

# Compal Confidential

## JALA0 M/B Schematics Document

Intel Penryn Processor with Cantiga + DDRII + ICH9M

(With Ati & nVidia MXM/B)

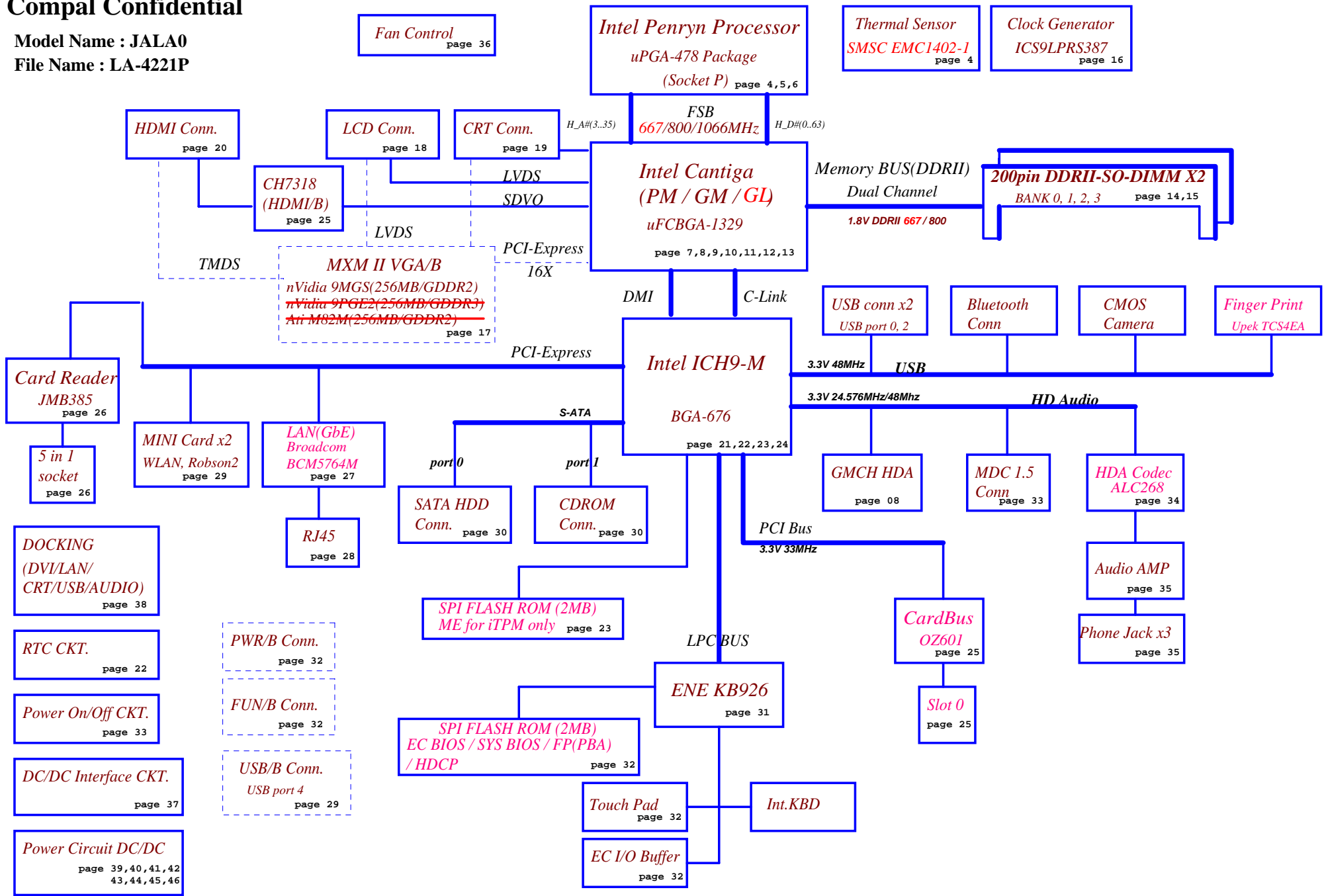
2008-04-18

REV:1.0

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHEMATIC MB A4221	
<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&amp;D DEPARTMENT WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.</small>				Document Number	401552	Rev C
				Date	Friday, May 16, 2008	Sheet 1 of 50

# Compal Confidential

Model Name : JALAO  
File Name : LA-4221P



Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title
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 REPRODUCED, COPIED, TRANSMITTED, OR DISCLOSED TO ANY OTHER PERSON OR ENTITY WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number
				401552
				Rev C
				Date: Friday, May 16, 2008
				Sheet 2 of 50

www.taolopix.vn

## 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
+1.5VS	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*
+RTCVCC	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
Cardbus OZ601	AD16	0	PIRQE

## EC SM Bus1 address

Device	Address
Smart Battery	0001 011X b
EEPROM(24C16/02)	1010 000X b
GPU(MXM/B)	1001 111X b

## EC SM Bus2 address

Device	Address
ADT7421	1001 100X b
(LAN BCM5764M)	Reserved

## ICH9M SM Bus address

Device	Address
Clock Generator (ICS9LPRS387)	1101 001Xb
DDR DIMM0	1001 000Xb
DDR DIMM1	1001 010Xb
LAN BCM5764M	Reserved
(MINI CARD_WL_Robson)	Reserved

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 V
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V
2	18K +/- 5%	0.436 V	0.503 V	0.538 V
3	33K +/- 5%	0.712 V	0.819 V	0.875 V
4	56K +/- 5%	1.036 V	1.185 V	1.264 V
5	100K +/- 5%	1.453 V	1.650 V	1.759 V
6	200K +/- 5%	1.935 V	2.200 V	2.341 V
7	NC	2.500 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	

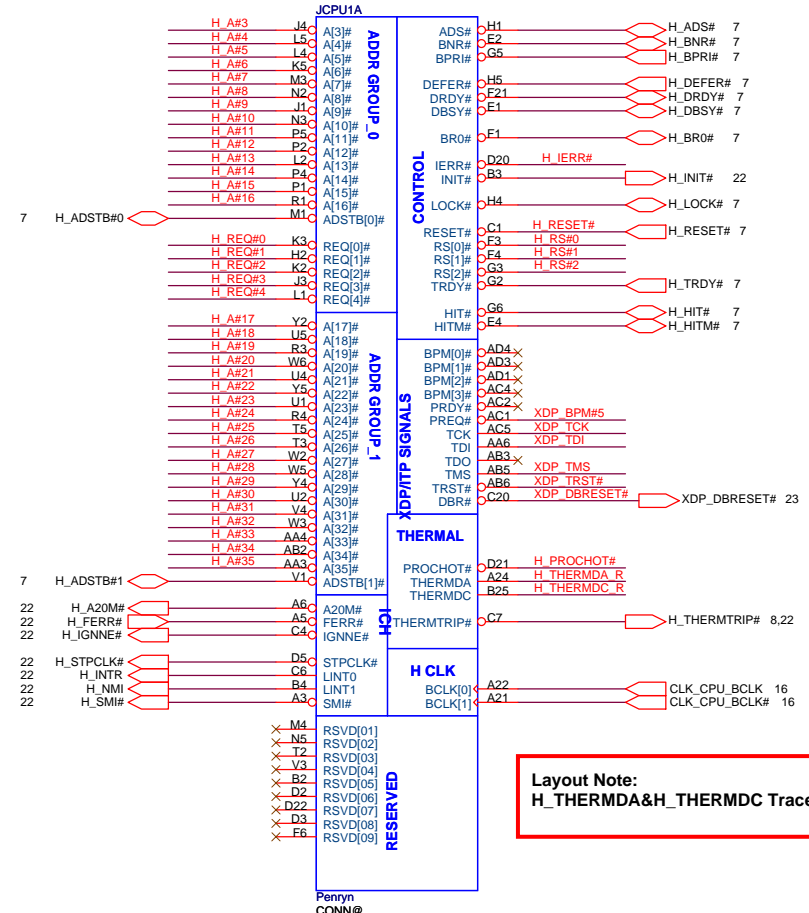
## BTO Option Table

BTO Item	BOM Structure
Discrete_H	PM@
UMA	GM@
UMA_H	UMAGM@
UMA_L	UMAGL@
Kinabalu_H	MAIN@
Kinabalu_L	VALUE@
RTC Batt	45@
ICH9M BASE	ICH9MB@
ICH9M ENHANCE	ICH9ME@
SB ROM(2MB)	SPI2MB@
SB ROM(4MB)	SPI4MB@

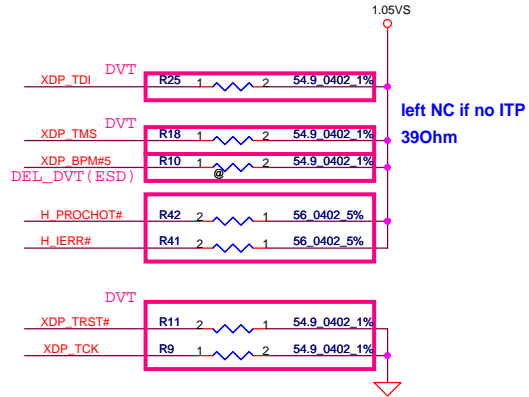
Kinabalu\_L : UMA(GL) & w/o Dock & w/o Mini card 2 & w/o iTPM

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHEMATIC MB A4221	
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 REPRODUCED, COPIED, TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT OR REPT. TO ANY OTHER DEPARTMENT OR TO ANY OTHER PARTY WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	401552	Rev C
Date	Friday, May 16, 2008	Sheet	3 of 50			

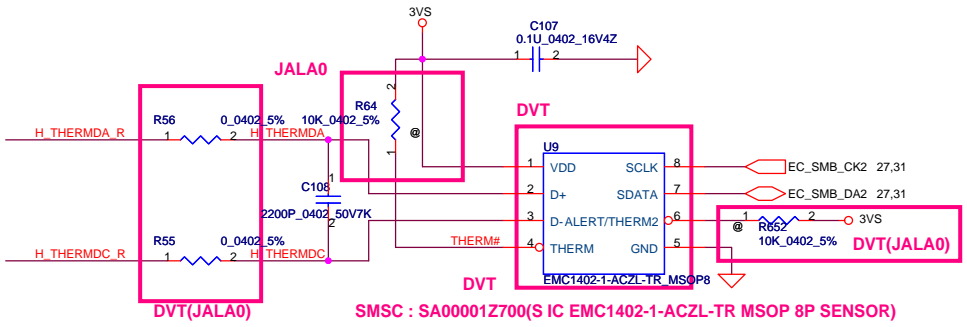
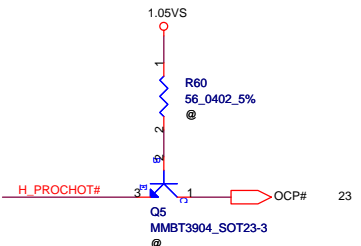
- 7 H\_A#[3..35] H\_A#[3..35]
- 7 H\_REQ#[0..4] H\_REQ#[0..4]
- 7 H\_RS#[0..2] H\_RS#[0..2]



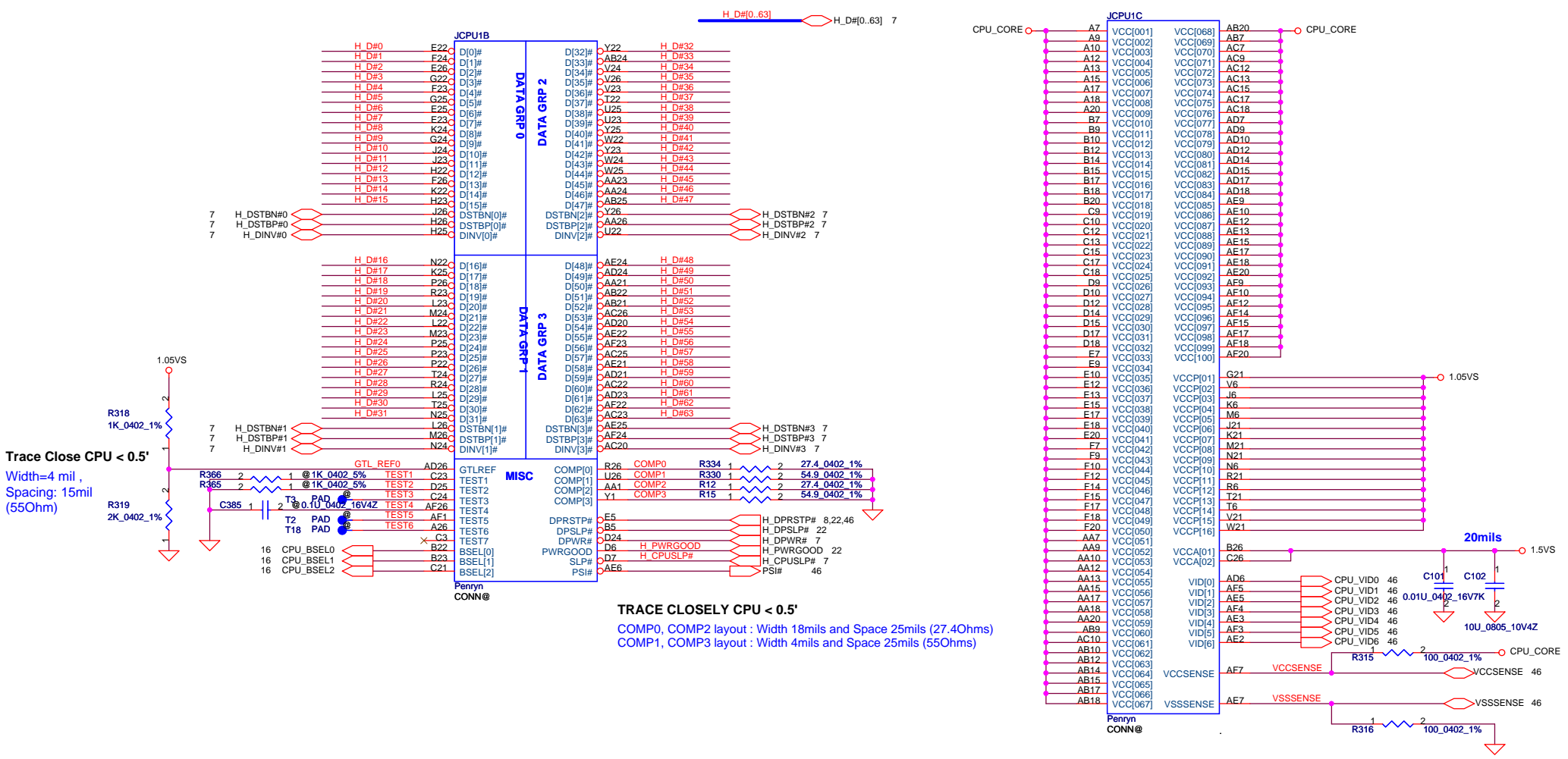
**Layout Note:**  
H\_THERMDA&H\_THERMDC Trace / Space = 10 / 10 mil



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



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	
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.				Document Number	Rev
				401552	C
				Date: Friday, May 16, 2008	Sheet 4 of 50

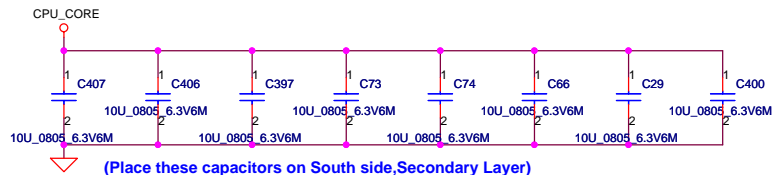
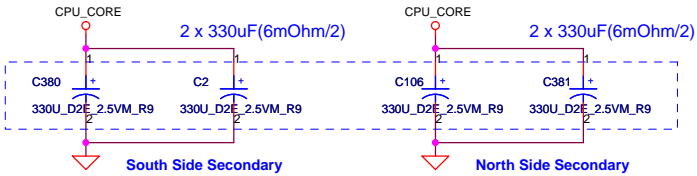


Security Classification		Compal Secret Data		Title	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	SCHEMATIC MB A4221	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED 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.					
Document Number	401552	Date	Friday, May 16, 2008	Sheet	5 of 50

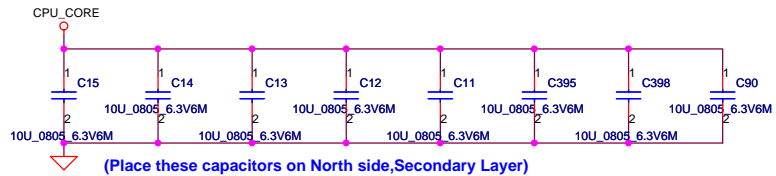
www.taibotopix.vn

JCPU1D		
A4	VSSJ001	VSSJ082
A8	VSSJ002	VSSJ083
A11	VSSJ003	VSSJ084
A14	VSSJ004	VSSJ085
A16	VSSJ005	VSSJ086
A19	VSSJ006	VSSJ087
A23	VSSJ007	VSSJ088
AF2	VSSJ008	VSSJ089
B6	VSSJ009	VSSJ090
B8	VSSJ010	VSSJ091
B11	VSSJ011	VSSJ092
B13	VSSJ012	VSSJ093
B16	VSSJ013	VSSJ094
B19	VSSJ014	VSSJ095
B21	VSSJ015	VSSJ096
B24	VSSJ016	VSSJ097
C5	VSSJ017	VSSJ098
C8	VSSJ018	VSSJ099
C11	VSSJ019	VSSJ100
C14	VSSJ020	VSSJ101
C16	VSSJ021	VSSJ102
C19	VSSJ022	VSSJ103
C2	VSSJ023	VSSJ104
C22	VSSJ024	VSSJ105
C25	VSSJ025	VSSJ106
D1	VSSJ026	VSSJ107
D4	VSSJ027	VSSJ108
D8	VSSJ028	VSSJ109
D11	VSSJ029	VSSJ110
D13	VSSJ030	VSSJ111
D16	VSSJ031	VSSJ112
D19	VSSJ032	VSSJ113
D23	VSSJ033	VSSJ114
D26	VSSJ034	VSSJ115
E3	VSSJ035	VSSJ116
E6	VSSJ036	VSSJ117
E8	VSSJ037	VSSJ118
E11	VSSJ038	VSSJ119
E14	VSSJ039	VSSJ120
E16	VSSJ040	VSSJ121
E19	VSSJ041	VSSJ122
E21	VSSJ042	VSSJ123
E24	VSSJ043	VSSJ124
F5	VSSJ044	VSSJ125
F8	VSSJ045	VSSJ126
F11	VSSJ046	VSSJ127
F13	VSSJ047	VSSJ128
F16	VSSJ048	VSSJ129
F19	VSSJ049	VSSJ130
F2	VSSJ050	VSSJ131
F22	VSSJ051	VSSJ132
F25	VSSJ052	VSSJ133
G4	VSSJ053	VSSJ134
G1	VSSJ054	VSSJ135
G23	VSSJ055	VSSJ136
G26	VSSJ056	VSSJ137
H3	VSSJ057	VSSJ138
H6	VSSJ058	VSSJ139
H21	VSSJ059	VSSJ140
H24	VSSJ060	VSSJ141
J2	VSSJ061	VSSJ142
J5	VSSJ062	VSSJ143
J22	VSSJ063	VSSJ144
J25	VSSJ064	VSSJ145
K1	VSSJ065	VSSJ146
K4	VSSJ066	VSSJ147
K23	VSSJ067	VSSJ148
K26	VSSJ068	VSSJ149
L3	VSSJ069	VSSJ150
L6	VSSJ070	VSSJ151
L21	VSSJ071	VSSJ152
L24	VSSJ072	VSSJ153
M2	VSSJ073	VSSJ154
M5	VSSJ074	VSSJ155
M22	VSSJ075	VSSJ156
M25	VSSJ076	VSSJ157
N1	VSSJ077	VSSJ158
N4	VSSJ078	VSSJ159
N23	VSSJ079	VSSJ160
N26	VSSJ080	VSSJ161
P3	VSSJ081	VSSJ162
		VSSJ163

