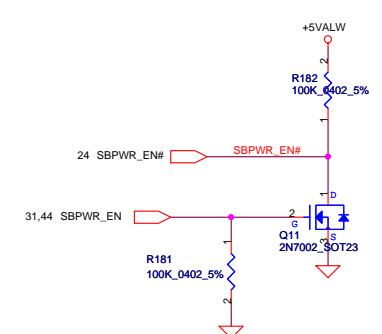
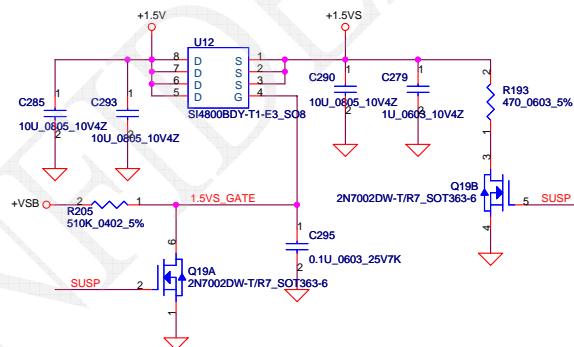
**+3VALW TO +3VS**



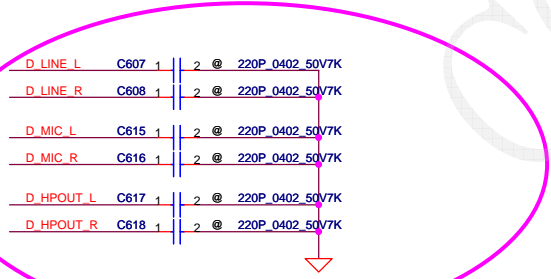
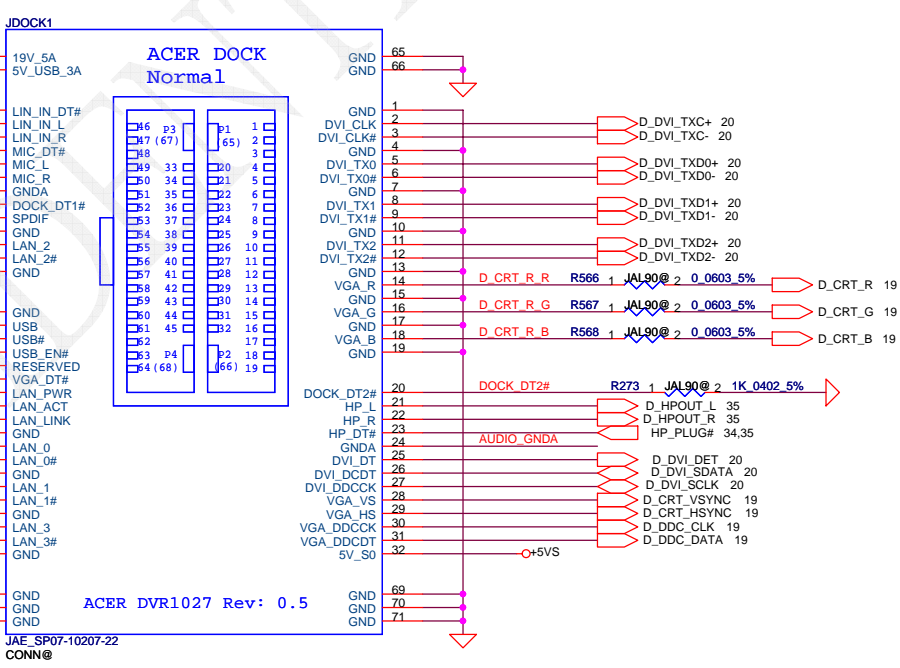
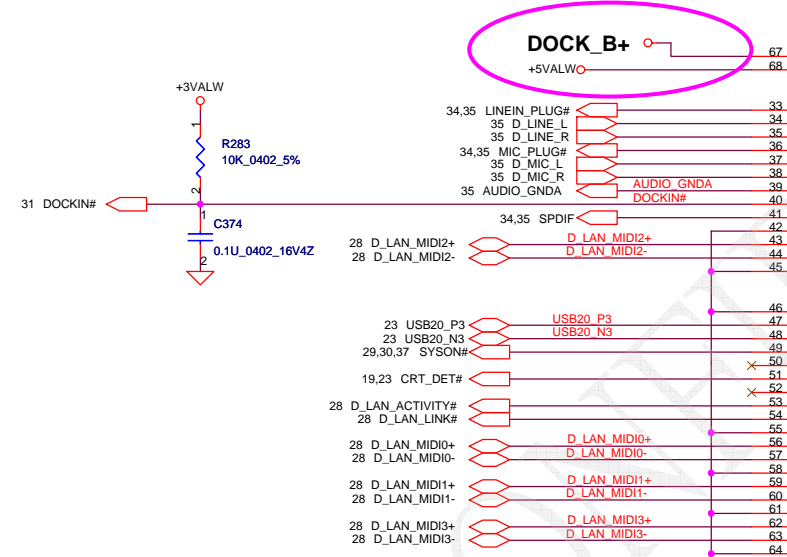
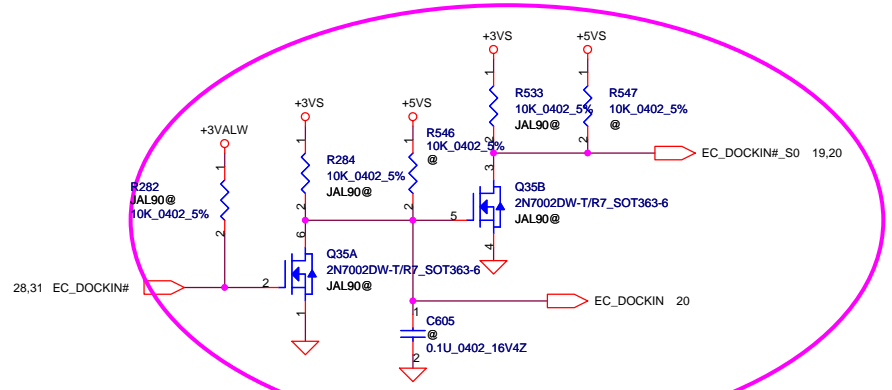
**+1.8V to +1.8VS**



