

KIWA7/A8

Schematics Document

Mobile Penryn uFCPGA with Intel
Cantiga_GM/PM+ICH9-M core logic

REV: 0.4

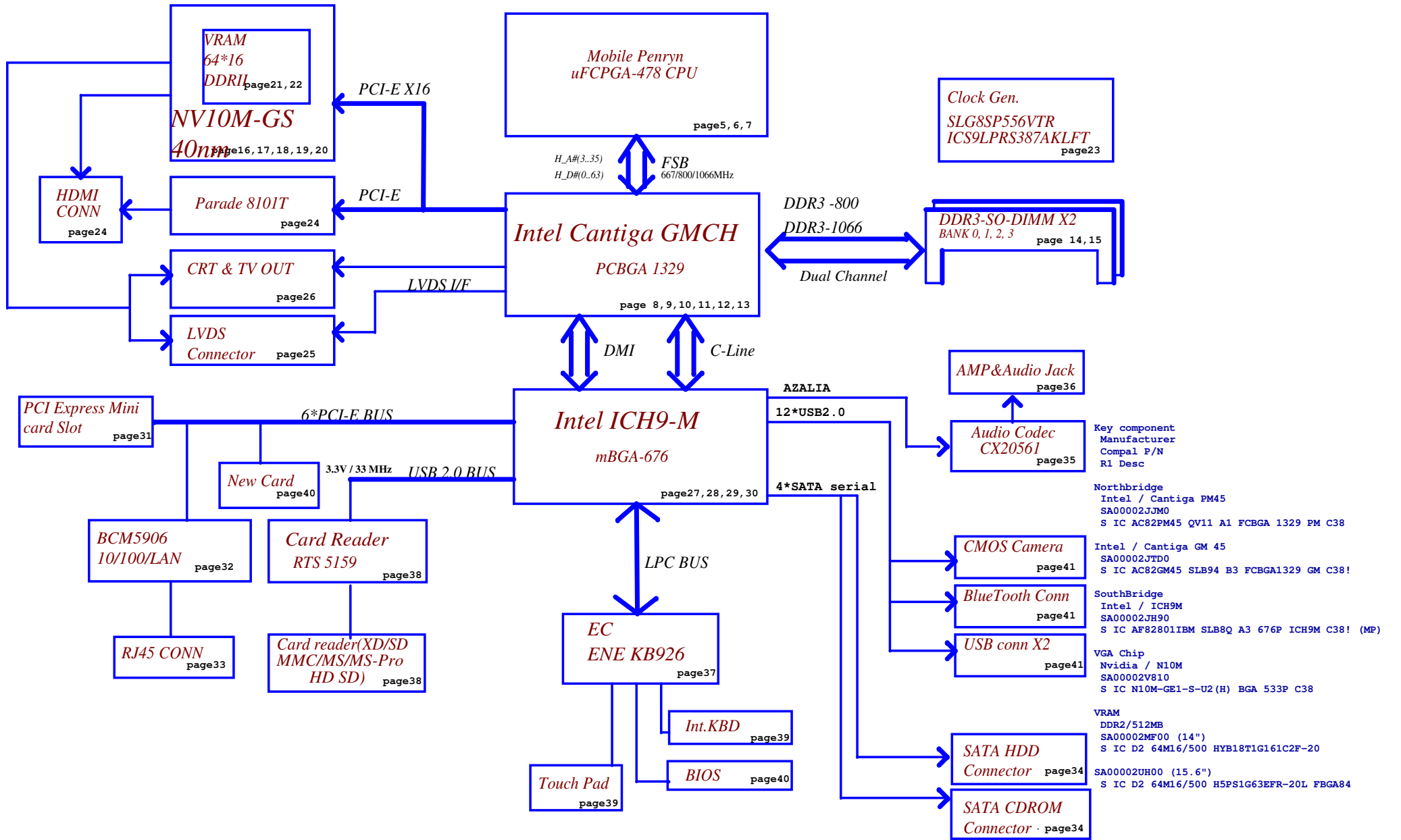
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POWER Board

CAP SENSE LEDs Board

USB board



Key component
 Manufacturer
 Compal P/N
 R1 Desc

Northbridge
 Intel / Cantiga PM45
 SA00002JJM0
 S IC AC82PM45 QV11 A1 FCBGA 1329 PM C38

SouthBridge
 Intel / ICH9M
 SA00002JH90
 S IC AF82801IBM SLB8Q A3 676P ICH9M C38! (MP)

VGA Chip
 Nvidia / N10M
 SA00002V810
 S IC N10M-GE1-S-U2 (H) BGA 533P C38

VRAM
 DDR2/512MB
 SA00002MF00 (14")
 S IC D2 64M16/500 HYB18T1G161C2F-20
 SA00002UH00 (15.6")
 S IC D2 64M16/500 H5PS1G63EFR-20L FBGA84

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DDR3 Voltage Rails

power plane	+B	+5VALW +3VALW	+1.5V	+5VS +3VS +1.5VS +0.75V +VCCP +CPU_CORE +VGA_CORE +1.8VS
				State
S0	○	○	○	○
S1	○	○	○	○
S3	○	○	○	✗
S5 S4/AC	○	○	✗	✗
S5 S4/ Battery only	○	✗	✗	✗
S5 S4/AC & Battery don't exist	✗	✗	✗	✗

SMBUS, SPI and I2C Control Table

	SOURCE	HDMI	LVDS	CRT	HDCP	SERIAL EEPROM	NEW CARD	CLK GEN	CAP sensor	Mini CARD1	Mini CARD2	BATT	THERMAL SENSOR (VGA)	THERMAL SENSOR (CPU)
EC_SMB_CK1 EC_SMB_DA1	KB926	X	X	X	X	X	X	X	X	X	X	V	X	X
EC_SMB_CK2 EC_SMB_DA2	KB926	X	X	X	X	X	X	X	V	X	X	X	V	V
ICH_SMBOLK ICH_SMBDAT	ICH9	X	X	X	X	X	V	V	X	V	V	X	X	X
LVDS_SCL LVDS_SDA	Cantiga	X	V	X	X	X	X	X	X	X	X	X	X	X
GMCH_CRT_CLK GMCH_CRT_DAT	Cantiga	X	X	V	X	X	X	X	X	X	X	X	X	X
HDMICKL_NB HDMIDAT_NB	Cantiga	V	X	X	X	X	X	X	X	X	X	X	X	X
VGA_DDCCLK VGA_DDCDATA	VGA	X	X	V	X	X	X	X	X	X	X	X	X	X
VGA_LVDS_SCL VGA_LVDS_DAT	VGA	X	V	X	X	X	X	X	X	X	X	X	X	X
VGA_HDMI_SCL VGA_HDMI_DAT	VGA	V	X	X	X	X	X	X	X	X	X	X	X	X
HDCP_SMB_CK1 HDCP_SMB_DA1	VGA	X	X	X	V	X	X	X	X	X	X	X	X	X
FSEL#SPICS#_SB FRD#SPI_SO_SB SPI_CLK_SB FWR#SPI_SI_SB	ICH9	X	X	X	X	X	X	X	X	X	X	X	X	X
FSEL#SPICS# FRD#SPI_SO SPI_CLK FWR#SPI_SI	KB926	X	X	X	X	V	X	X	X	X	X	X	X	X

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MB Notes List

KIWAX_LA-5082P

VGA and DDR2 Voltage Rails (N10M)

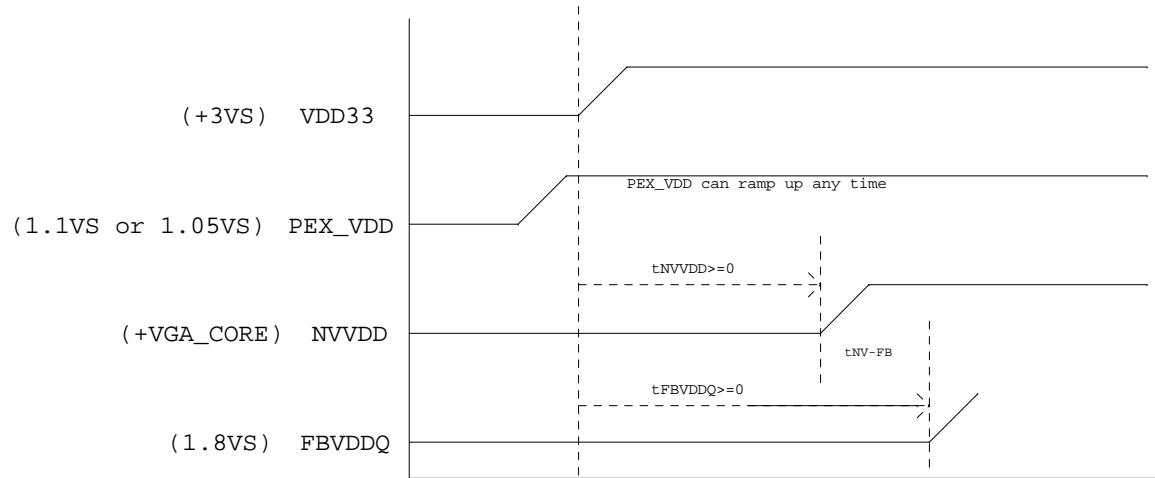
power plane				+3VS +VGA_CORE +1.1VS (for 55nm) +1.05VS (for 40nm) +1.8VS
S0	○	○	○	○
S1	○	○	○	○
S3	○	○	○	✗
S5 S4/AC	○	○	✗	✗
S5 S4/ Battery only	○	✗	✗	✗
S5 S4/AC & Battery don't exist	✗	✗	✗	✗

EDP at Tj = 97C*

Power Supply Rail		NB9M-GS		N10M-GE1-S	
(V)		GDDR3	DDR2	GDDR3	DDR2
NVVDD	Variable	11.22A	10.87A	13.56A	13.47A
FB_DLLAVDD	1.1	25mA		25mA	
FB_PLLAVDD	1.1	10mA		10mA	
IFPC_IOVDD	1.1	385mA		180mA	
IFPD_IOVDD	1.1	385mA		180mA	
IFPE_IOVDD	1.1	385mA		180mA	
IFPF_IOVDD	1.1	385mA		180mA	
PEX_IOVDD/Q	1.1	1550mA		1550mA	
PEX_PLLVDD	1.1	165mA		65mA	
PLLVDD	1.1	55mA		30mA	
SP_PLLVDD	1.1	25mA		10mA	
VID_PLLVDD	1.1	50mA		25mA	
TOTAL	1.1	3.425A		2.435A	
FBVDD/Q	1.8	2.24A	1.65A	2.24A	1.75A
IFPA_IOVDD	1.8	50mA		50mA	
IFPB_IOVDD	1.8	50mA		50mA	
IFPAB_PLLVDD	1.8	100mA		75mA	
IFPCD_PLLVDD	1.8	160mA		80mA	
IFPEF_PLLVDD	1.8	160mA		80mA	
TOTAL	1.8	2.76A	2.17A	2.575A	2.085A
DACA_VDD	3.3	110mA		110mA	
DACB_VDD	3.3	125mA		125mA	
DACC_VDD	3.3	110mA		110mA	
MIOA_VDDQ	3.3	10mA		10mA	
MIOB_VDDQ	3.3	10mA		10mA	
VDD33	3.3	80mA		80mA	
TOTAL	3.3	0.445A		0.445A	

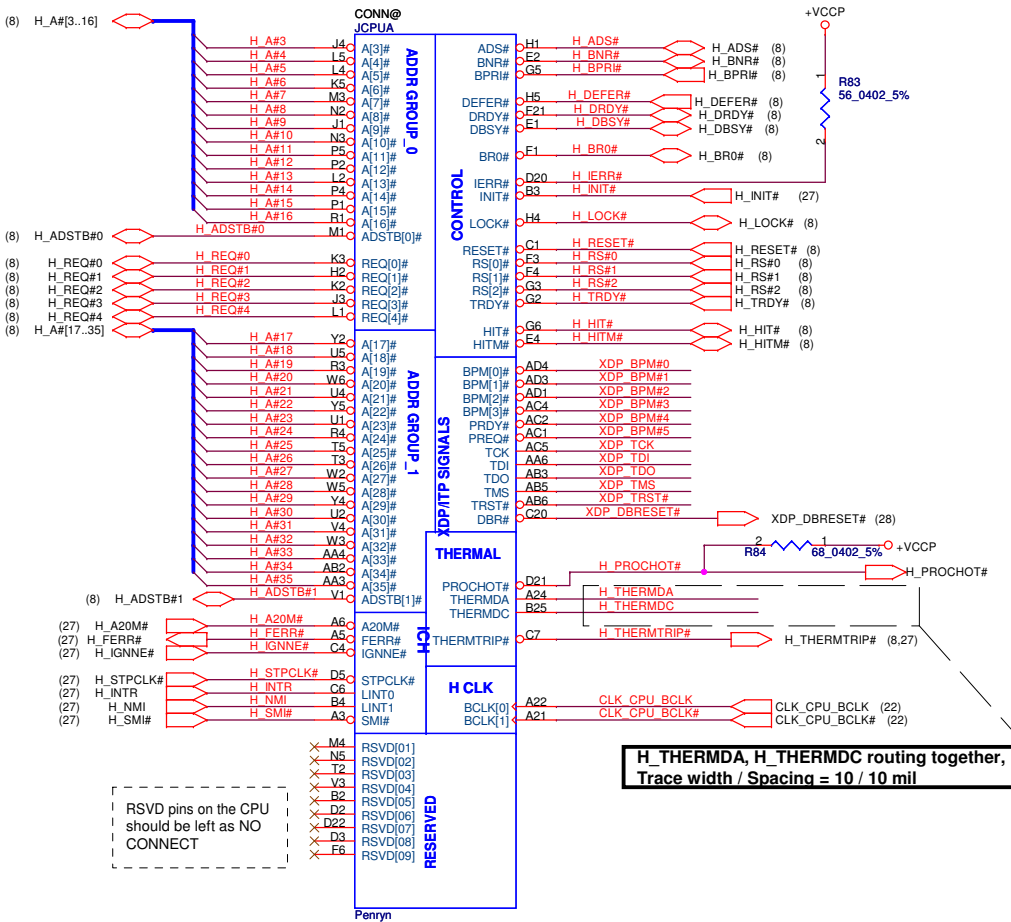
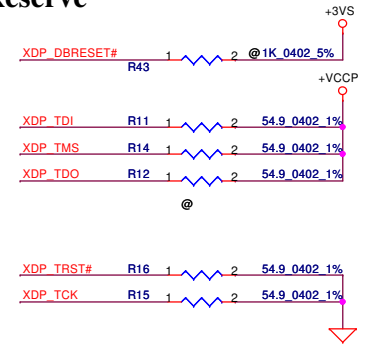
POWER SQUENCE

The ramp time for any rail must be more than 40us



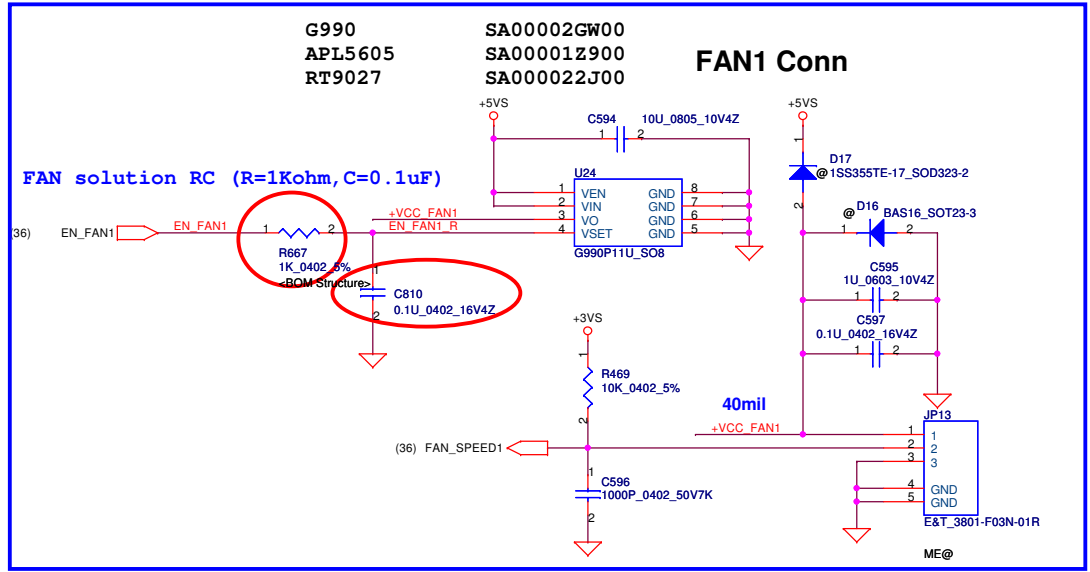
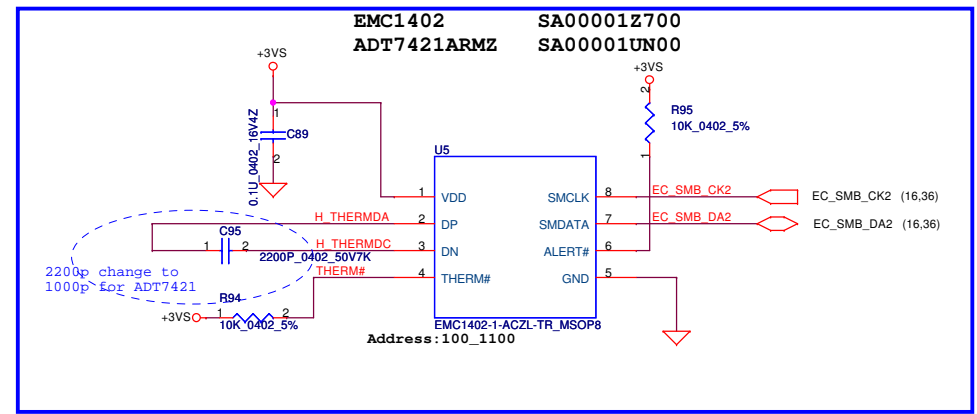
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XDP Reserve

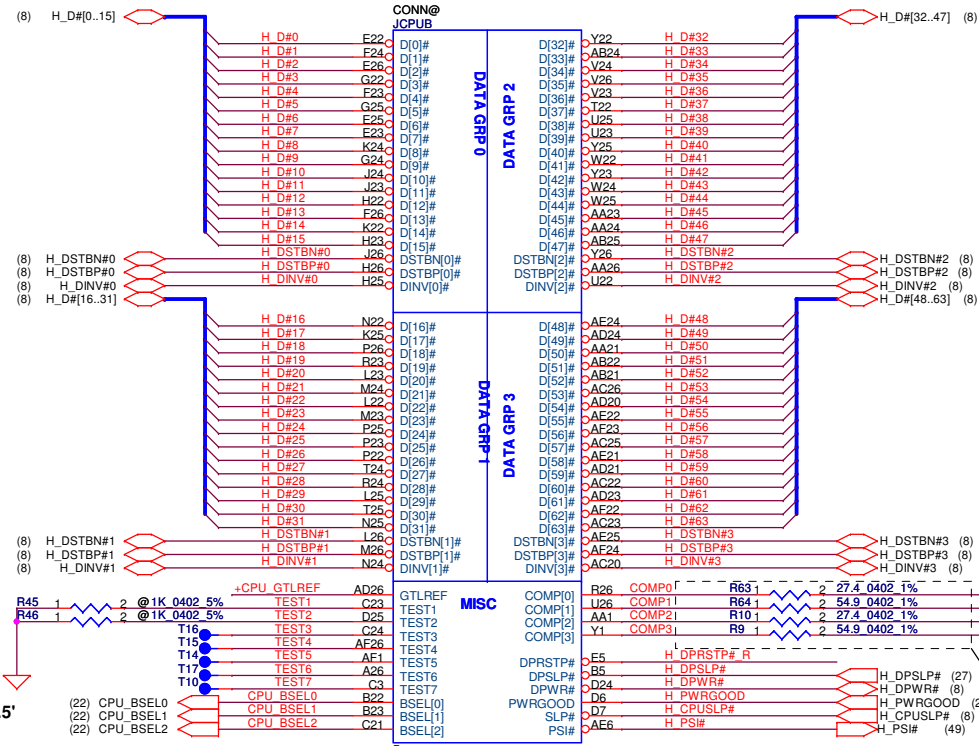


H_THERMDA, H_THERMDC routing together, Trace width / Spacing = 10 / 10 mil

RSVD pins on the CPU should be left as NO CONNECT



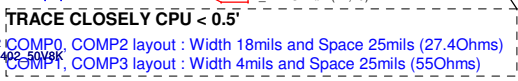
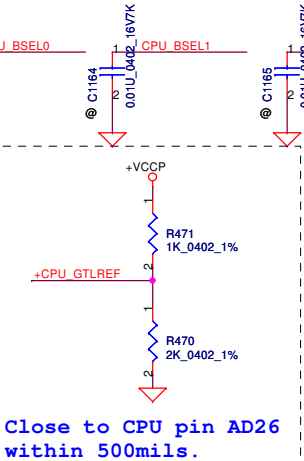
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Trace Close CPU < 0.5'

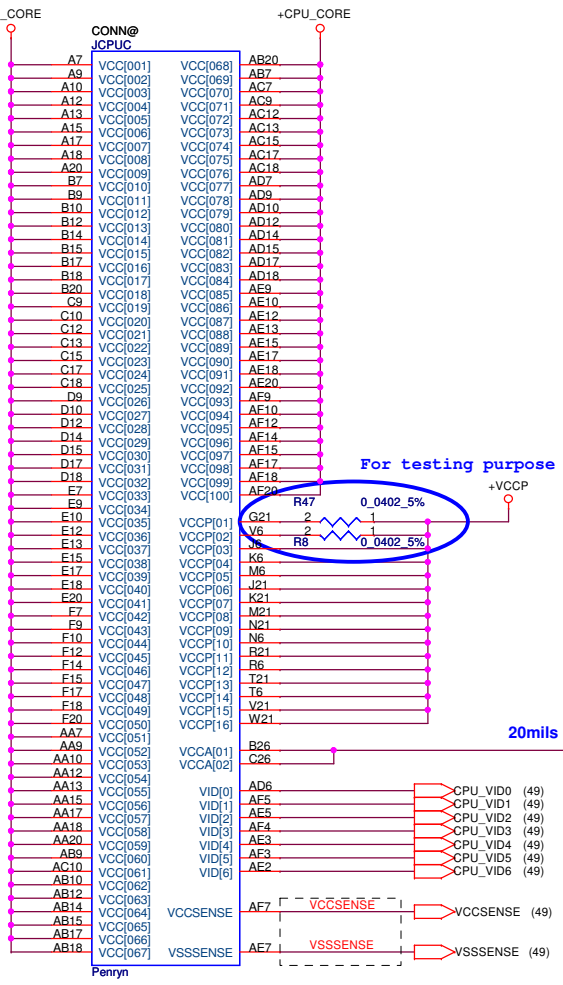
Width=4 mil ,
Spacing: 15mil
(55Ohm)

Layout note: Z0=55 ohm
0.5" max for GTLREF.



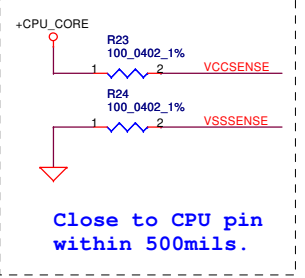
layout note: Route TEST3 & TEST5 traces on ground referenced layer to the TPs

FSB	BCLK	BSEL2	BSEL1	BSEL0
533	133	0	0	1
667	166	0	1	1
800	200	0	1	0
1067	266	0	0	0



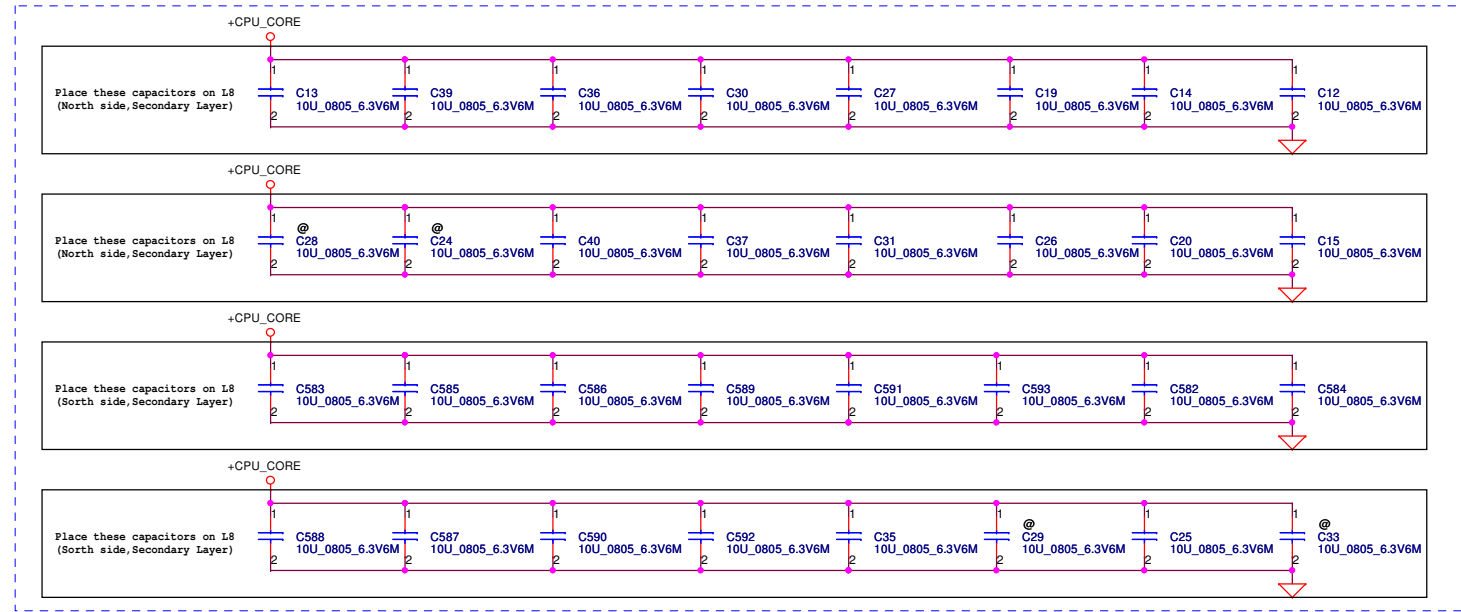
Length match within 25 mils.
The trace width/space/other is
16/7/25.