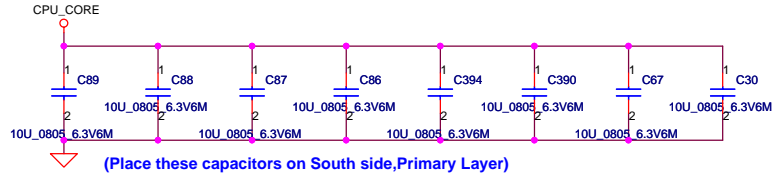
Penryn  
CONN@



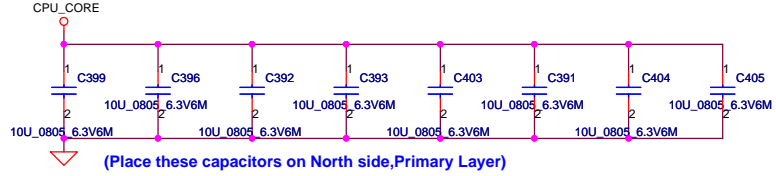
(Place these capacitors on South side, Secondary Layer)



(Place these capacitors on North side, Secondary Layer)

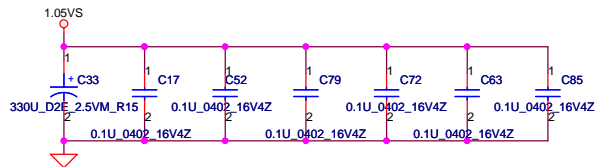


(Place these capacitors on South side, Primary Layer)

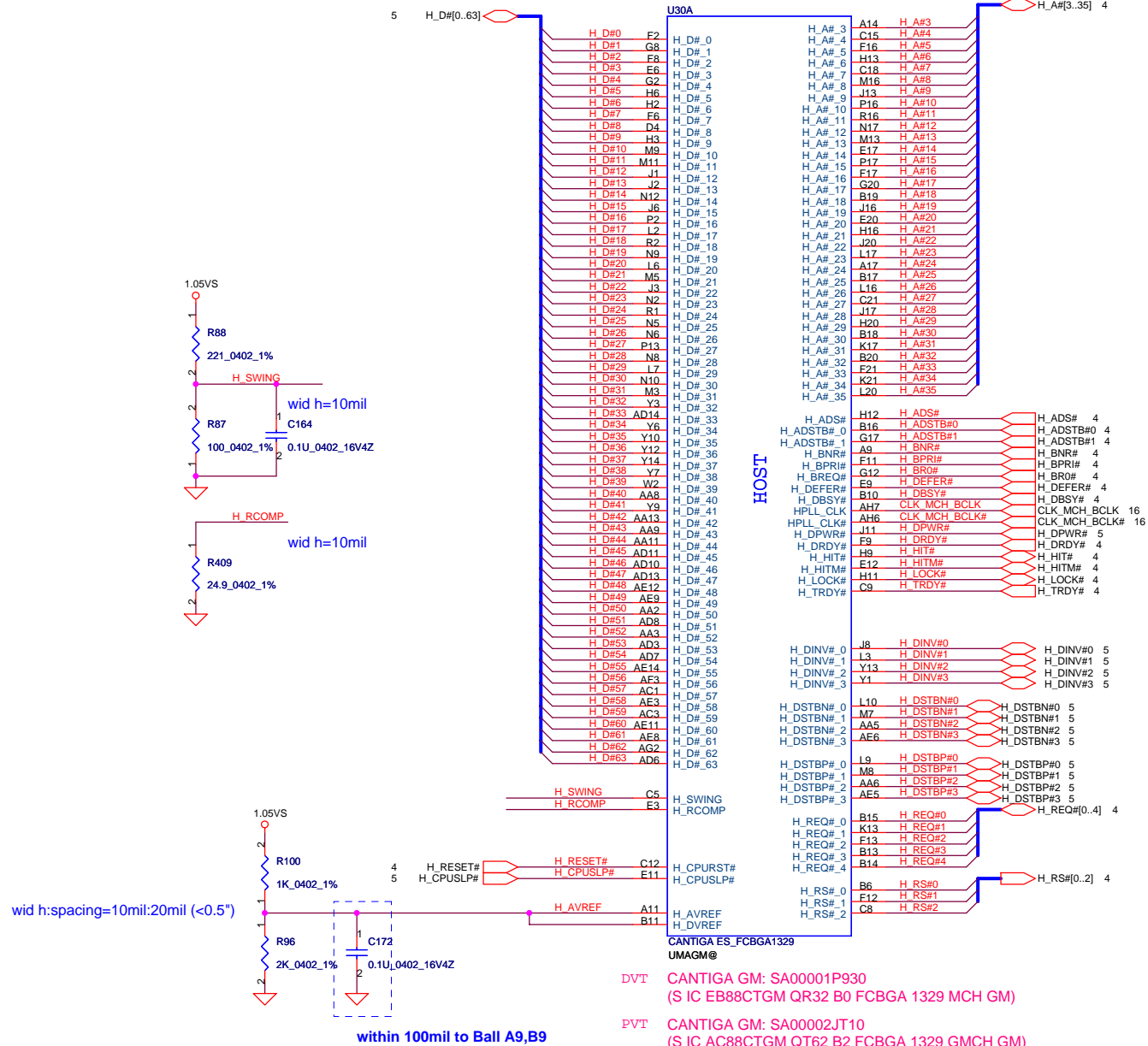


(Place these capacitors on North side, Primary Layer)

+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



www.taoptifix.vn



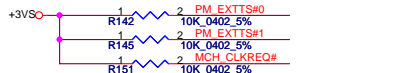
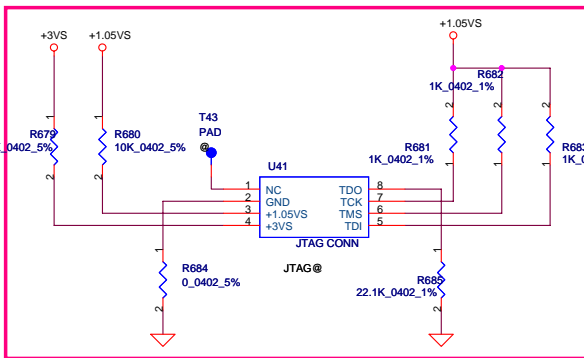
- DVT CANTIGA GM: SA00001P930  
(S IC EB88CTGM QR32 B0 FCBGA 1329 MCH GM)
- PVT CANTIGA GM: SA00002JT10  
(S IC AC88CTGM QT62 B2 FCBGA 1329 GMCH GM)
- PVT2 CANTIGA GM: SA00002JT50  
(S IC AC88CTGM QU36 B3 FCBGA 1329 GMCH GM)
- Pre-MP CANTIGA GM: SA00002JTB0  
(S IC AC82GM45 SLB94 B3 FCBGA1329 GM ABOI)

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	
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 TRANSMITTED 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.				Document Number	Rev
				401552	C
				Date: Friday, May 16, 2008	Sheet 7 of 50

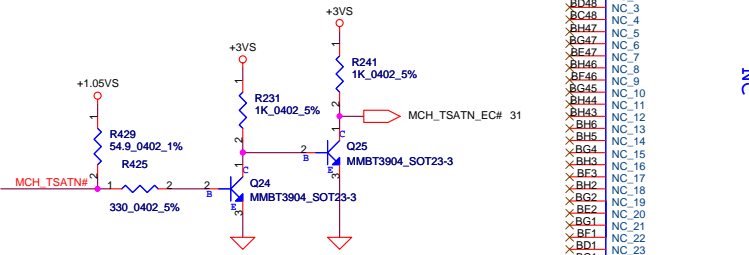
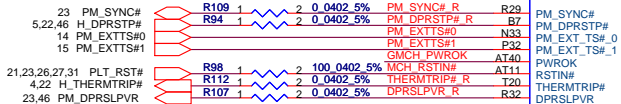
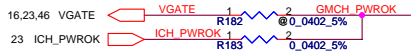


**PVT2 JALAO (Add Management Engine JTAG pins)**

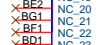
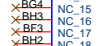
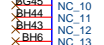
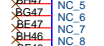
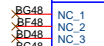
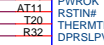
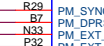
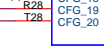
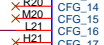
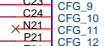
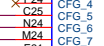
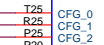
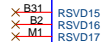
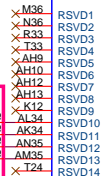
All RSVD balls on GMCH should be left No Connect.



Use VGATE for GMCH\_PWROK



**U30B**



**RSVD**

**DDR CLK / CONTROL / COMPENSATION**

**DDR CLK / CONTROL / COMPENSATION**

**CLK**

**CLK**

**DMI**

**DMI**

**GRAPHICS VID**

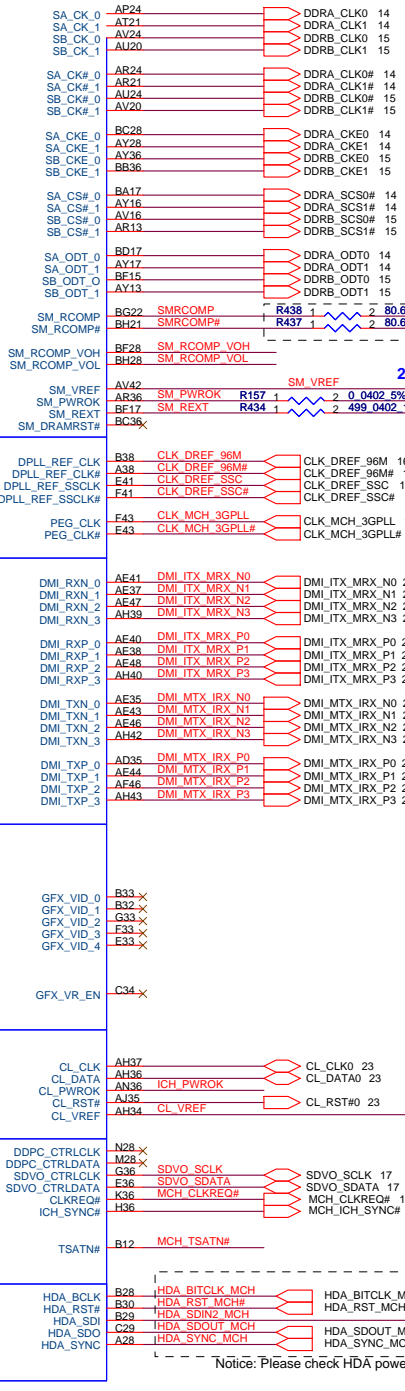
**PM**

**ME**

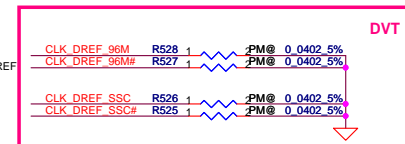
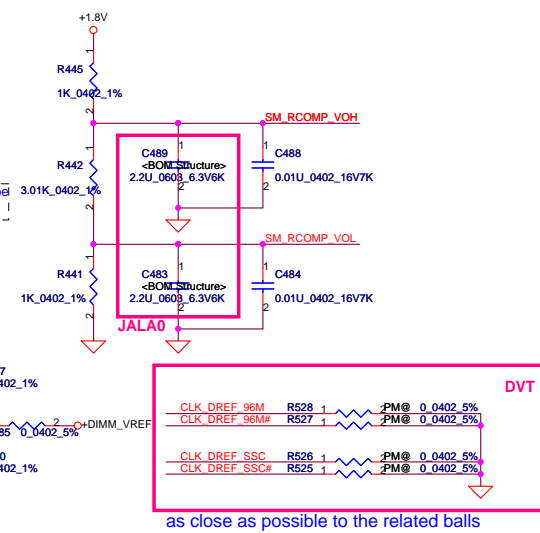
**MISC**

**HDA**

**HDA**



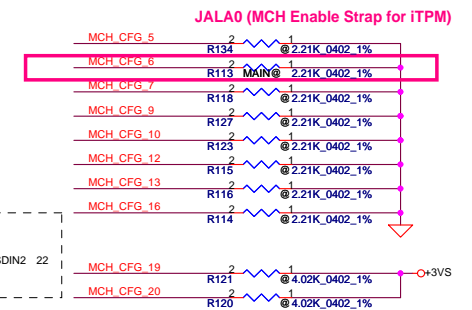
SM\_DRAMRST# would be needed for DDR3 only  
For Cantiga! 80 Ohm



as close as possible to the related balls

**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]	01 = All Z Mode Enabled 00 = Reserved 10 = XOR 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 Card Present PCIE disable * (Default) 1 = LFP Card Present PCIE enable
DDPC CTRLDATA	0 = Digital DisplayPort Disable * (Default) 1 = Digital DisplayPort Device Present



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

Pre-MP CANTIGA GM: SA00002JTBO (S IC AC82GM45 SLB94 B3 FCBGA1329 GM ABO) DVT CANTIGA GM: SA00001P930 (S IC EB88CTGM QR32 B0 FCBGA 1329 MCH GM) PVT2 CANTIGA GM: SA00002JT50 (S IC AC88CTGM QU36 B3 FCBGA 1329 GMCH GM)

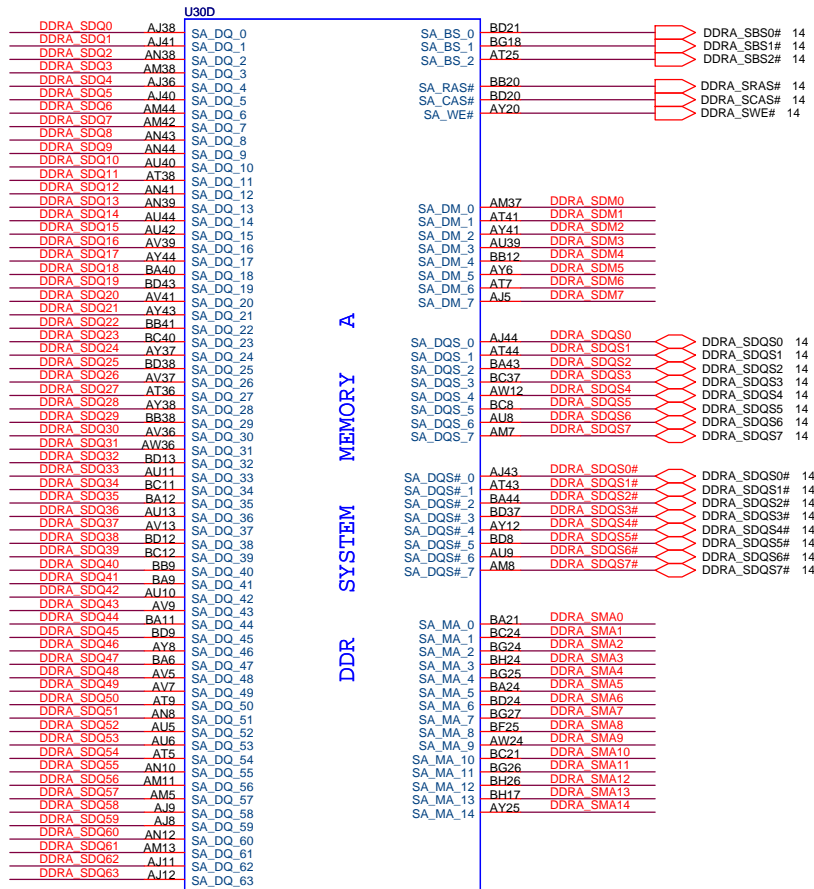
DVT CANTIGA GM: SA00001P930 (S IC EB88CTGM QR32 B0 FCBGA 1329 MCH GM) PVT2 CANTIGA GM: SA00002JT50 (S IC AC88CTGM QU36 B3 FCBGA 1329 GMCH GM)

Security Classification	Compal Secret Data	
Issued Date	2007/09/20	Deciphered Date
		2008/09/20

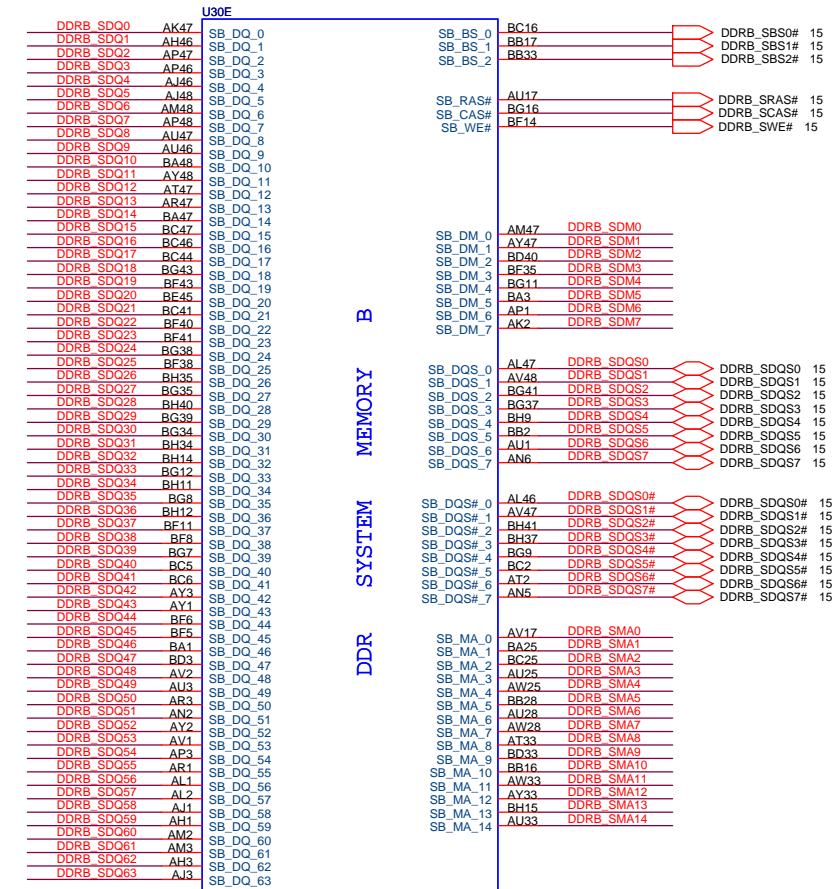
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC. ANY UNAUTHORIZED DISCLOSURE OF THIS INFORMATION TO ANY OTHER PARTY IS STRICTLY PROHIBITED.