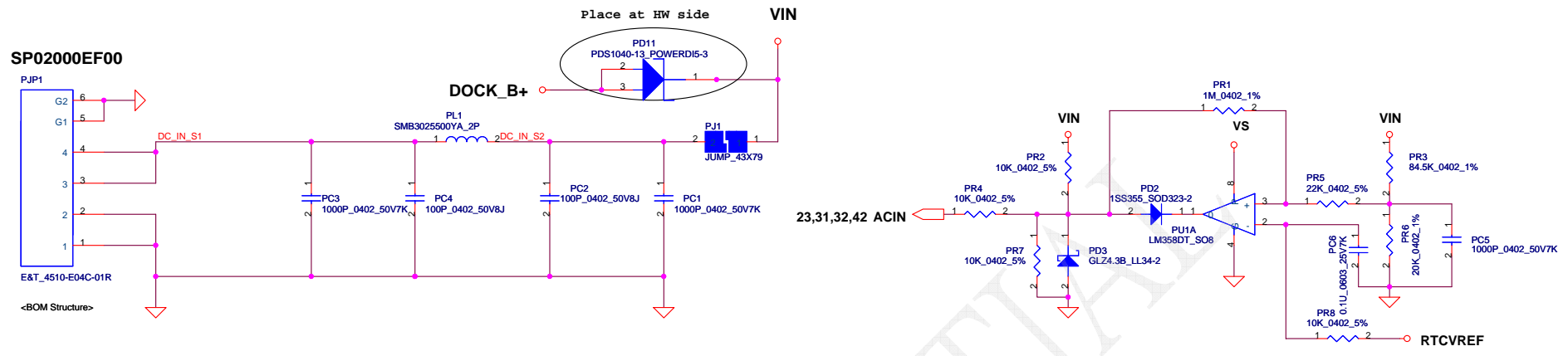
**+1.5V to +1.5VS**



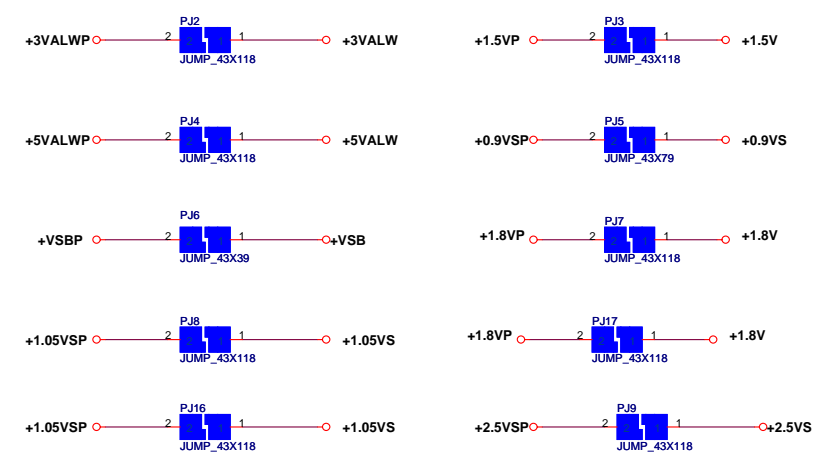
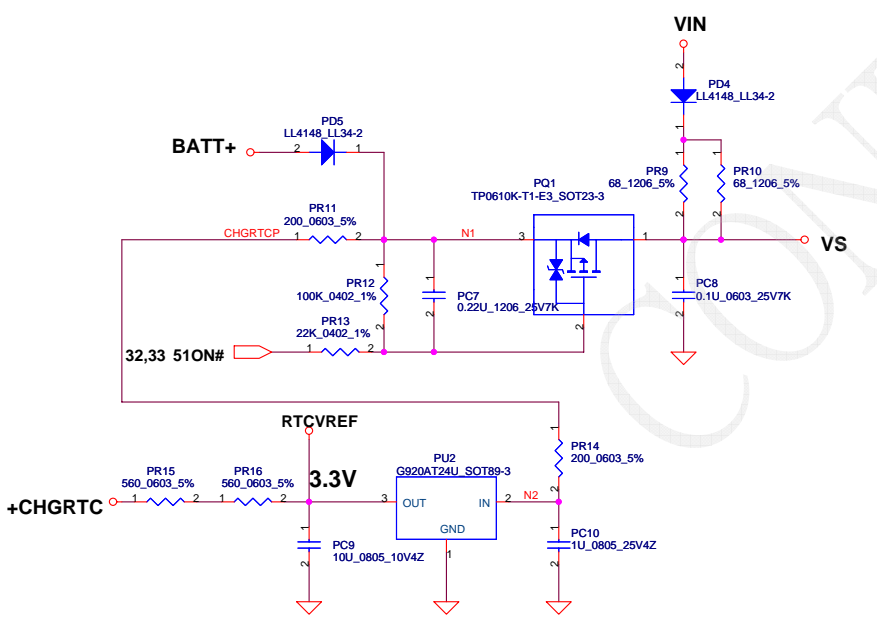
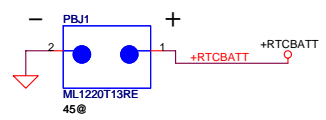
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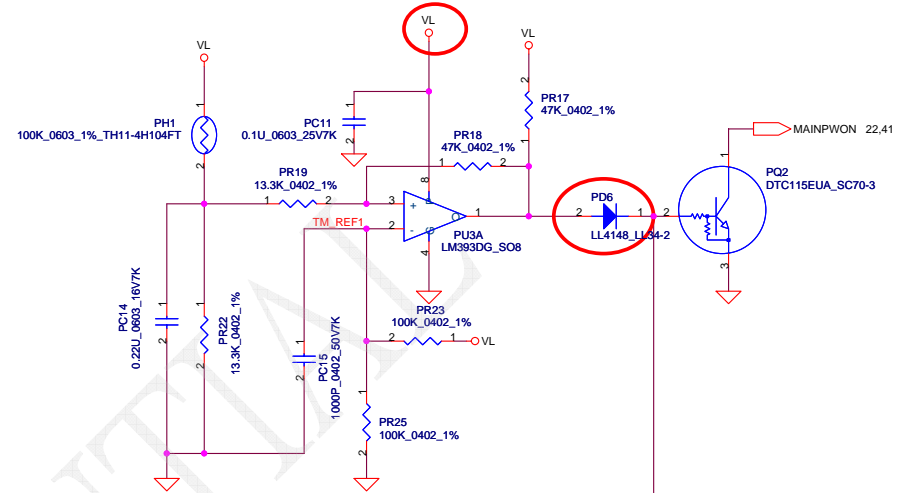
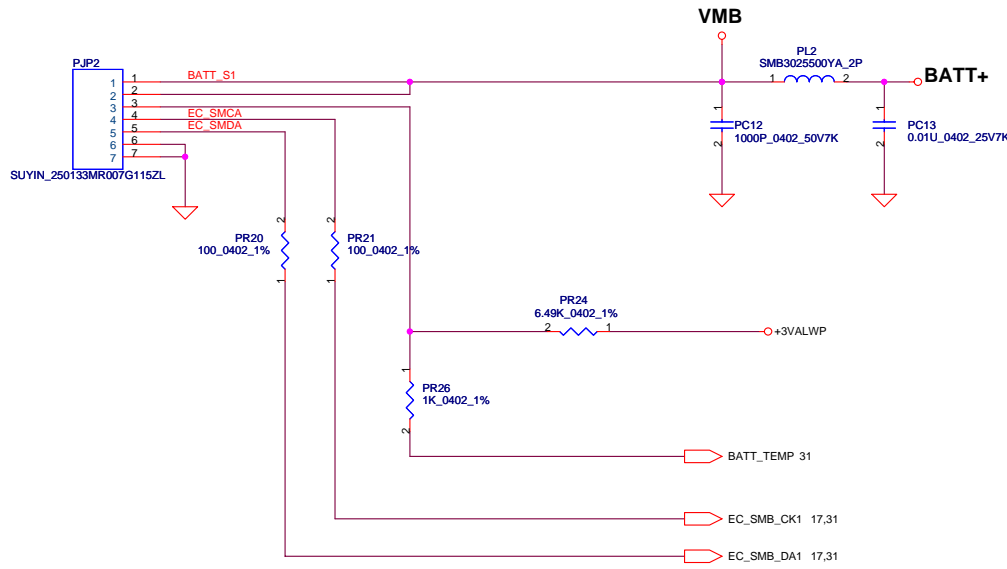
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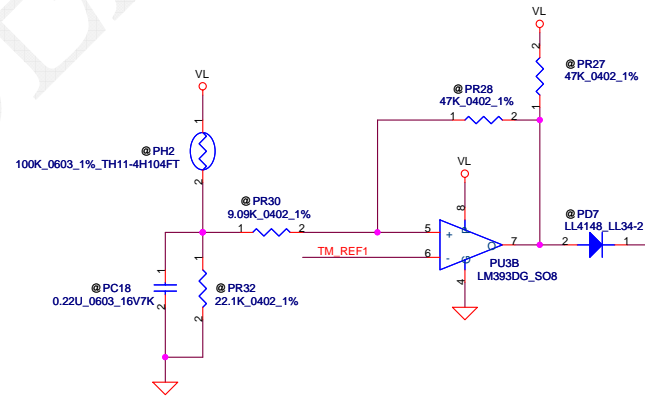
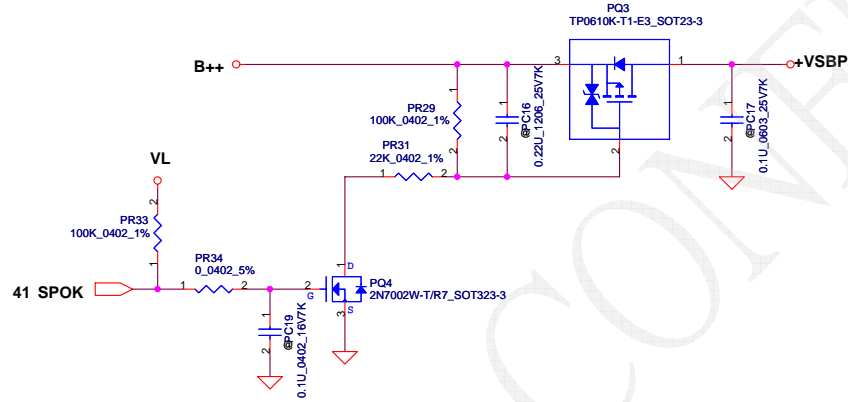
Vin Detector			
	Min.	Typ	Max.
H-->L	16.976V	17.525V	17.728V
L-->H	17.430V	17.901V	18.384V