Layout Note:
Route VCCSENSE and VSSSENSE traces at
27.4 Ohms with 50 mil spacing.
Place PU and PD within 1 inch of CPU.
Length matched to within 25 mils.

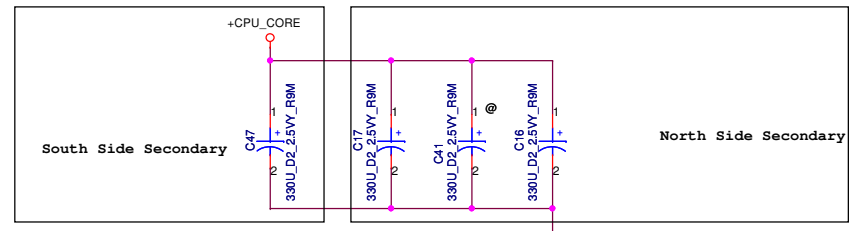


CONN@
JCPU

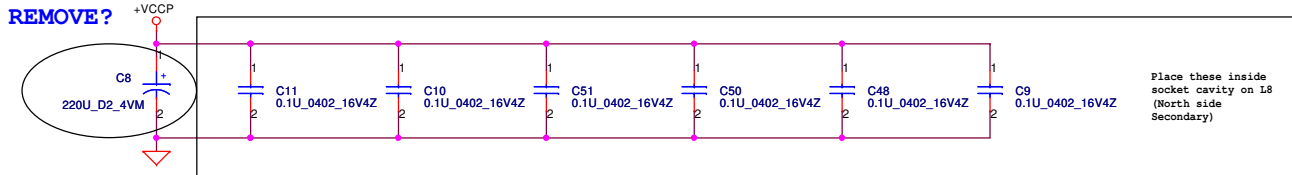
A4	VSS[001]	P6
A8	VSS[002]	P21
A11	VSS[003]	P24
A14	VSS[004]	R2
A16	VSS[005]	R5
A19	VSS[006]	R22
A23	VSS[007]	R25
AF2	VSS[008]	T1
BF	VSS[009]	T4
B8	VSS[010]	T23
B11	VSS[011]	T26
B13	VSS[012]	U3
B16	VSS[013]	U6
B19	VSS[014]	U21
B21	VSS[015]	U24
B24	VSS[016]	V2
C5	VSS[017]	V5
C8	VSS[018]	V22
C11	VSS[019]	V25
C14	VSS[020]	W1
C16	VSS[021]	W4
C19	VSS[022]	W23
C2	VSS[023]	W26
C22	VSS[024]	Y3
C25	VSS[025]	Y6
D1	VSS[026]	Y21
D4	VSS[027]	Y24
D8	VSS[028]	AA2
D11	VSS[029]	AA5
D13	VSS[030]	AA8
D16	VSS[031]	AA11
D19	VSS[032]	AA14
D23	VSS[033]	AA19
D26	VSS[034]	AA19
E3	VSS[035]	AA22
E6	VSS[036]	AA25
E8	VSS[037]	AB1
E11	VSS[038]	AB4
E14	VSS[039]	AB8
E16	VSS[040]	AB11
E19	VSS[041]	AB13
E21	VSS[042]	AB16
E24	VSS[043]	AB19
F5	VSS[044]	AB23
F8	VSS[045]	AB26
F11	VSS[046]	AC3
F13	VSS[047]	AC6
F16	VSS[048]	AC8
F19	VSS[049]	AC11
F2	VSS[050]	AC14
F22	VSS[051]	AC16
F25	VSS[052]	AC19
G4	VSS[053]	AC21
G1	VSS[054]	AC24
G23	VSS[055]	AD2
G26	VSS[056]	AD5
H3	VSS[057]	AD8
H6	VSS[058]	AD11
H21	VSS[059]	AD13
H24	VSS[060]	AD16
J2	VSS[061]	AD19
J5	VSS[062]	AD22
J22	VSS[063]	AD25
J25	VSS[064]	AE1
K1	VSS[065]	AE4
K4	VSS[066]	AE8
K23	VSS[067]	AE11
K26	VSS[068]	AE14
L3	VSS[069]	AE16
L6	VSS[070]	AE19
L21	VSS[071]	AE23
L24	VSS[072]	AE26
M2	VSS[073]	A2
M5	VSS[074]	AF6
M22	VSS[075]	AF8
M25	VSS[076]	AF11
N1	VSS[077]	AF13
N4	VSS[078]	AF16
N23	VSS[079]	AF19
N26	VSS[080]	AF21
P3	VSS[081]	A25
	VSS[163]	AF25



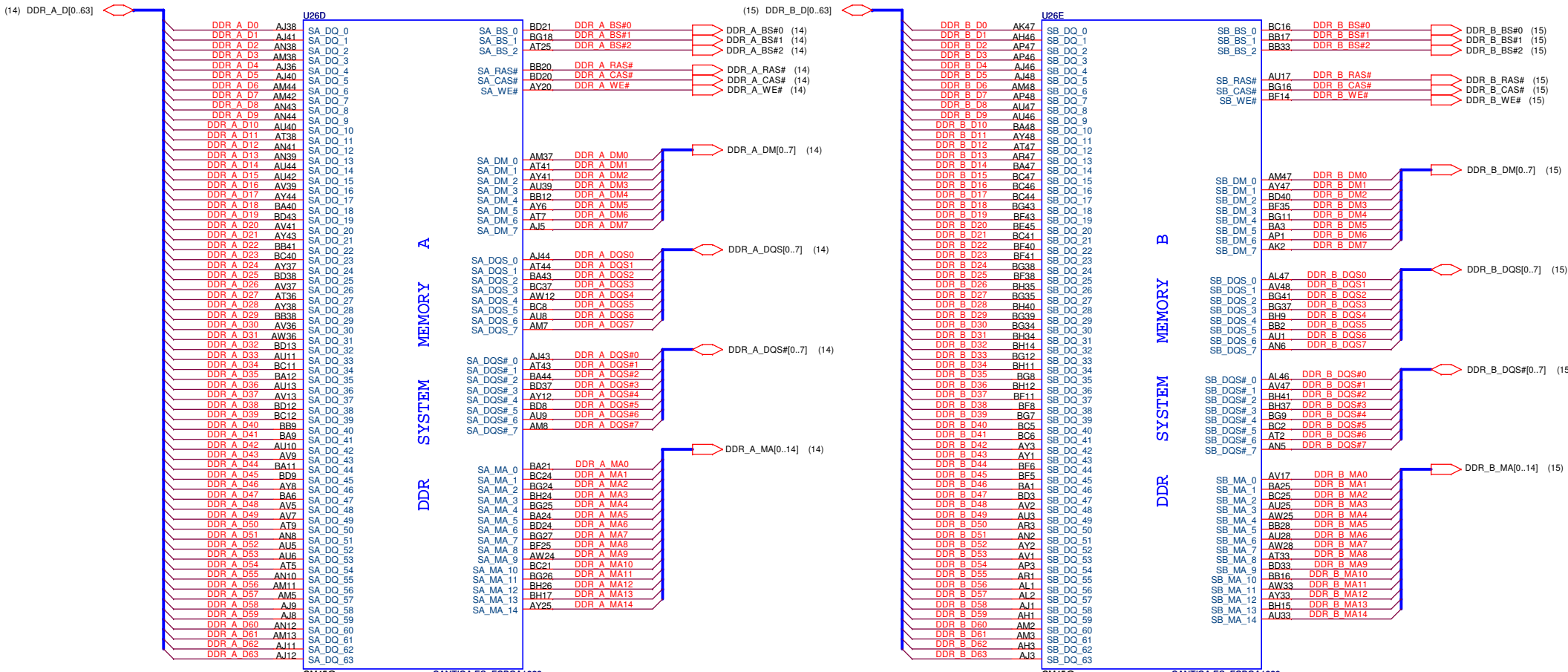
Mid Frequency Decoupling



ESR <= 1.5m ohm
Capacitor > 1980uF



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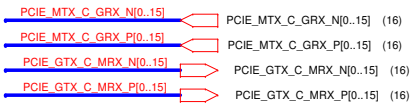
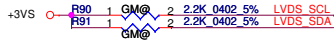
GM45@

CANTIGA ES_FCBGA1329

GM45@

CANTIGA ES_FCBGA1329

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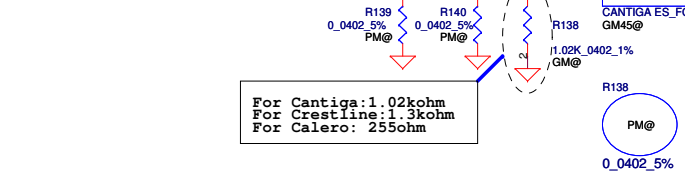
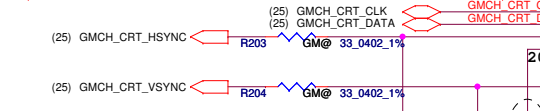
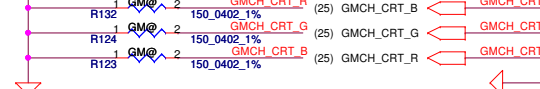
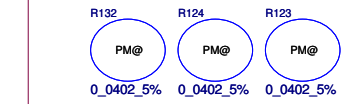
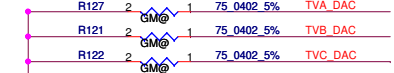
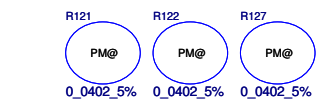


Place the resistor within 500mils (1.27mm) of the (GMCH)
PEGCOMP trace width and spacing is 20/25 mils.

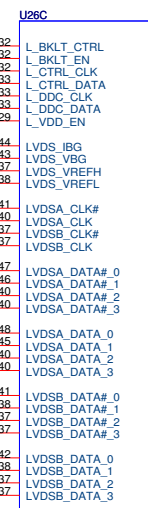
Please check Power source if want support IAMT

For Cantiga: 2.37kohm
For Crestline: 2.4kohm
For Calero: 1.5kohm

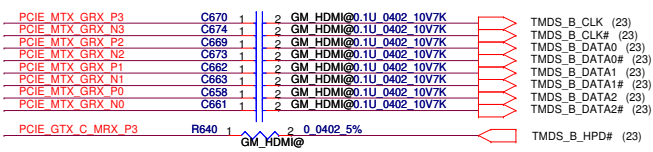
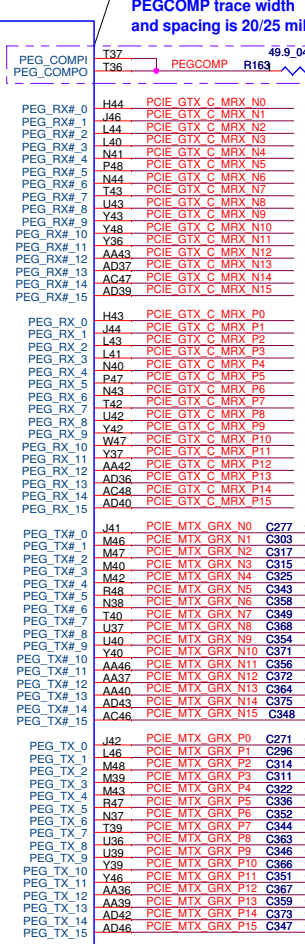
Note: All LVDS data signals/and it's compliments should be routed Differentially
Layout Note: Place 150 Ohm termination resistors close to GMCH



For Cantiga: 1.02kohm
For Crestline: 1.3kohm
For Calero: 255ohm

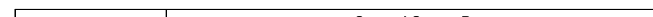


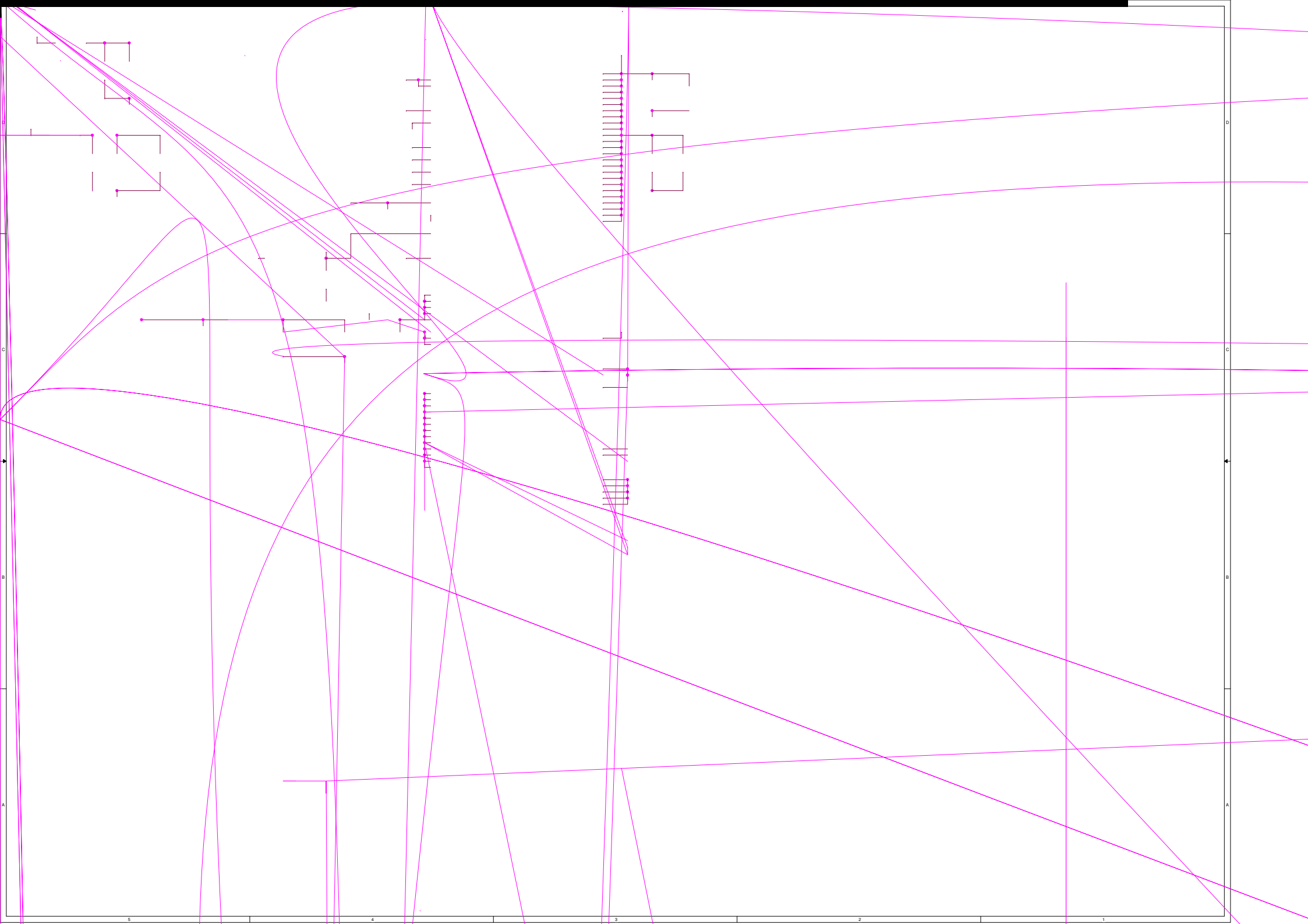
GRAPHICS
PCI - EXPRESS
VGA

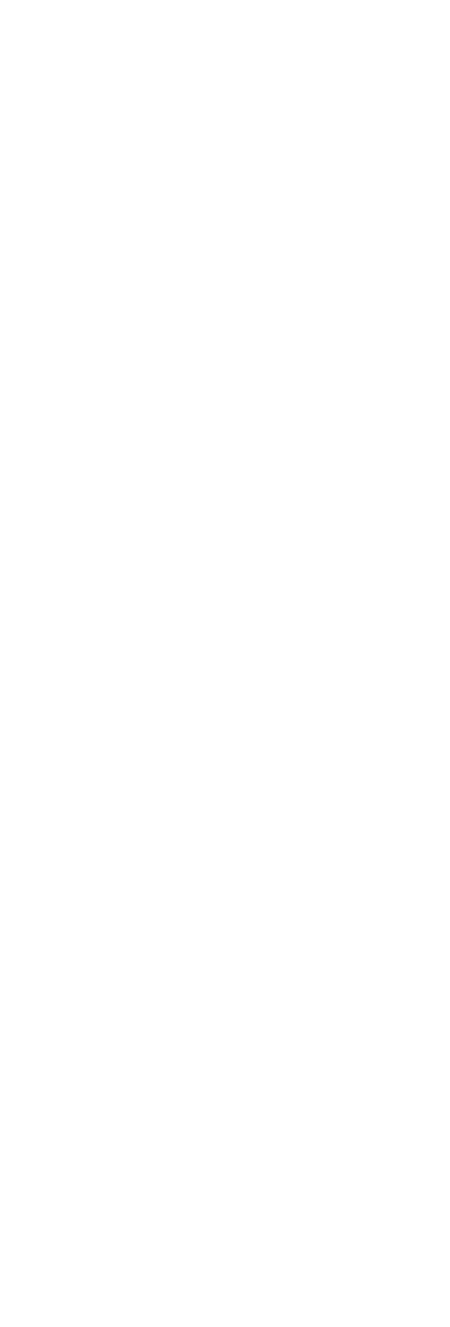
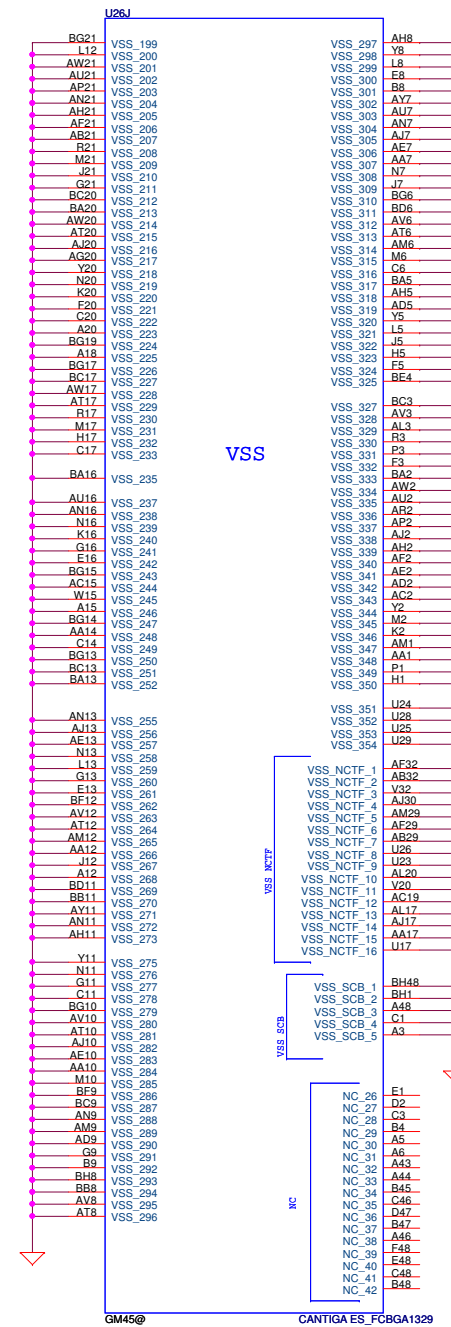
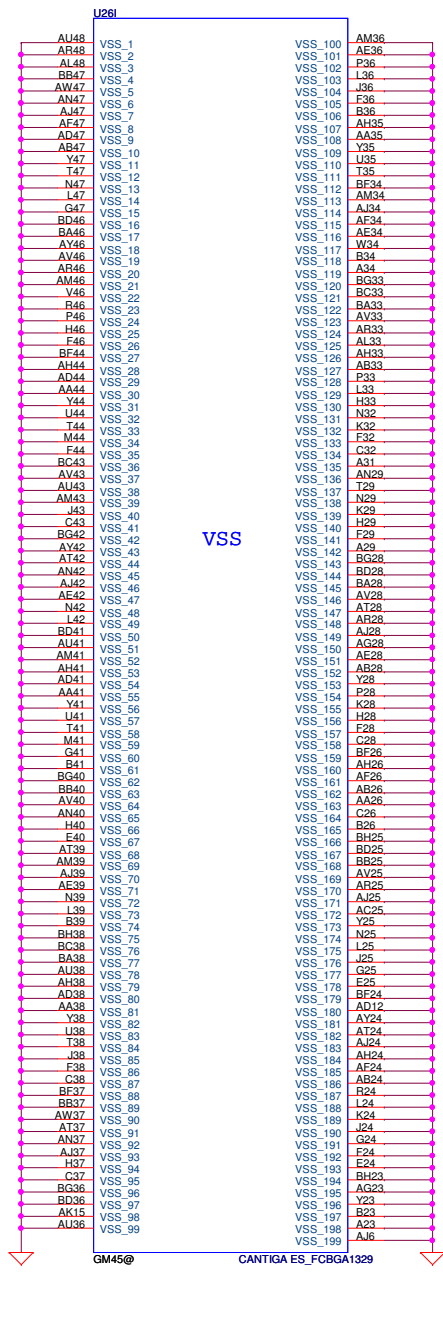


Strap Pin Table

CFG[2:0] FSB Freq select	000 = FSB 1066MHz 010 = FSB 800MHz 011 = FSB 667MHz Others = Reserved
CFG[4:3]	Reserved
CFG5 (DMI select)	0 = DMI x 2 1 = DMI x 4 *
CFG6	0 = The iTPM Host Interface is enable 1 = The iTPM Host Interface is disable *
CFG7 (Intel Management Engine Crypto strap)	0 = (TLS)chiper suite with no confidentiality 1 = (TLS)chiper suite with confidentiality
CFG8	Reserved
CFG9 (PCIe Graphics Lane Reversal)	0 = Reverse Lane,15->0, 14->1 *
CFG10 (PCIe Lookback enable)	0 = Enable 1 = Disable *
CFG11	Reserved
CFG[13:12] (XOR/ALLZ)	00 = Reserved 01 = XOR Mode Enabled 10 = All Z Mode Enabled 11 = Normal Operation(Default) *
CFG[15:14]	Reserved
CFG16 (FSB Dynamic ODT)	0 = Disabled 1 = Enabled *
CFG[18:17]	Reserved
CFG19 (DMI Lane Reversal)	0 = Normal Operation * 1 = Reverse Lane (Lane number in Order)
CFG20 (PCIe/SDVO concurrent)	0 = Only PCIe or SDVO is operational. 1 = PCIe/SDVO are operating simu. *

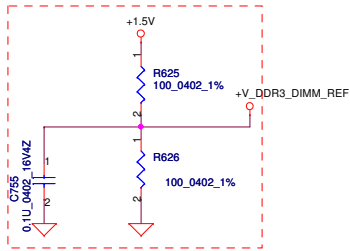
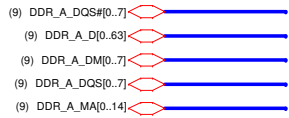






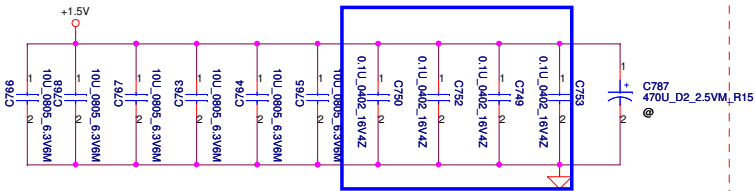
Security Classification		Compal Secret Data	
Issued Date	2007/10/15	Deciphered Date	2008/10/15
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Title				Cantiga GMCH (6/6)-GND	
Size	Document Number	Rev			
Custom	KIWAX_LA-5082P	0.4			
Date:	Wednesday, March 18, 2009	Sheet	13	of	53