Compal Electronics, Inc.		
<b>SCHEMATIC MB A4221</b>		
Document Number	401552	Rev C
Date	Friday, May 16, 2008	Sheet 8 of 50





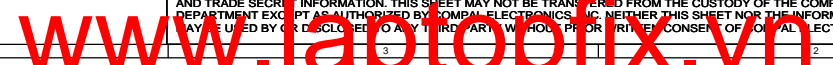
CANTIGA ES\_FCBGA1329  
UMAGM@



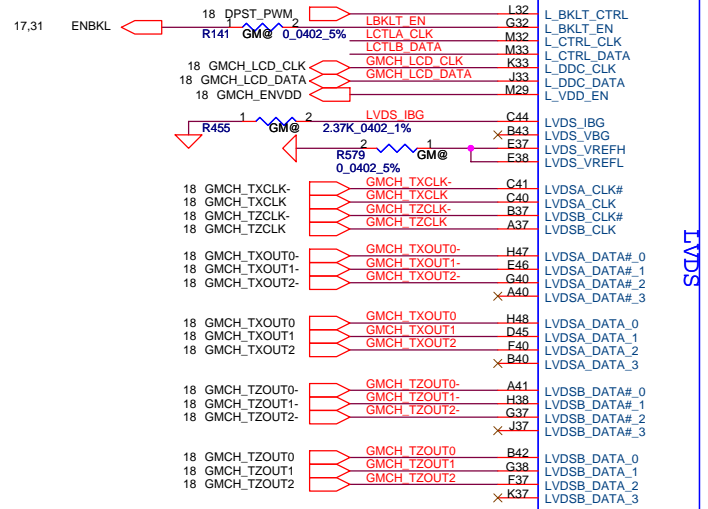
CANTIGA ES\_FCBGA1329  
UMAGM@

- DVT CANTIGA GM: SA00001P930 (S IC EB88CTGM QR32 B0 FCBGA 1329 MCH GM)
- Pre-MP CANTIGA GM: SA00002JTBO (S IC AC82GM45 SLB94 B3 FCBGA1329 GM ABO!)
- PVT CANTIGA GM: SA00002JT10 (S IC AC88CTGM QT62 B2 FCBGA 1329 GMCH GM)
- PVT2 CANTIGA GM: SA00002JT50 (S IC AC88CTGM QU36 B3 FCBGA 1329 GMCH GM)

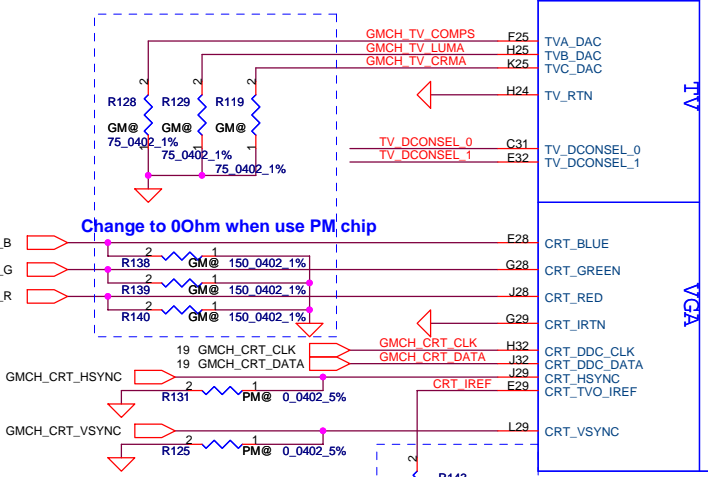
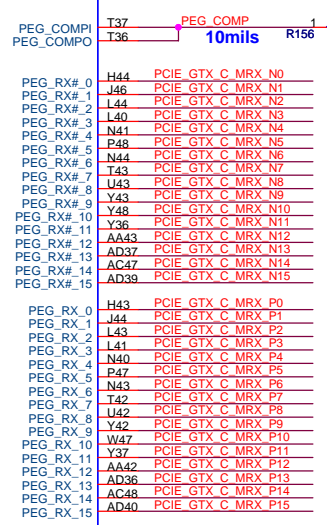
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED 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.					
Size	Document Number	Rev	Date: Friday, May 16, 2008   Sheet 9 of 50		
B	401552	C			



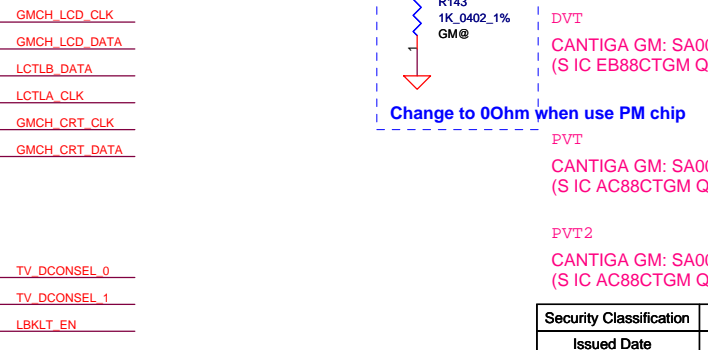
U30C



LVDS  
SCAI  
PCI-EXPRESS  
GRAPHICS



TV  
CRT  
VGA



DVT  
PVT  
PVT2

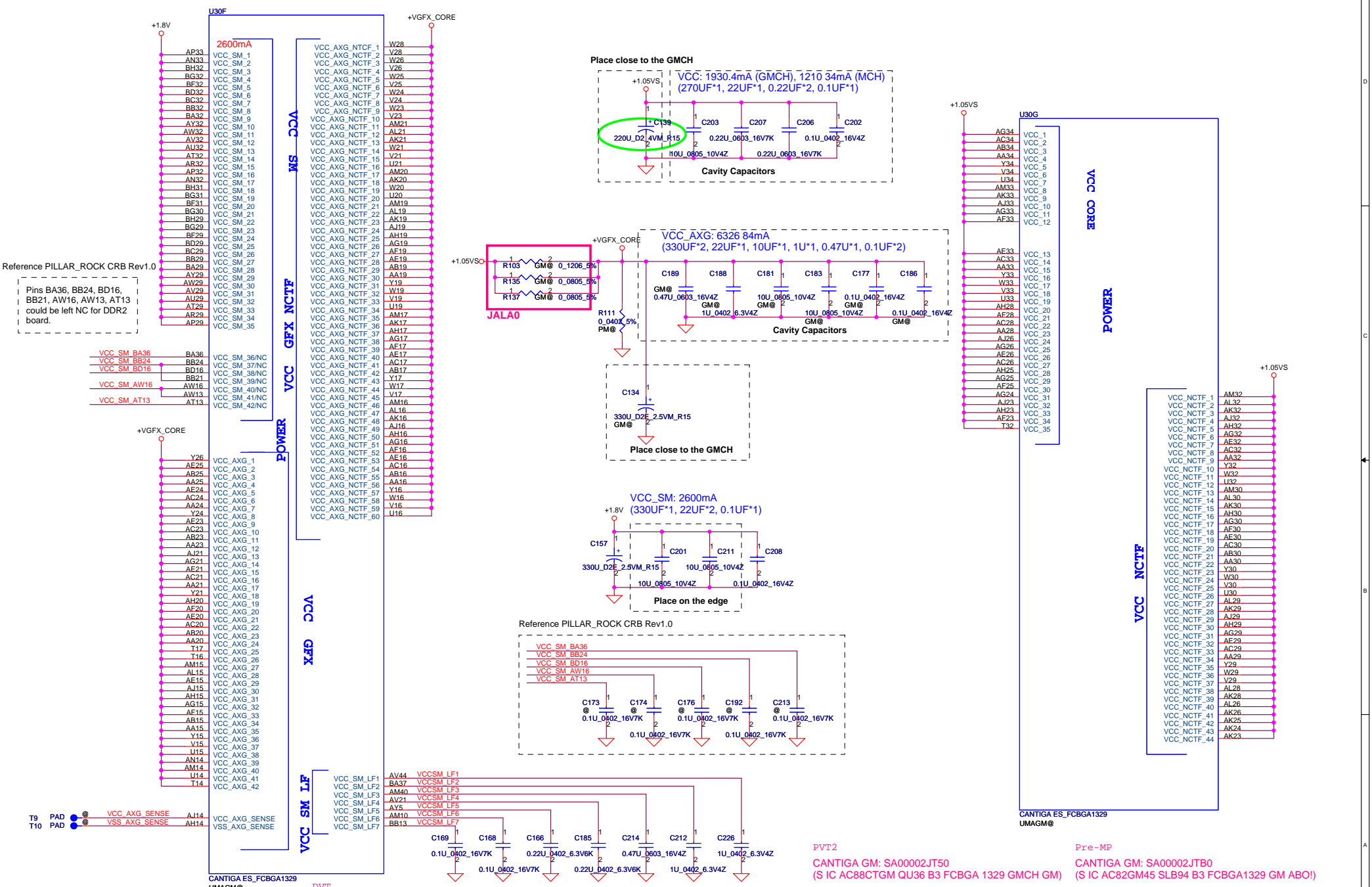
CANTIGA ES\_FCBGA1329  
UMAGM@

CANTIGA GM: SA00001P930 (S IC EB88CTGM QR32 B0 FCBGA 1329 MCH GM) Pre-MP  
CANTIGA GM: SA00002JT80 (S IC AC82GM45 SLB94 B3 FCBGA1329 GM ABO!)

CANTIGA GM: SA00002JT10 (S IC AC88CTGM QT62 B2 FCBGA 1329 GMCH GM)

CANTIGA GM: SA00002JT50 (S IC AC88CTGM QU36 B3 FCBGA 1329 GMCH GM)

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	
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 TRANSMITTED 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.				Document Number	Rev C
				401552	
Date: Friday, May 16, 2008		Sheet 10 of 50			



Reference PILLAR\_ROCK CRB Rev1.0

Pins BA36, BB24, BD16, BB21, AW16, AW13, AT13 could be left NC for DDR2 board.

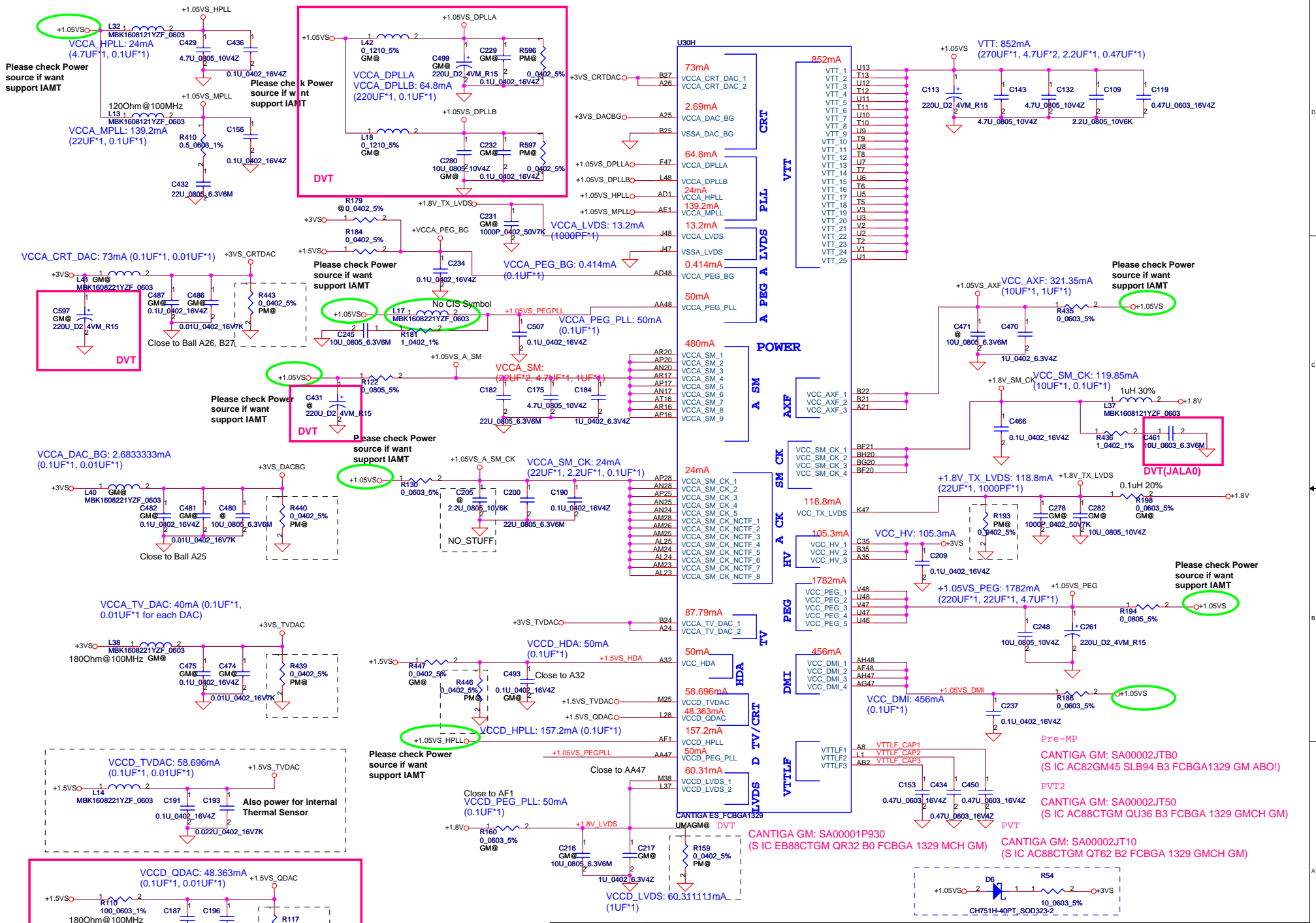
T9 PAD @ VCC\_AXG\_SENSE AH14  
 T10 PAD @ VSS\_AXG\_SENSE AH14

DVT  
 CANTIGA GM: SA00001P930  
 (S IC EB88CTGM QR32 B0 FCBGA 1329 MCH GM)  
 PVT  
 CANTIGA GM: SA00002JT10  
 (S IC AC88CTGM QT62 B2 FCBGA 1329 GM ABO)

PVT2  
 CANTIGA GM: SA00002JT50  
 (S IC AC88CTGM QU36 B3 FCBGA 1329 GMCH GM)

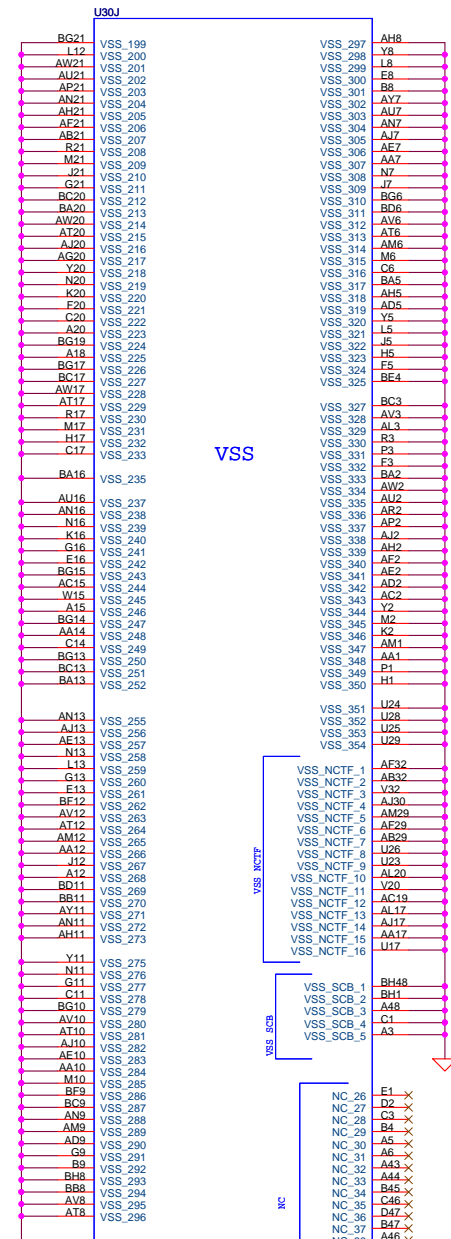
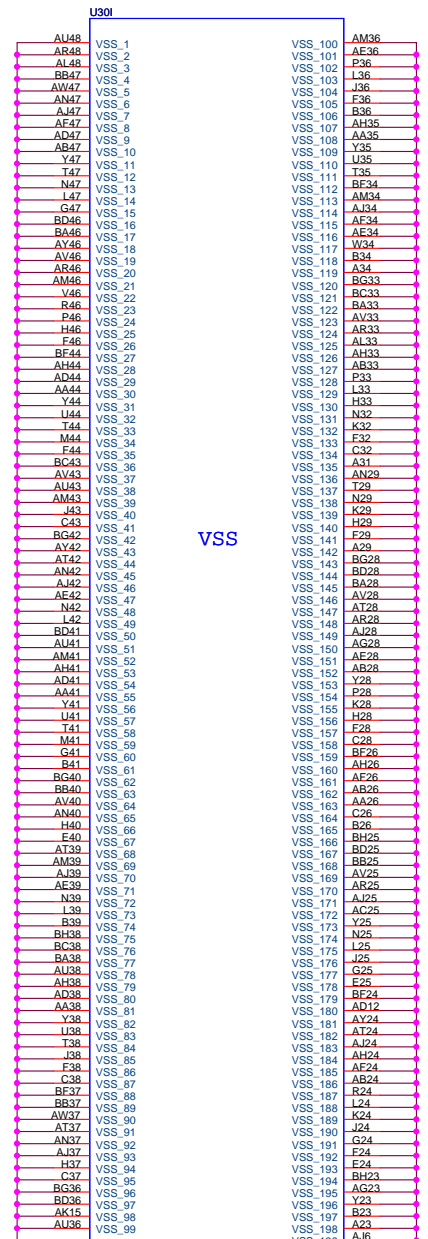
Pre-MP  
 CANTIGA GM: SA00002JB0  
 (S IC AC82GM45 SLB94 B3 FCBGA1329 GM ABO)

Security Classification		Compal Secret Data		Title	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Compal Electronics, Inc.	
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 REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				SCHEMATIC MB A4221	
Document Number				401552	Rev
Date				Friday, May 16, 2008	C
Sheet				11	of 50



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	
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 THE COMPANY WITHOUT THE WRITTEN PERMISSION OF THE COMPANY. ANY UNAUTHORIZED DISCLOSURE OR REPRODUCTION OF THIS SHEET OR ANY INFORMATION CONTAINED HEREIN IS STRICTLY PROHIBITED. ANY VIOLATION OF THIS PROHIBITION WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.				SCHEMATIC MB A4221	
CANTIGA GM: SA00002JT80 (S IC AC82GM45 SLB94 B3 FCBGA1329 GM ABO!)				Document Number	Rev
CANTIGA GM: SA00002JT50 (S IC AC88CTGM QU36 B3 FCBGA 1329 GMCH GM)				401552	C
CANTIGA GM: SA00001P930 (S IC EB88CTGM QR32 B0 FCBGA 1329 MCH GM)				Date	Friday, May 16, 2008
CANTIGA GM: SA00002JT10 (S IC AC88CTGM QT62 B2 FCBGA 1329 GMCH GM)				Sheet	12 of 50





PVT2  
CANTIGA GM: SA00002JT50  
(S IC AC88CTGM QU36 B3 FCBGA 1329 GMCH GM)

Pre-MP  
CANTIGA GM: SA00002JT80  
(S IC AC82GM45 SLB94 B3 FCBGA1329 GM ABO1)