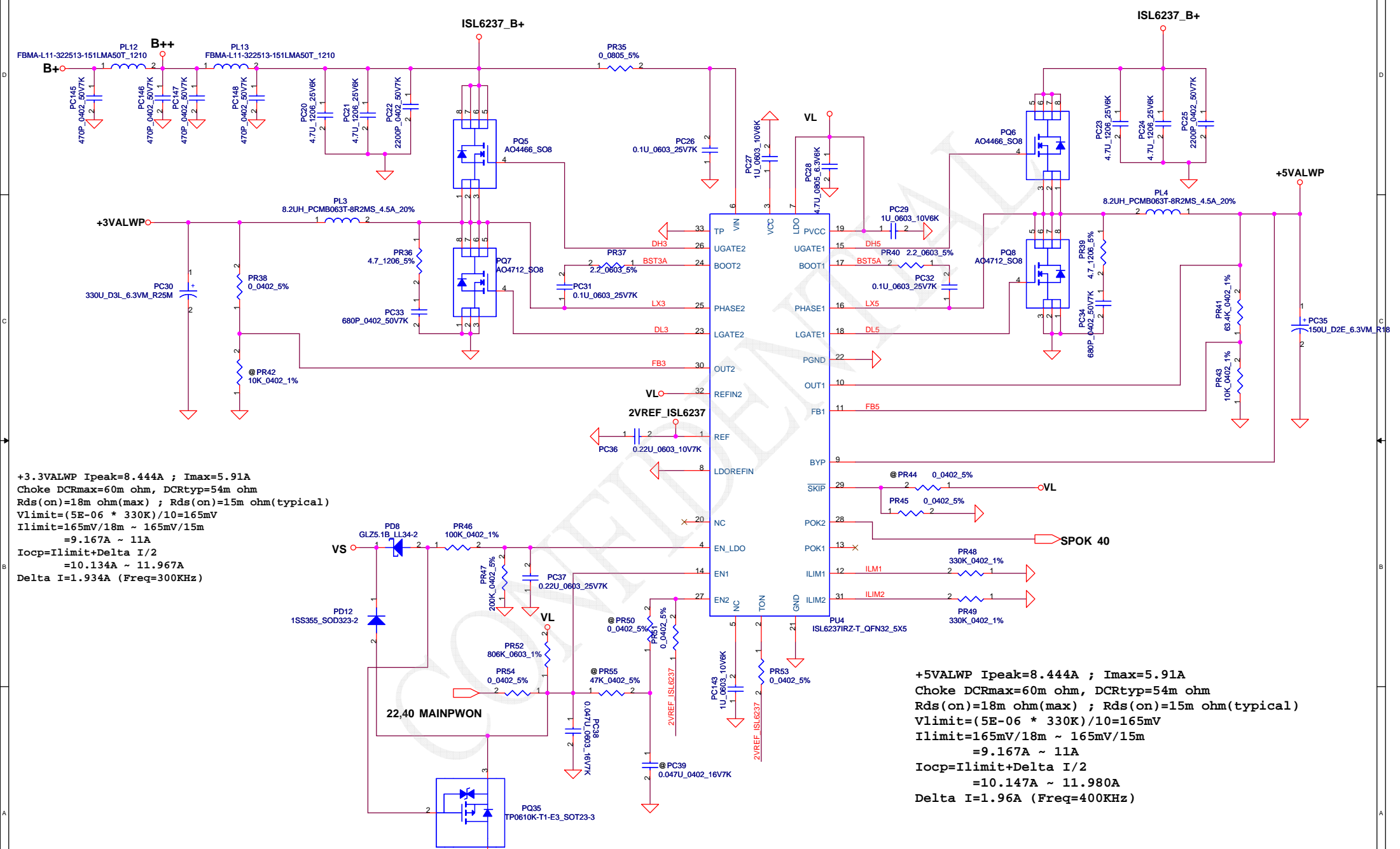
PH1 under CPU botten side :  
 CPU thermal protection at 96 degree C  
 Recovery at 60 degree C



PH2 near main Battery CONN :  
 BAT. thermal protection at 79 degree C  
 Recovery at 47 degree C