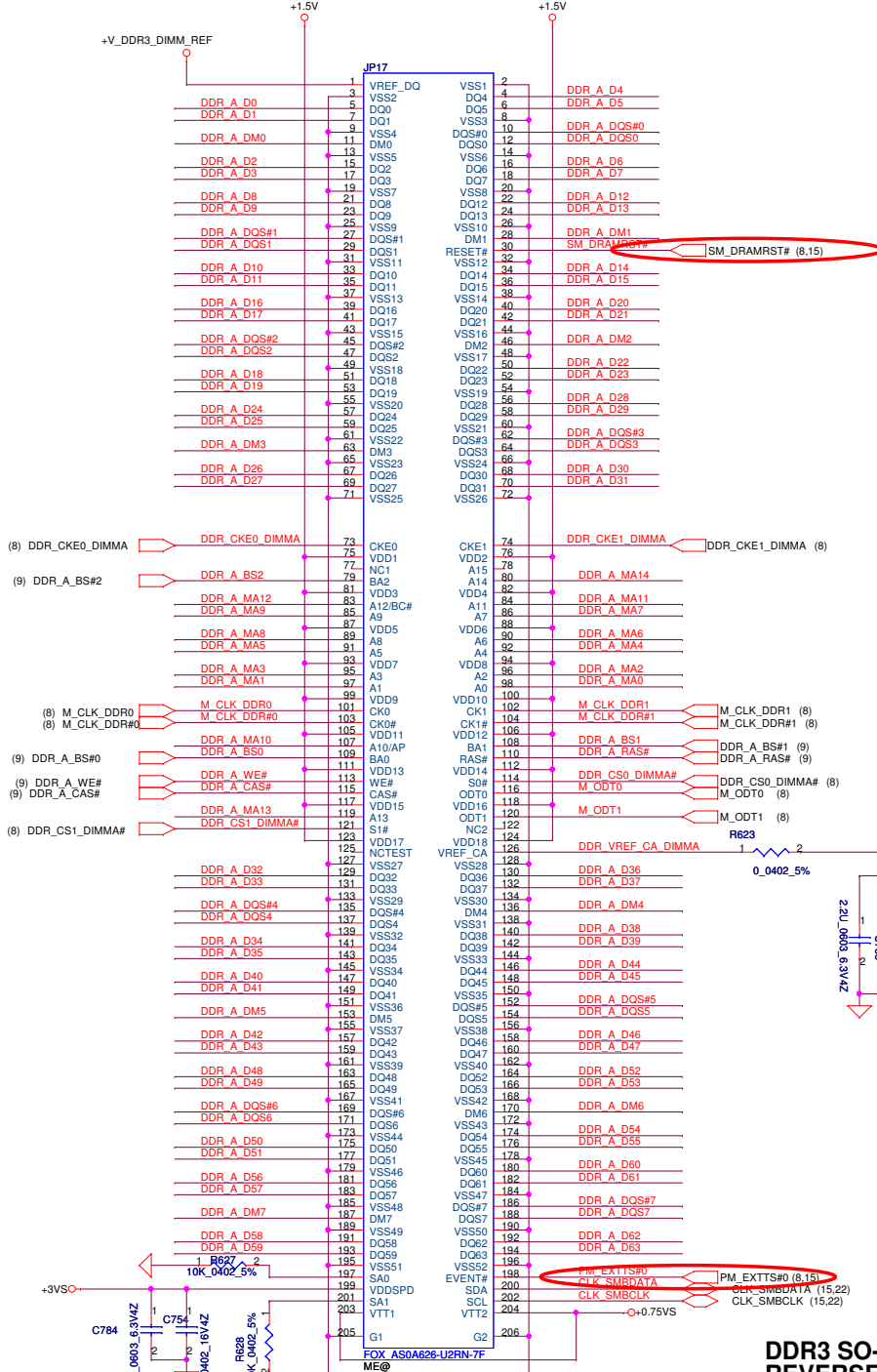
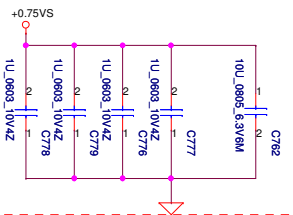


Layout Note:
Place near JP4

Layout Note: Place these 4 Caps near Command and Control signals of DIMMA



Layout Note:
Place near JP4.203 & JP4.204



SM_DRAMRST# (8.15)

PM_EXTTSS0 (8.15)
CLK_SMBDATA (15.22)
CLK_SMBCLK (15.22)

DDR3 SO-DIMM A REVERSE

Security Classification	Compal Secret Data	
Issued Date	2007/09/29	Deciphered Date
		2007/09/29

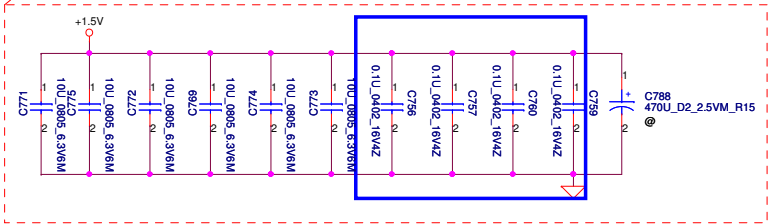
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Title			
Compal Electronics, Inc.			
DDRIII-SODIMM SLOT1			
Size	Document Number	Rev	
Custort	KIWAX_LA-5082P	0.4	
Date:	Wednesday, March 18, 2009	Sheet	14 of 53

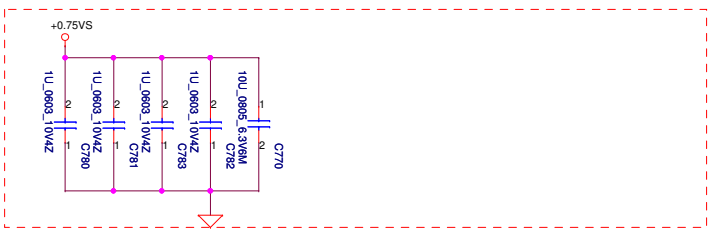
- (9) DDR_B_DQS#[0..7]
- (9) DDR_B_D[0..63]
- (9) DDR_B_DM[0..7]
- (9) DDR_B_DQS[0..7]
- (9) DDR_B_MA[0..14]

Layout Note:
Place near JP5

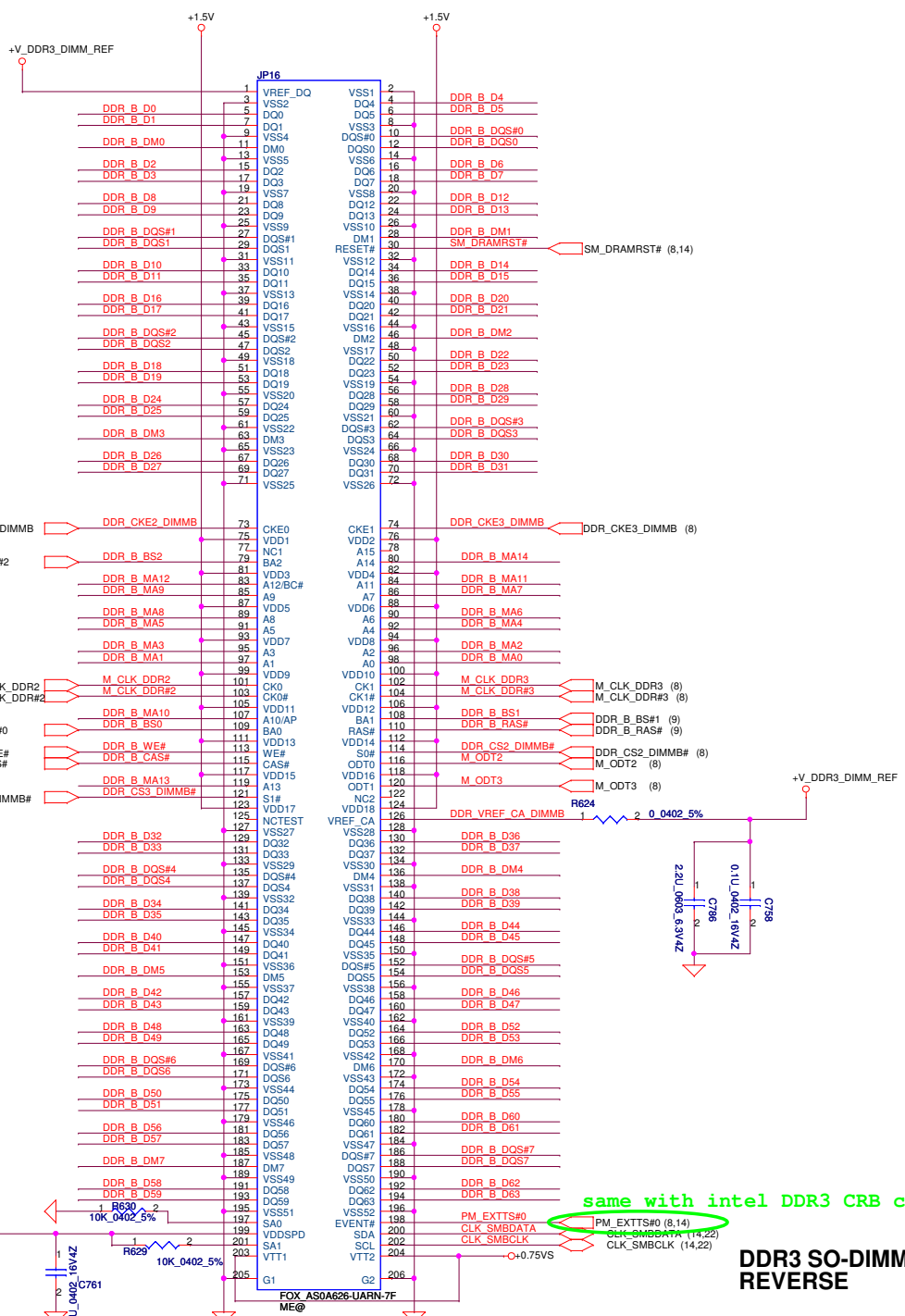
Layout Note: Place these 4 Caps near Command and Control signals of DIMMA



Layout Note:
Place near JP5.203 & JP5.204



<BOM Structure> BOM Structure BOM Structure BOM Structure



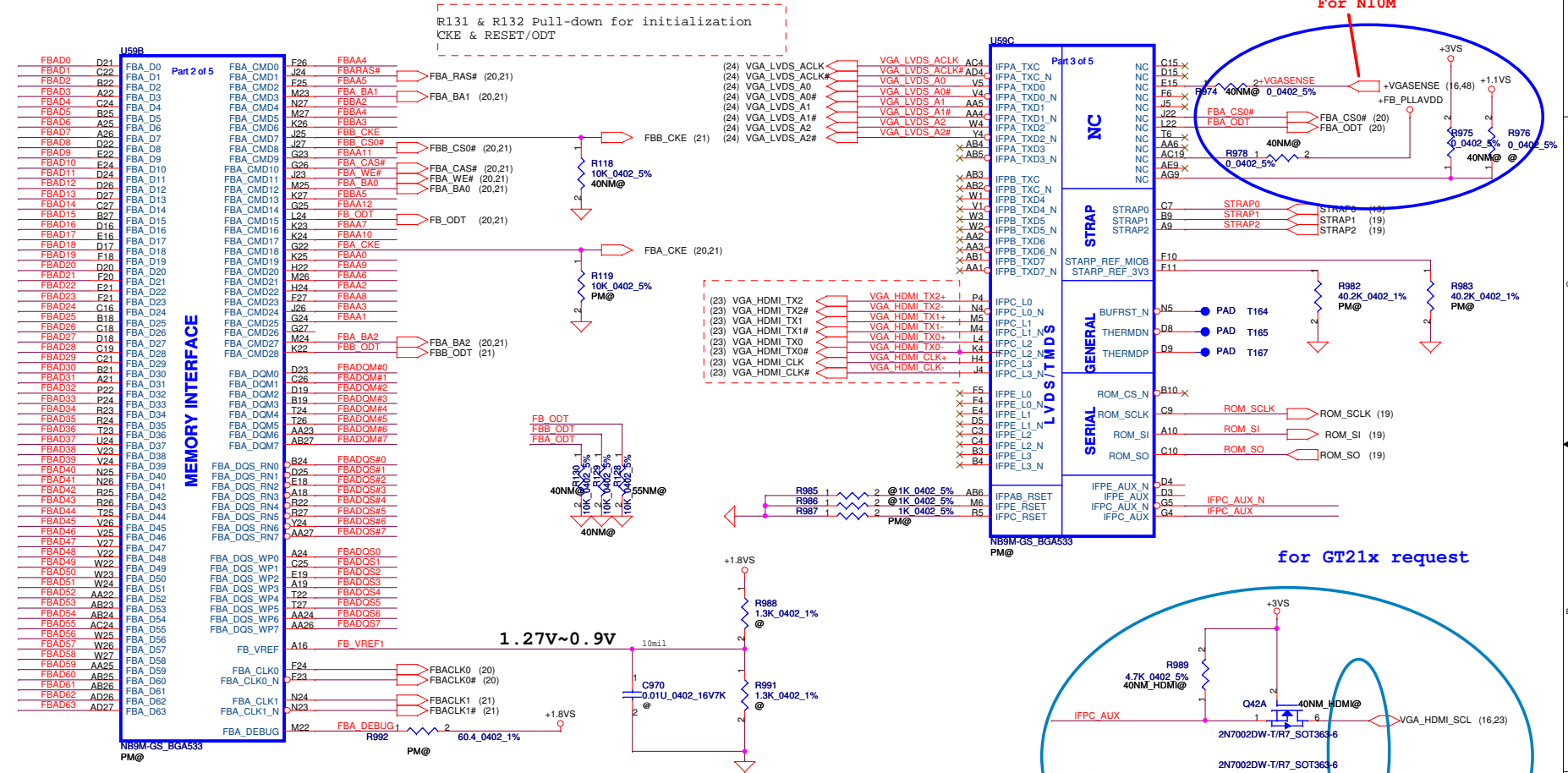
same with intel DDR3 CRB connection

**DDR3 SO-DIMM B
REVERSE**

Security Classification	Compal Secret Data		Title	
Issued Date	2007/09/29	Deciphered Date	2007/09/29	Compal Electronics, Inc.
				DDR3-SODIMM SLOT2
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Size	Document Number	Rev		
	KIWA_X-5082P	0.4		
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- FBAD[0..63] FBAD[0..63] (20,21)
- FBA[0..13] FBA[0..13] (20,21)
- FBA[2..5] FBA[2..5] (21)
- FBADQM[0..7] FBADQM[0..7] (20,21)
- FBADQS[0..7] FBADQS[0..7] (20,21)
- FBADQS#0..7 FBADQS#0..7 (20,21)

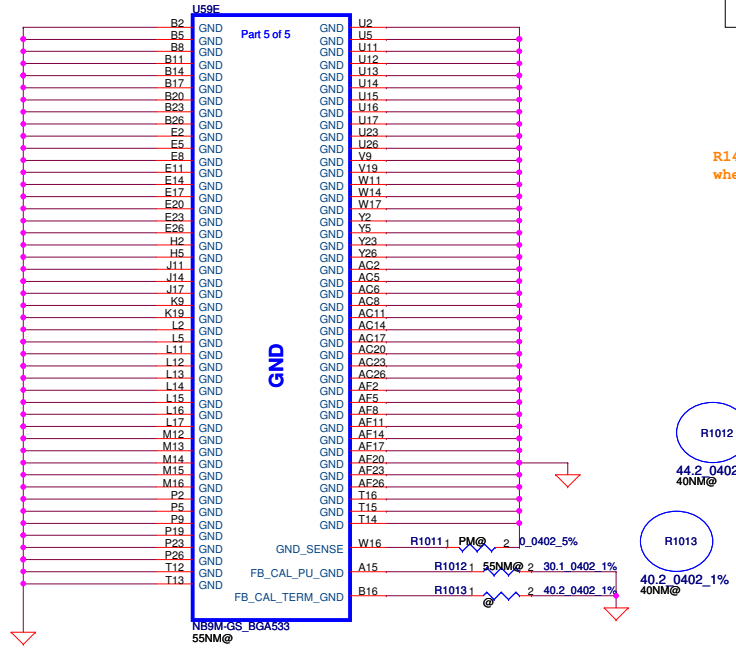
CKE.cs00DT



Security Classification	Compal Secret Data		
Issued Date	2007/10/15	Deciphered Date	2008/10/15
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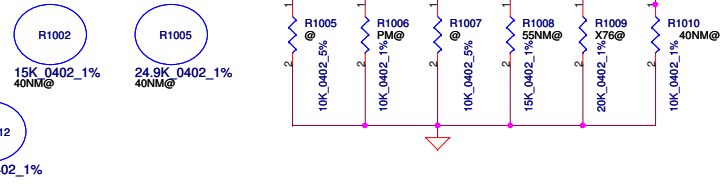
Compal Electronics, Inc.			
N10M Memory			
Size	Document Number	Rev	
B	KIWA5/6 LA-5081P	0.4	
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A total of 8 signals are required for GB1 strapping this includes
 2 reference signals
 6 physical strapping pins
 4 logical strapping bits
 A total of 24 logical strapping bits are available



R148 pop 25K ohm
when use N10M-GE1-S (55nm)

- (17) STRAP2
- (17) STRAP1
- (17) STRAP0
- (17) ROM_SCLK
- (17) ROM_SI
- (17) ROM_SO



GB1 Family GPU Strap Options

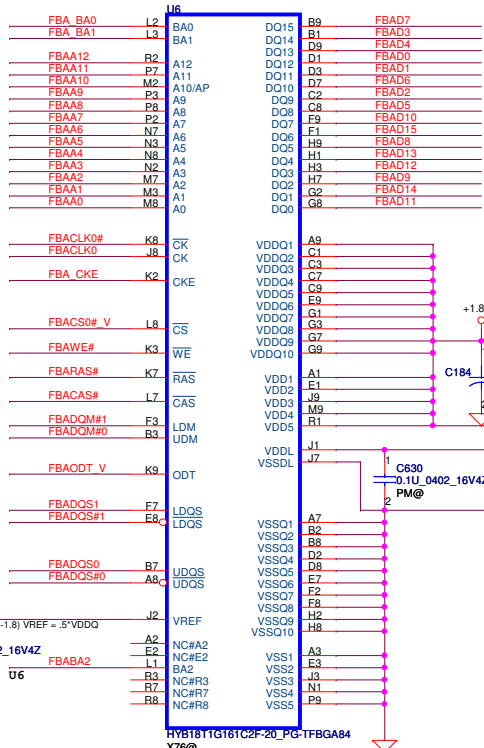
X76

GPU	FB Memory (DDR2)	ROM_SO	ROM_SCLK	ROM_SI	STRAP2	STRAP1	STRAP0
N10M-GE1-S (0x6EC) 55nm	Samsung 64Mx16	PU 5K	PD 15K	PD 10K	PU 5K	PD 10K	PU 45K
	Hynix 64Mx16	PU 5K	PD 15K	PD 5K	PU 5K	PD 10K	PU 45K
	Qimonda 64Mx16	PU 5K	PD 15K	PD 15K	PU 5K	PD 10K	PU 45K
GPU	FB Memory (DDR2)	ROM_SO	ROM_SCLK	ROM_SI	STRAP2	STRAP1	STRAP0
	Samsung 64Mx16	PD 10K	PD 15K	PD 10K	PU 10K	PD 10K	PU 45K
	Hynix 64Mx16	PD 10K	PD 15K	PD 5K	PU 10K	PD 10K	PU 45K
Qimonda 64Mx16	PD 10K	PD 15K	PD 15K	PU 10K	PD 10K	PU 45K	

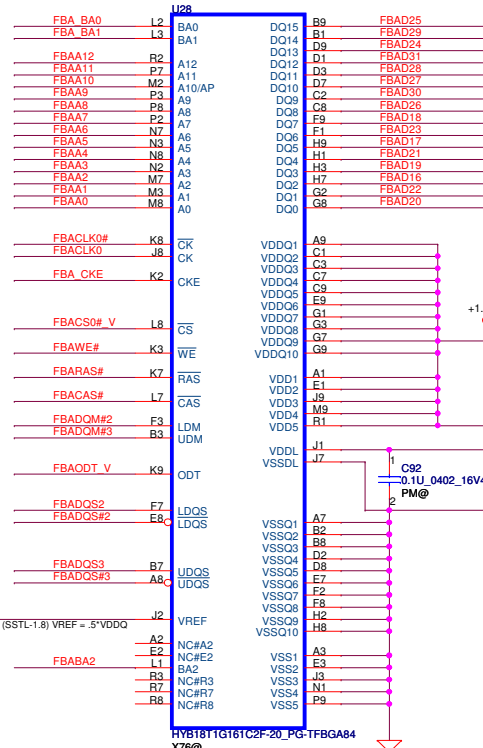
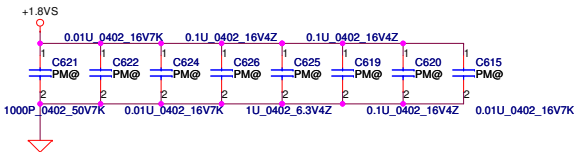
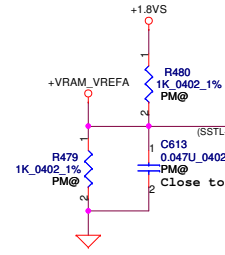
Memory/PKG	FBCAL_PU_GND	FBCAL_PD_VDDQ	FBCAL_TERM_GND
DDR2	30.1ohm	30.1ohm	NC
GDDR3	33.2ohm	44.2ohm	40.2ohm

To update for NV PUN-03304-001_V06 (2008/4/01)

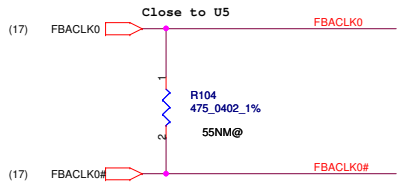
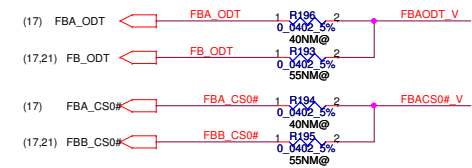
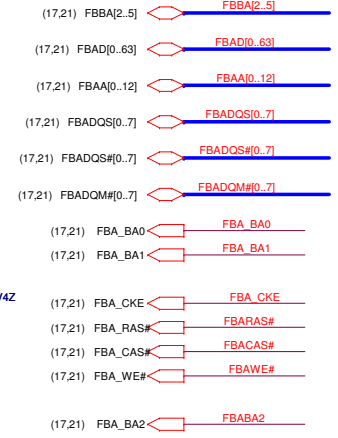
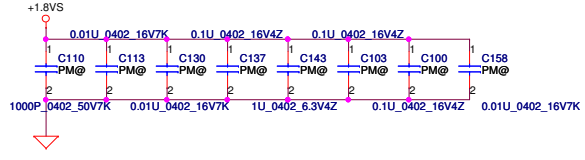




DDR2 BGA MEMORY

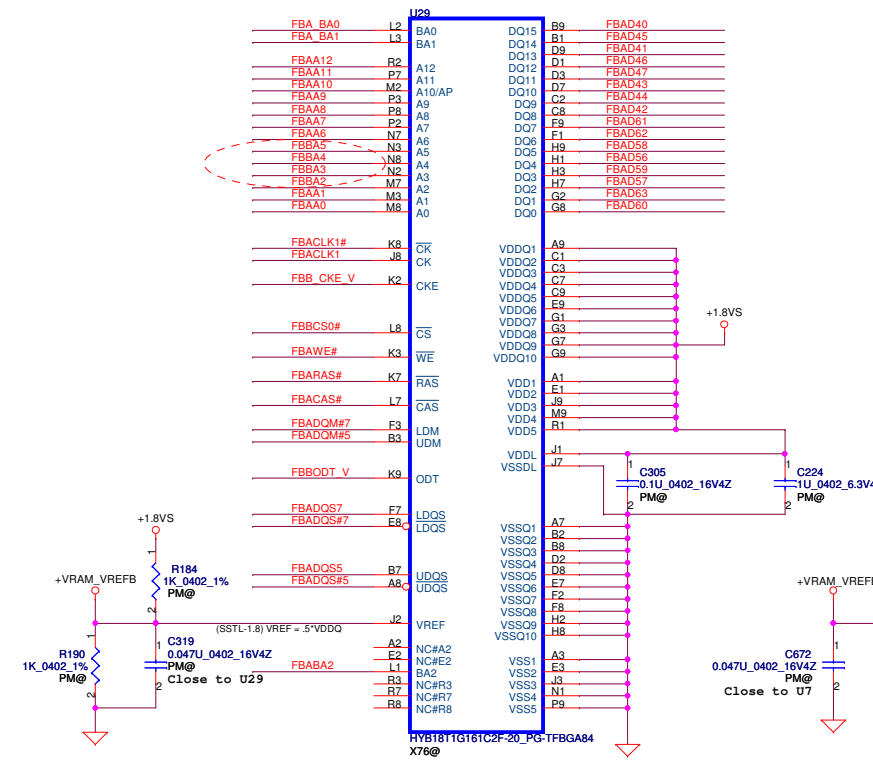


DDR2 BGA MEMORY

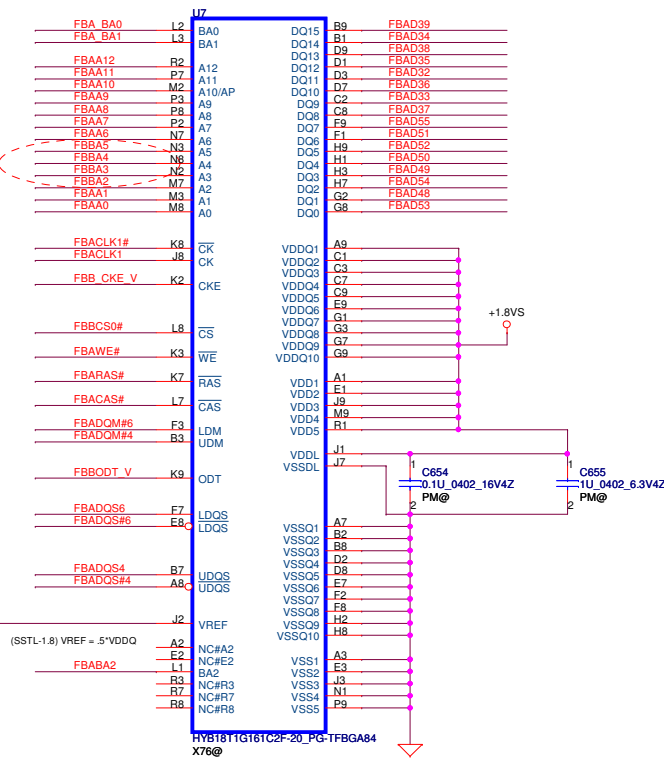


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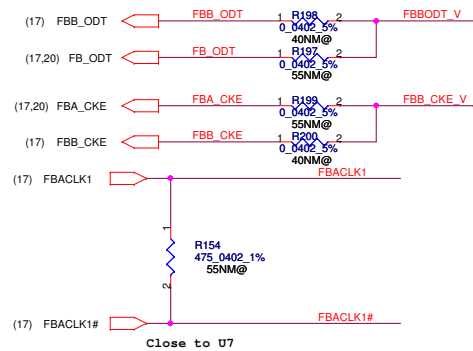
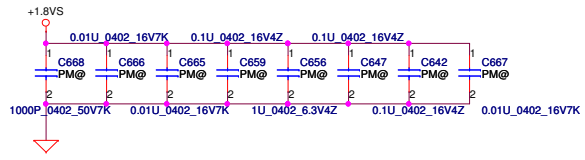
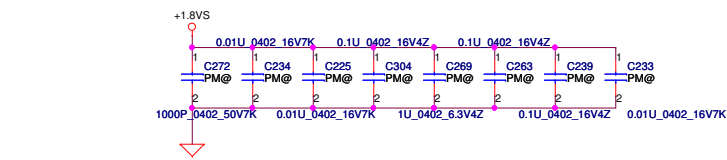
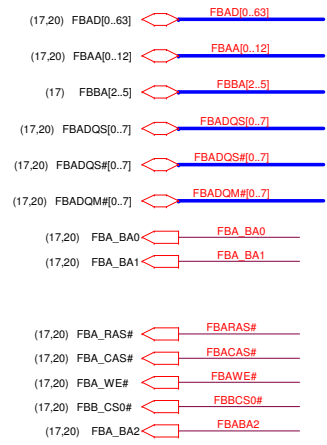
Title			
Compal Electronics, Inc.			
VRAM DDRA			
Size	Document Number	Rev	
Custom	KIWA5/6 LA-5081P	0.4	
Date:	Wednesday, March 18, 2009	Sheet	20 of 53