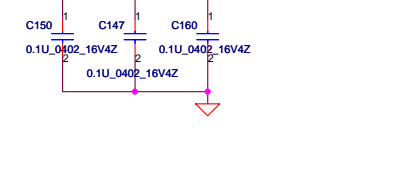
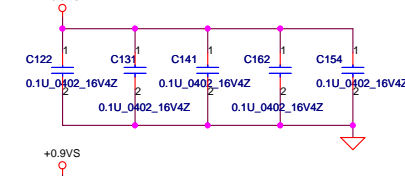
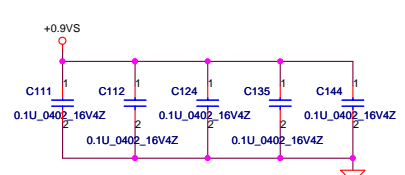
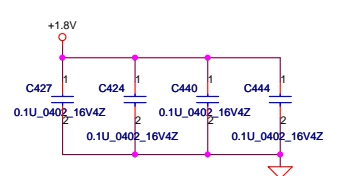
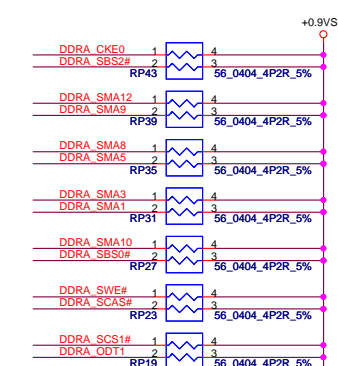
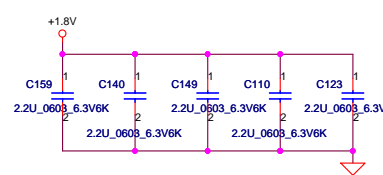
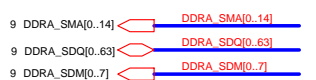
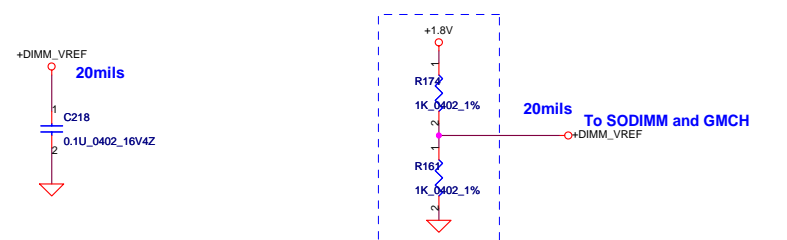
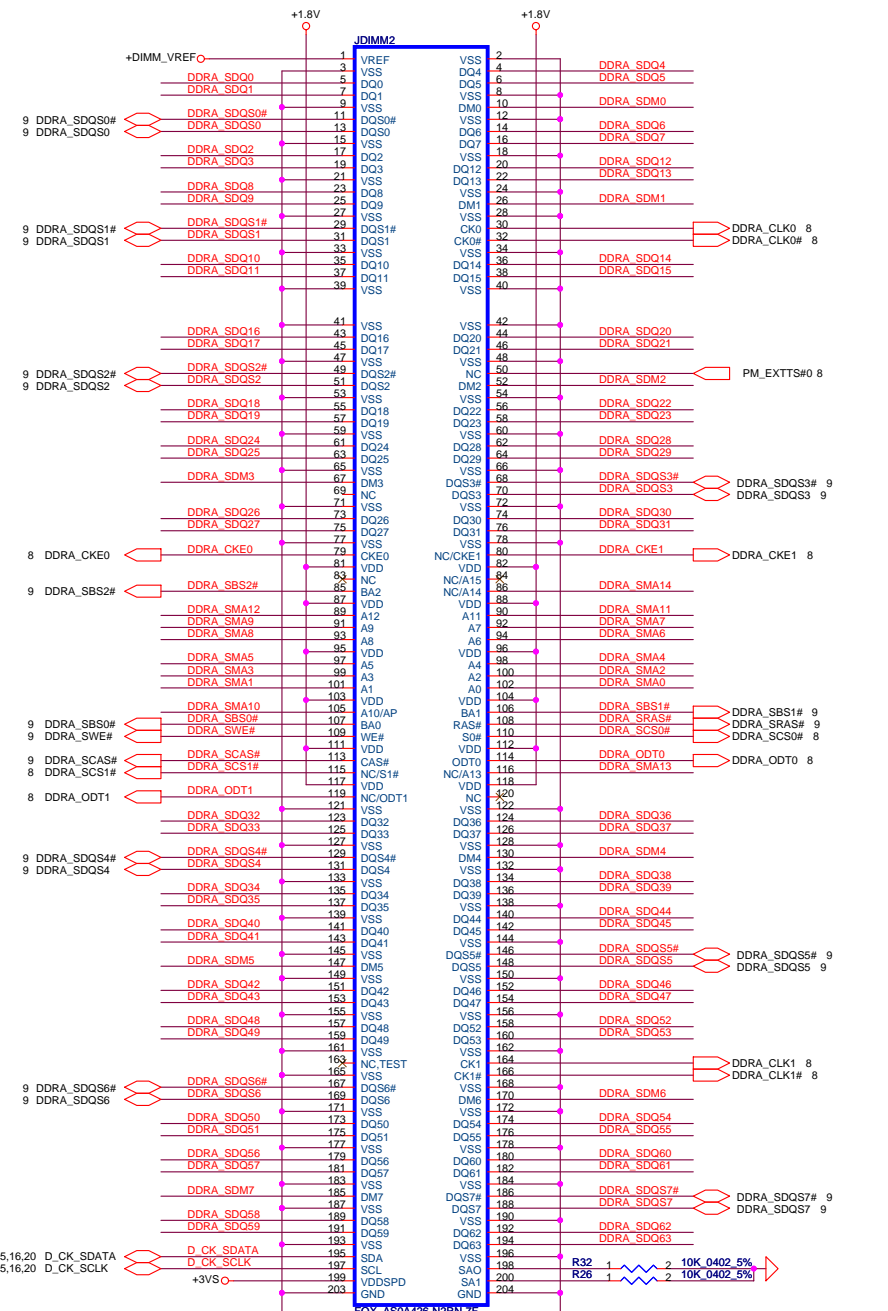
DVT  
CANTIGA GM: SA00001P930  
(S IC EB88CTGM QR32 B0 FCBGA 1329 MCH GM)

PVT  
CANTIGA GM: SA00002JT10  
(S IC AC88CTGM QT62 B2 FCBGA 1329 GMCH GM)

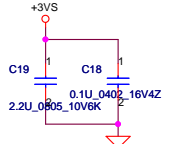
Security Classification		Compal Secret Data	
Issued Date	2007/09/20	Deciphered Date	2008/09/20
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL INFORMATION. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.			

Compal Electronics, Inc.		
Title	SCHEMATIC MB A4221	
Document Number	401552	
Date	Friday, May 16, 2008	Sheet 13 of 50

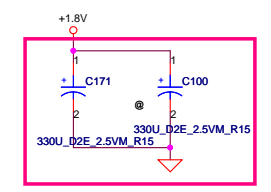
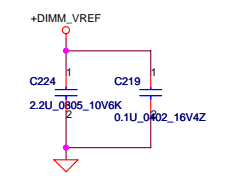
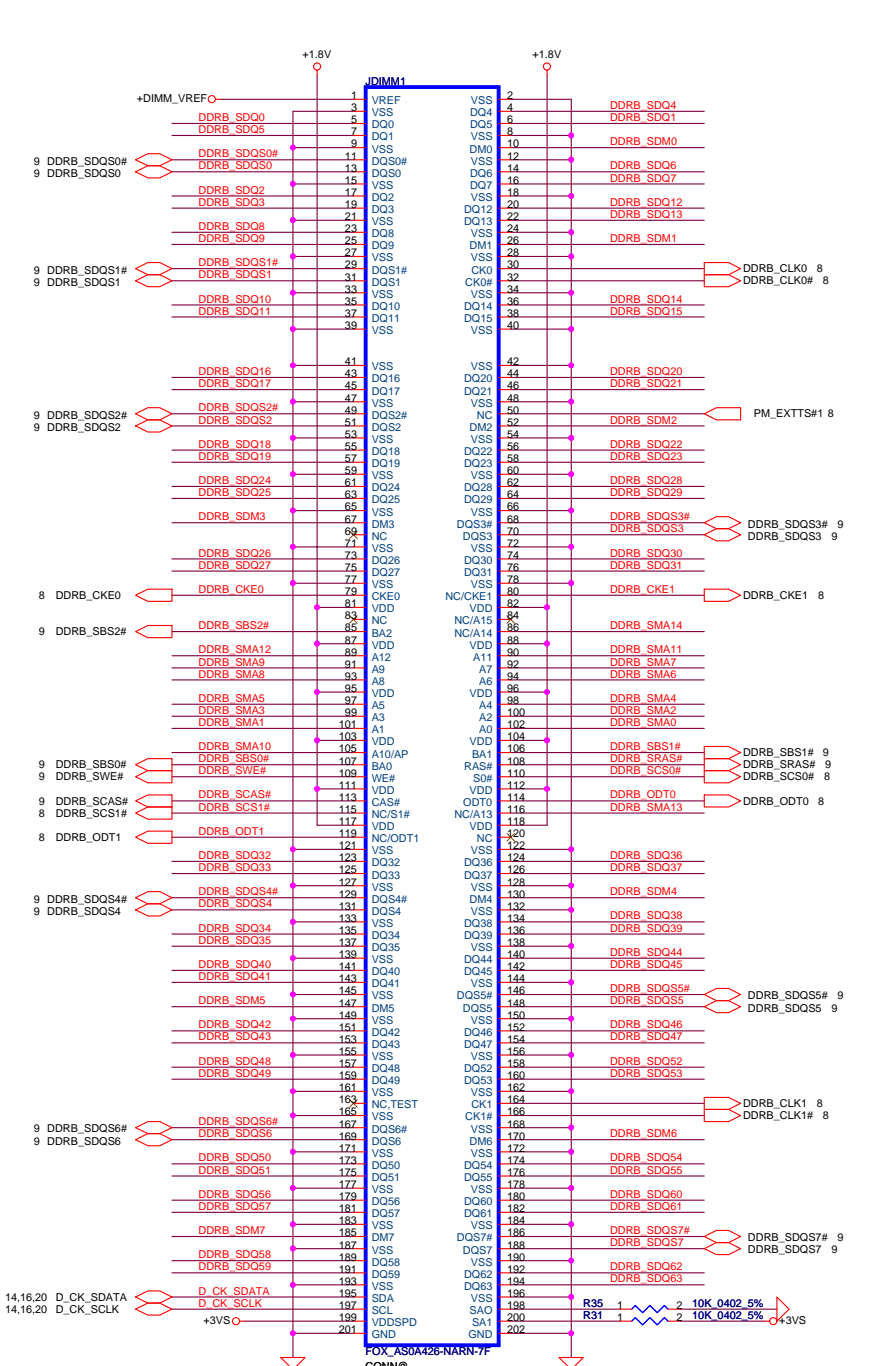
www.taotopia.vn



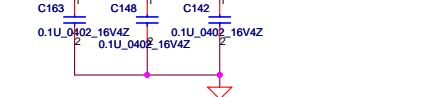
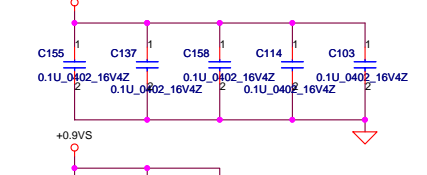
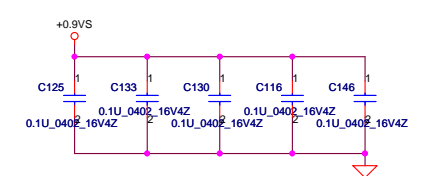
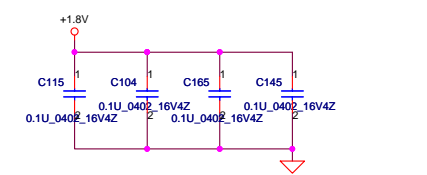
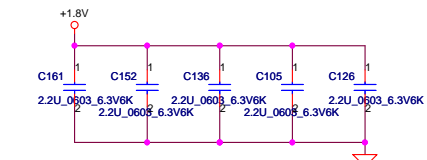
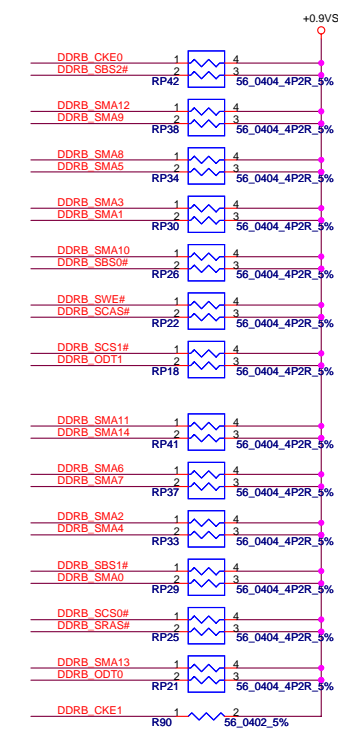
DIMM0 REV H:5.2mm (BOT)



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
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 REPRODUCED, COPIED, RANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.					
Document Number	401552	Rev	C	Date	Friday, May 16, 2008
				Sheet	14 of 50



- 9 DDRB\_SMA[0..14] <-> DDRB\_SMA[0..14]
- 9 DDRB\_SDQ[0..63] <-> DDRB\_SDQ[0..63]
- 9 DDRB\_SDM[0..7] <-> DDRB\_SDM[0..7]



**DIMM1 REV H:9.2mm (BOT)**

Security Classification		Compal Secret Data		Title	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Schematic MB A4221	
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 REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	Rev
				401552	C
				Date	Sheet
				Friday, May 16, 2008	15 of 50

www.taibot.com

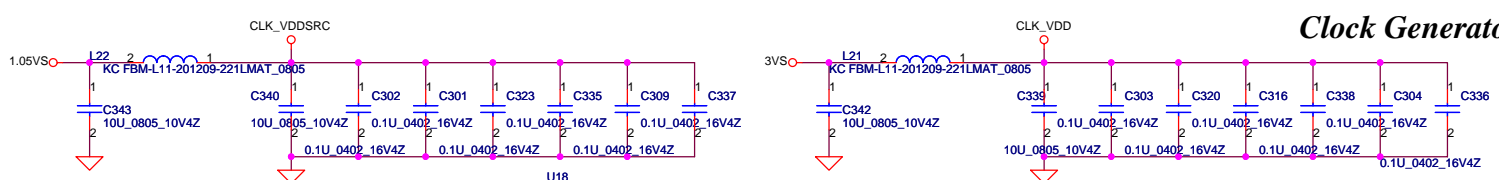
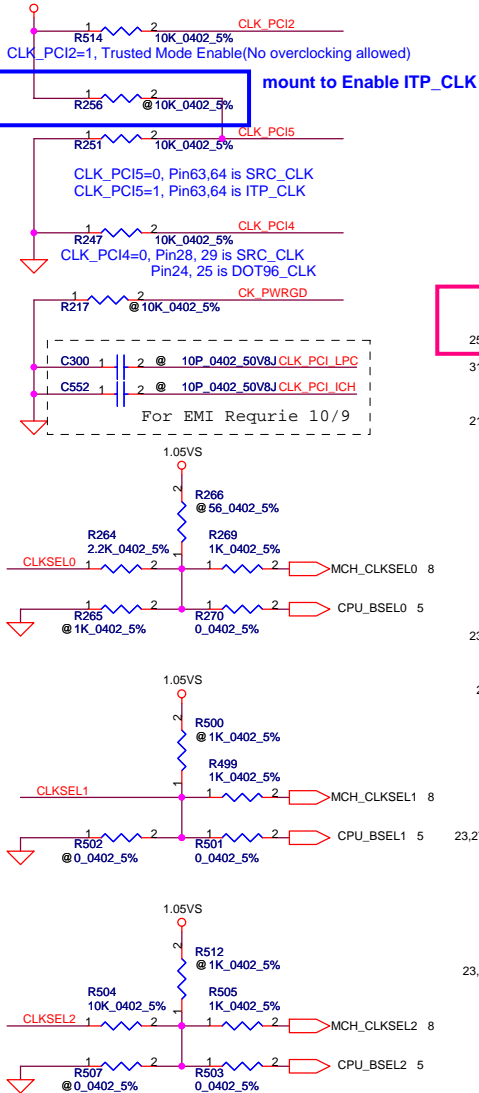


FSLC	FSLB	FSLA	CPU MHz	SRC MHz	PCI MHz
0	0	0	266	100	33.3
0	1	0	200	100	33.3
0	1	1	166	100	33.3

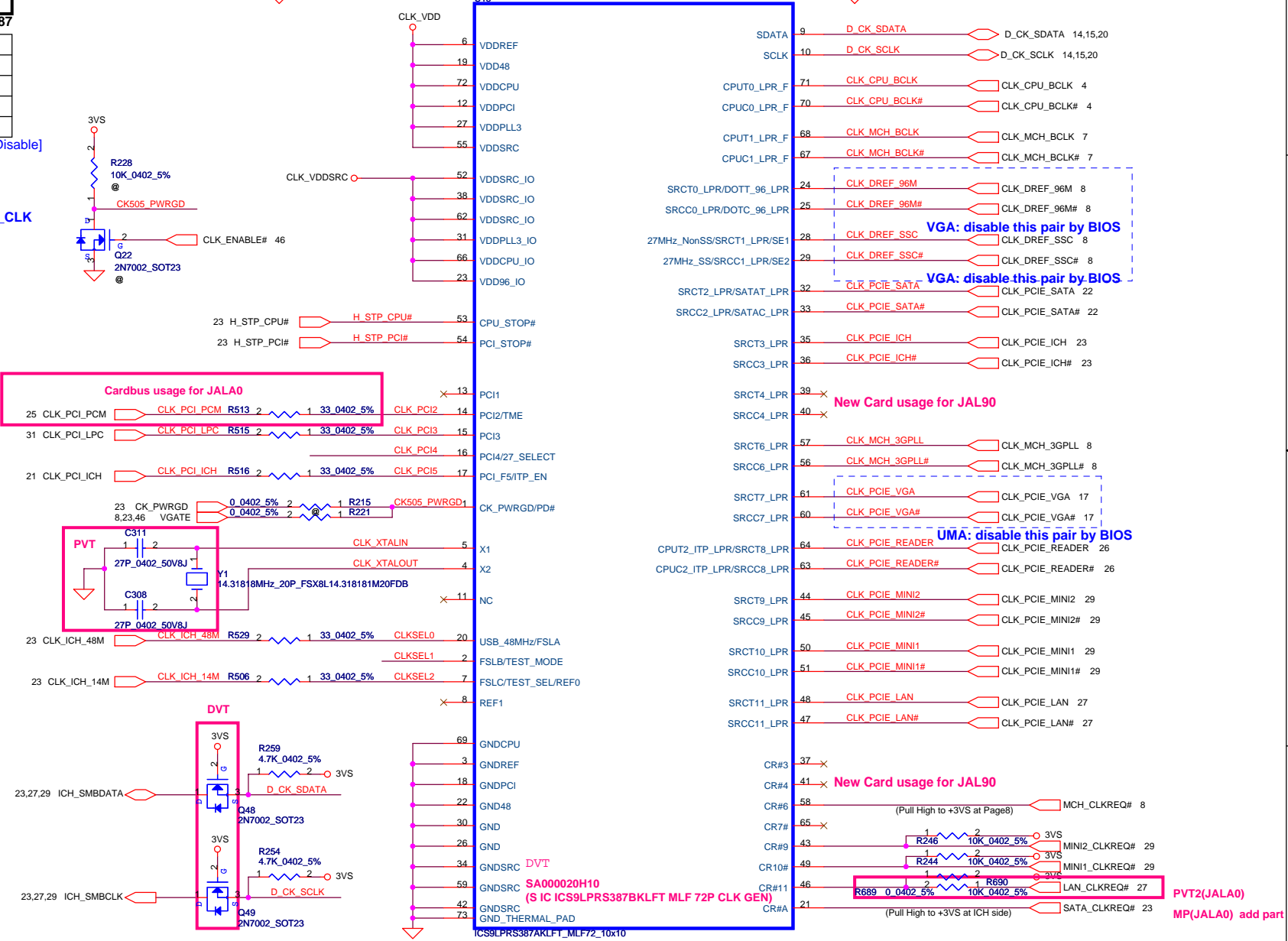
Table : ICS9LPRS387

CLK_REQ#	Control	Free-Run
CR#_10(WLAN)	PCIEX10	PC EX0
CR#_6(MCH)	PCIEX6	PC EX1
CR#_4(NEW CARD)	PCIEX4	
CR#_9(MINI CARDII)	PCIEX9	