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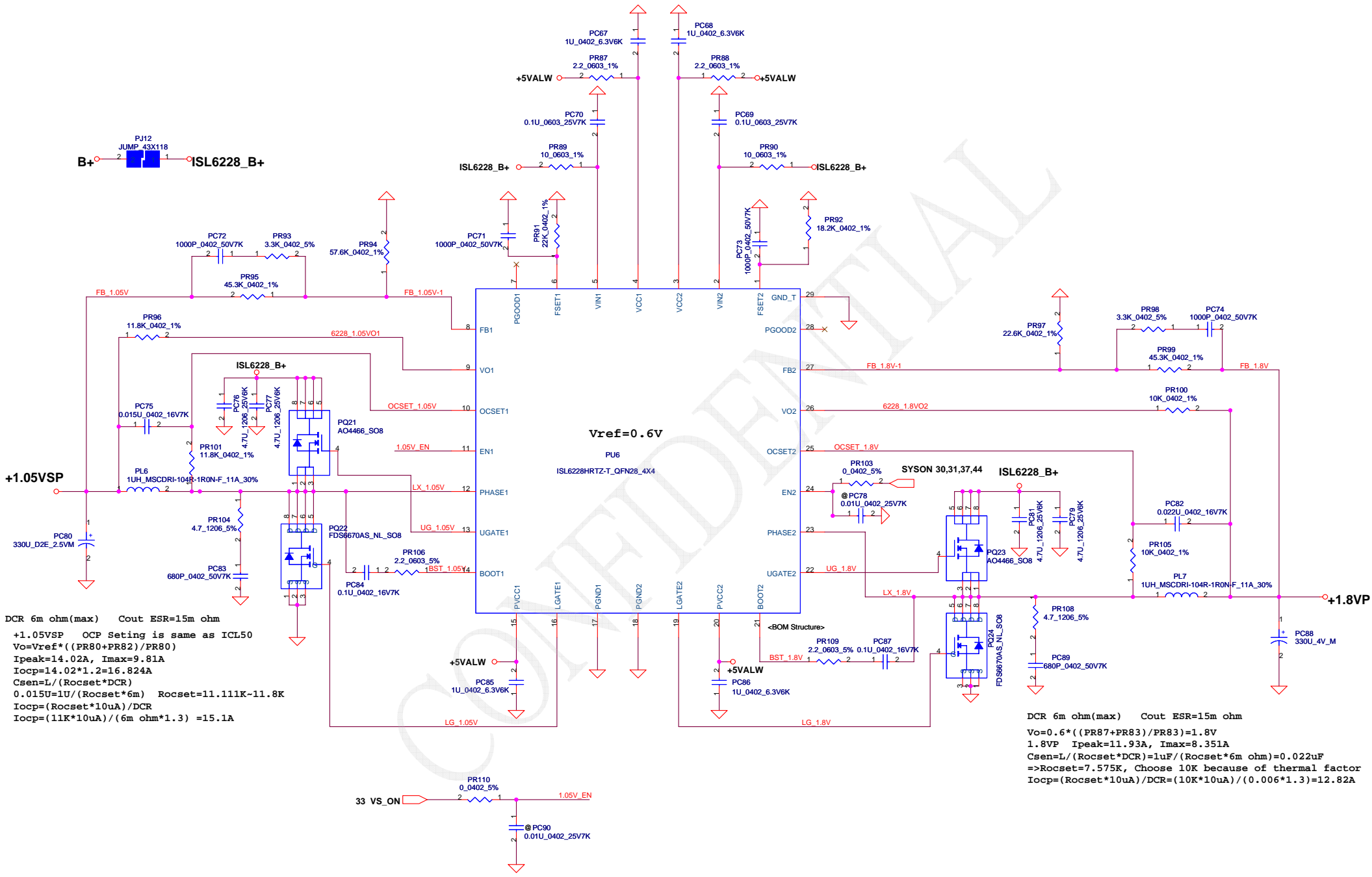


**+3.3VALWP** Ipeak=8.444A ; Imax=5.91A  
 Choke DCRmax=60m ohm, DCRtyp=54m ohm  
 Rds(on)=18m ohm(max) ; Rds(on)=15m ohm(typical)  
 Vlimit=(5E-06 \* 330K)/10=165mV  
 Ilimit=165mV/18m ~ 165mV/15m  
 =9.167A ~ 11A  
 Iocp=Ilimit+Delta I/2  
 =10.134A ~ 11.967A  
 Delta I=1.934A (Freq=300KHz)

**+5VALWP** Ipeak=8.444A ; Imax=5.91A  
 Choke DCRmax=60m ohm, DCRtyp=54m ohm  
 Rds(on)=18m ohm(max) ; Rds(on)=15m ohm(typical)  
 Vlimit=(5E-06 \* 330K)/10=165mV  
 Ilimit=165mV/18m ~ 165mV/15m  
 =9.167A ~ 11A  
 Iocp=Ilimit+Delta I/2  
 =10.147A ~ 11.980A  
 Delta I=1.96A (Freq=400KHz)

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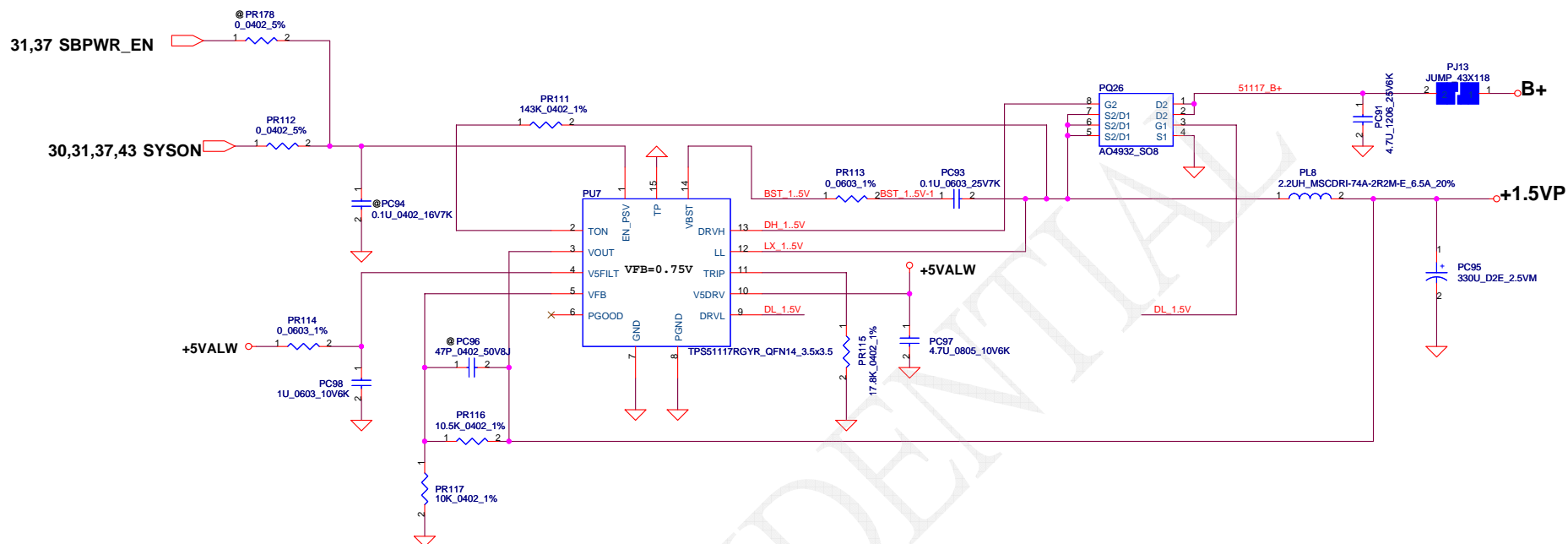




DCR 6m ohm(max) Cout ESR=15m ohm  
 +1.05VSP OCP Setting is same as ICL50  
 $V_o = V_{ref} * ((PR80 + PR82) / PR80)$   
 $I_{peak} = 14.02A$ ,  $I_{max} = 9.81A$   
 $I_{ocp} = 14.02 * 1.2 = 16.824A$   
 $C_{sen} = L / (Rocset * DCR)$   
 $0.015U = 1U / (Rocset * 6m)$   $Rocset = 11.111K - 11.8K$   
 $I_{ocp} = (Rocset * 10uA) / DCR$   
 $I_{ocp} = (11K * 10uA) / (6m ohm * 1.3) = 15.1A$

DCR 6m ohm(max) Cout ESR=15m ohm  
 $V_o = 0.6 * ((PR87 + PR83) / PR83) = 1.8V$   
 $1.8VP$   $I_{peak} = 11.93A$ ,  $I_{max} = 8.351A$   
 $C_{sen} = L / (Rocset * DCR) = 1uF / (Rocset * 6m ohm) = 0.022uF$   
 $=> Rocset = 7.575K$ , Choose 10K because of thermal factor  
 $I_{ocp} = (Rocset * 10uA) / DCR = (10K * 10uA) / (0.006 * 1.3) = 12.82A$