DDR2 BGA MEMORY

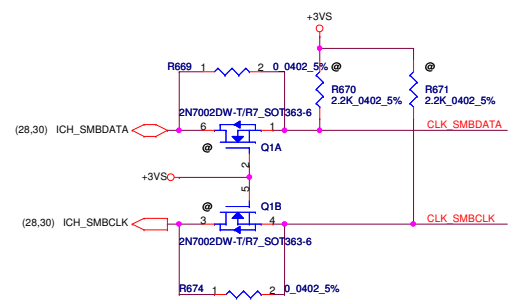
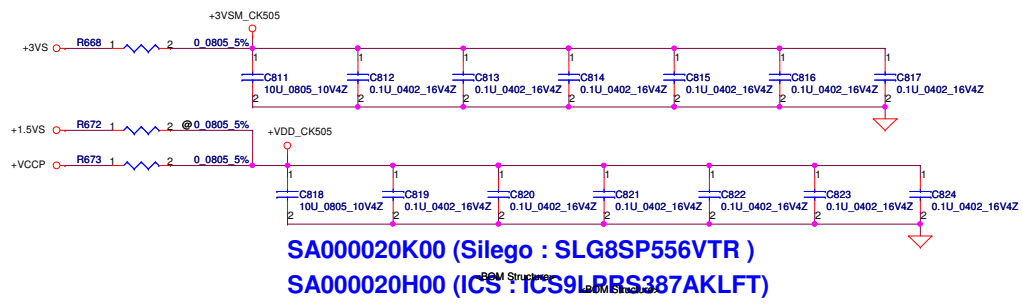


DDR2 BGA MEMORY

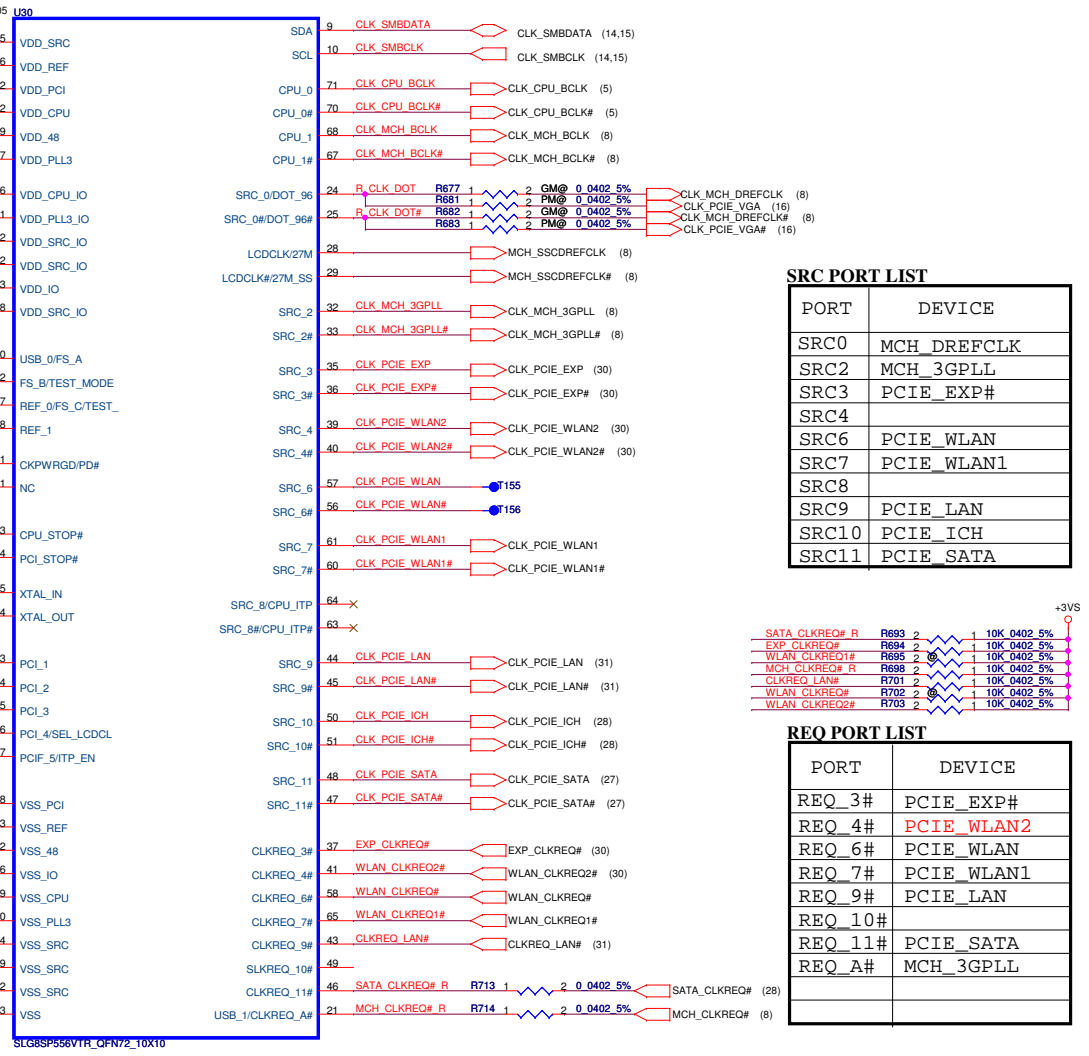
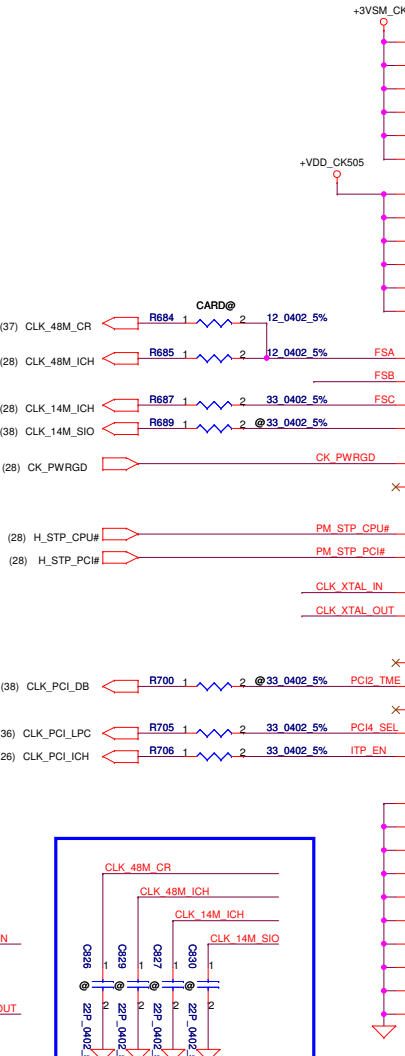
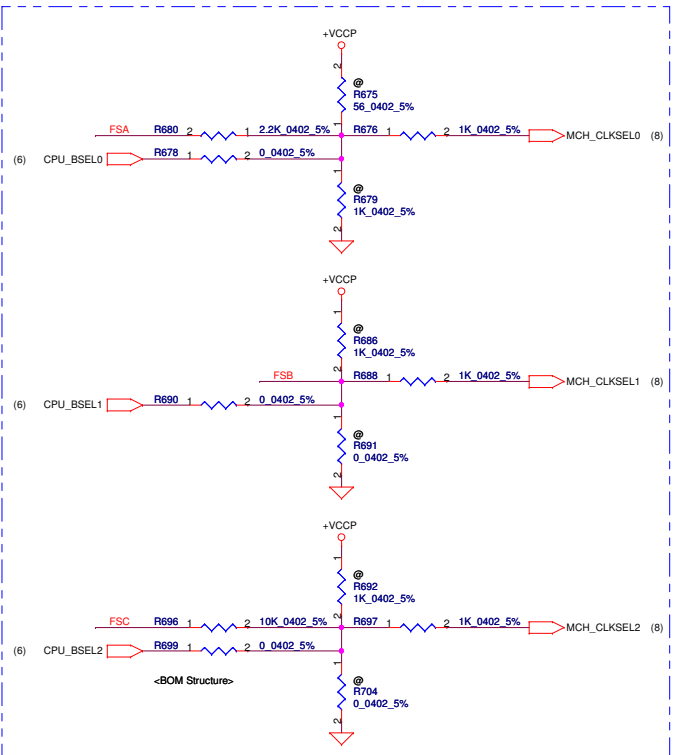


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				VRAM DDRB		
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				Custom	KIWA5/6 LA-5081P	0.4
				Date:	Wednesday, March 18, 2009	Sheet 21 of 53

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



SA000020K00 (Silego : SLG8SP556VTR)
SA000020H00 (ICS : ICS9LRS387AKLFT)

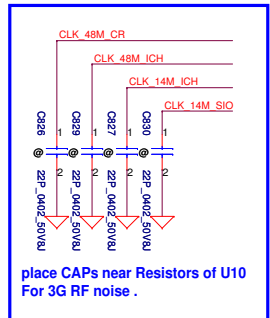
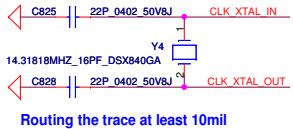
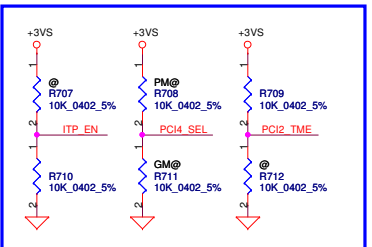


SRC PORT LIST

PORT	DEVICE
SRC0	MCH_DREFCLK
SRC2	MCH_3GPLL
SRC3	PCIE_EXP#
SRC4	PCIE_WLAN
SRC6	PCIE_WLAN1
SRC7	PCIE_WLAN1
SRC8	PCIE_WLAN1
SRC9	PCIE_LAN
SRC10	PCIE_ICH
SRC11	PCIE_SATA

REQ PORT LIST

PORT	DEVICE
REQ_3#	PCIE_EXP#
REQ_4#	PCIE_WLAN2
REQ_6#	PCIE_WLAN
REQ_7#	PCIE_WLAN1
REQ_9#	PCIE_LAN
REQ_10#	PCIE_LAN
REQ_11#	PCIE_SATA
REQ_A#	MCH_3GPLL



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

Security Classification	Compal Secret Data	
Issued Date	2008/03/25	Deciphered Date
		2008/04/

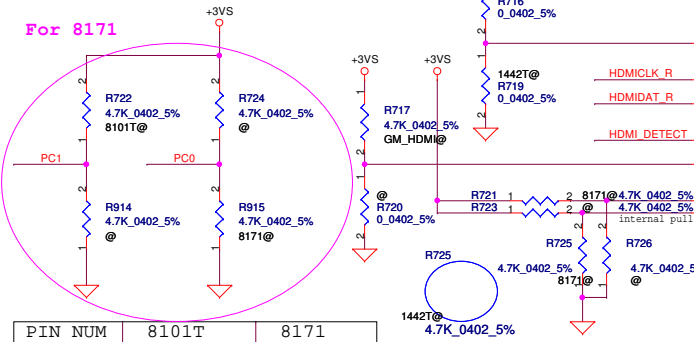
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Compal Electronics, Inc.		
Clock Generator CK505		
Title	Document Number	Rev
	KIWA5/6 LA-5081P	0.4
Date: Wednesday, March 18, 2009	Sheet	22 of 53

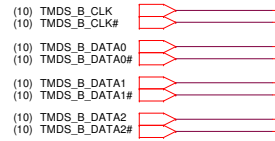
10/30 update PS8171 co-lay circuit

P/N: SA00002D700 (8101T)
P/N: SA00001U920 (CH7318C)

For 8171

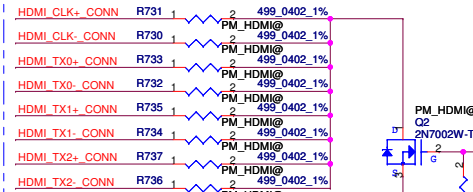


PIN NUM	8101T	8171
PIN1	GND	ASQ0
PIN3	PC0	PEQ
PIN4	PC1	P10
PIN7	HPD#	HPDX
PIN10	RE_EN#	CEXT
PIN11	VCC	ASQ1
PIN12	GND	APD
PIN27	GND	EMI0
PIN33	VCC	EMI1
PIN34	DDCBUF_EN	DDCBUF
PIN35	CFG	PRE

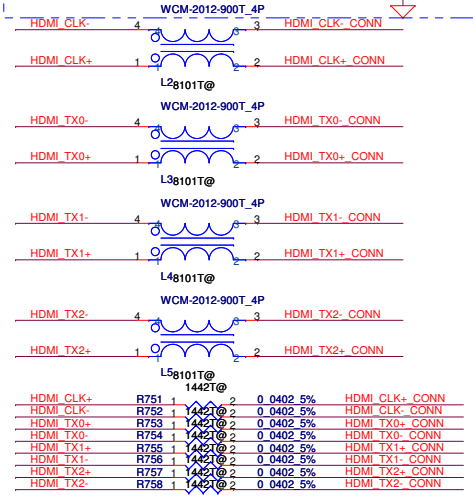


For 8171 net name:
EMI0, EMI1
ASQ0, ASQ1
APD

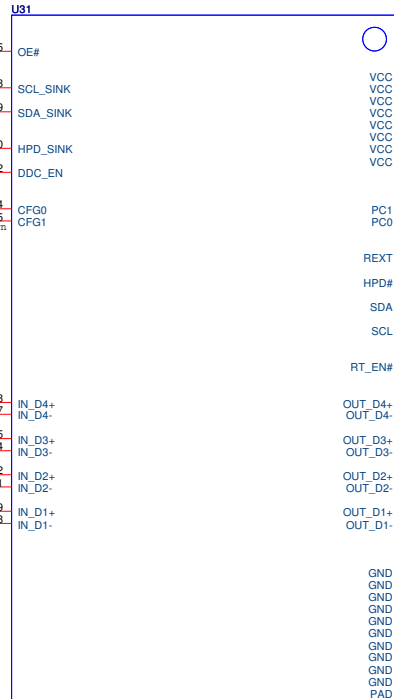
TMDS pull down (500ohm) resistors for ATI M92-S2 XT



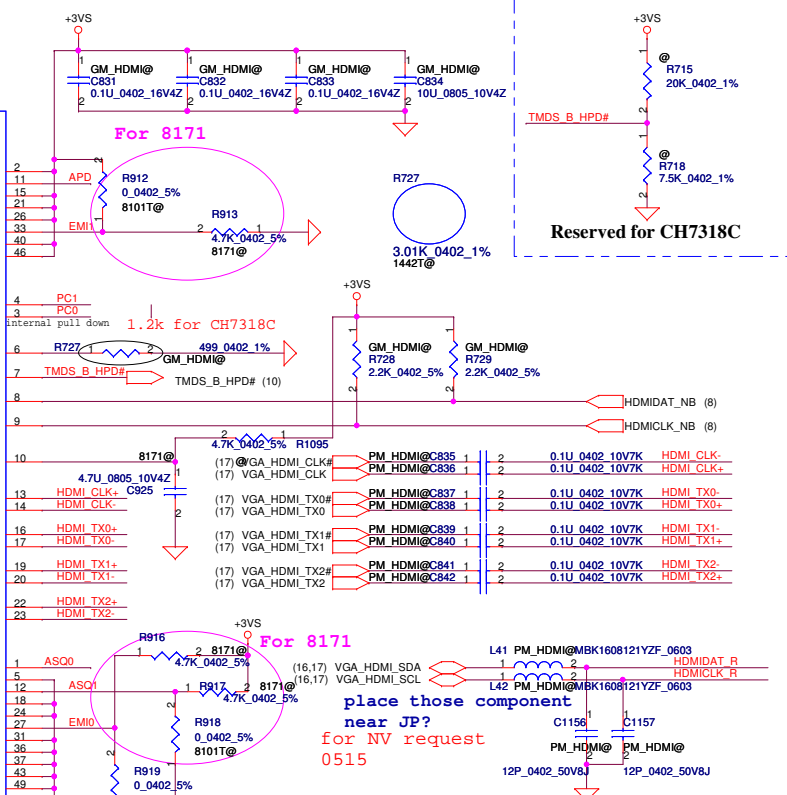
NEAR CONNECTOR



HDMI CLK+	R751	1	2	0.0402_5%	HDMI CLK+ CONN
HDMI CLK-	R752	1	2	0.0402_5%	HDMI CLK- CONN
HDMI TX0+	R753	1	2	0.0402_5%	HDMI TX0+ CONN
HDMI TX0-	R754	1	2	0.0402_5%	HDMI TX0- CONN
HDMI TX1+	R755	1	2	0.0402_5%	HDMI TX1+ CONN
HDMI TX1-	R756	1	2	0.0402_5%	HDMI TX1- CONN
HDMI TX2+	R757	1	2	0.0402_5%	HDMI TX2+ CONN
HDMI TX2-	R758	1	2	0.0402_5%	HDMI TX2- CONN



For 8171



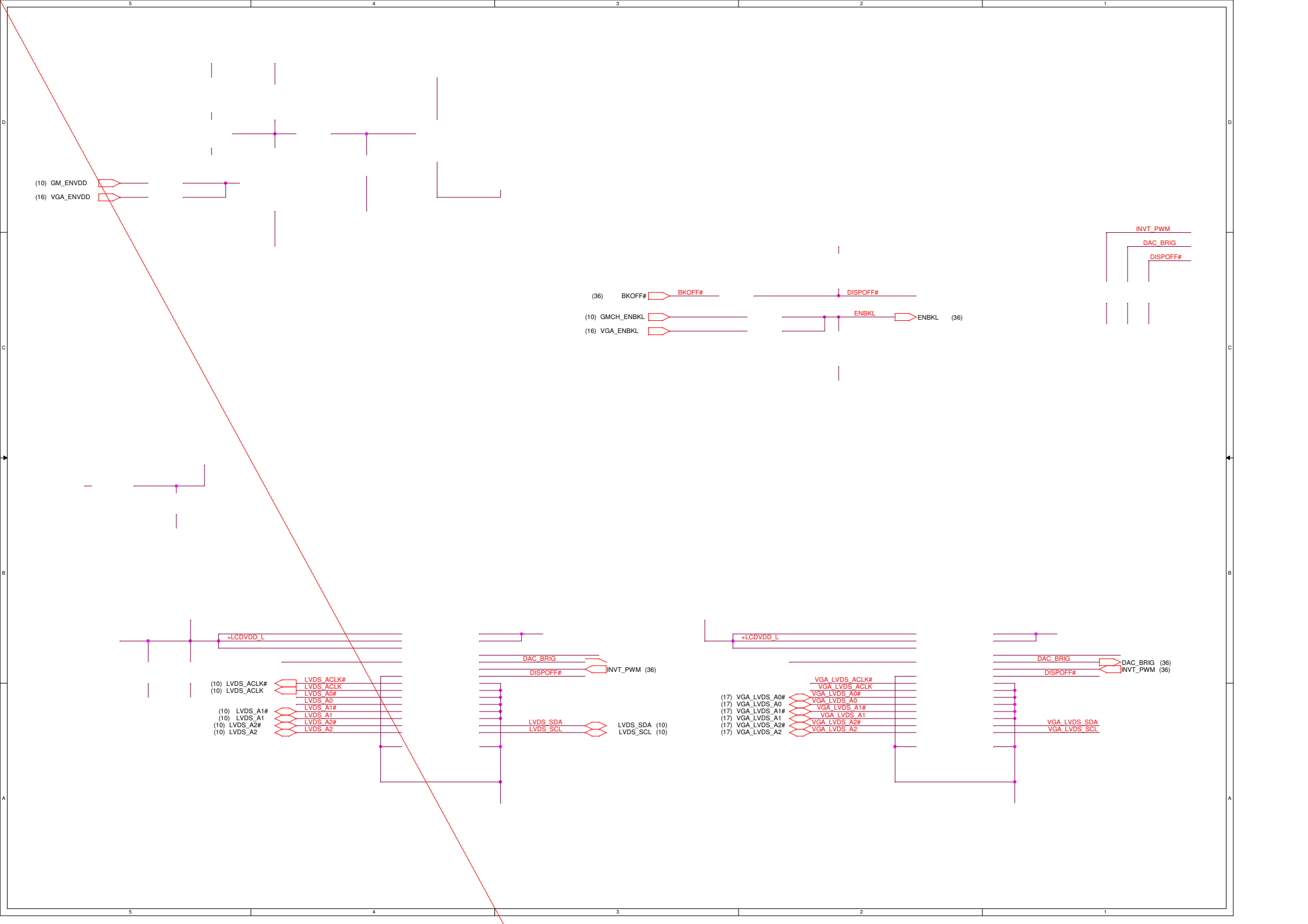
place those component near JP? for NV request 0515

KIWB3/B4 LA4551P

Security Classification	Compal Secret Data	
Issued Date	2008/03/25	Deciphered Date
		2008/04/

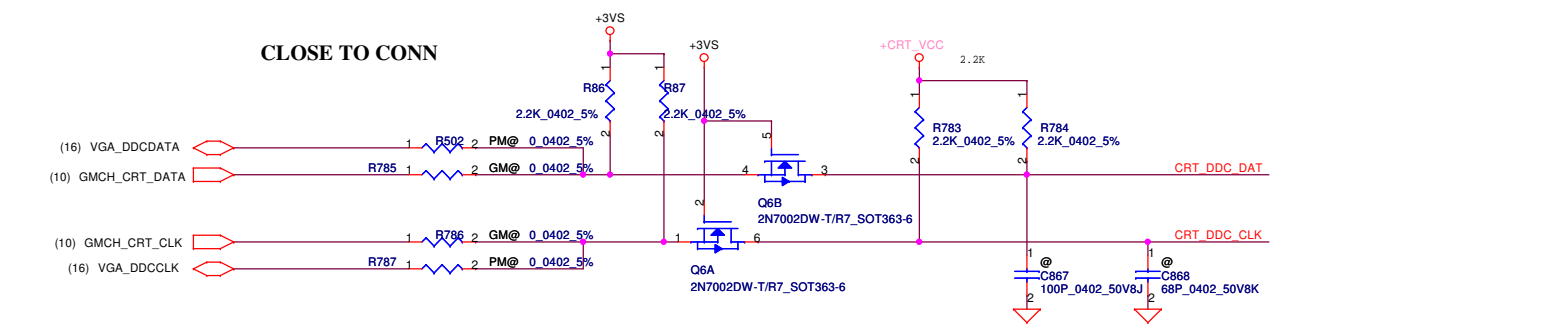
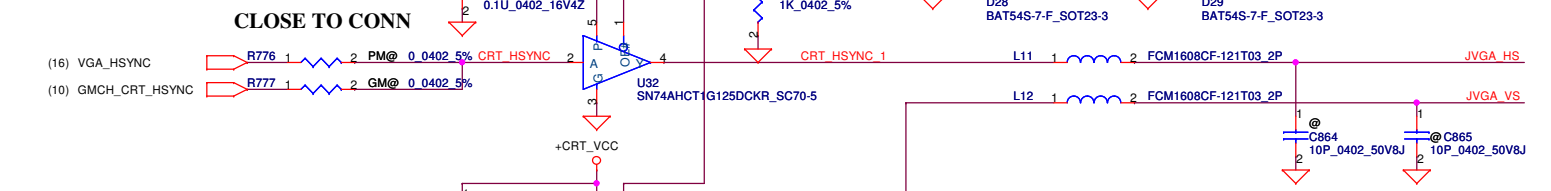
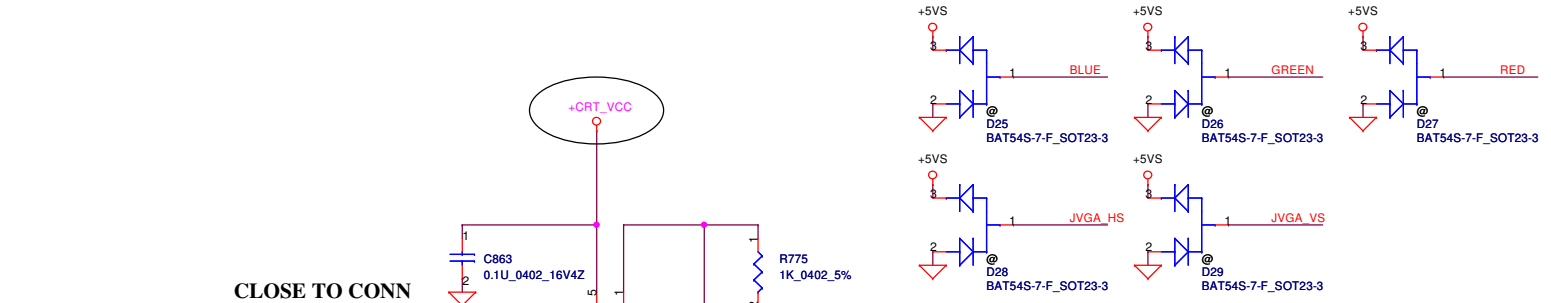
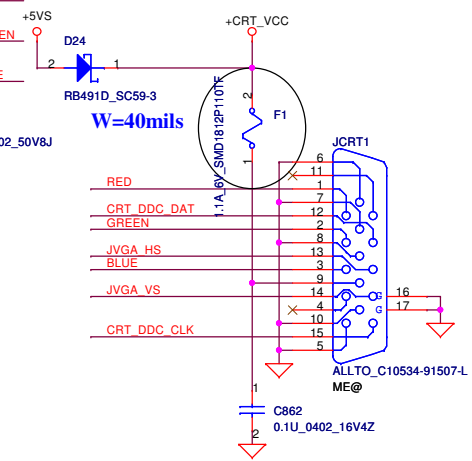
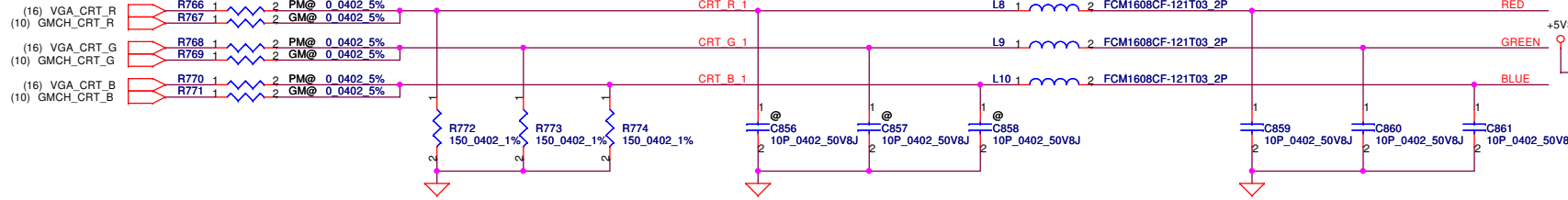
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Compal Electronics, Inc.	
Level Shifter_PS8101T	
Size	Document Number
Custom	KIWAX_LA-5082P
Date	Wednesday, March 18, 2009
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CRT Connector