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



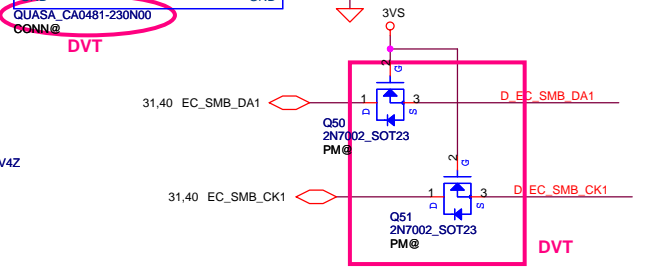
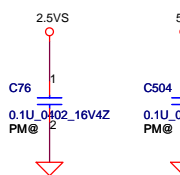
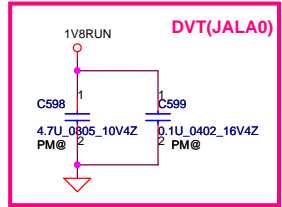
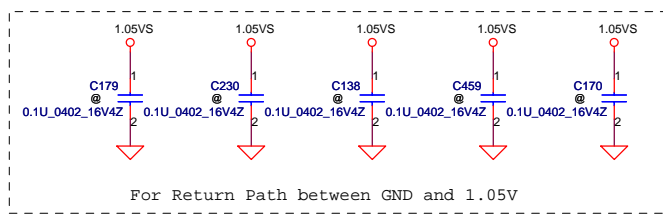
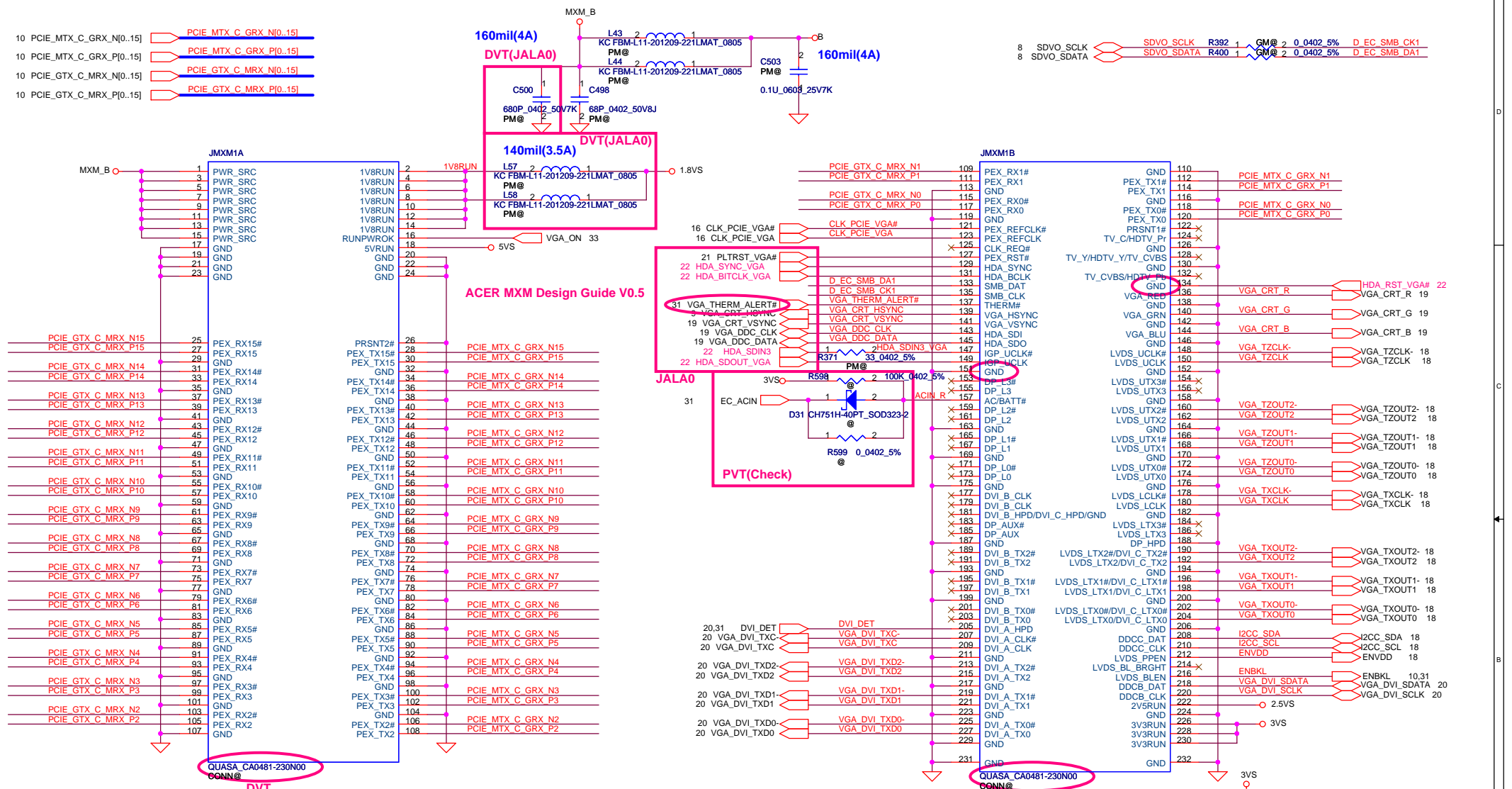
### Clock Generator



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	
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 TRANSMITTED 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.				Size	Document Number
				401552	Rev C
				Date: Friday, May 16, 2008	Sheet 16 of 50

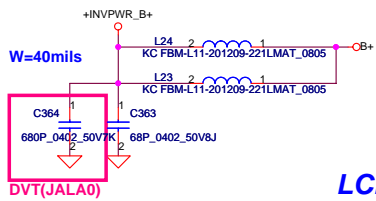
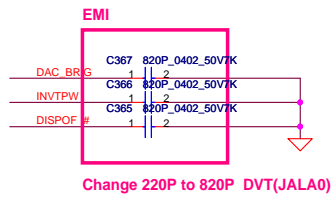
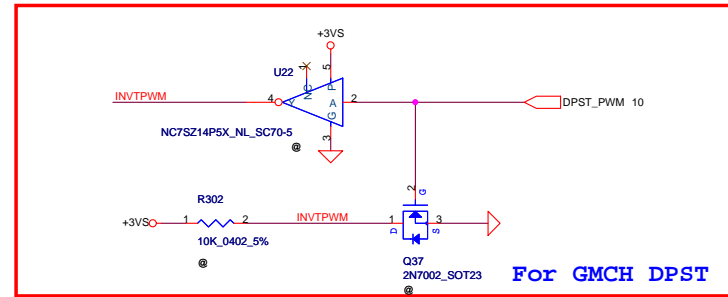
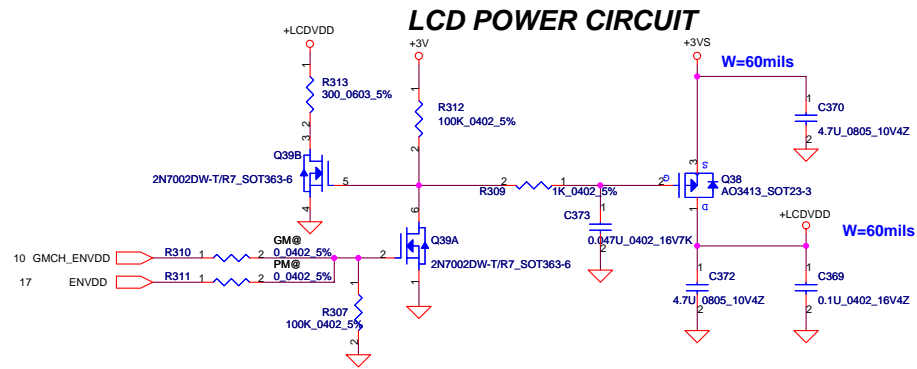
- 10 PCIE\_MTX\_C\_GRX\_N[0..15]  $\rightarrow$  PCIE\_MTX\_C\_GRX\_N[0..15]
- 10 PCIE\_MTX\_C\_GRX\_P[0..15]  $\rightarrow$  PCIE\_MTX\_C\_GRX\_P[0..15]
- 10 PCIE\_GTX\_C\_MRX\_N[0..15]  $\rightarrow$  PCIE\_GTX\_C\_MRX\_N[0..15]
- 10 PCIE\_GTX\_C\_MRX\_P[0..15]  $\rightarrow$  PCIE\_GTX\_C\_MRX\_P[0..15]

- 8 SDVO\_SCLK  $\rightarrow$  SDVO\_SCLK R392 1 GM@ 2 0.0402 5% D EC SMB CK1
- 8 SDVO\_SDATA  $\rightarrow$  SDVO\_SDATA R400 1 GM@ 2 0.0402 5% D EC SMB DA1

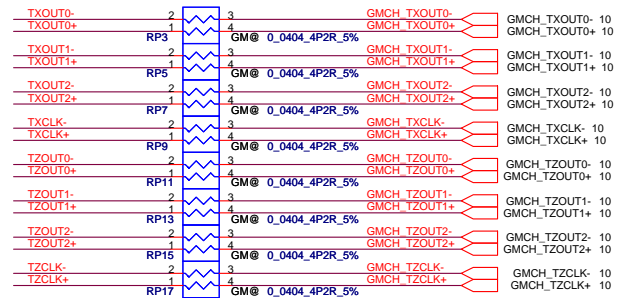
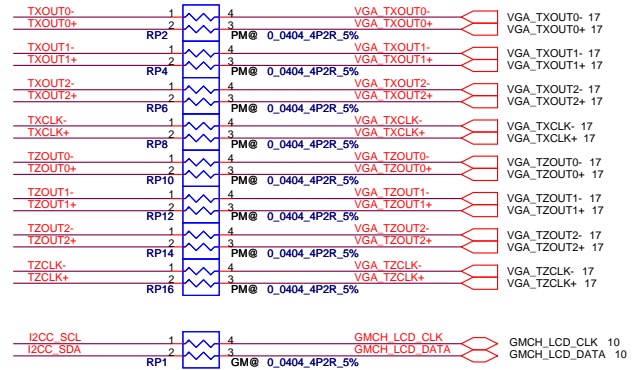
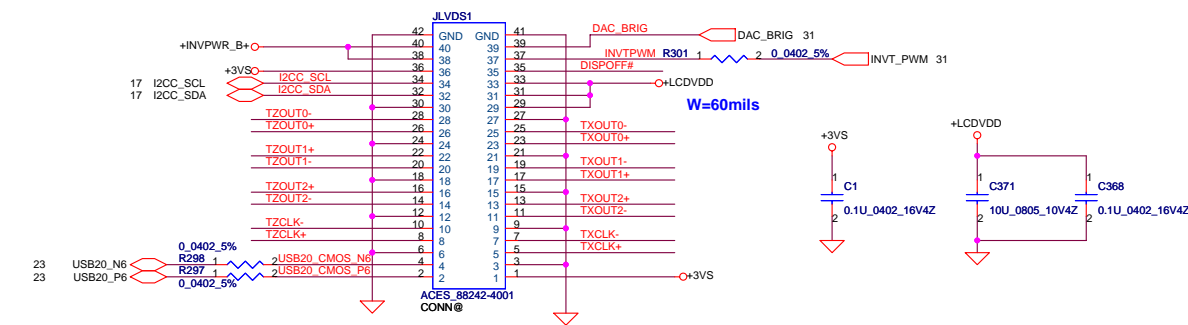


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				Size	Rev
				B	C
				Document Number	401552
				Date	Friday, May 16, 2008
				Sheet	17 of 50
<b>SCHMATIC MB A4221</b>					

www.laptopfix.vn

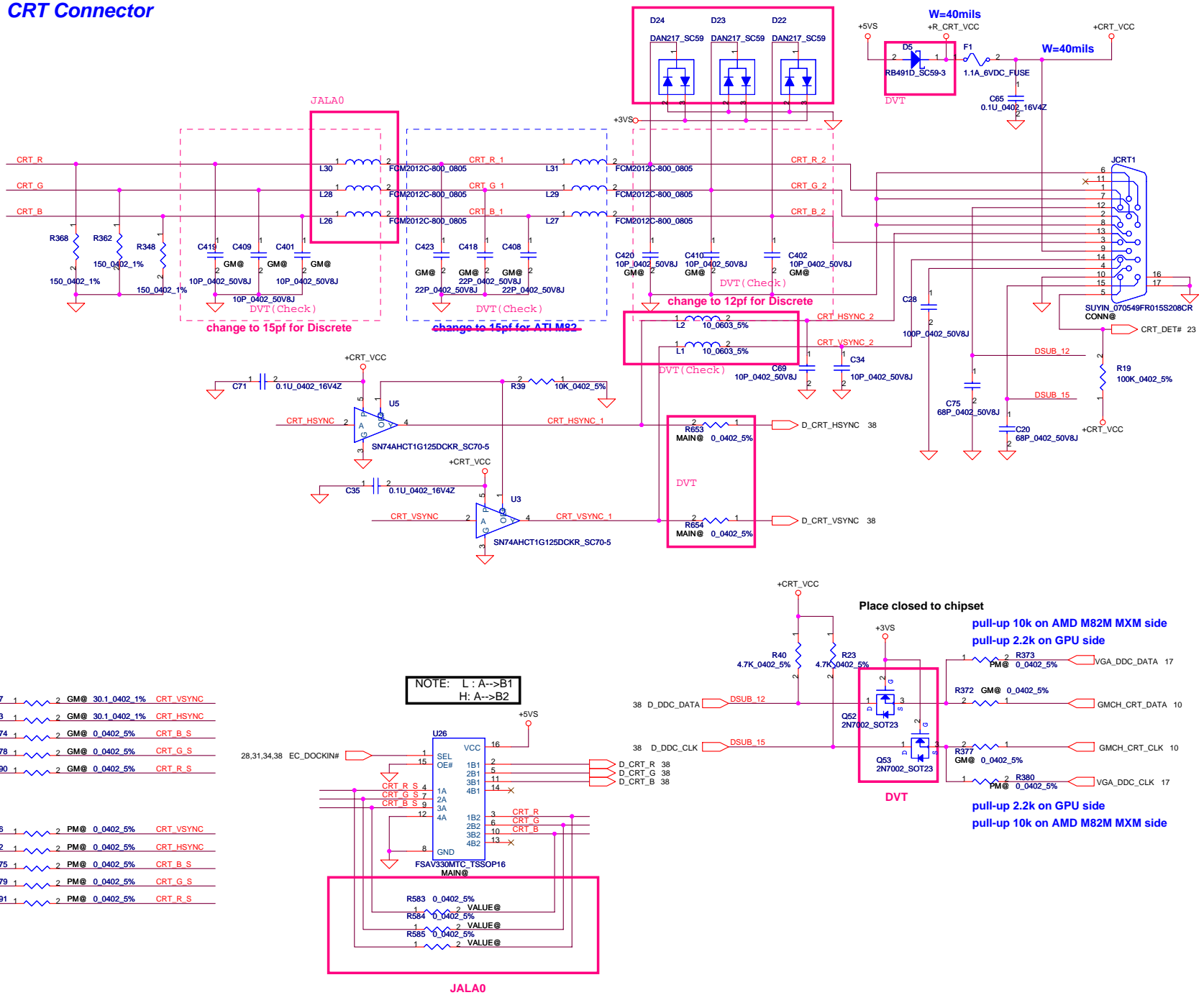


LCD/PANEL BD. Conn.

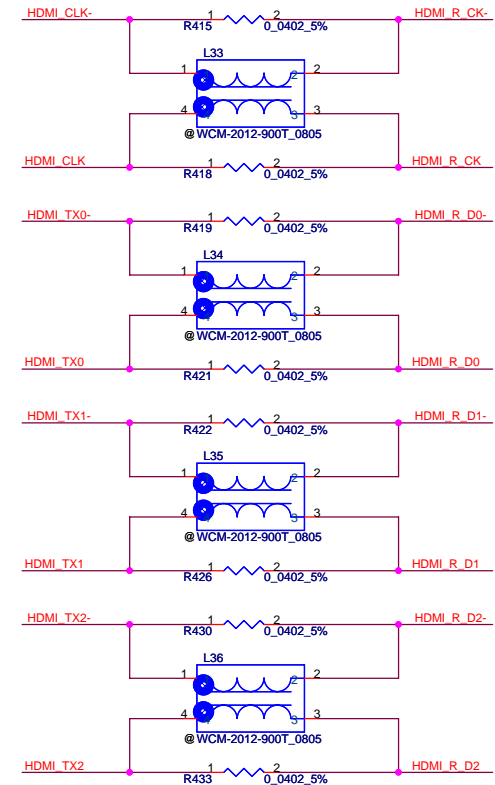
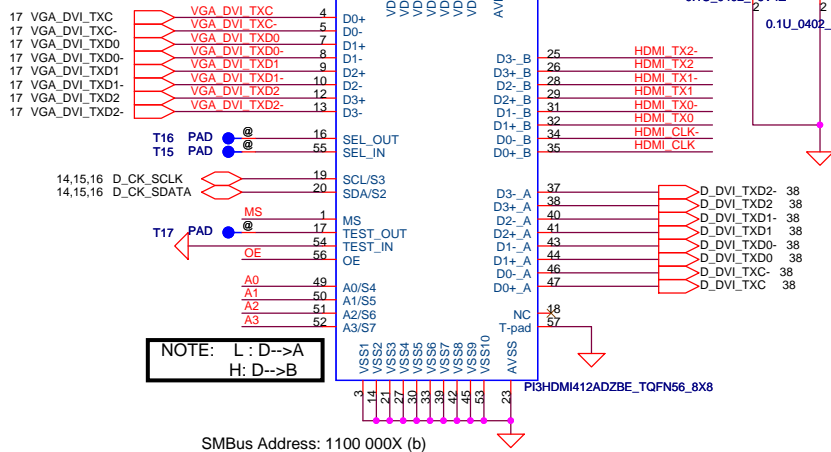
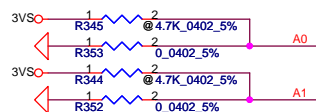
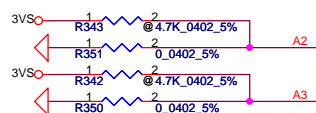
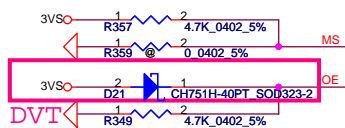
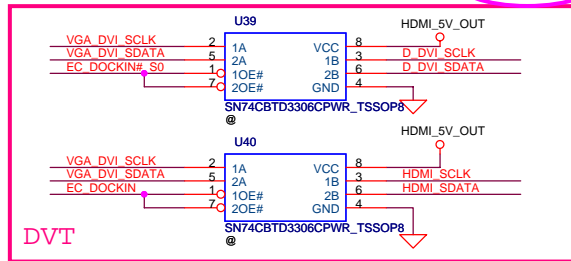
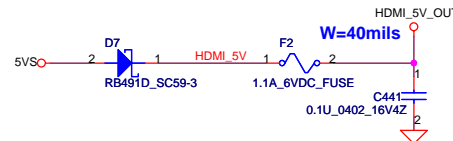
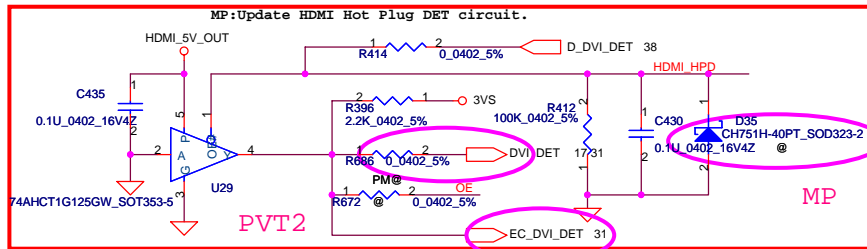
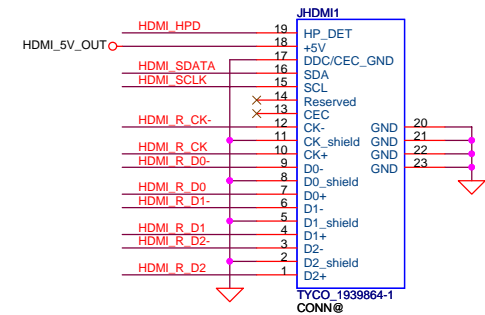
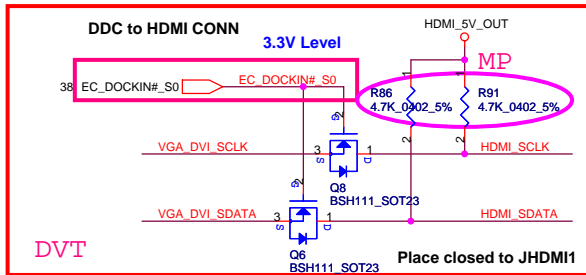
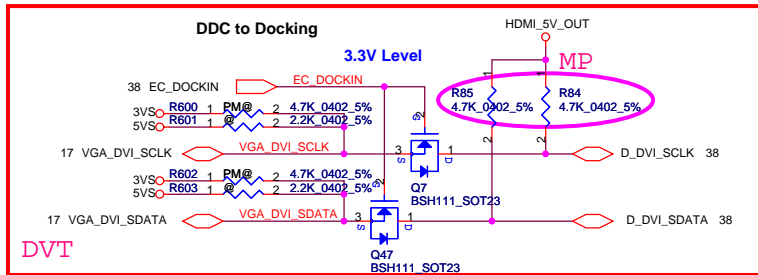