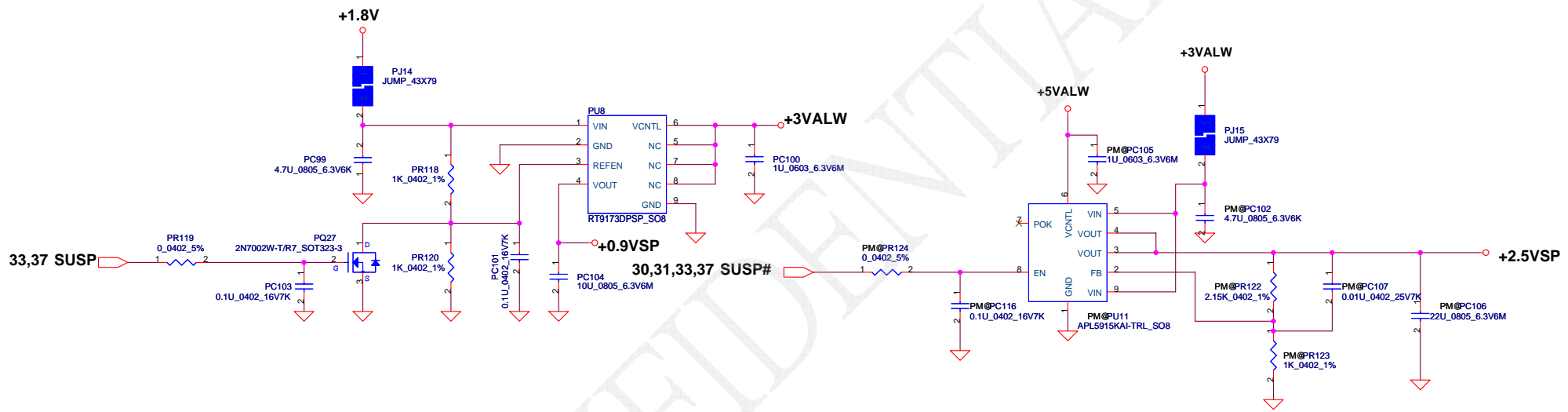
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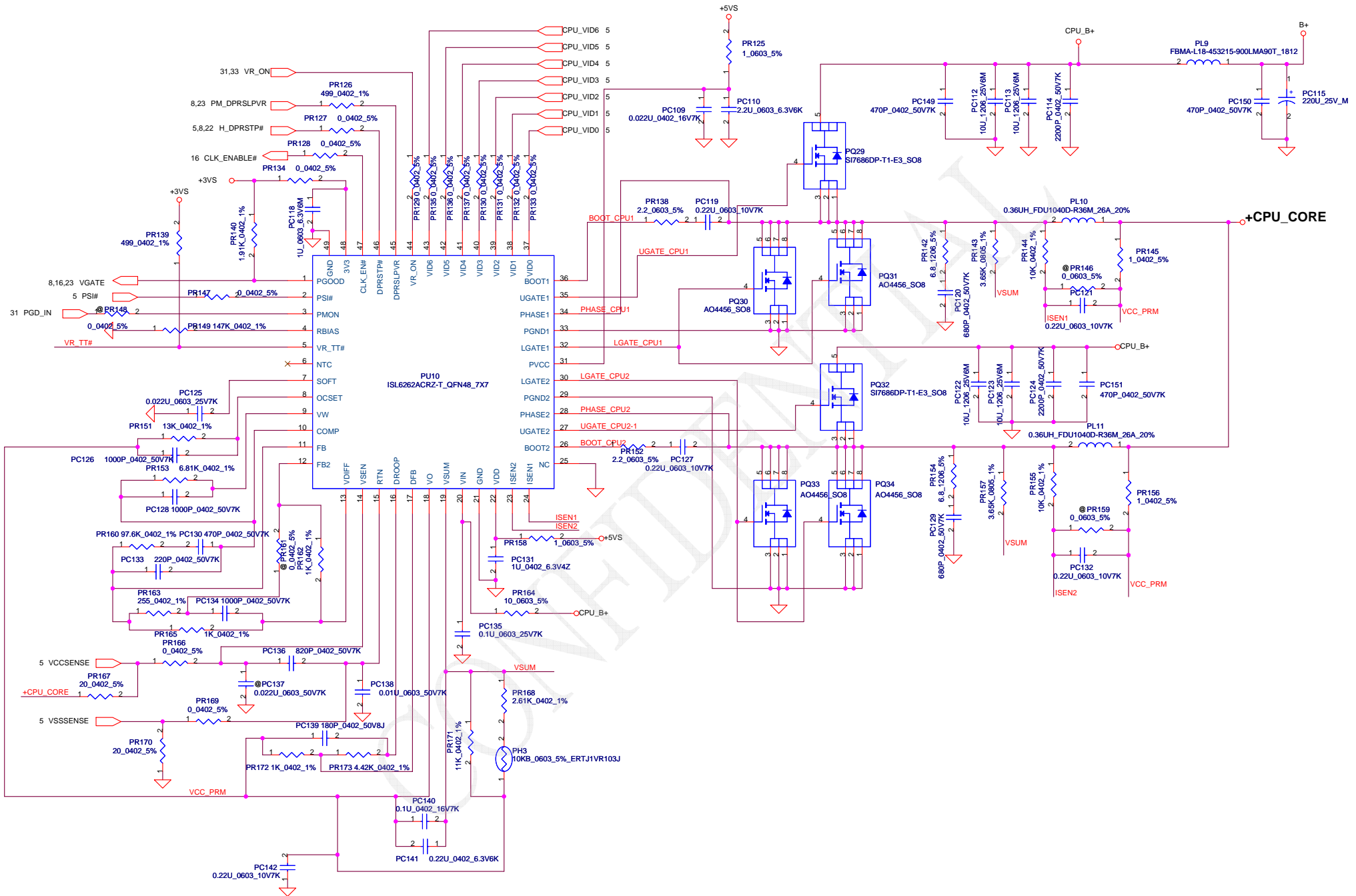
VFB=0.75V  
 $V_o = VFB * (1 + PR87 / PR88) = 0.75 * (1 + 10K / 10K) = 1.5V$   
 $Ton = 19 * e^{-12} * 143000 * ((2/3) * V_o + 100mV) / 19 + 50ns$   
 $= 2.645e-7 \text{ us}$   
 $=> V_o / V_{in} = D = Ton / T_s \Rightarrow T_s = 3.35us$   
 $Fsw = 298KHz$

Cout ESR=15m ohm  
 $I_{peak} = 4.71A, I_{max} = 3.297A, I_{ocp} = 5.652A$   
 $\Delta I = ((19 - 1.5) * (1.5 / 19)) / (L * Fsw) = 2.107A$   
 $=> 1/2 \Delta I = 1.053A$   
 $V_{trip} = R_{trip} * I_{ocp} = 17.8K * 10uA = 0.178V$   
 $I_{ocpmin} = V_{trip} / R_{dsonmax} * 1.2 + 1.053A$   
 $= 0.178 / (0.027 * 1.2) + 1.053 = 5.493A + 1.053A = 6.546A$   
 $I_{ocpmax} = (0.178 / (0.021 * 1.1)) + 1.053A = 7.705A + 1.053A$   
 $= 8.758A$   
 $I_{ocp} = 6.546A - 8.758A$