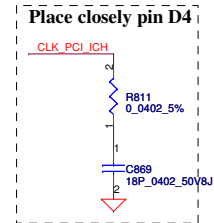
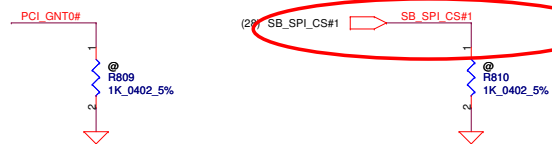
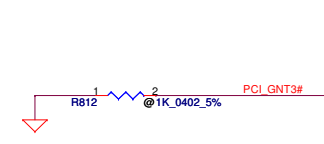
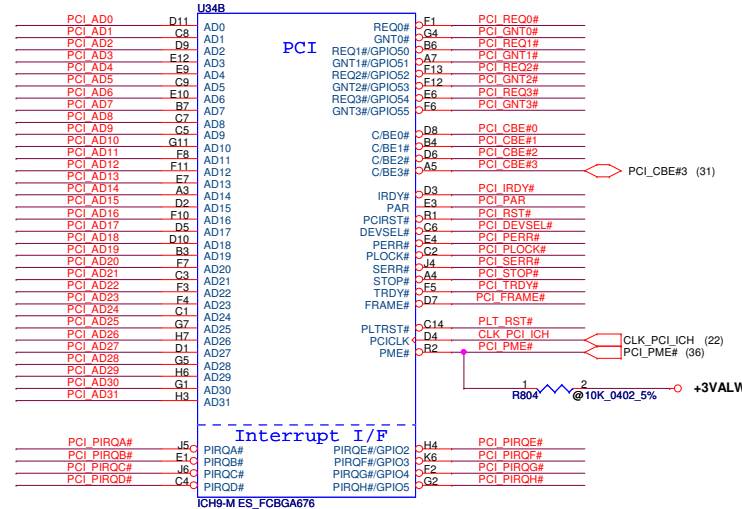
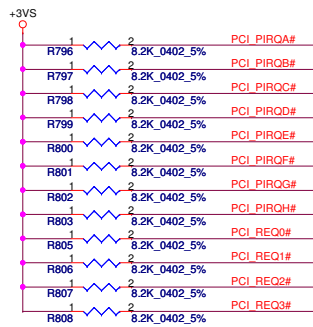
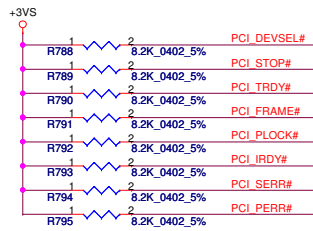
CLOSE TO CONN



PIN ASSIGMENT

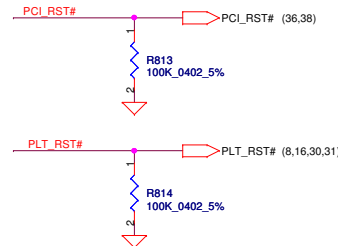
D-SUB	FUNCTION
9	+CRT_VCC
1	RED
6	GND
2	GREEN
7, 5	GND
3	BLUE
8	GND
14	VSYNC
10	GND
13	HSYNC
11	SENSE
12	SM_DAT
15	SM_CLK
4	PIN4

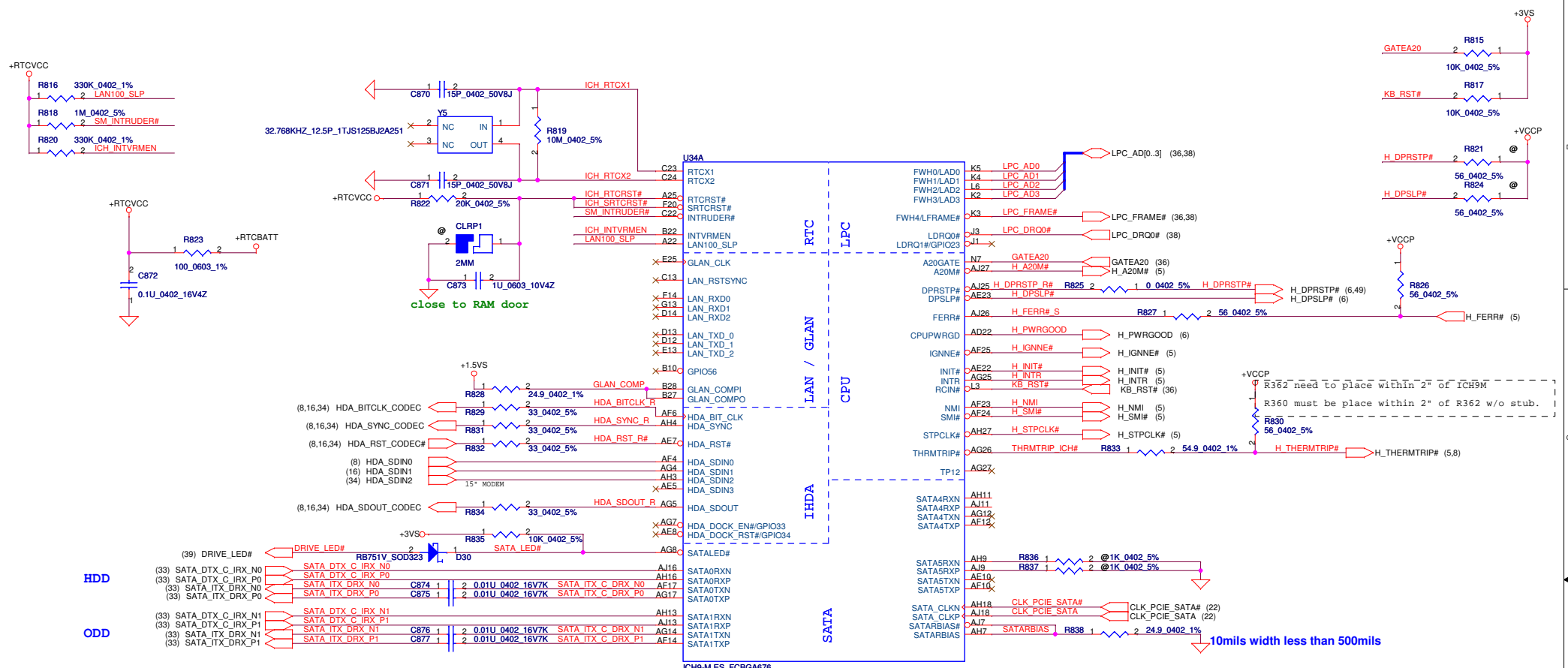
Security Classification		Compal Secret Data		Title	
Issued Date	2007/10/15	Deciphered Date	2008/10/15	Compal Electronics, Inc.	
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Size	Document Number	Rev		0.4	
Custom	KIWA5/6 LA-5081P				
Date:	Wednesday, March 18, 2009	Sheet	25	of	53



A16 Swap Override Strap	
PCI_GNT#3	Low= A16 swap override Enable High= Default*

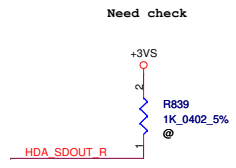
Boot BIOS Strap		
PCI_GNT#0	SPI_CS#1	Boot BIOS Location
0	1	SPI
1	0	PCI
1	1	LPC*

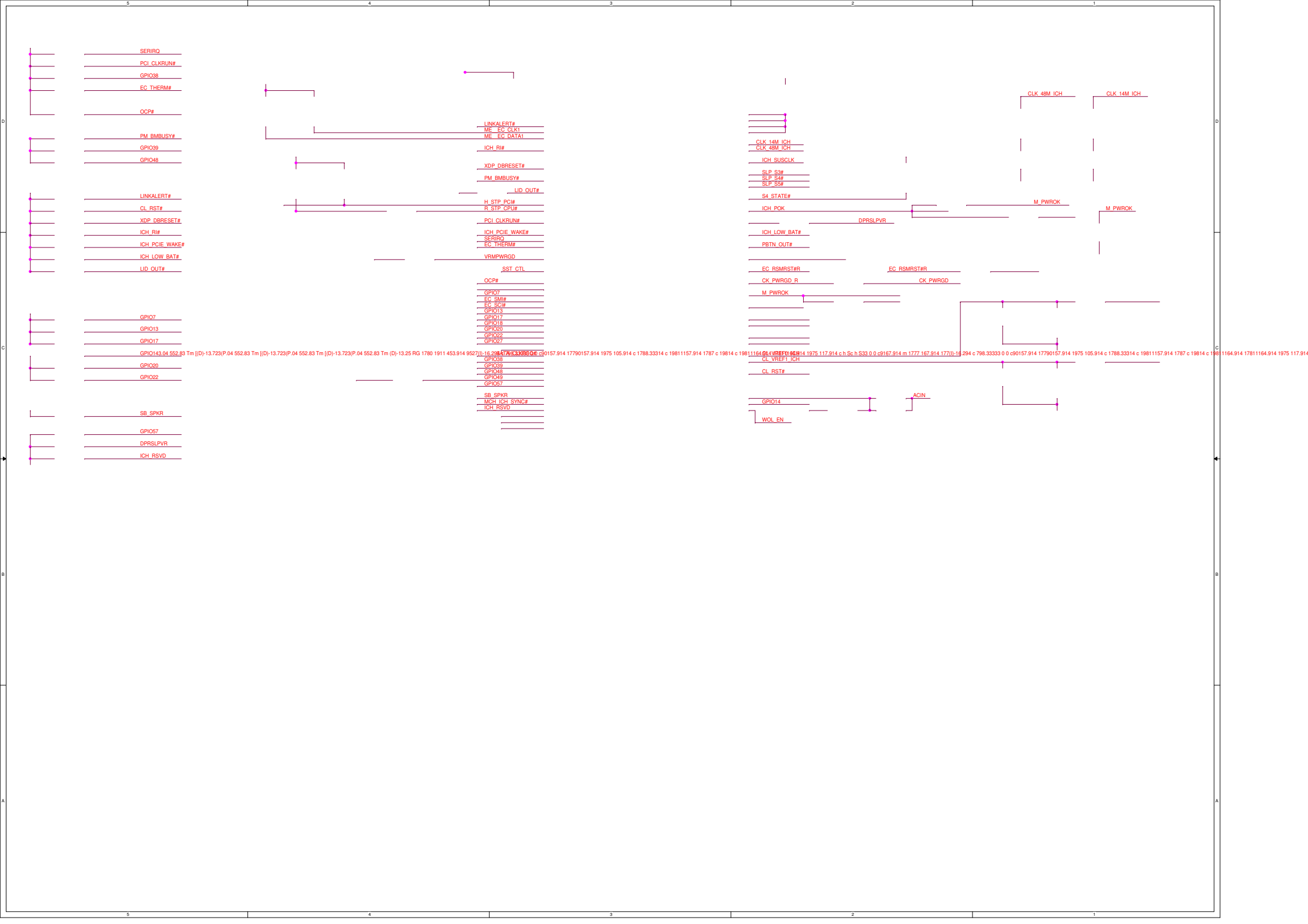




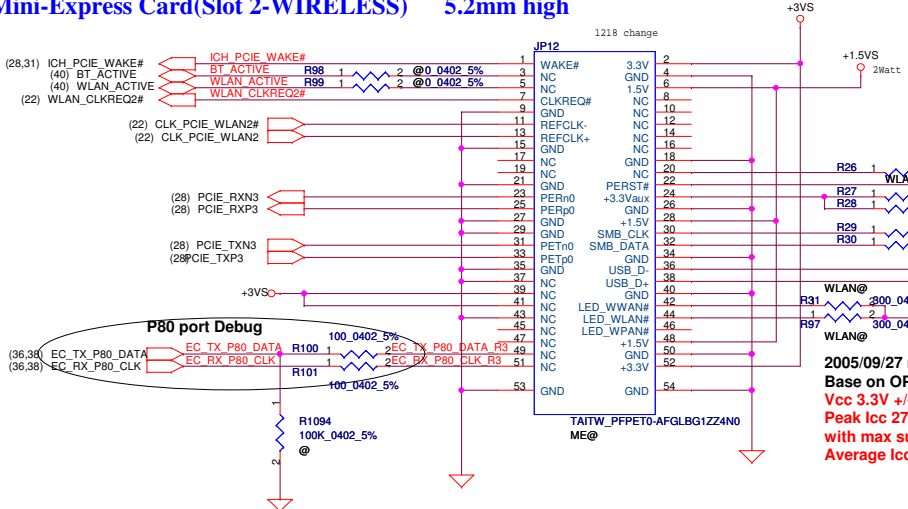
SATA PORT LIST	
PORT	DEVICE
0	HDD
1	ODD
4	E-SATA
5	

XOR Chain Entrance Strap		
ICH_TP3	HDA_SDOUT	Description
0	0	RSVD
0	1	Enter XOR Chain
1	0	Normal Operation
1	1	Set PCIE port config bit 1

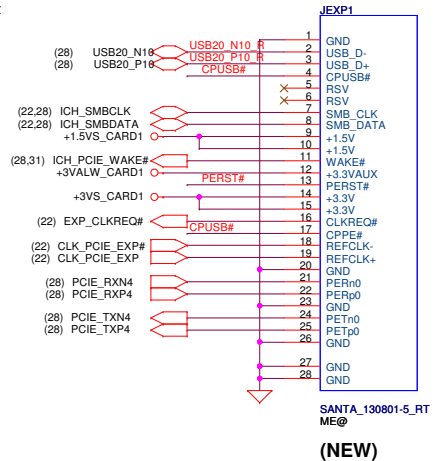
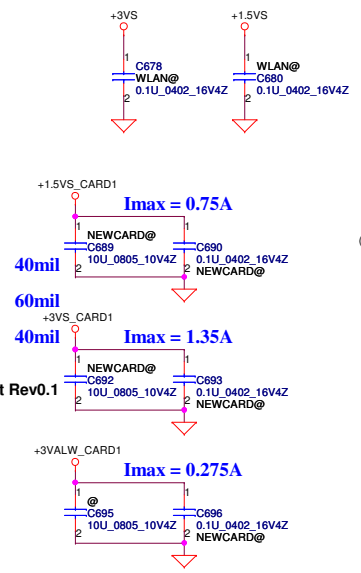




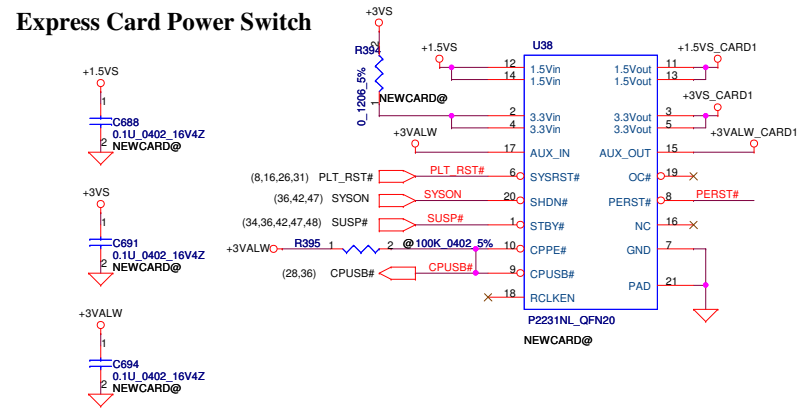
Mini-Express Card(Slot 2-WIRELESS) 5.2mm high



2005/09/27 modified.
 Base on OPTION GTM351E Datasheet Rev0.1
Vcc 3.3V +/- 8%
Peak Icc 2750mA
 with max supply droop 50mV
Average Icc 1000mA



Express Card Power Switch

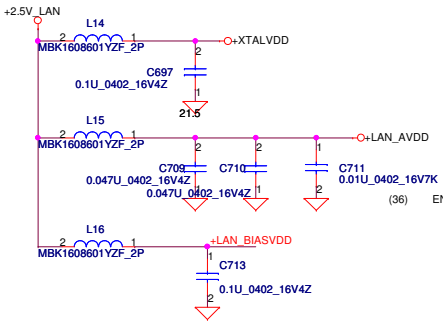


2005/09/27 modified.
 Base on OPTION GTM351E Datasheet Rev0.1
Vcc 3.3V +/- 8%
Peak Icc 2750mA
 with max supply droop 50mV
Average Icc 1000mA

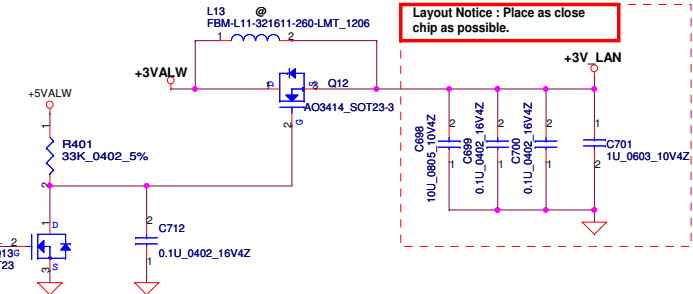
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Issued Date	2007/10/15	Deciphered Date
		2008/10/15
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Compal Electronics, Inc.		
Mini-Card/3G/TV /BT		
Title	Document Number	Rev
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Date:	Wednesday, March 18, 2009	Sheet 30 of 53

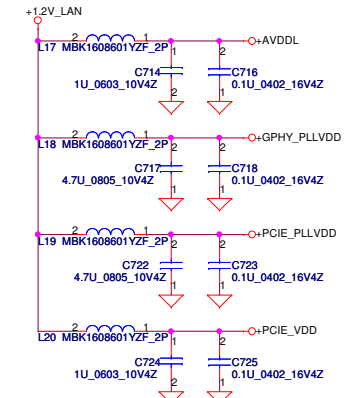
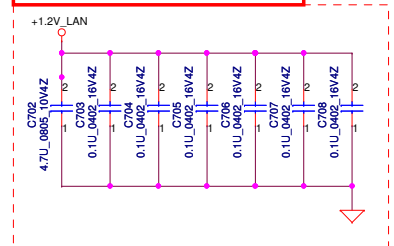
Layout Notice : Filter place as close chip as possible.



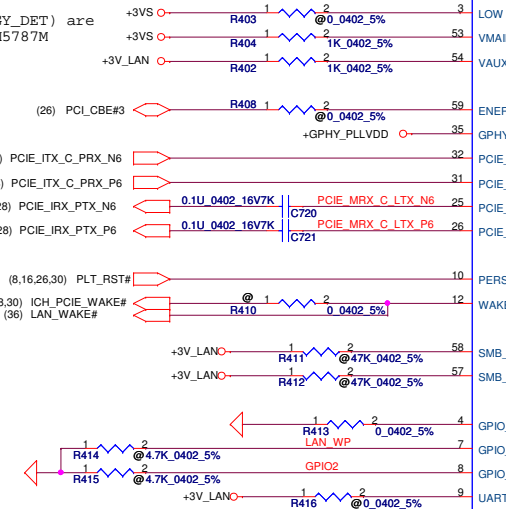
Layout Notice : Place as close chip as possible.



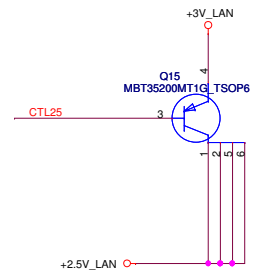
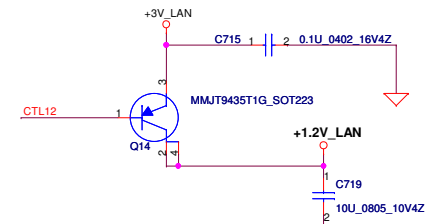
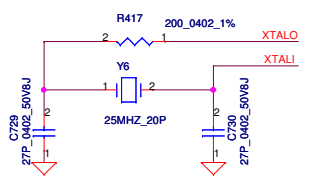
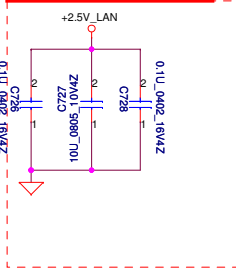
Layout Notice : 1.2V filter. Place as close chip as possible.



(CLKREQ#) and (ENERGY_DET#) are only supported in BCM5787M

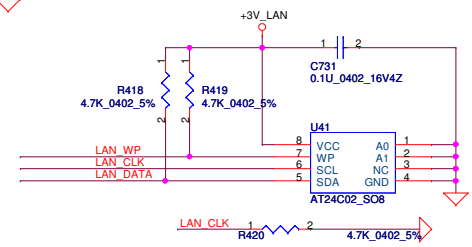


Layout Notice : Place as close chip as possible.



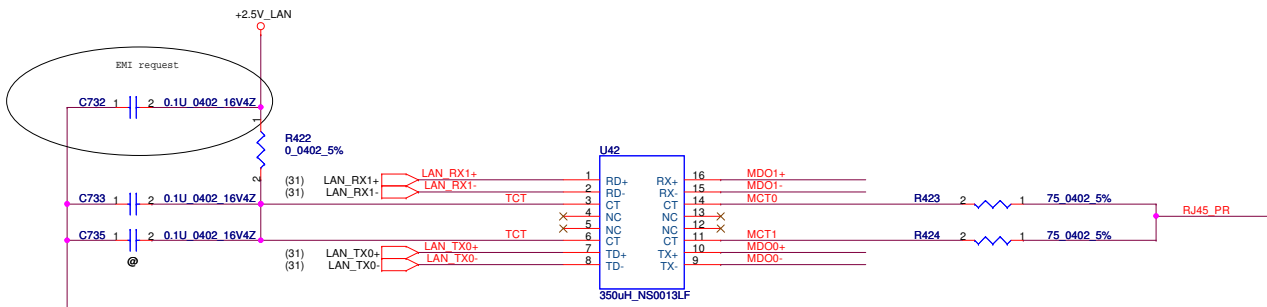
Notice : 4.7u 6.3V capacitor Thickness 1.25mm

Layout Notice : Filter place as close chip as possible.