Security Classification	Compal Secret Data		Title		
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Compal Electronics, Inc.	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED, COPIED, OR TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	Rev
				401552	C
				Date	Friday, May 16, 2008
				Sheet	18 of 50

# CRT Connector

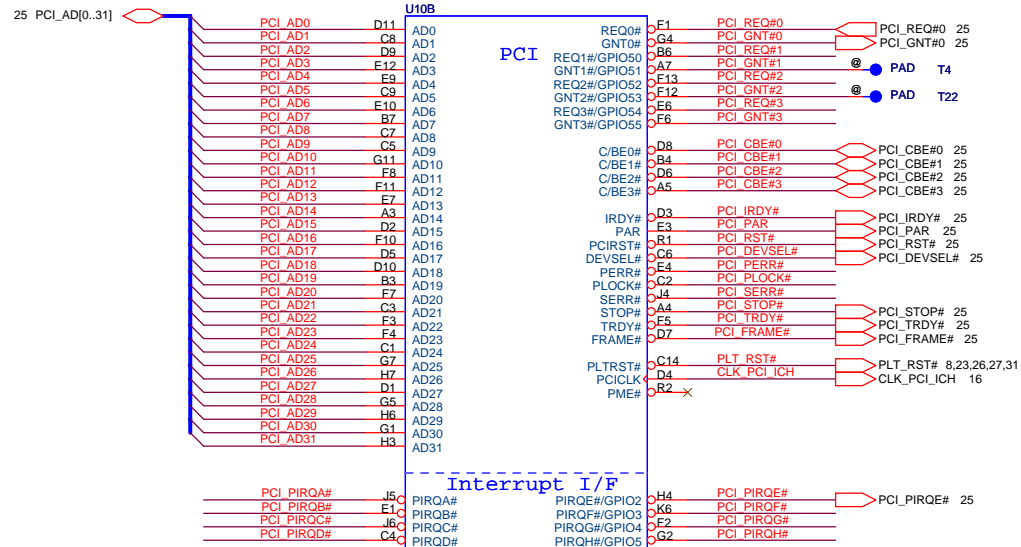
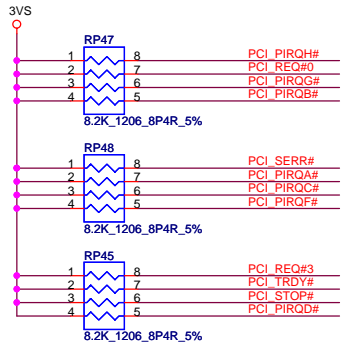
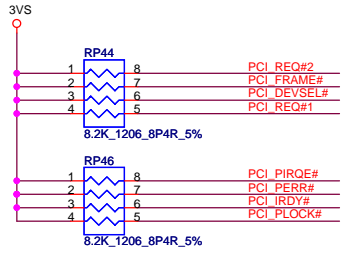


Security Classification	Compal Secret Data		Title	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Compal Electronics, Inc.
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Schematic Number
				401552
				Rev C
				Friday, May 16, 2008
				Sheet 19 of 50

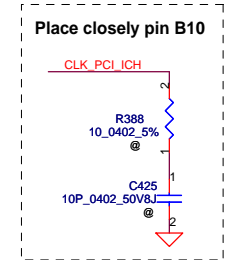


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED 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 THE PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.					
Size	Document Number	401552		Rev	C
Date	Friday, May 16, 2008	Sheet	20	of	50

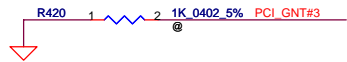
www.taibotopix.vn



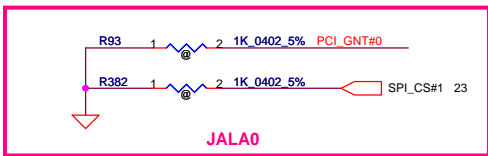
**DMI for ESI-compatible operation**  
**PCI\_GNT#1** Low= DMI for ESI-compatible operation  
 High= Default\* (Internal pull-up)



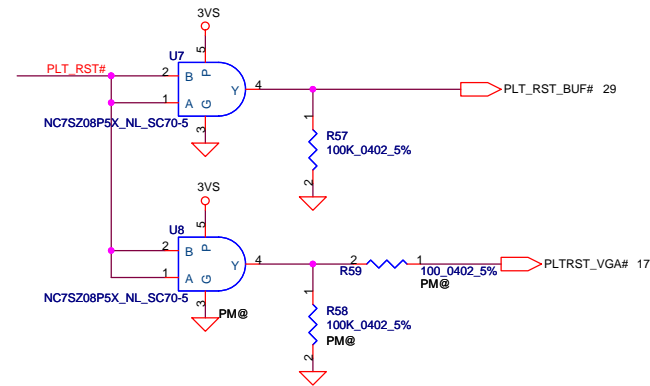
**A16 Swap Override Strap**  
**PCI\_GNT#3** Low= A16 swap override Enable  
 High= Default\*



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



DVT ICH9-M: SA00002AN10  
 (S IC NH82801IBM QP23 A2 FCBGA 676P ICH9M)  
 PVT ICH9-M: SA00002JH00  
 (S IC AF82801IBM QT09 A3 PBG 676P ICH9M)  
 Pre-MP ICH9-M: SA00002JH70  
 (S IC AF82801IBM SLB8Q A3 676P ICH9M ABO!)

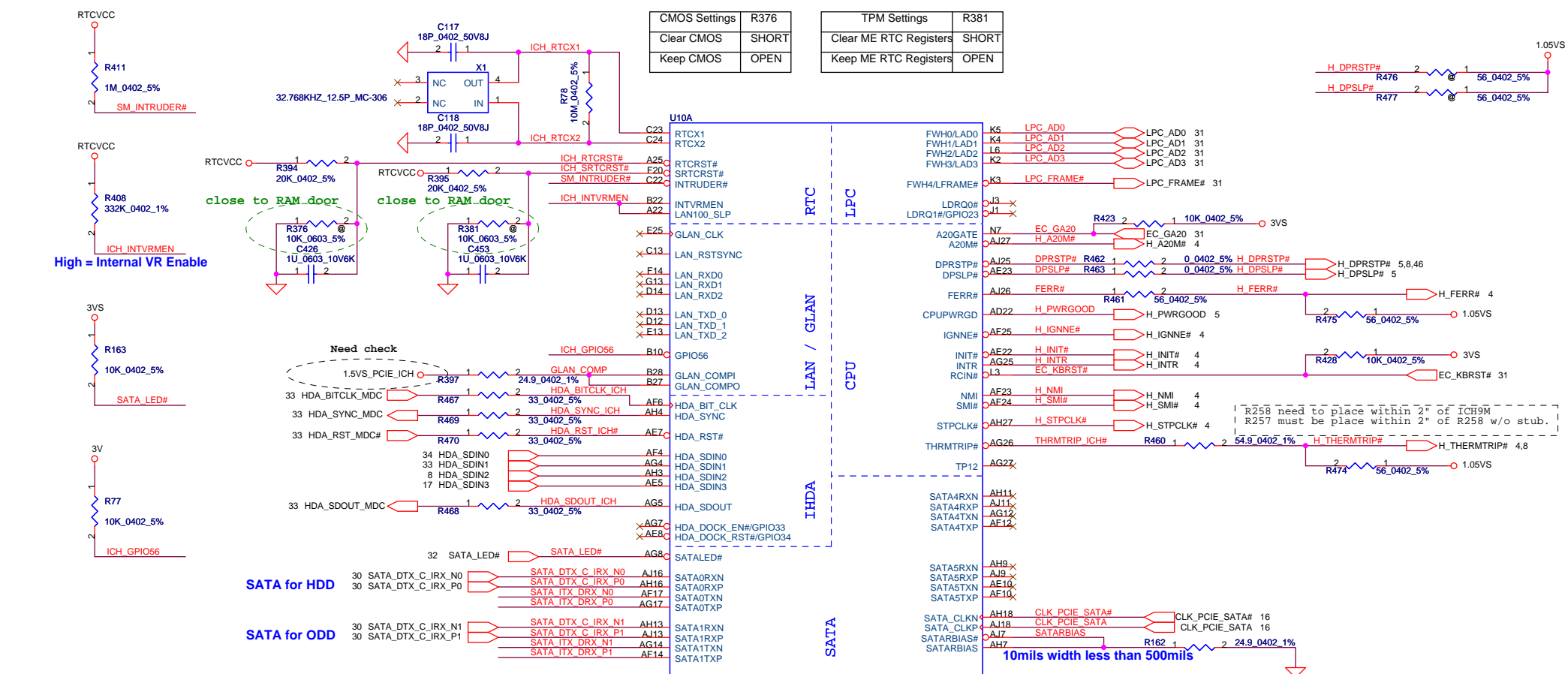


For VGA/B

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHEMATIC MB A4221
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 TRANSMITTED 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 THE PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.					
Document Number	401552	Date	Friday, May 16, 2008	Sheet	21 of 50



CMOS Settings	R376	TPM Settings	R381
Clear CMOS	SHORT	Clear ME RTC Registers	SHORT
Keep CMOS	OPEN	Keep ME RTC Registers	OPEN



SATA for HDD

SATA for ODD

HDA for AUDIO

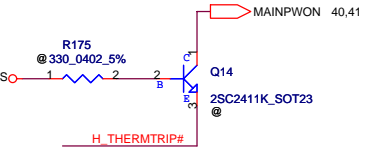
HDA for GMCH

HDA for VGA

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

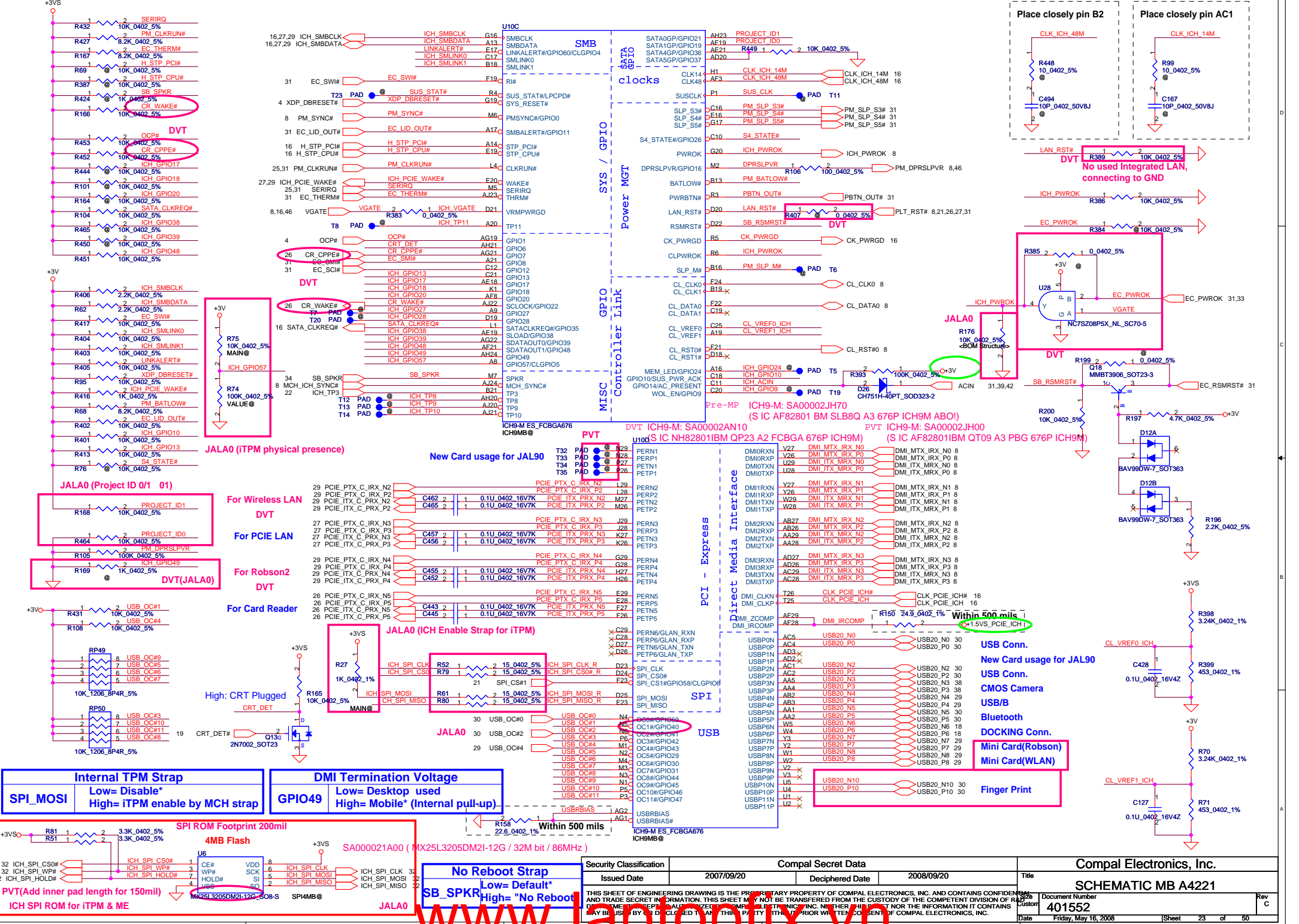
**Flash Descriptor Security Override Strap**  
 GPIO33 Low= Descriptor Security override  
 High= Default\* (Internal pull-up)

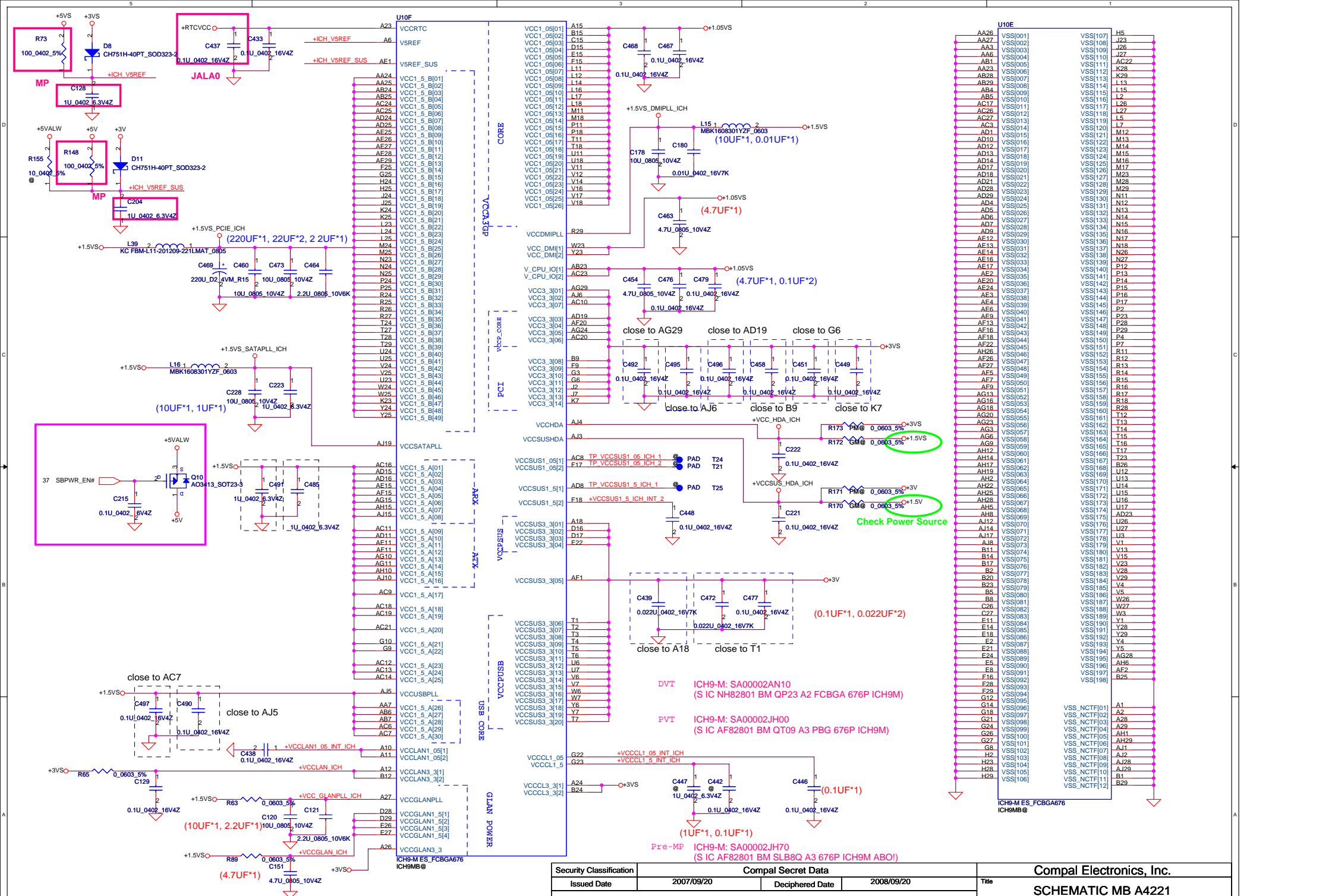
Security Classification	Compal Secret Data	
Issued Date	2007/09/20	Deciphered Date
		2008/09/20
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED FROM THE CUSTODY OF THE COMPETENT 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.		



10mils width less than 500mils  
 ICH9-M: SA00002AN10 (S IC NH82801IBM QP23 A2 FCBGA 676P ICH9M)  
 PVT ICH9-M: SA00002JH00 (S IC AF82801IBM QT09 A3 PBG 676P ICH9M)  
 Pre-MP ICH9-M: SA00002JH70 (S IC AF82801IBM SLB8Q A3 676P ICH9M ABO!)