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Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	ISL6237 can't shutdown while battery only.	ISL6237 can't shutdown while battery only.	0.1	41	Add PQ35 SB906100210 TP0610K.	20071031	EVT
2	Delete PD1	Because we can cost down and B+ has another one.	0.2	39	Delete PD1 SCSB540C080 (S SCH DIO B540C-13-F SMC)	20071115	DVT
3	3/5V exit on battery mode shutdown.	To prevent 3/5V exit on battery mode shutdown.	0.3	41	Add SC100001K00 (S DIO 1SS355 SOD323 T/R-5K	20071211	DVT
4	PD11 has over temp. issue.	Because PD11 has over temperature issue in JAQ60, we change it to a 10A diode.	0.3	39	Change PD11 from SCSB540C080 to SCS00002F00 .	20071211	DVT
5	Add snubber in 3/5V by EMI request.	Add snubber in 3/5V by EMI request.	0.3	41	Add PR36 and PR39 to SD001470B80	20071211	DVT
6	Down size.	Down size. by sourcer request.	0.3	46	Change PC136 from SE025821K80 to SE000003W00	20071211	DVT
7	Down size.	Down size. by sourcer request.	0.3	46	Change PC120 and PC129 from SE024681J80 to SE074681K80	20071211	DVT
8	Down size.	Down size. by sourcer request.	0.3	43	Change PC72 and PC74 from SE068102J80 to SE074102K80	20071211	DVT
9	2nd source trial run TI controller.	2nd source trial run TI controller.	0.3	41	Add PC143 SE080105K80	20071211	DVT
10	Add snubber in 3/5V by EMI request.	Add snubber in 3/5V by EMI request.	0.3	41	Add PC33 and PC34 SE074681K80	20071211	DVT
11	To meet Jeta SPEC.	To meet Jeta SPEC.	0.3	42	Add PC144 SE074102K80	20071211	DVT
12	Increase +5VALWP	HW requirement.	0.4	41	Change PR41 from SD034619280(S RES 1/16W 61.9K 0402 1%) to SD03463K280(S RES 1/16W 63.4K 0402 1%)	20080123	PVT
13	Increase +5VALWP	HW requirement.	0.4	43	change PR94 from SD034604280(S RES 1/16W 60.4K 0402 1%) to SD034576280(S RES 1/16W 57.6K 0402 1%)	20080123	PVT
14	Increase +5VALWP	HW requirement.	0.4	44	Change PRI16 from SD034100280(S RES 1/16W 10K 0402 1%) to SD034105280(S RES 1/16W 10.5K 0402 1%)	20080123	PVT
15	Add EMI solution.	For EMI requirement.	0.4	41,42, 43,46	Change PR37, PR40, PR61, PRI06, PRI09, PRI38, PRI52 from SD013000080(S RES 1/10W 0 +5% 0603) to SD013220B80 (S RES 1/10W 2.2 +5% 0603)	20080123	PVT
16	Add EMI solution.	For EMI requirement.	0.4	43	Add PR64, PRI04 and PRI08 SD001470B80(S RES 1/4W 4.7 +-5% 1206)	20080123	PVT
17	Add EMI solution.	For EMI requirement.	0.4	43	Add PC55, PC83 and PC89 SE074681K80(S CER CAP 680P 50V K X7R 0402)	20080123	PVT
18	Add EMI solution.	For EMI requirement.	0.4	41	Add PC145, PC146, PC147, PC148 SE074471K80 (S CER CAP 470P 50V K X7R 0402)	20080123	PVT
19	Add EMI solution.	For EMI requirement.	0.4	41	Add PLI2, PLI3 SM010016410 (S SUPPRE_KC FBMA-L11-322513-151LMA50T)	20080123	PVT
20	AO4916 will be EOL.	AO4916 will be EOL.	0.5	44	Change PQ26 from SB000002W80 S TR AO4916 2N S08 to SB0000BG00 S TR AO4932_S08	20080201	PVT
21	Thermal shutdown issue.	Change OTP setting from 92C to 96C.	0.6	40	Change PR19 and PR22 to SD034133280(S RES 13.3K 0402 1%)	20080214	PVT
22	EMI request.	EMI request.	0.6	46	Add PC149,PC150,PC151 SE074471K80(S CER CAP 470P X7R 0402)	20080214	PVT
23							

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A -> B Change List

12/13-----  
 Page 12, Mount R83, C179, C188  
 Change R91 BOM structure to @  
 Page 19, Mount D21, D22, D23  
 Page 20, Change U40, U41 BOM structure to @  
 12/12-----  
 Page 19, Change C430, C422, C406 with BOM structure GM@  
 Page 20, Add R548, R549 2.2K\_0402 with BOM structure @  
 Change R542, R543 BOM structure to PM@  
 Change Q3, Q5, Q46, Q47 to BSH111  
 Page 28, Change T1 to SP050003T10  
 Page 34, Change C603, C604 location and BOM structure to JAL90@  
 Page 35, Change R449 to 43K\_0402\_1%  
 Page 27, Add R550 with BOM structure @  
 Page 49, Add option component for C430, C422, C402, C429, C421, C405  
 Del C419, C428, C432, C513, C214 (Option Component)  
 12/10-----  
 Page 19, Add R544, R545 0\_0402 with BOM structure JAL90@  
 Page 20, Add U40, U41 SN74CBTD3306CPWR\_TSSOP8 with BOM structure JAL90@  
 Page 35, Change R486, R477, R485, R476 to 56.2\_0603 1%  
 Page 38, Add R546, R547 10\_0402\_5% with BOM structure @  
 Update MCH and ICH part number.  
 U31 -> SA00001ZO30 (PM)  
 SA00001P930 (GM)  
 U9 -> SA00002AN10 (ICH9)  
 12/07-----  
 Page 12, Add C606, 220U\_D2\_4VM\_R15 with BOM Structure GM@  
 Change C435 to 220uF\_D2 with BOM Structure @  
 Page 17, Update JMXM1 PCBfoot to QUASA\_CA0481-230N00\_230P-T  
 Page 20, Add R542, R543 4.7K\_0402 with BOM Structure JAL90@  
 Update Power Schematics  
 12/06-----  
 Page 4, Add R541 10K\_0402 with BOM Structure @  
 Page 17, Add R534 0\_0402 with BOM Structure PM@  
 Change D30, R516 BOM Structure to @  
 Page 31, Add R540 100K\_0402 with BOM structure JAW50@  
 Change R186 BOM Structure JAL90@  
 Page 38, Add R533 10K\_0402 with BOM Structure JAL90@  
 Add C605 0.1U\_0402 with BOM Structure @  
 Change Q35 to 2N7002DW-T/R7\_SOT363-6  
 12/05-----  
 Page 16, Update U15 to ICS9LPRS387BKLFT (SA000020H10)  
 Page 31, Delete R534  
 Page 34, Delete R533  
 Page 38, Update JDOCK1 CIS Symbol to JAE\_SP07-10207-19\_68P-T  
 12/04-----  
 Page 16, 17, 19 Delete Q23, Q37, Q38 2N7002DW-T/R7\_SOT363-6  
 Add Q48, Q49, Q50, Q51, Q52, Q53 2N7002\_SOT23  
 Page 22, Add 10K\_0402 with BOM Structure JAW50@  
 Change R61 BOM Structure to JAL90@  
 Page 31, Change R215 to 8.2K\_0402  
 Page 34, Add C603, C604 220P\_0402\_50V8J with BOM structure @  
 11/30-----  
 Page 18, C368 change to 680P\_0402\_50V7K  
 Page 20, D20 Change to CH751H-40PT\_SOD323-2  
 Delete Q4  
 Add Q46, Q47 2N7002\_SOT23 with BOM Structure JAL90@  
 Page 26, Delete R532, Q46  
 Add R538, R539 0\_0402 with BOM Structure @  
 Change D31 with BOM Structure @  
 Change U34 PN to SA00001W910  
 Page 31 Change EC\_SMB\_CK2/DA2 Pull High to +3VS  
 Page 32, Add SW4 with BOM Structure JAW50@  
 Change SW1 BOM Structure to JAL90@  
 Change JP2 Pin3/Pin4 to EC\_SMB\_CK2/DA2

11/28-----  
 Page 12, Add R536, R537 0\_0402 with BOM Structure PM@  
 Page 30, Change U14 to G577NSR91U  
 Page 34, Change R438, R439, R441, R442 to 0\_0603 (BOM Error)  
 Page 35, Change R473, R467 to 2.2K\_0402\_5%  
 Change R9, R11, R26, R28 to 0\_0603 (BOM Error)

11/27-----  
 Page 19, Change D5 to RB491D\_SC59-3 accordig to Module design  
 Page 25, Update JSATA2(HDD) PCB footprint to OCTEK\_SAT-22SU1G\_22P\_NR-T  
 Page 33, C313 change to 1U\_0402\_6.3V6K  
 Page 37, Mount R189, Q17 for +1.8V discharge circuit.