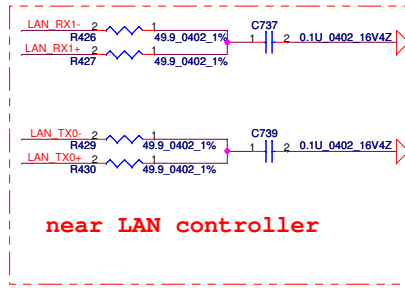


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Issued Date	2007/10/15	Deciphered Date 2008/10/15
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Title			
Compal Electronics, Inc.			
BCM5787MKML			
Size	Document Number	Rev	
Customer	KIWA5/6 LA-5081P	0.4	
Date:	Wednesday, March 18, 2009	Sheet	31 of 53

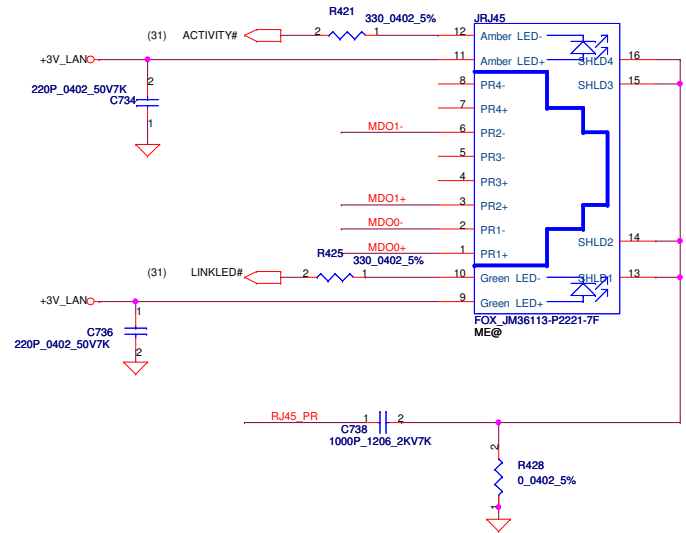


Change C468,C470,C473,C474,C475,C476 from 0.01uF to 0.1uF



near LAN controller

RJ45 CONN

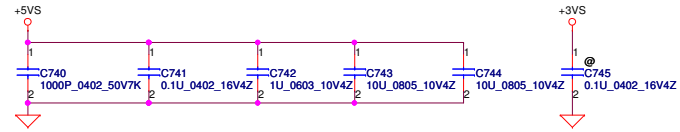


Security Classification		Compal Secret Data		Title	
Issued Date	2007/10/15	Deciphered Date	2008/10/15	LAN CONTROLLER	
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				Custom	0.4
				Date:	Wednesday, March 18, 2009
				Sheet	32 of 53

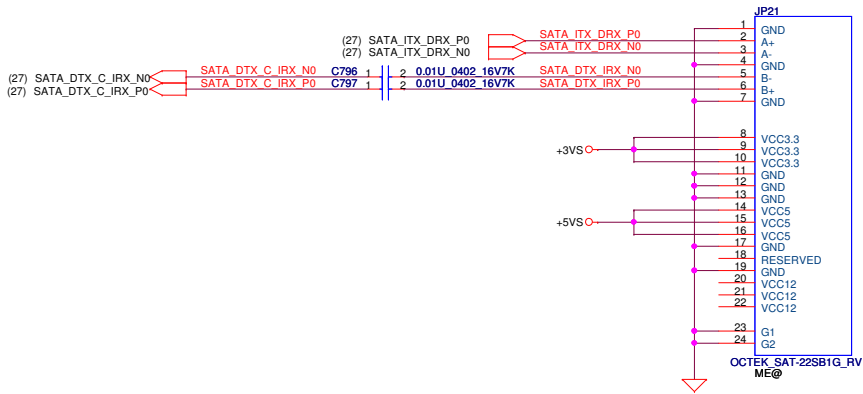
Compal Electronics, Inc.

LAN CONTROLLER

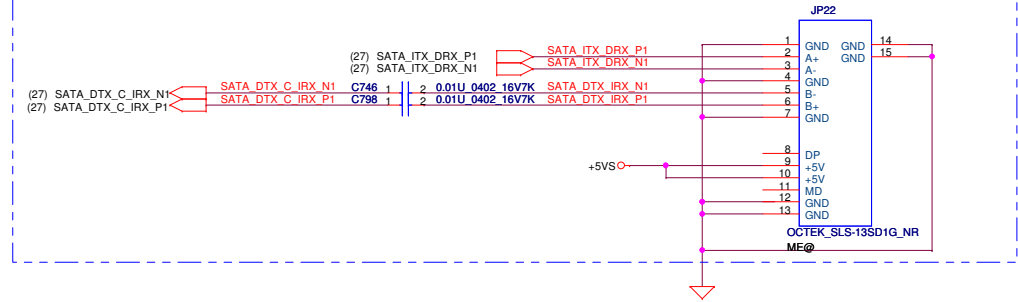
Document Number: KIWA5/6 LA-5081P
 Date: Wednesday, March 18, 2009
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SATA HDD Conn.



SATA ODD Conn.



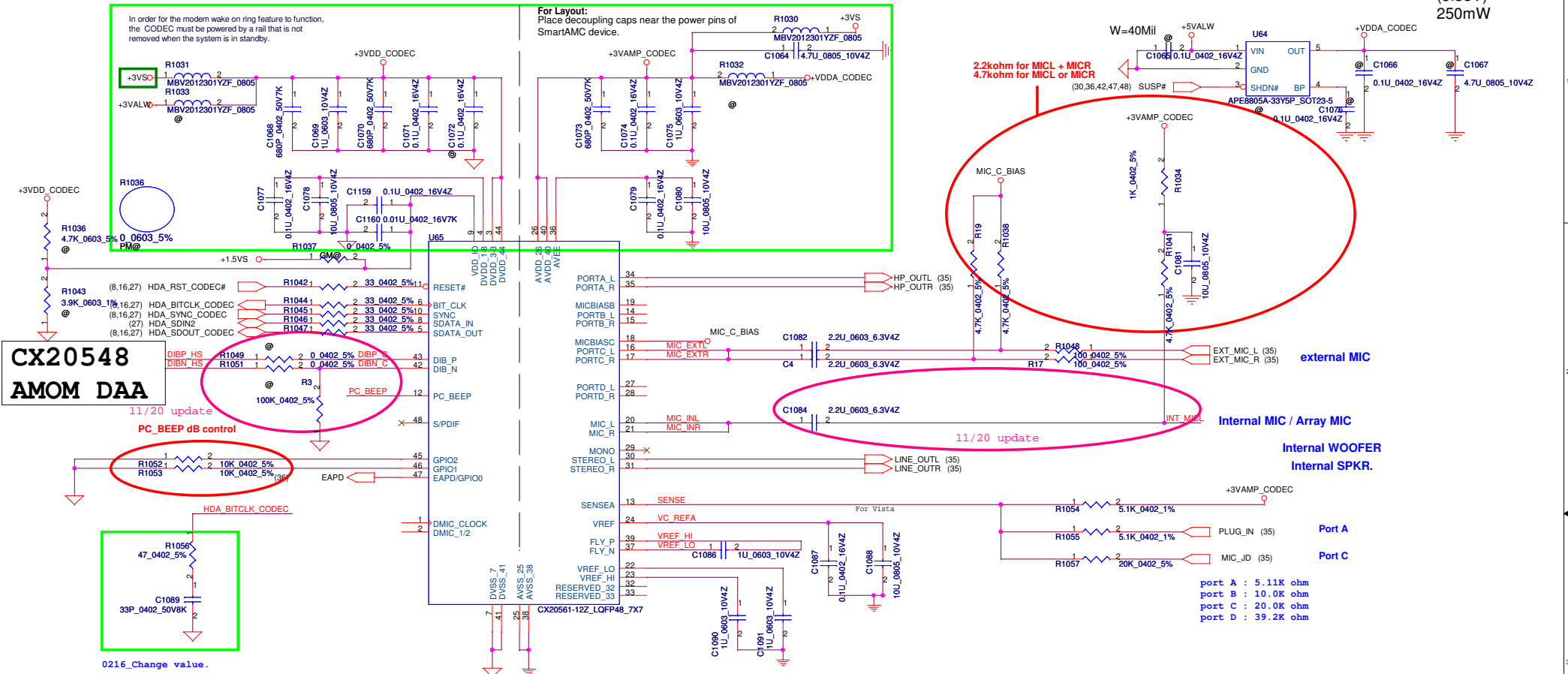
Security Classification		Compal Secret Data		Title	
Issued Date	2007/10/15	Deciphered Date	2008/10/15	Compal Electronics, Inc. HDD & ODD Connector	
<small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.</small>				Size B	Document Number
				KIWA5/6 LA-5081P Date: Wednesday, March 18, 2009 Sheet 33 of 53	
				Rev	0.4

AUDIO CODEC

0308_Change R294 and R295 from 0 ohm to bead, C363 from 10uF to 680pF, C365 and C368 from 0.1uF to 680p

CODEC POWER

(3.33V)
250mW



**CX20548
AMOM DAA**

11/20 update
PC_BEEP dB control

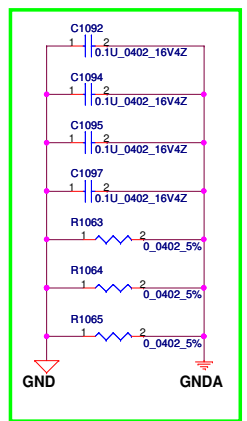
R1052 1 10K 0402 5%
R1053 2 10K 0402 5%

HDA_BITCLK_CODEC

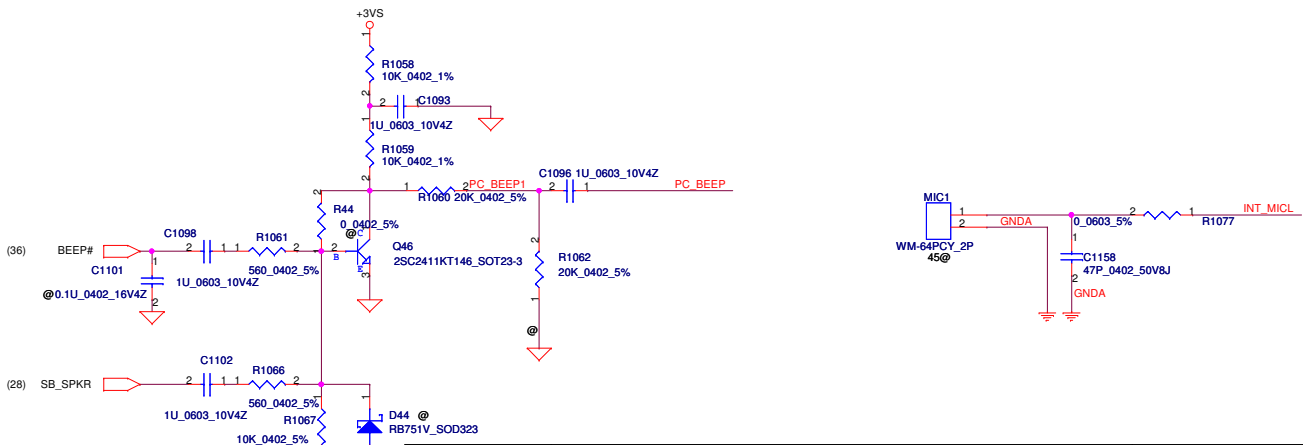
R1056 47 0402 5%
C1089 33P 0402 50V8K

0216_Change value.

DIGITAL ANALOG



Place these C and R around AGND and DGND, then choose the one which is close to Codec to populate

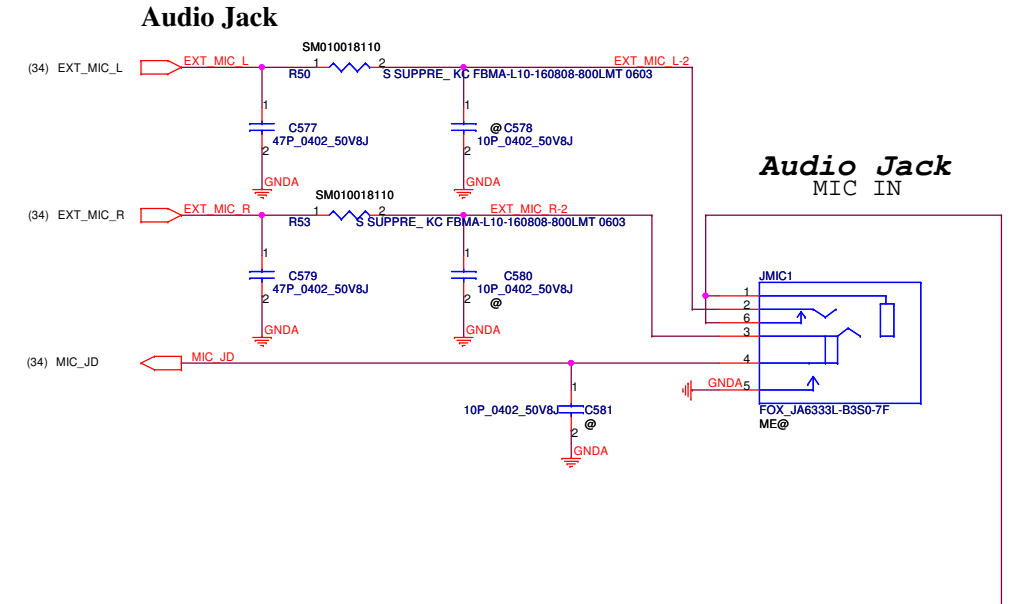
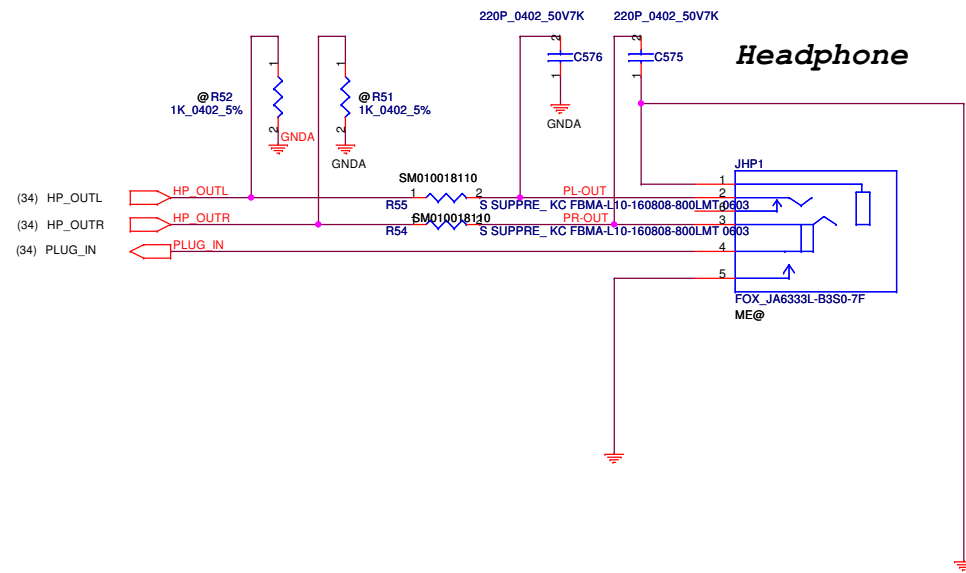
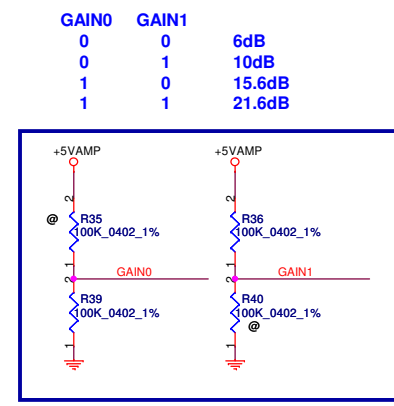
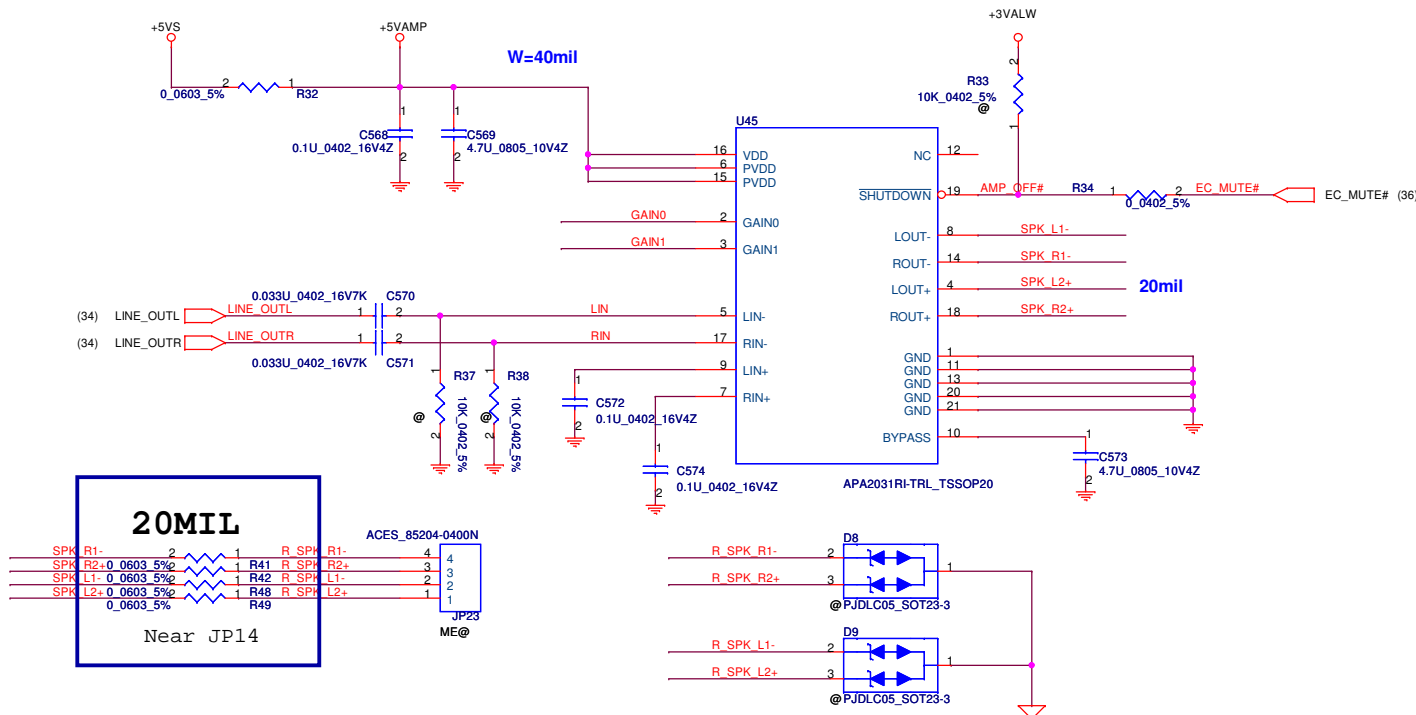


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Issued Date	2007/10/15	Deciphered Date
		2008/10/15

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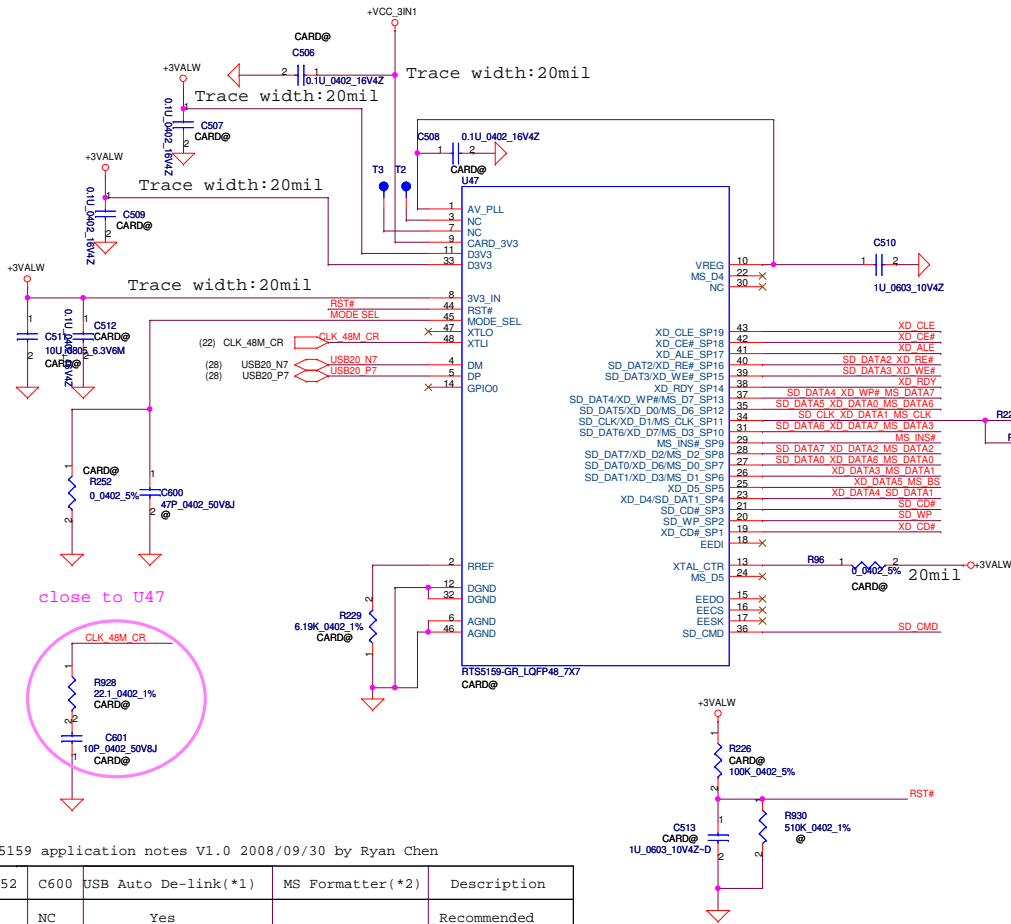
Title		
Compal Electronics, Inc.		
CX20561-AMOM Codec		
Size	Document Number	Rev
Custom	KIWA5/6 LA-5081P	0.4
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Speaker Connector

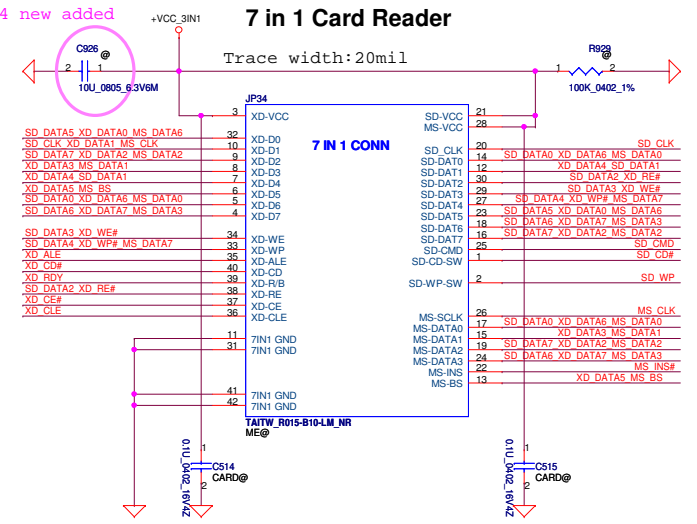


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Issued Date	2008/03/25	Deciphered Date	2008/04/	Title	AMP, Audio speaker CONN
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Card reader(XD/SD/MMC/MS/MS-Pro HD SD)



11/04 new added



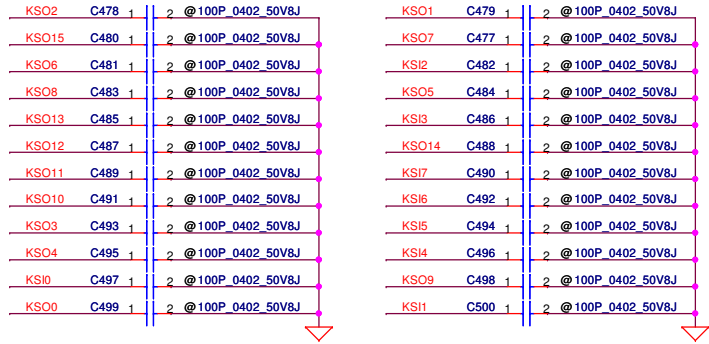
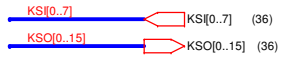
RTS5159 application notes V1.0 2008/09/30 by Ryan Chen

R252	C600	USB Auto De-link(*1)	MS Formatter(*2)	Description
0	NC	Yes		Recommended
NC	47pF	Yes	Yes	
NC	NC			Compatible with RTS5158E
NC	680pF	Yes		LED ON (*3)
10K	180pF			LED ON (*3)
10K	680pF		Yes	

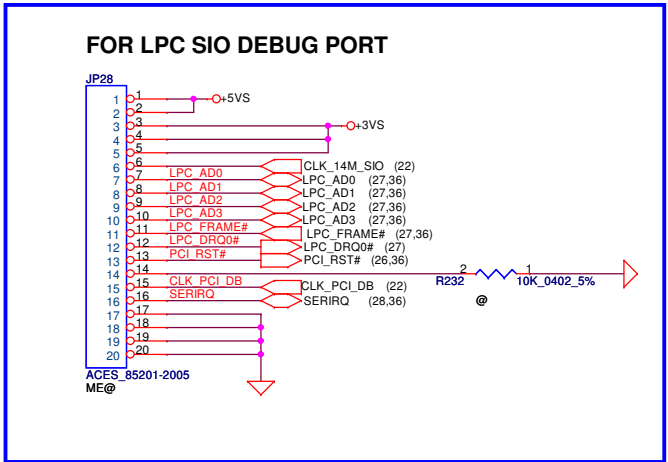
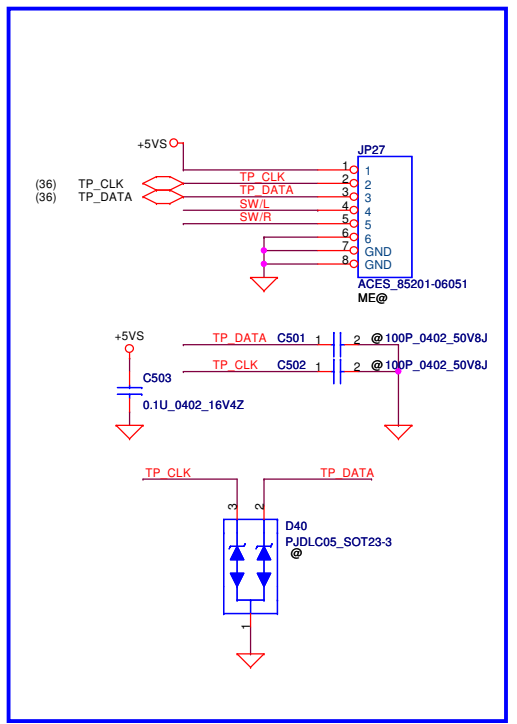
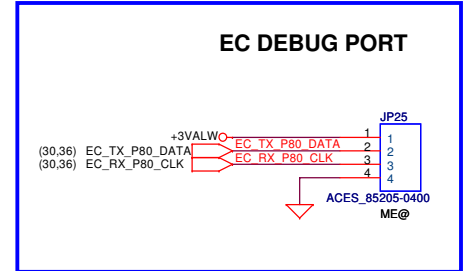
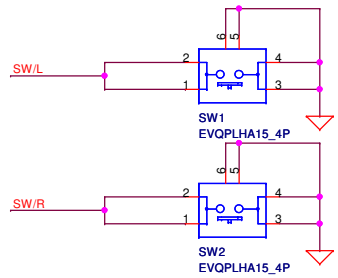
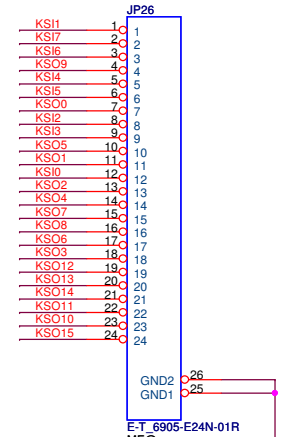
Security Classification	Compal Secret Data		Title		Compal Electronics, Inc.	
Issued Date	2008/06/10	Deciphered Date	2008/12/31	USB_CR board		
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Source:SP010001E00
 2nd source:SP010001F00
 30 pin

INT_KBD Conn.