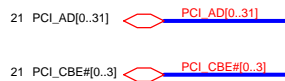




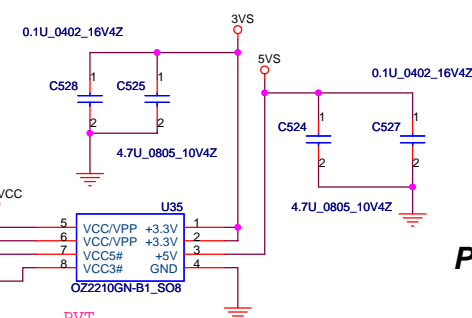
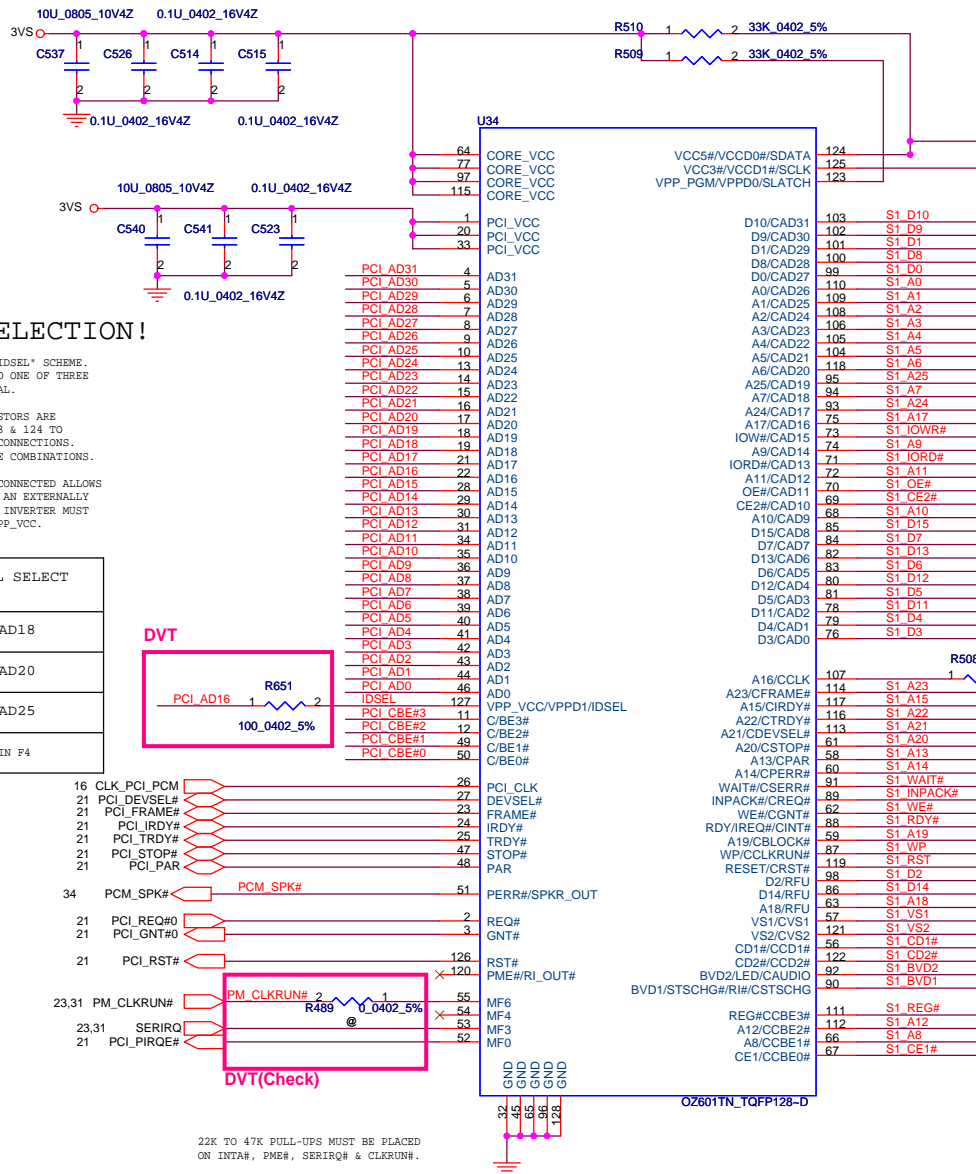


Security Classification	Compal Secret Data		Title	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	2008/09/20
<b>Compal Electronics, Inc.</b> <b>SCHEMATIC MB A4221</b>				
<small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&amp;D DEPARTMENT OR REPRODUCED OR DISSEMINATED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.</small>				
Size	Document Number	Date	Sheet	Rev
Custom	401552	Friday May 16 2008	24 of 50	C

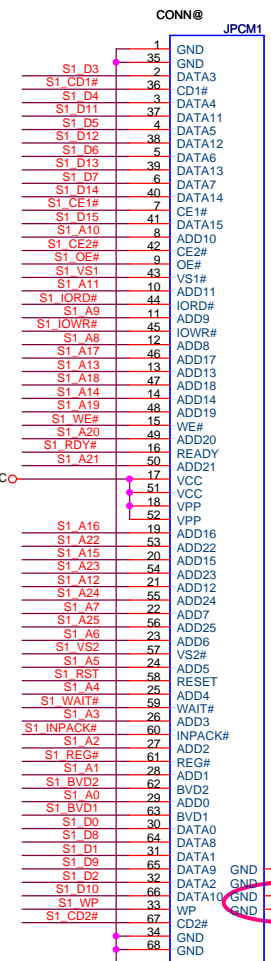
www.tadpolefix.vn



IDSEL SELECT POWER-ON-STRAPPING  
(SEE NOTE & TABLE FOR OPTIONS)



### PCMCIA Socket



Footprint as SANTA\_130651-E\_68P\_LT-S  
DVT(JALA0)

### NOTE: IDSEL SELECTION!

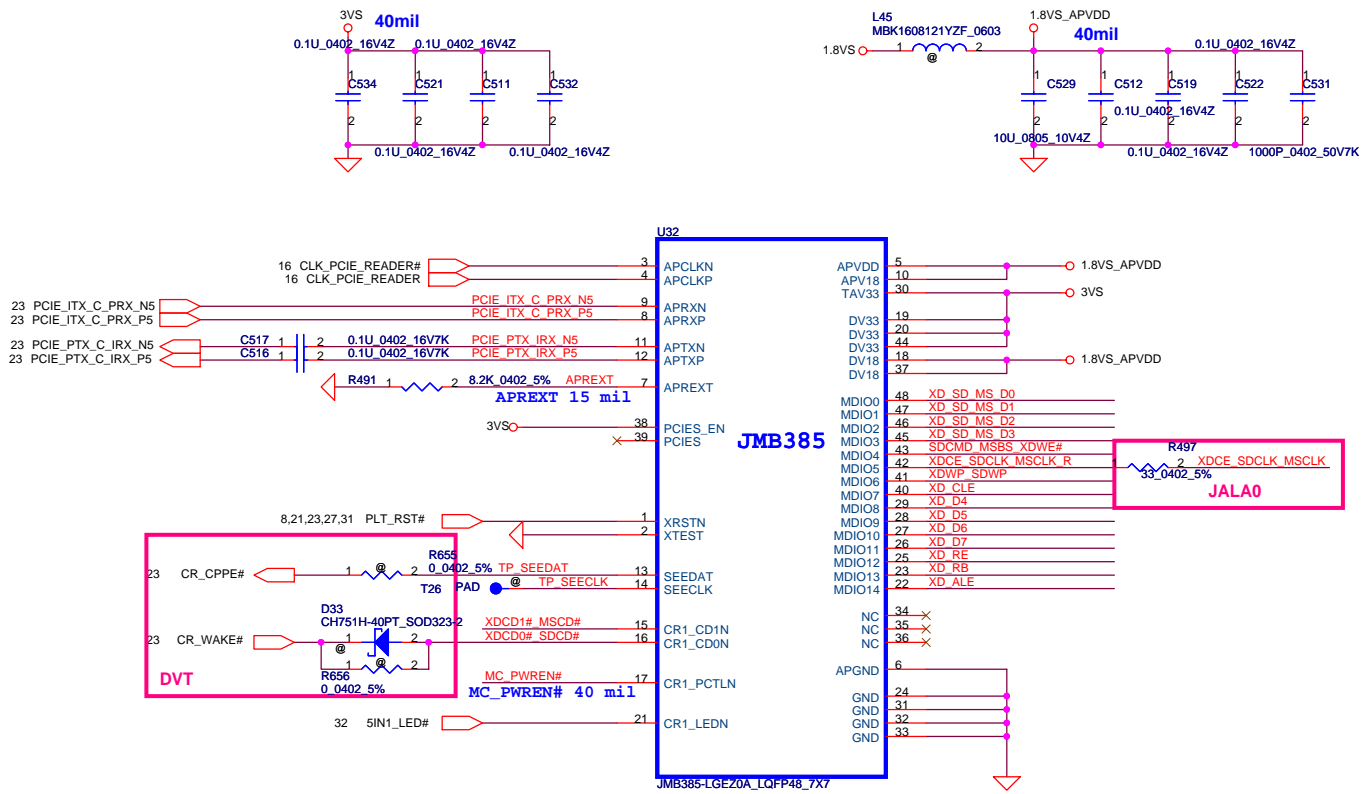
THIS DEVICE UTILIZES A "SELECTABLE IDSEL" SCHEME. IDSEL CAN BE CONNECTED INTERNALLY TO ONE OF THREE PCI AD LINES OR EXTERNAL IDSEL SIGNAL.

22K TO 47K PULL-UP & PULL-DOWN RESISTORS ARE REQUIRED TO BE CONNECTED TO PINS 123 & 124 TO SELECT ONE OF THE 4 POSSIBLE IDSEL CONNECTIONS. THE TABLE BELOW SHOWS THE 4 POSSIBLE COMBINATIONS.

CONFIGURING IDSEL TO BE INTERNALLY CONNECTED ALLOWS FOR A FULL PARALLEL POWER MODE. IF AN EXTERNALLY CONNECTED IDSEL IS REQUIRED THEN AN INVERTER MUST BE CONNECTED TO VPP\_PGM TO CREATE VPP\_VCC.

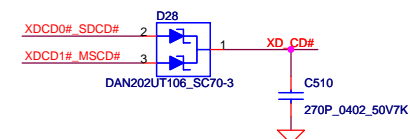
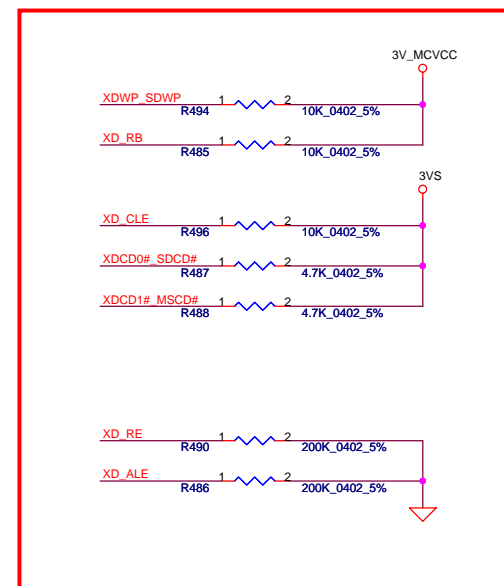
22K TO 47K PULL-UPS MUST BE PLACED ON INTA#, PME#, SERIRQ# & CLKRUN#.

Security Classification		Compal Secret Data		Title	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	SCHEMATIC MB A4221	
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 AND DESIGN WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC.				Document Number	401552
www.taotopia.com				Date:	Friday, May 16, 2008
				Sheet	25 of 50



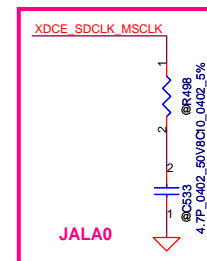
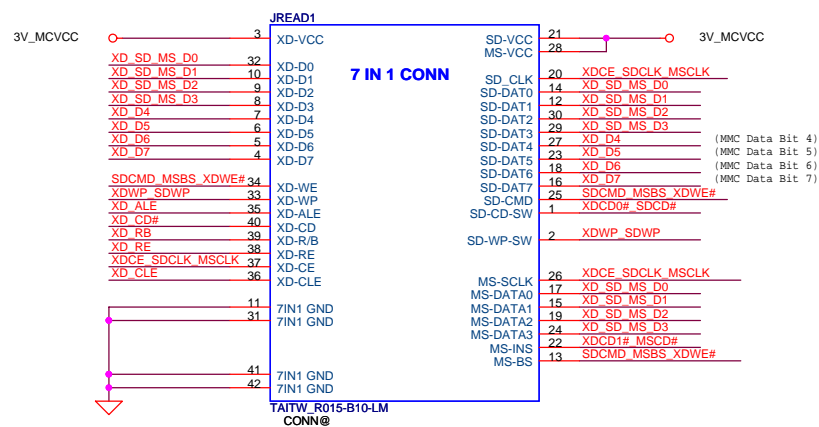
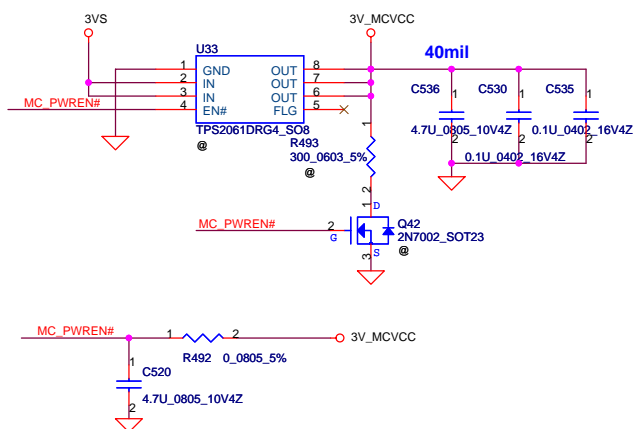
DVT SA00001W910 (S IC JMB385-LGEZ0B LQFP 48P)

MDIO PULL HIGH/LOW ?

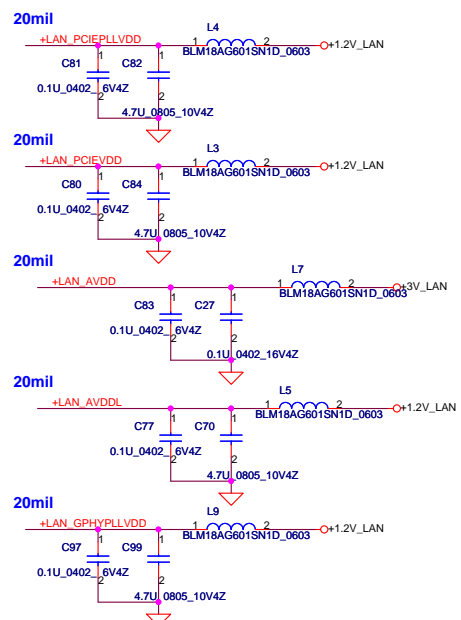
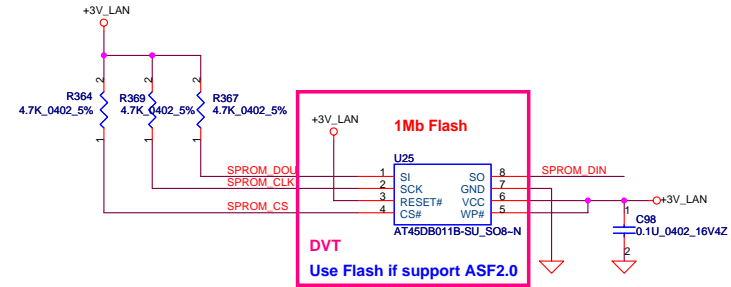
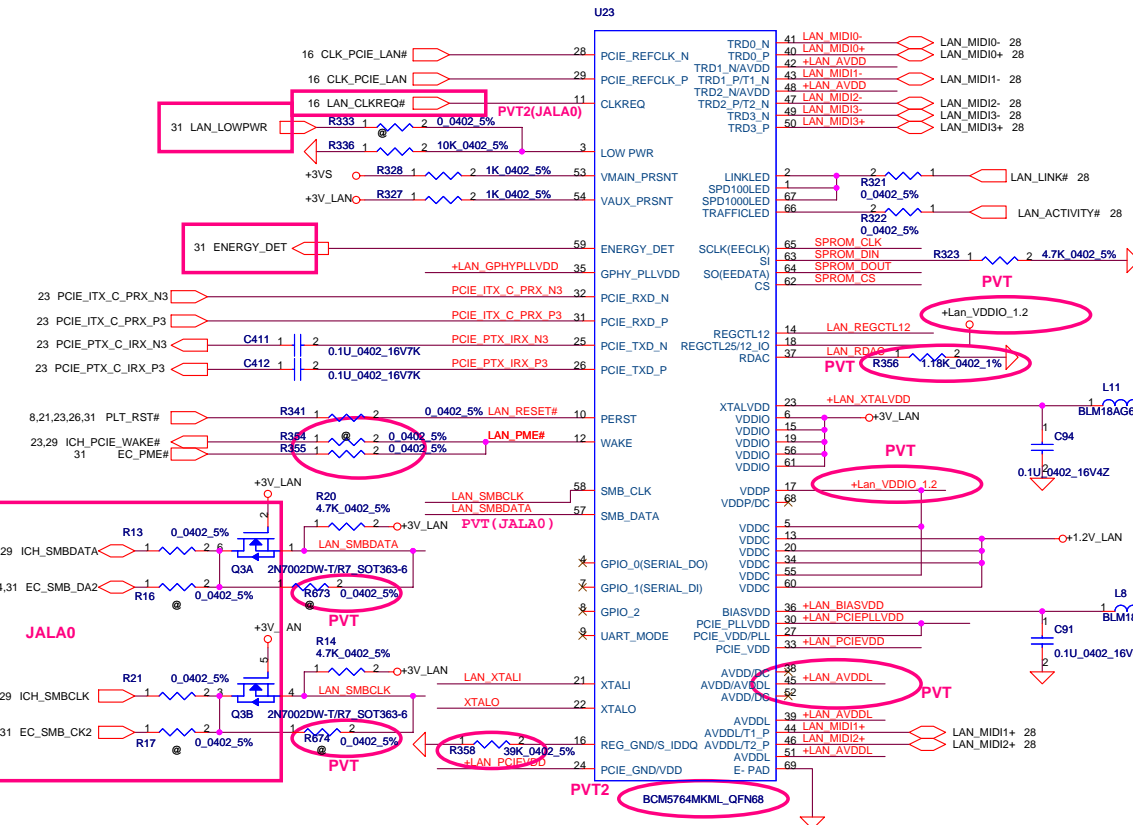
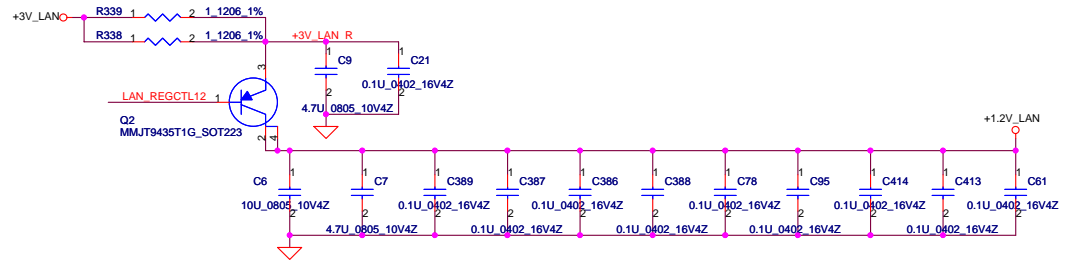
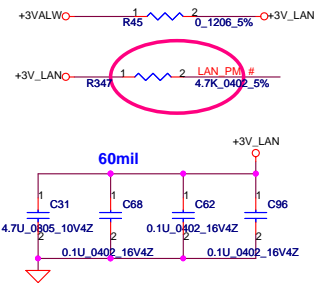