11/22-----  
 Page 26, Add R535 22\_0402  
 Page 31, Add R534 0\_0402 for +RTCVCC

11/19-----  
 Rev A  
 Page 8, R482, R480 Pull down (CLK\_DREF\_96M#/CLK\_DREF\_SSC#)  
 Page 12, L32, L10, C505, C513, C263, C214 BOM Structure change to GM@  
 Add C513, C214 0\_0402 (PM@) for Option Component (Page 49)  
 Page 23, Unmount R341  
 Mount R342  
 Page 28, Update R521, R523, R524, R525, R526, R527, R528, R529, R530 function field.  
 Page 29, SWAP function of JMINI1 and JMINI2 (JMINI1 for Robson2, JMINI2 for WLAN)  
 Delete C355 0.1U\_0402  
 Add R531 0\_0402  
 Page 34, Add R533 0\_0402 for ALC888VB DMIC\_CLK

11/14-----  
 Rev B  
 Page 7, 8, 9, 10, 11, 12, 13 change U31 BOM Structure from GM@ to JAL90GM@  
 Page 8, R102 BOM Structure change from GM@ to JAL90GM@  
 Page 10, C210, C218, C222, C228, C208, C215, C220, C223 add BOM Structure PM@  
 Page 49, Add C210, C218, C222, C228, C208, C215, C220, C223 option component BOM Structure JAL90GM@  
 Add U31 Cantiga-GL, LED1 with BOM Structure JAW50@  
 Page 12, R396, C498 BOM Structure change from GM@ to JAL90GM@  
 R395 BOM Structure change from PM@ to GLPM@.  
 Page 17, R331, R333 BOM Structure change from GM@ to JAL90GM@  
 Page 19, R322, R327, R329 BOM Structure change from GM@ to JAL90GM@  
 U28 add BOM Structure JAL90@  
 Add R518, R519, R520 0\_0402\_5% for JAW50 CRT signal  
 Page 20, R51, R52, Q4, R344, R336, C439, C440, R332, U30, R67, R72, Q3, Q5, D6, F2, C443,  
 R351, R354, R358, R364, R365, R367, R372, R373, D19, C427, C431, U27,  
 D20, R305, R306, 307, R308, R309, R310 add BOM Structure JAL90@  
 Page 22, R408, R409, R410, R411 change BOM Structure from GM@ to JAL90GM@  
 Page 23, R38, R53, R40, R54, R55, R34, U5 change BOM Structure from GM@ to JAL90GM@  
 Page 24, R160, R162 BOM Structure change from PM@ to GLPM@  
 R159, R161 BOM Structure change from GM@ to GLPM@  
 Page 28, Add R521, R522, R523, R524, R525, R526, R527, R528, R529, R530 0\_0402\_5% for JAW50  
 U1 add BOM Structure JAL90@  
 Page 29, C343, C352, C342, C344, C312, C355 add BOM Structure JAL90@  
 Page 32, Q15, LED1 add BOM Structure JAL90@  
 Page 33, R512, C592, IR1, C593 add BOM Structure JAL90@  
 R252 change BOM Structure from PM@ to GLPM@  
 R250 change BOM Structure from GM@ to JAL90GM@  
 Page 34, C583, C582, R445, C535, R442, R439 change BOM Structure from @ to 268@  
 R490, R506 change BOM Structure from 268@ to @  
 R441, R438 add BOM Structure 888VC@  
 Page 35, R485, R476, R457, R460, R440, R444, R434, U39, R263, R255, R257, R261, C356, C353,  
 C354, U21, R265, C358, U22, C357, Q43 add BOM Structure JAL90@  
 Page 37, C272, C266, U11, C274, C273, R192, Q14, C278, R191 add BOM Structure PM@  
 Page 38, R282, R284, Q35, R273 add BOM Structure JAL90@  
 Rev A  
 Page 37, Change R262 from 100K\_0402 to 10K\_0402 for Power Require(for 2.5V LDO).

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C --> C Change List

0220-----  
Page 6, Change C98 BOM structure to @

0218-----  
Page 20, Add R569 with BOM structure @  
Page 23, R34, R38, R40, R53, R54, R55 change BOM structure to @  
Page 31, Change R215 to 18K  
Update Power Schematics

0213-----  
Page 11, Delete R113  
Add J1 JUMP\_43X79 with BOM structure @  
Page 31, R558, R559 0 ohm with BOM structure @  
R560, R561 4.7K with BOM structure @  
Page 32, R562, R563 0 ohm with BOM Structure @  
R564, R565 0 ohm  
Page 38, Delete C619  
Add R566, R567, R568 0\_0603 with BOM Structure JAL90@

0204-----  
Page 12, Change L31 to MBK1608301YZF\_0603 with BOM structure GM@  
Change R163 to 0\_0805\_5%  
Page 23, Change BOM Structure of U5 to @  
Page 27, Change BOM Structure of R555 and R550 to @  
Page 33, Change R217 to 31.6K\_0402\_1%  
Change C313 to 1U\_0603\_10V6K  
Page 34, Change R503 to FBMA-L10-160808-301LMT\_0603

01/31-----  
Page 23, Delete U10

01/29-----  
Page 23, Change R152 BOM Structure to @

01/24-----  
Page 4, Change U8 to SA00001Z700 (EMC1402)  
Page 33, Change C338 to SE076104K80  
Page 35, Mount C584

01/23-----  
Page 38 Delete F3, R558-560, C609-614

01/22-----  
Page 11, Delete R79  
Change J1 Symbol to JUMP\_43X79  
Page 33, Add R557 10K (Check)  
Change R245 BOM Structure with @  
Page 38, Add C609-614, R558-560 (Check)  
C607,608, 615-619 (Check)

01/17-----  
Page 11, Add R79 0\_0805  
Update Power Schematics

01/16-----  
Page 11, Delete R79 0\_0805  
Add J1 JUMP\_43X79  
Page 16, Change C296, R301 to 27P\_0402  
Page 19, Change L17, L19, L21 BOM structure to GM@  
Page 23, Mount U29, R339  
Add U10 with BOM structure @ (Co-lay with U5)  
Change R340 BOM structure to @  
Change U5 to MX25L4005AMC-12G\_SO8 (SA00002A900)  
Page 27, Change U26, C420 BOM structure to @  
Change R550 to 0\_0402  
Add R555 0\_0402  
Page 32, Change R269 to 240\_0402\_5%, R267 to 453\_0402\_1%  
Change R268 pin1 connect to +5VALW  
Page 33, Change R217 to 18K\_0402\_1% with BOM structure PM@  
Page 35, Add R551,R552, R553, R554 75\_0603\_1% with BOM structure JAL90@  
Add D32 PJDLCO5\_SOT23-3  
Page 38, Add F3 3A\_15VDC\_SMD2920P300TF/15  
Page 49, Add R551,R552, R553, R554 1K\_0603\_1% with BOM structure 268@  
Add L17, L19, L21 0\_0805 with BOM structure PM@  
Update U38 (ALC268-VB1-GR ) PN:SA00001GD10 for JAW50