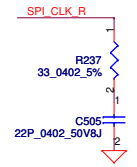
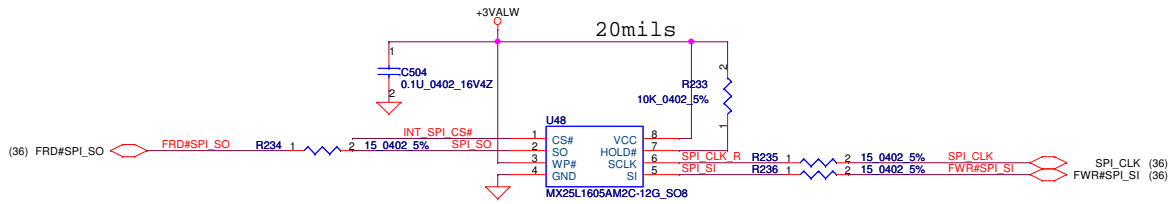


CONN PIN define need double check

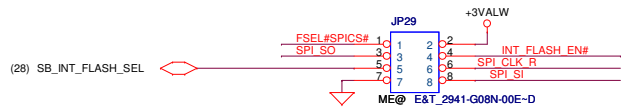
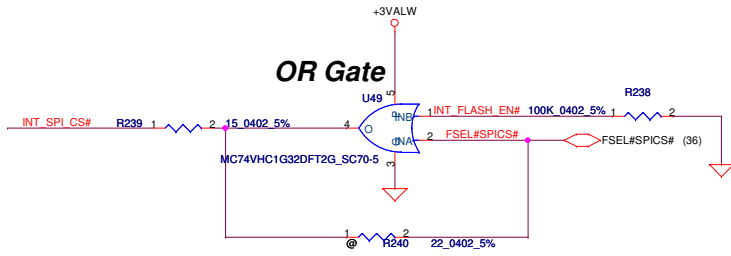


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Size	Document Number	Date		Rev	0.4
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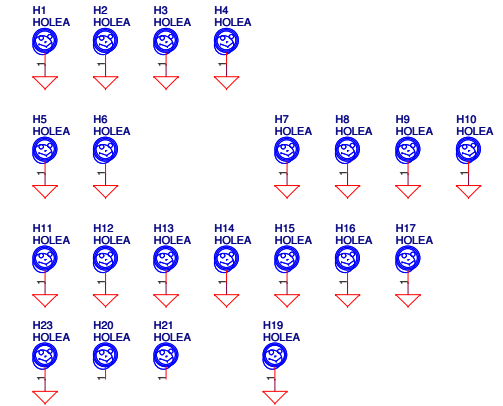
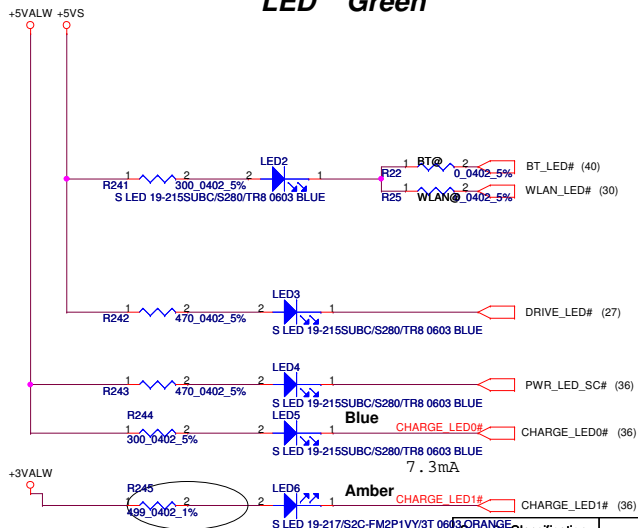
FOR EC 16M SPI ROM



INPUT		OUTPUT
A	B	Y
L	L	L
H	L	H
L	H	H
H	H	H



LED Green

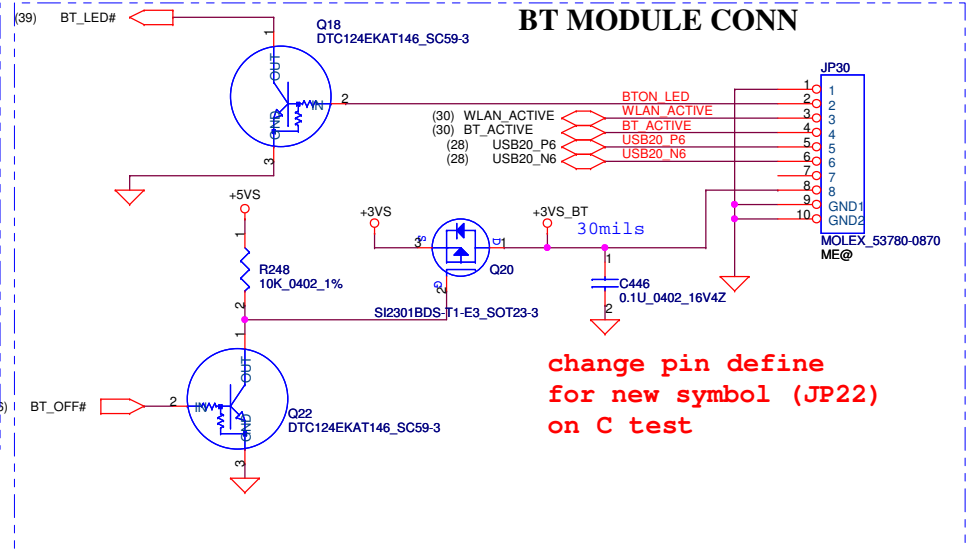
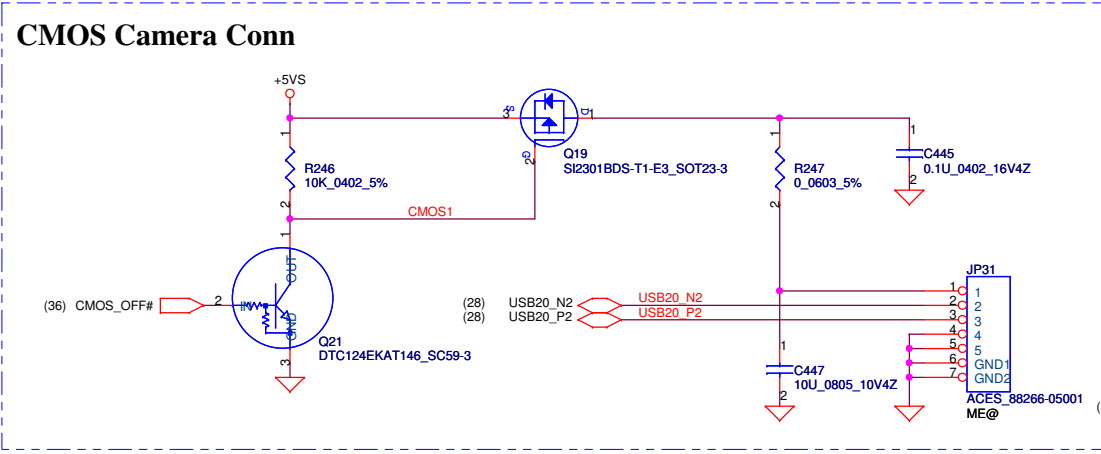
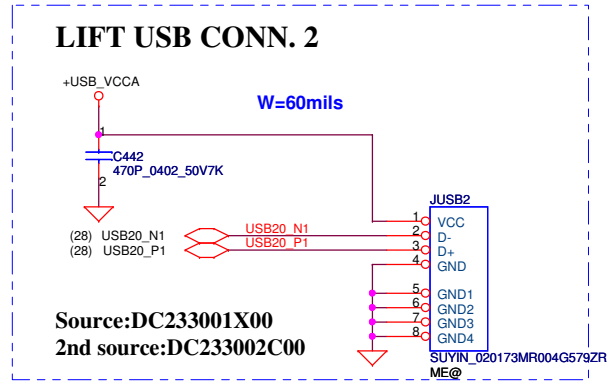
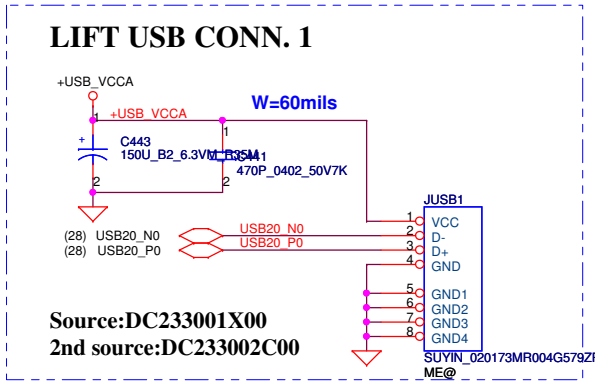
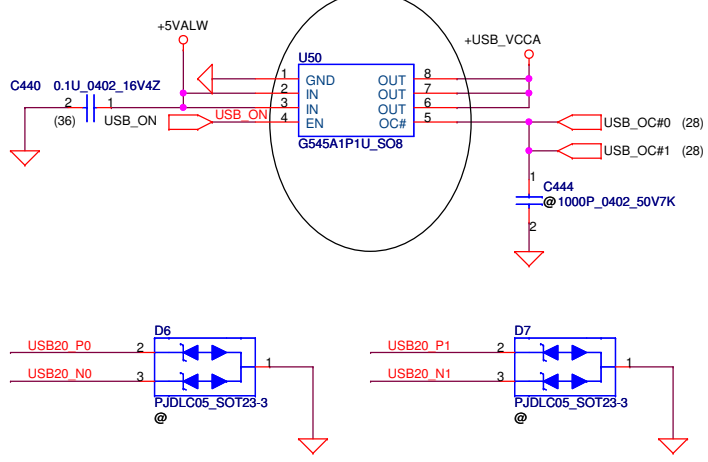


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Document Number						Rev	
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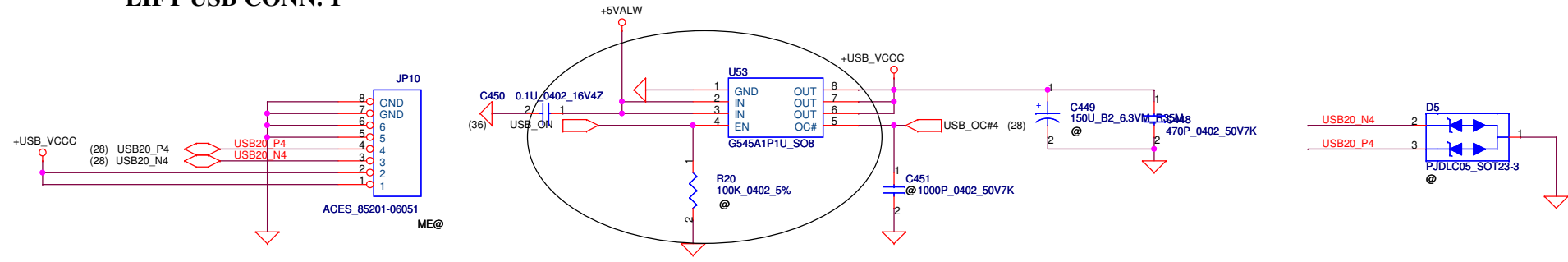
Compal Electronics, Inc.

LED/EC SPI ROM

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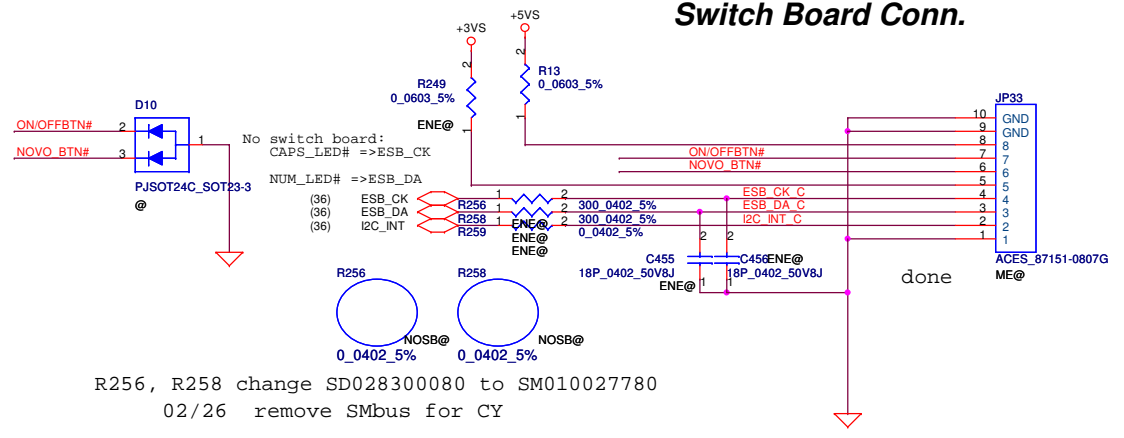


LIFT USB CONN. 1



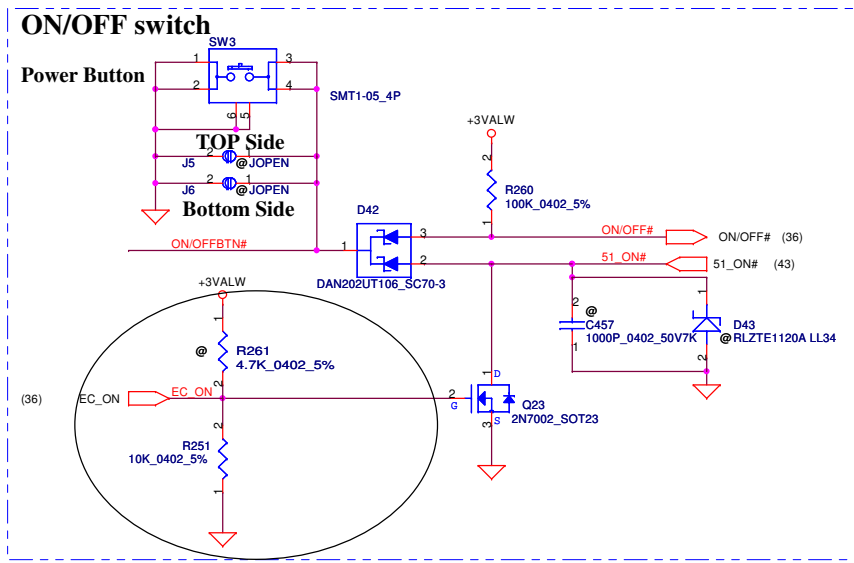
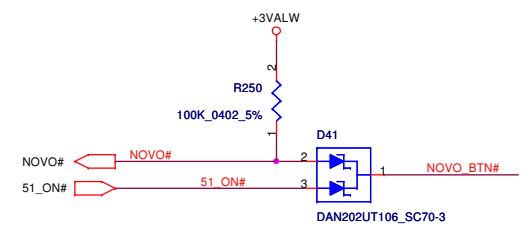
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Switch Board Conn.

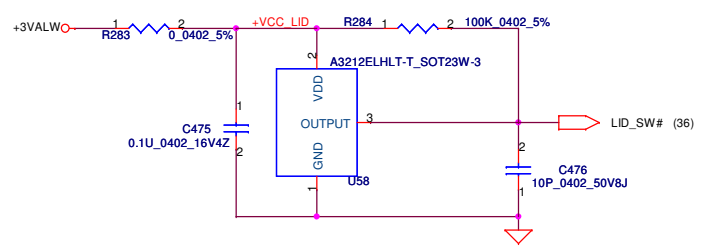


R256, R258 change SD028300080 to SM010027780
02/26 remove SMBus for CY

Kill Switch

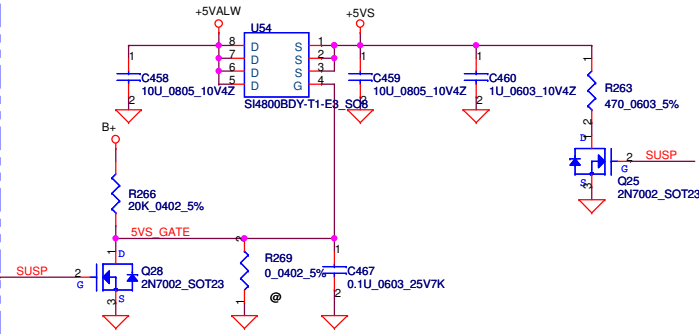


Lid Switch

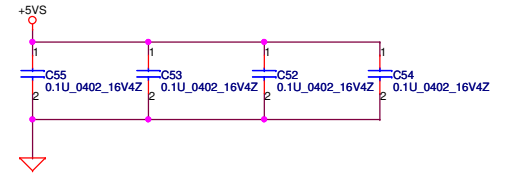
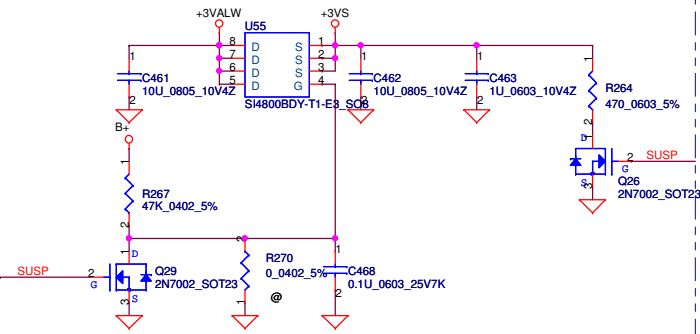


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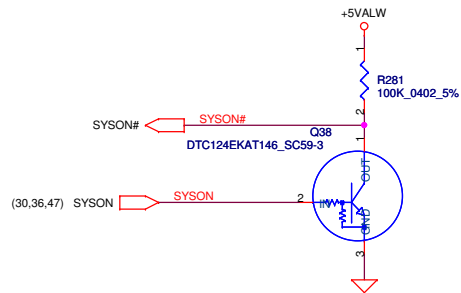
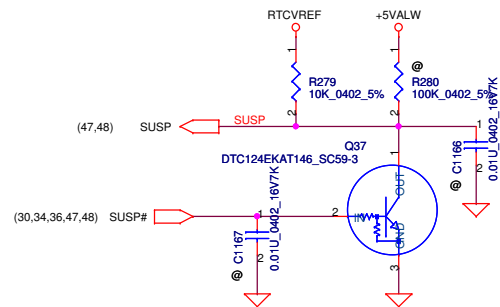
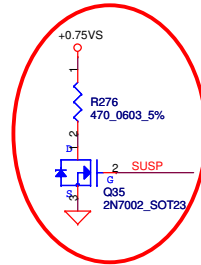
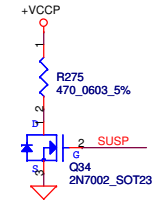
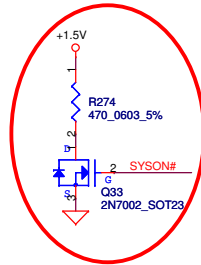
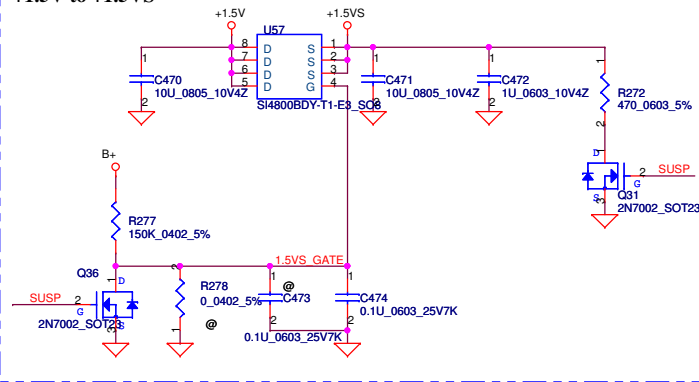
+5VALW TO +5VS



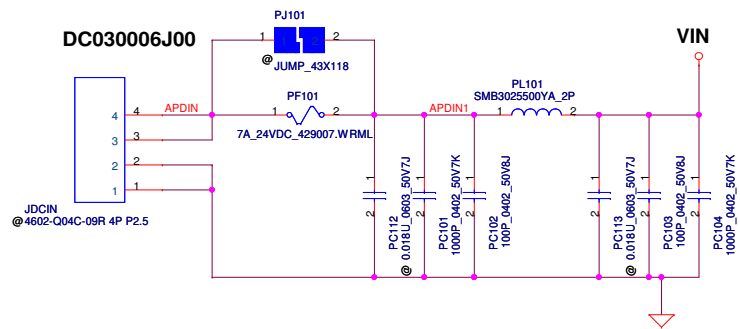
+3VALW TO +3VS



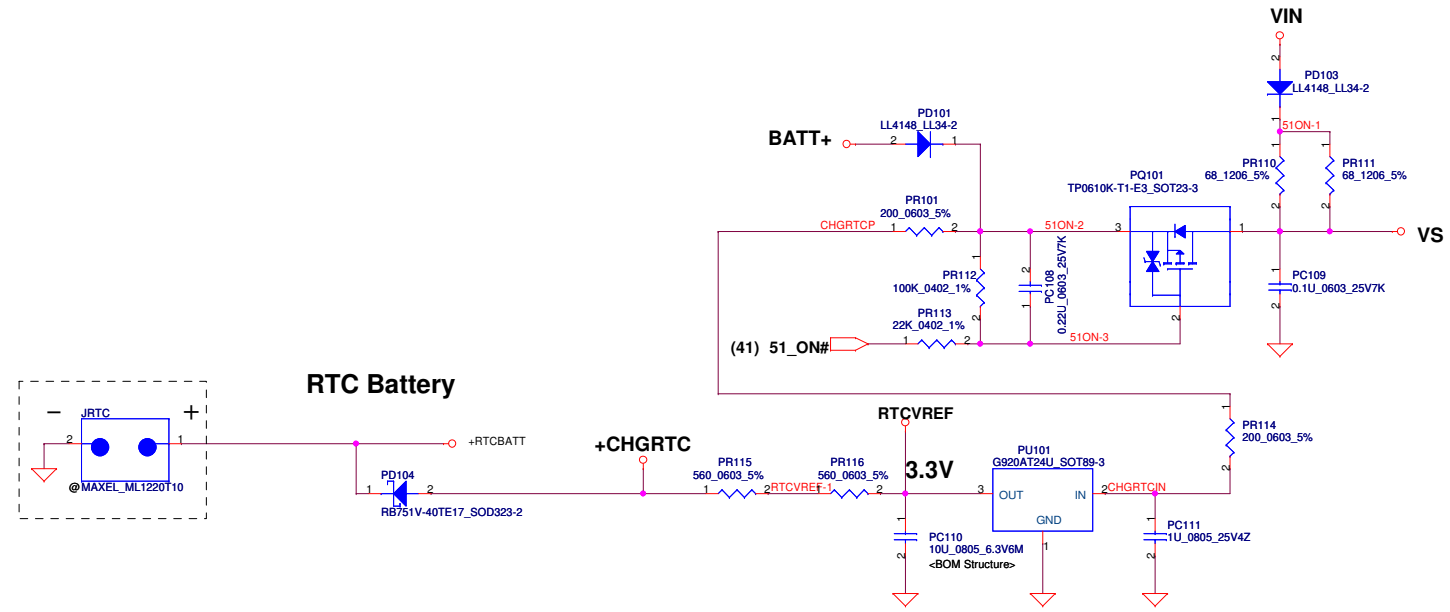
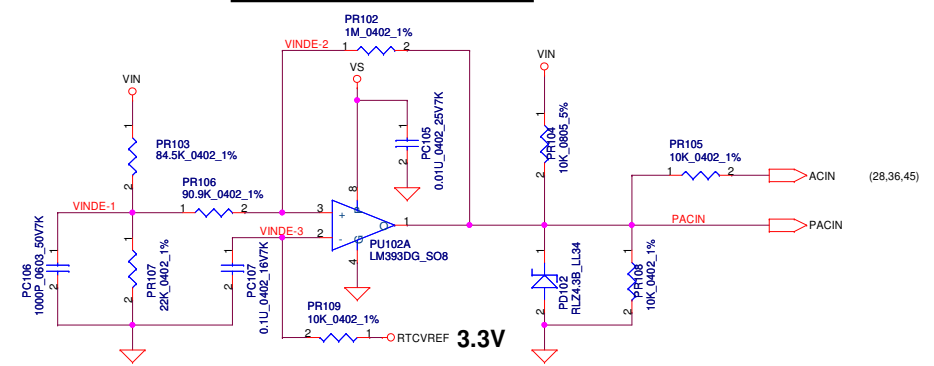
+1.5V to +1.5VS



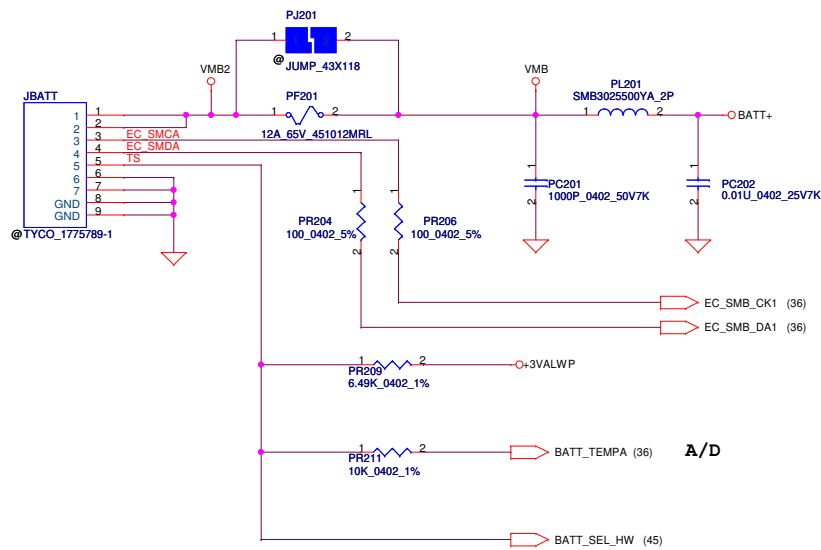
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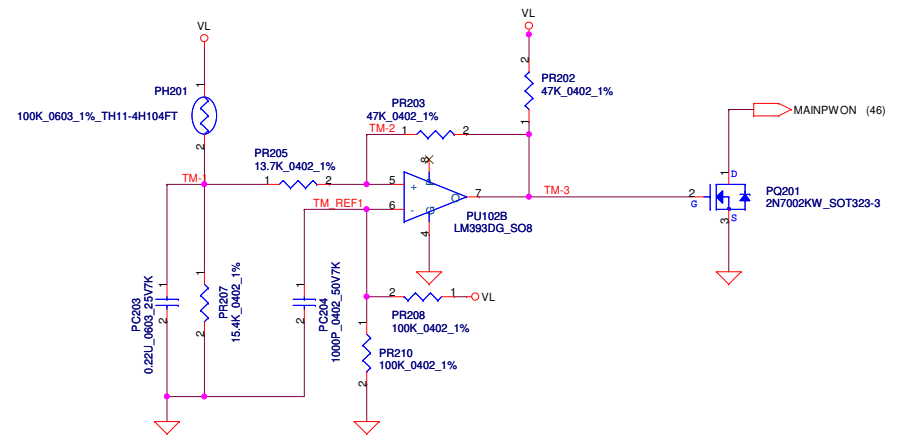
Vin Detector		
High	17.944	17.470
Low	16.242	15.808



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PH1 under CPU bottom side :
 CPU thermal protection at 92 degree C
 Recovery at 56 degree C



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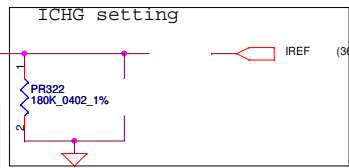
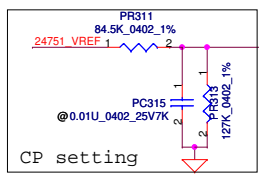
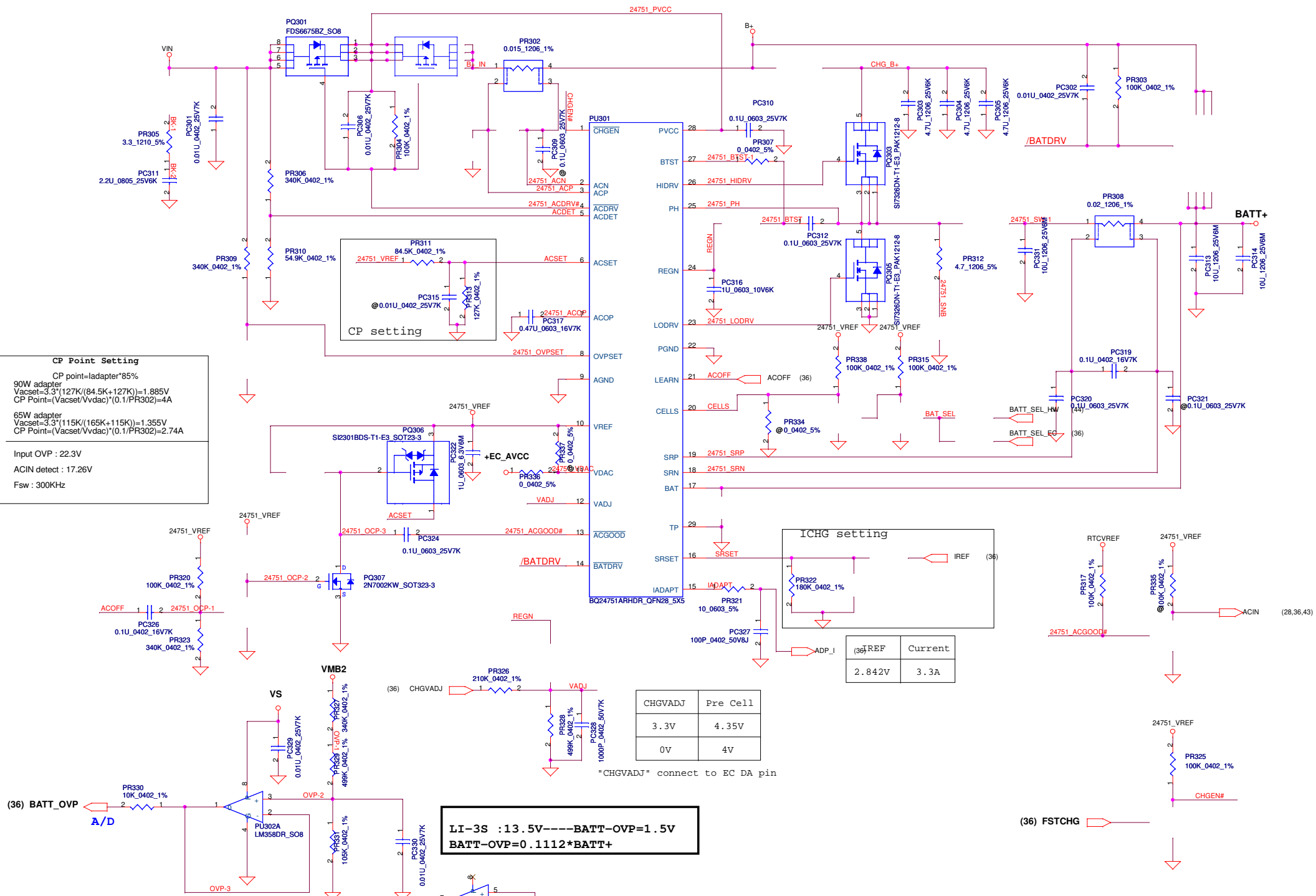
CP Point Setting

CP point=ladapler*85%

90W adapter
 $V_{acset}=3.3*(127K/(84.5K+127K))=1.885V$
 $CP\ Point=(V_{acset}/V_{vdac})*(0.1/PR302)=4A$

65W adapter
 $V_{acset}=3.3*(115K/(165K+115K))=1.355V$
 $CP\ Point=(V_{acset}/V_{vdac})*(0.1/PR302)=2.74A$

Input OVP : 22.3V
 ACIN detect : 17.26V
 Fsw : 300KHz



CHGVADJ	Pre Cell
3.3V	4.35V
0V	4V

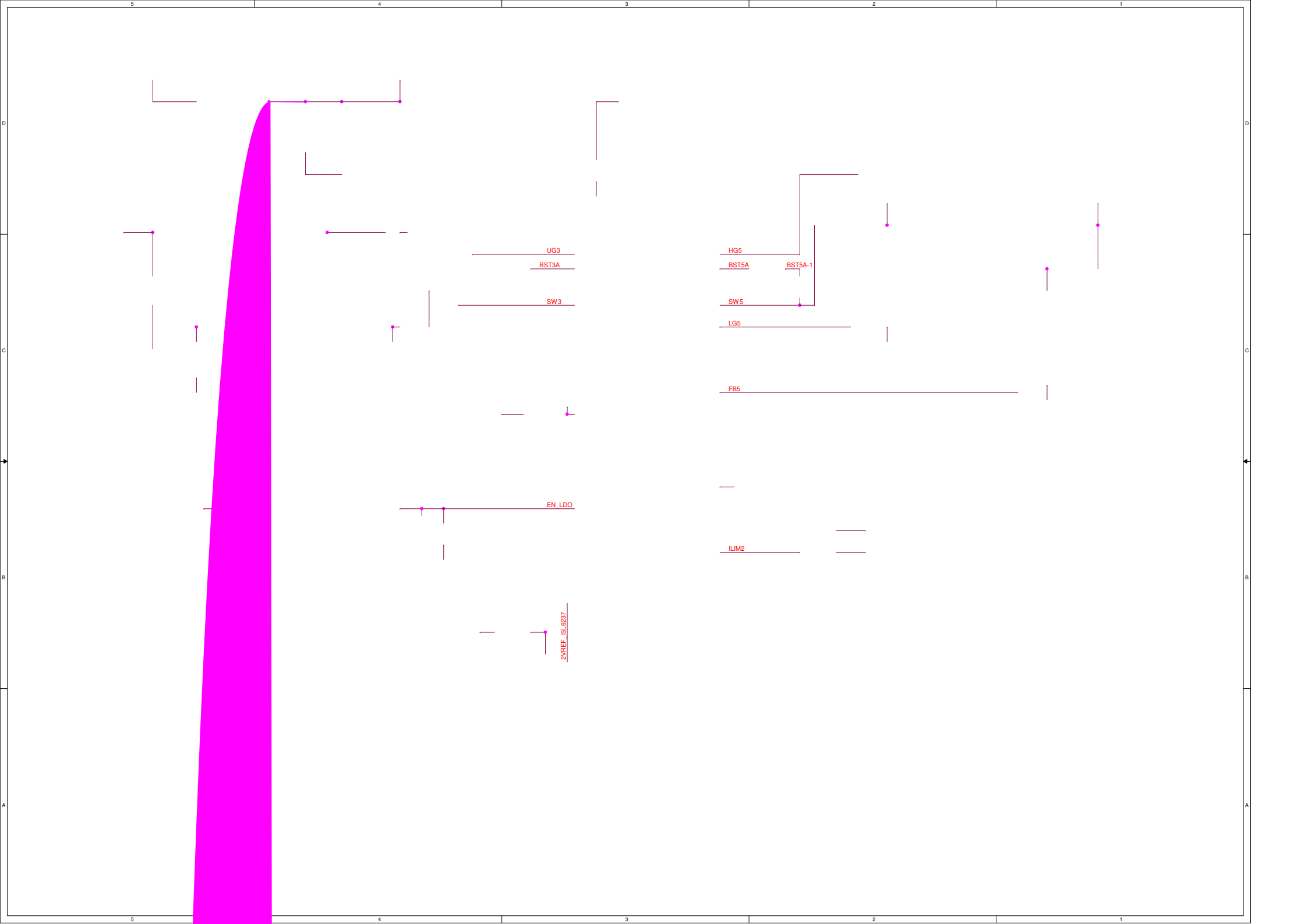
"CHGVADJ" connect to EC DA pin

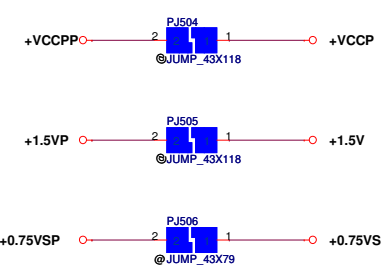
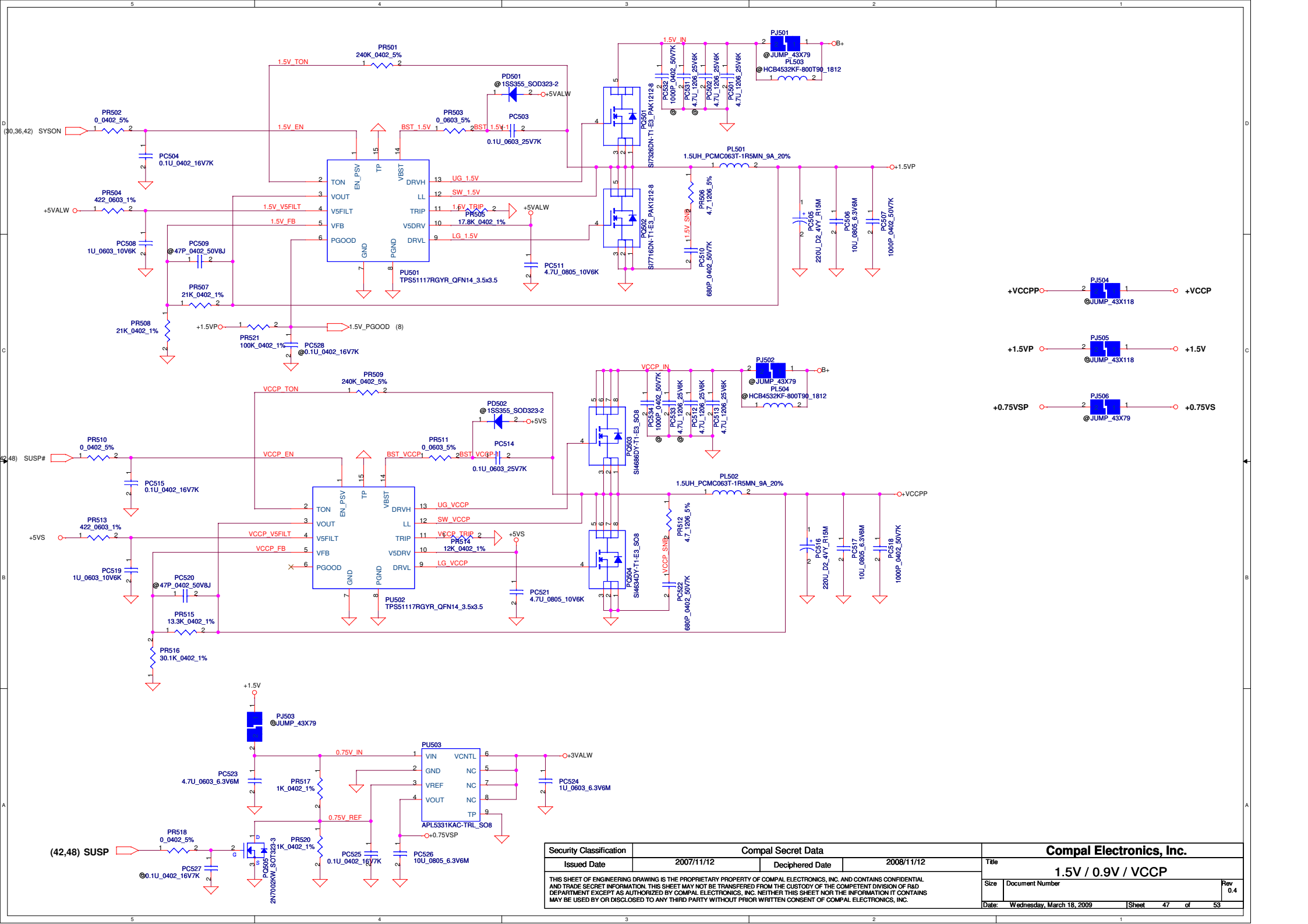
LI-3S : 13.5V----BATT-OVP=1.5V
BATT-OVP=0.1112*BATT+

(36) IREF	Current
2.842V	3.3A

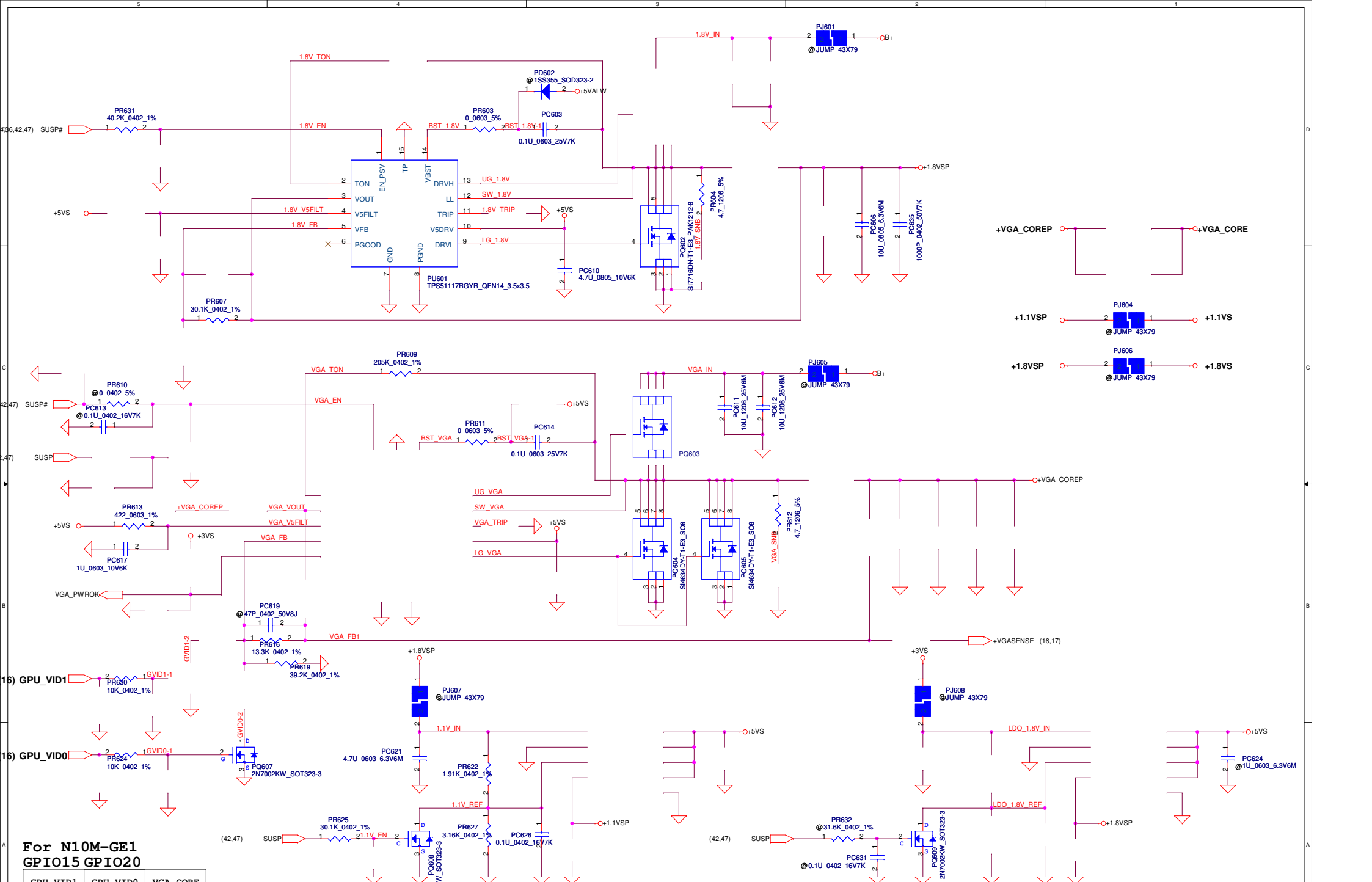
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CHARGER		
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For N10M-GE1
GPIO15 GPIO20

GPU_VID1	GPU_VID0	VGA_CORE
0	0	0.95V
0	1	1.0V
1	1	1.2V

For N10M-GS
 PR616=>9.09K
 PR622=>2.21K
 PR629, PR630, PC625, PQ606, PR620=>un-pop
 PR621, PR624, PC632, PQ607, PR618=>un-pop

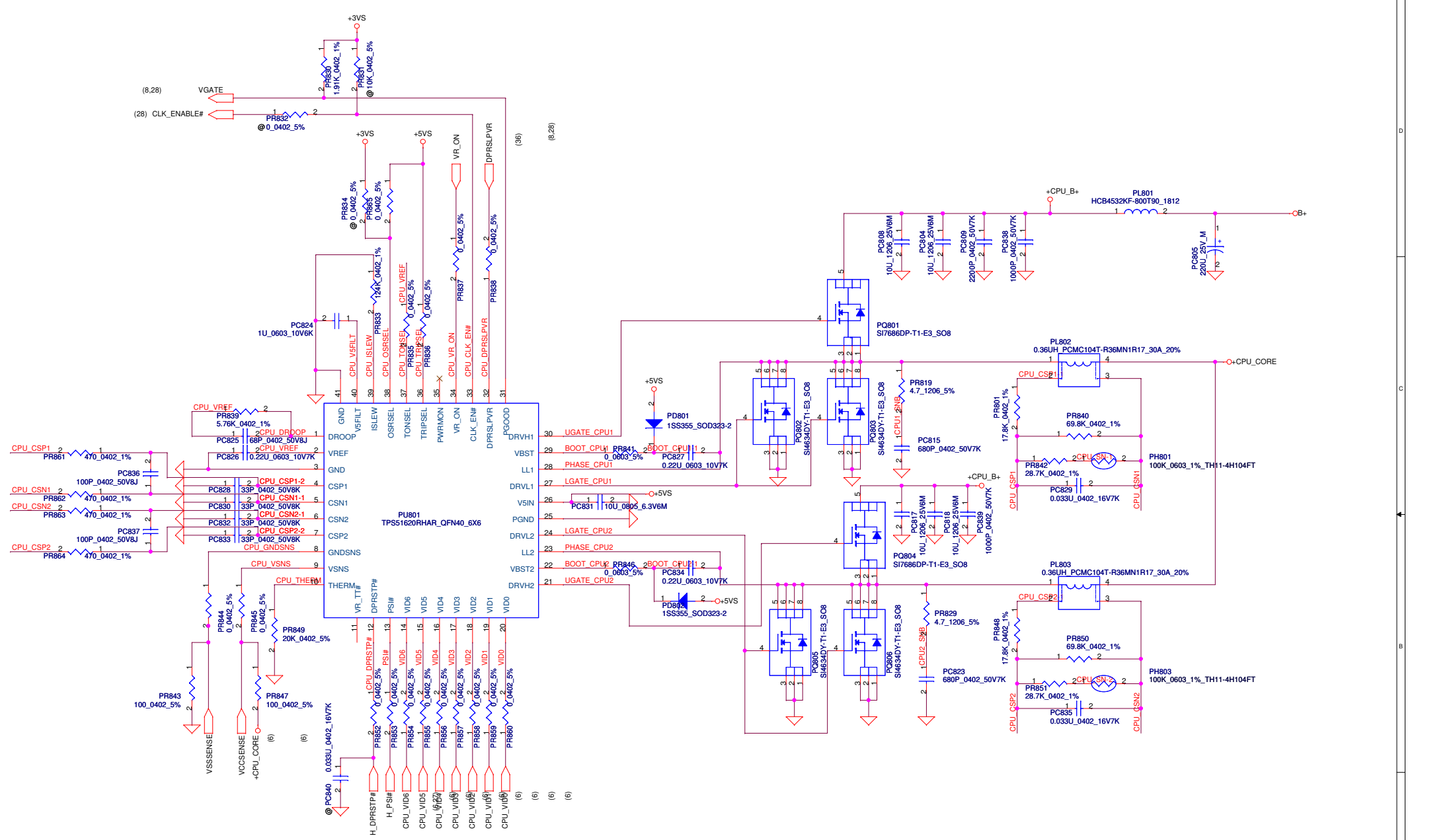
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Issued Date	2007/11/12	Deciphered Date
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Title
VGA_CORE/1.8V/1.1VS

Size	Document Number	Rev
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Version change list (P.I.R. List)

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1		modify battery select circuit			add PQ312 and PR338	2009.01.14	
2		change +1.1VS voltage to +1.05V			change P622 to 2.21K only for N10M-GS(40nm)		
3							
4							
5							
6							
8							
9							
10							
11							
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14							
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1	1/15	39	modify H19 hold size, and change the H5、H6 and H19 hold type.
		42	add 4 CAPs C52, C53, C54 and C55 for EMI.
		35	change C572 and C574 footprint from 0603 to 0402.
		34	add R44 for BEEP# test
2	1/16	30	Remove one Mini-PCIE function! (Connector Side) Remove component is JP18, R363, R364, R367, R369, R371, R373, R375, R377, R378, R379, R380 and R383 Remove 3G function! Remove component is JP14, D12, R6, C6, C7, R7 and D13
		28	Remove one Mini-PCIE function!(SB side) Remove component is C884 and C885

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Title			
HW PIR			
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NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
1	3/16	06	add R1089, C1162 and H_DPRSTP#_R	
			add C1163, C1164, and C1165 for EMC request.	
		08	change H_DPRSTP# to H_DPRSTP#_R	
		19	P19 add Bom structure 40nm@ GPU and 55nm@ GPU	
			R999 change to 24.9K	
		23	add R1095 pull high	
		35	swap HP_OUTL and HP_OUTR	
		36	add R1090, R1091, R1092, R1093	
2	3/16	41	CAPS_LED#, NUJM_LED#, ESB_CK_R, and ESB_DA_R	
			add R256, R258 Bom configuration	
			Remove CY SMBus	
		42	add C1166, C1167 for EMC request.	
		28	change PCIE Port1 to Port3	
		30	change PCIE Port1 to Port3	

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HW PIR			
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