C --> C2 Change List

0319-----  
Page 20, Add R574 0 ohm with BOM Structure JAL90@  
Page 32, Add R570 0 ohm with BOM Structure JAL9050@  
Add R571 0 ohm with BOM Structure KAL20@  
Add Q37 AO3413 with BOM Structure KAL20@  
Add R575, R576 10K with BOM Structure KAL20@  
Add Q54 2N7002DW with BOM Structure KAL20@  
Update Power Schematics  
Update U31 PN to SA00002JT50(GM)/SA00002JJ50(PM)

C2 --> PreMP Change List

0704-----  
Page 20, Change R51, R52, R67, R72, R542, R543, R574 BOM structure to JAL90PM@  
Page 37, Change U11 BOM structure to JAL90PM@  
Page 50, Add U11 SI4800BDY-T1-E3\_SO8 with the BOM structure JAW50PM@  
Change U31 BOM Structure to JAW50GL@

0624-----  
Page 37, Change U12, U20, U23, U32 to SI4800BDY

0610-----  
Page 23, Change R388 BOM structure to EM@

0528-----  
Add ABO@ for Bluetooth/NewCard/CardReader option  
R222, C316, C317, C332, Q24, C308, C325, R235, Q26  
U14, U16, Q25, C310, C298, C283, C307, C292, C294, C304, C303, C281, C282, R220, C487, C480  
C524, C525, C526, C527, C529, C530, C532, C533, C534, C543, C544, C545, C546, C544, C545  
C547, C548, C549, D26, R427, R428, R429, R430, R435, R436, R443, R452, R453, R535, U34  
Page 23, Change R417 BOM structure to EM@  
Change R416 BOM Structure to ABO@  
Page 31, Change R215 BOM structure to ABO@  
Page 32, Change R570 BOM structure to JAL90@  
Page 50, Add R215 with BOM structure EM@

0523-----  
Page 4, Mount R541  
Page 32, Change R266, R268 BOM Structure to JAL90@  
Page 50, Add R266 2.49K\_0402\_1% with BOM Structure JAW50@  
Add R268 1.69K\_0402\_1% with BOM Structure JAW50@  
Change JAW50 U31 PN to SA00002Q830  
0514----- (For JAW50 Analog MIC, EMI Requirement)  
Page 34 change R439, R442 to FBMA-L11-160808-700LMT(SM010004010) with BOM structure 268@  
0513----- (For Acer Lab P193WAX DVI Detect)  
Page 20, Change R51, R52, R67 and R72 BOM structure to PM@  
Page 50, Add R51, R52, R67 and R72 4.7K\_0402 with BOM Structure JAL90GM@  
0429----- (For PC Beep sound, volume down)  
Page 34, Change R496 to 1.3K

0422-----  
Update U9 PN to SA00002JH70  
Update U31 PN to SA00002JJA0/SA00002JTB0

0410-----  
Page 30, Add R577 0\_0603 with BOM structure @  
Add R578 0\_0603

0407-----  
Page 20, change R574 BOM structure to PM@  
Page 31, change R550, R555, R561 BOM structure to JAL90GM@  
Change R215 to 33K  
Page 32, change R266,R268 to 4.99K 1%  
change R267 to 2.49K 1%  
change R269 to 1.69K 1%  
Page 50, change JAL90 PCB P/N to DAZ04700100

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**PCB**

ZZZ  
 LA4201MB Rev0: DA600007400  
 LA4201MB Rev1: DA600007410  
 LA4201MB with Small Board Rev1: DAZ04700100  
 PCB JAL90 LA-4201P LS-4201P/4202P/4204P/4205P/4207P/4208P

**IC**

U31  
 PM@  
 CANTIGA ES\_FCBGA1329  
 CANTIGA PM: SA00002JJA0

U31  
 JAW50GL@  
 CANTIGA ES\_FCBGA1329  
 CANTIGA GL: SA00002Q830

U25  
 8102E@  
 RTL8102E-GR\_QFN64P\_9X9  
 RTL8102E-GR: SA00001YY00

U38  
 888VB@  
 ALC888S-VB\_LQFP48\_7x7  
 ALC888S-VB: SA000026V10

U38  
 268@  
 ALC268-GR\_LQFP48\_9X9  
 ALC268-VB1-GR : SA00001GD10

**JAW50 Discrete**

U11  
 JAW50PM@  
 SI4800BDY-T1-E3\_S08  
 SI4800BDY-T1-E3\_S08 : SB548000310

**CRT**

C429 C421 C405  
  
 PM@ 2/1 PM@ 2/1 PM@ 2/1  
 15P\_0402\_50V8J 15P\_0402\_50V8J  
 C406 C430 C422  
  
 PM@ 2/1 PM@ 2/1 PM@ 2/1  
 12P\_0402\_50V8J 12P\_0402\_50V8J 12P\_0402\_50V8J  
 15P\_0402\_50V8J: SE071150J80  
 12P\_0402\_50V8J: SE071120J80  
 L17 PM@ 2/1 0\_0805\_5%  
  
 L19 PM@ 2/1 0\_0805\_5%  
  
 L21 PM@ 2/1 0\_0805\_5%  
  
 0\_0805\_5%: SD002000080

**AUDIO**

R551 JAW50@ 1K\_0603\_1%  
  
 R552 JAW50@ 1K\_0603\_1%  
  
 R553 JAW50@ 1K\_0603\_1%  
  
 R554 JAW50@ 1K\_0603\_1%  
  
 1K\_0603\_1%: SD014100180

**HDMI/DVI DDC Pull-High**

R51 JAL90GM@ 4.7K\_0402\_5%  
  
 R52 JAL90GM@ 4.7K\_0402\_5%  
  
 R67 JAL90GM@ 4.7K\_0402\_5%  
  
 R72 JAL90GM@ 4.7K\_0402\_5%  
  
 4.7K\_0603\_5%: SD028470180

**KAW00**

R215 EM@ 0\_0402\_5%  
  
 0\_0402\_5%: SD028000080

**MCH**

R93 PM@ 0\_0402\_5%  
  
 R104 PM@ 0\_0402\_5%  
  
 R105 PM@ 0\_0402\_5%  
  
 R114 PM@ 0\_0402\_5%  
  
 R115 PM@ 0\_0402\_5%  
  
 R116 PM@ 0\_0402\_5%  
  
 R119 PM@ 0\_0402\_5%  
  
 0\_0402\_5%: SD028000080

**GM45-HDMI**

C210 C218  
  
 JAL90GM@ JAL90GM@  
 0.1U\_0402\_16V7K 0.1U\_0402\_16V7K  
 C222 C228  
  
 JAL90GM@ JAL90GM@  
 0.1U\_0402\_16V7K 0.1U\_0402\_16V7K  
 C208 C215  
  
 JAL90GM@ JAL90GM@  
 0.1U\_0402\_16V7K 0.1U\_0402\_16V7K  
 C220 C223  
  
 JAL90GM@ JAL90GM@  
 0.1U\_0402\_16V7K 0.1U\_0402\_16V7K  
 0.1U\_0402\_16V7K: SE076104K80

**JAW50 LED**

LED1  
 JAW50@  
 HT-297DQ/GQ\_AMB/YG\_0603  
 R268 JAW50@ 1.69K\_0402\_1%  
  
 1.69K\_0402\_1%: SD00000JB80  
 R266 JAW50@ 2.49K\_0402\_1%  
  
 2.49K\_0402\_1%: SD034249180

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