4 IN 1 Socket Push Type(New)

Memory Card Power Switch

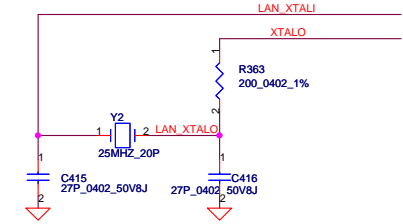


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				Document Number	Rev
				401552	C
				Date: Friday, May 16, 2008	Sheet 26 of 50



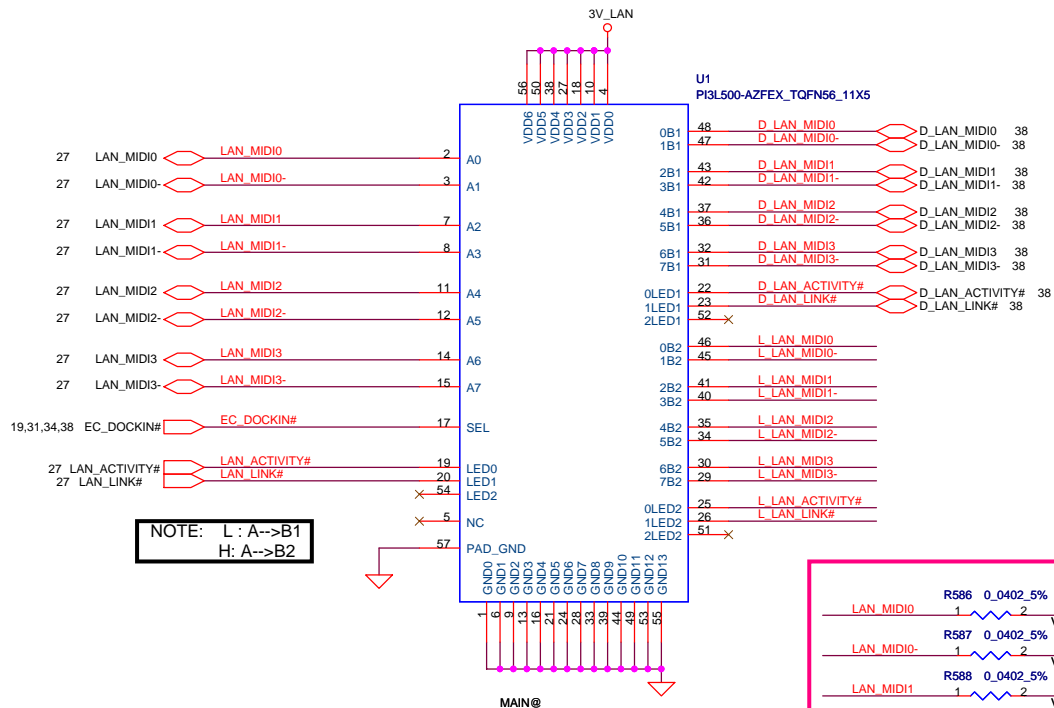
DVT SA000025P00  
(S IC BCM5764MA0KMLG QFN 68P E-LAN CTRL)

PVT SA000025P20  
(S IC BCM5764MKMLG P20 QFN 68P E-L)

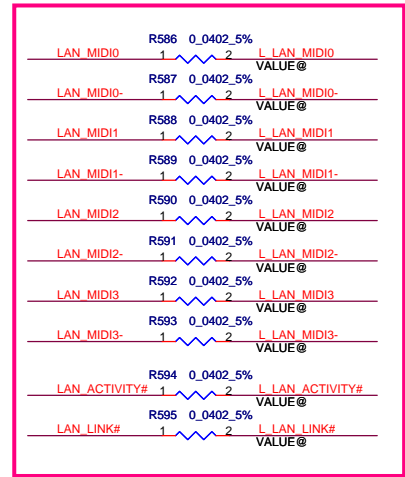


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF RA2222 DEPARTMENT EXCEPT BY AUTHORITY OF COMPAL ELECTRONICS, INC. EITHER BY THIS SHEET OR BY INFORMATION IT CONTAINS MADE PUBLIC OR DISCLOSED TO ANY THIRD PARTY WITHOUT THE PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	Rev
				401552	C
				Date	Sheet
				Friday, May 16, 2008	27 of 50

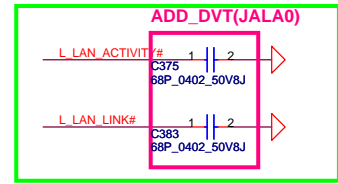
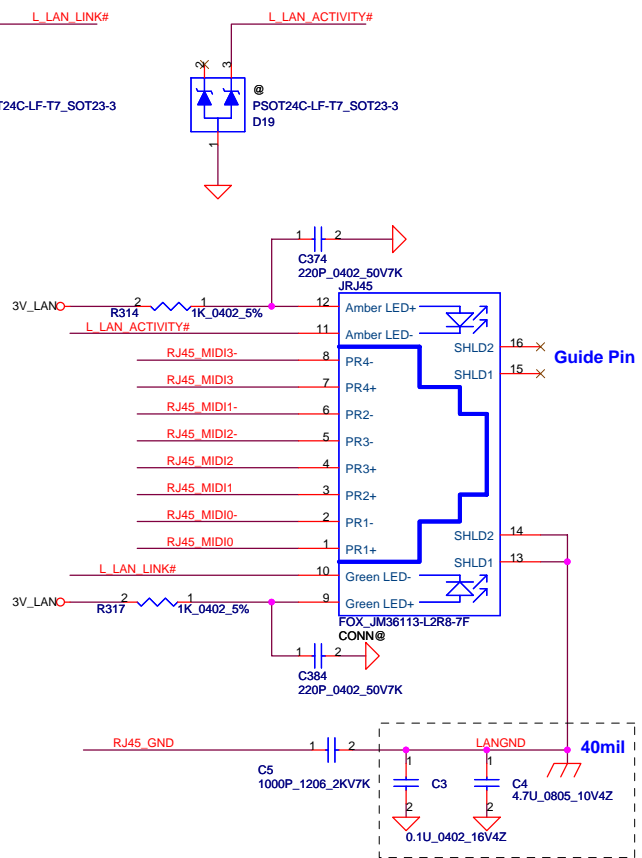




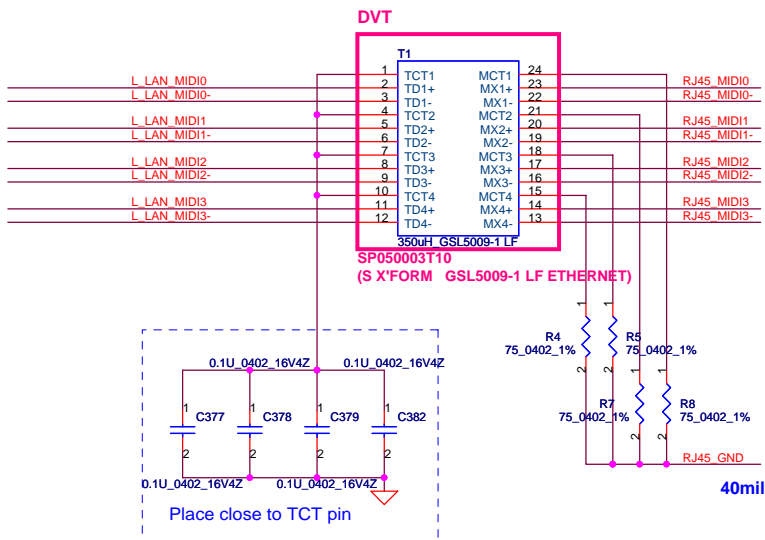
NOTE: L : A-->B1  
H: A-->B2



JALA0



For EMI

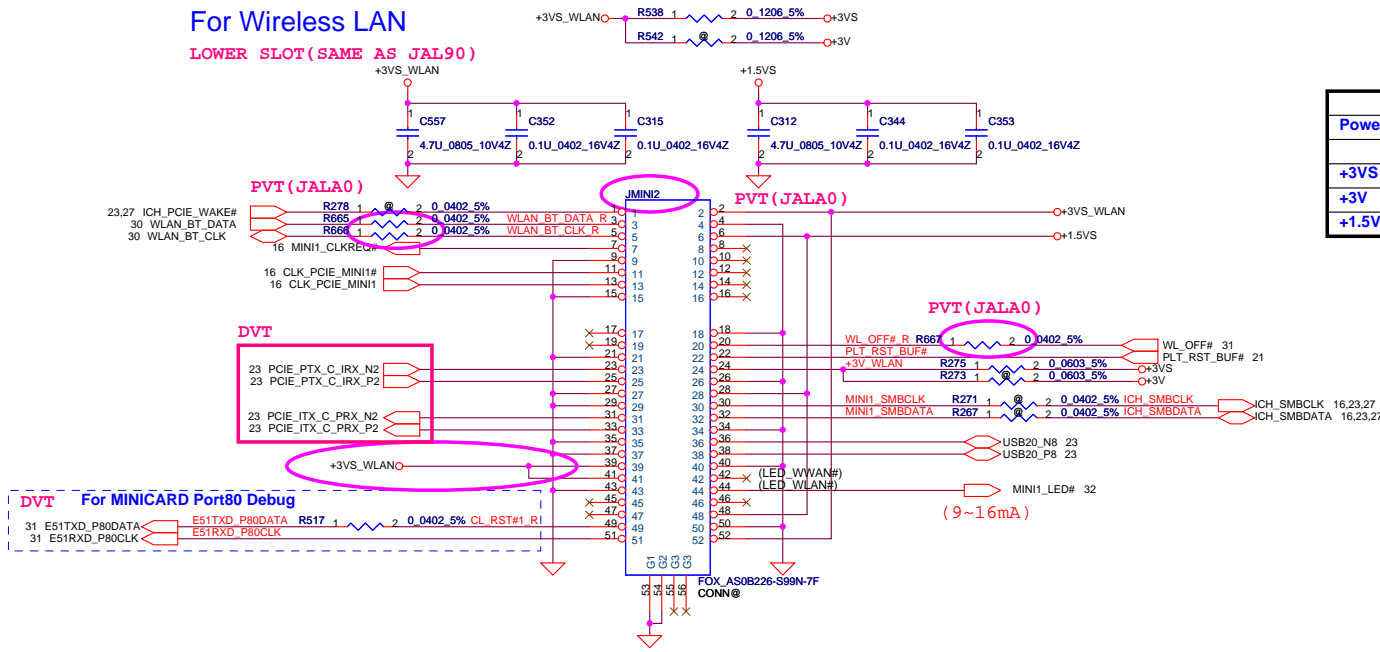


Place close to TCT pin

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2006/12/25	Deciphered Date	2007/12/25	Title	
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 TRANSMITTED 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 THE PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	Rev
				401552	C
				Date: Friday, May 16, 2008	Sheet 28 of 50

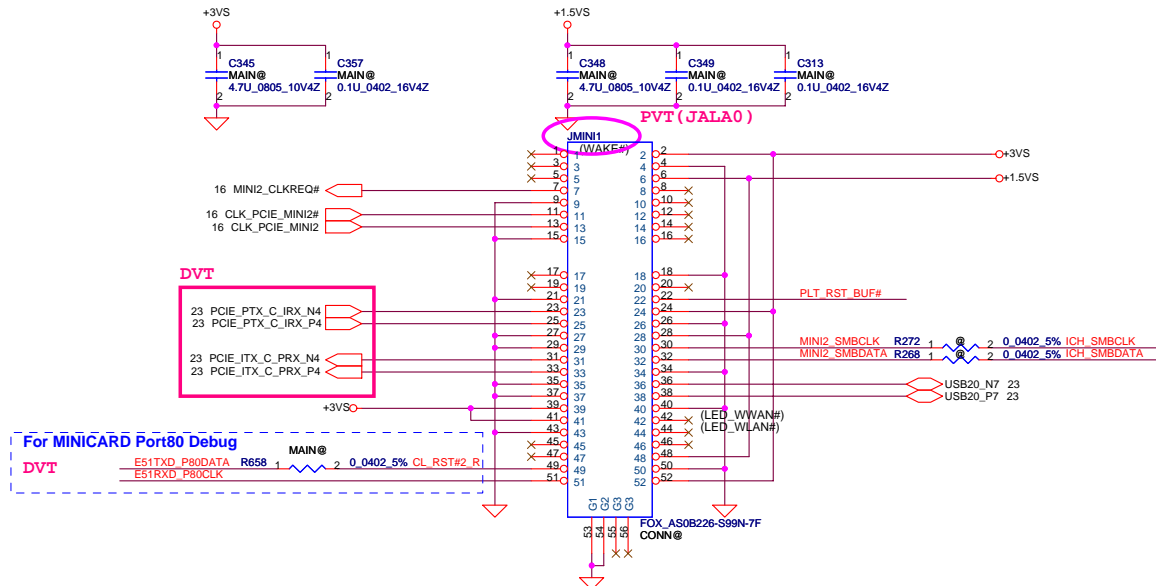
### For Wireless LAN

LOWER SLOT(SAME AS JAL90)

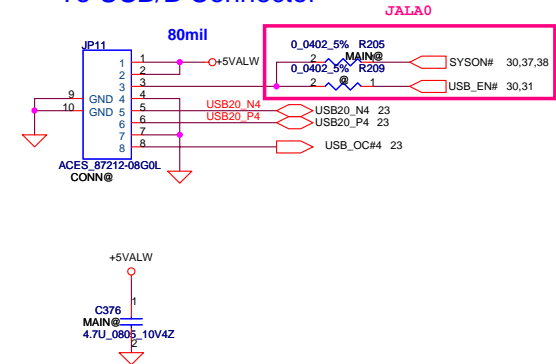


### For Robson2

UPPER SLOT(SAME AS JAL90)

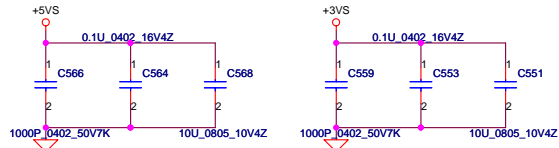


### To USB/B Connector

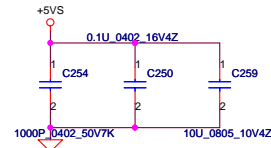
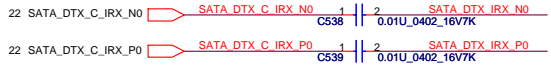
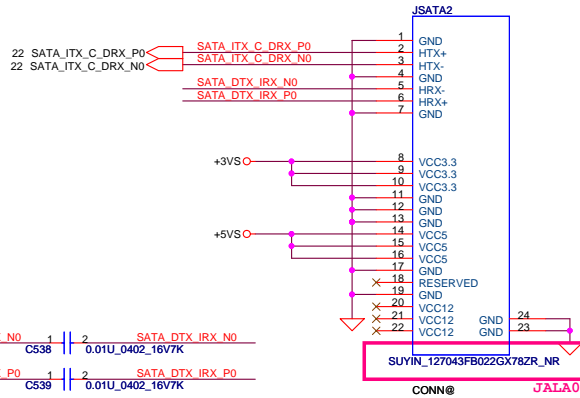


Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED, COPIED, TRANSMITTED, OR DISCLOSED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number
				401552
				Rev C
				Date: Friday, May 16, 2008
				Sheet 29 of 50

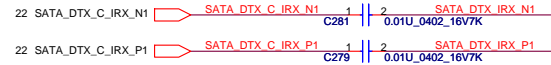
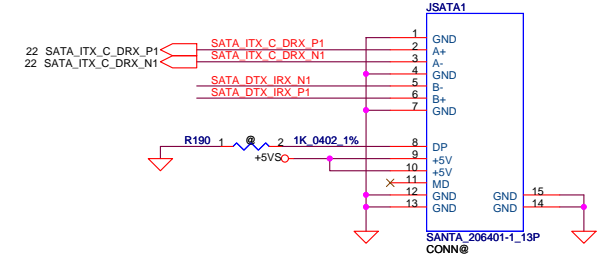




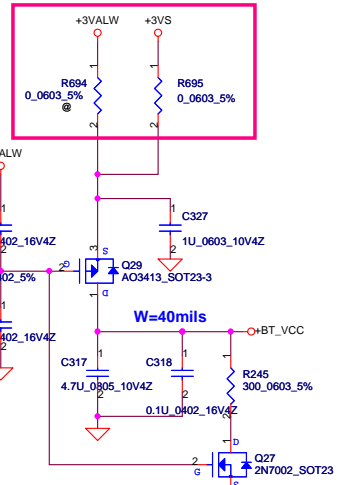
**SATA HDD Conn.**



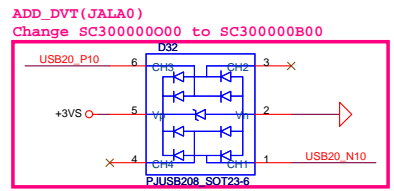
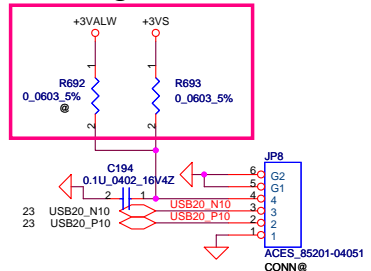
**SATA ODD Conn.**



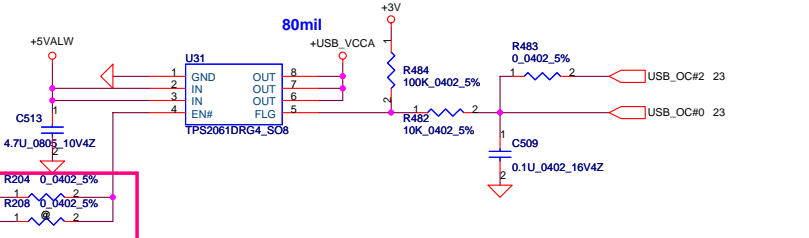
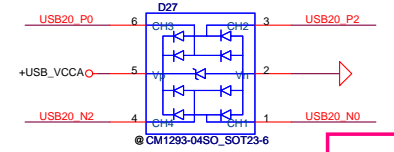
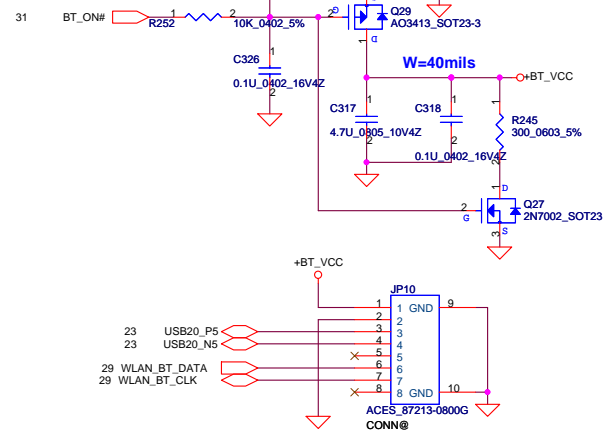
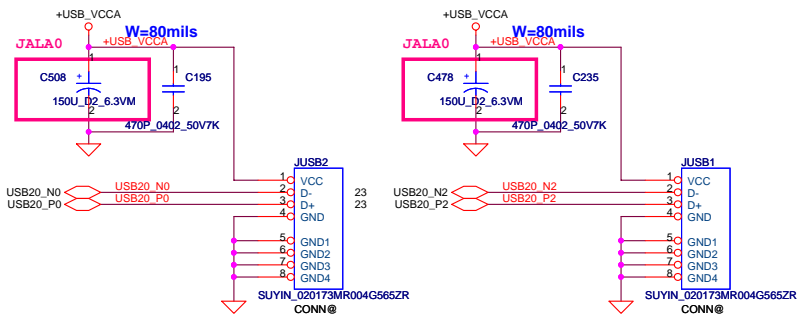
**Bluetooth Conn.**



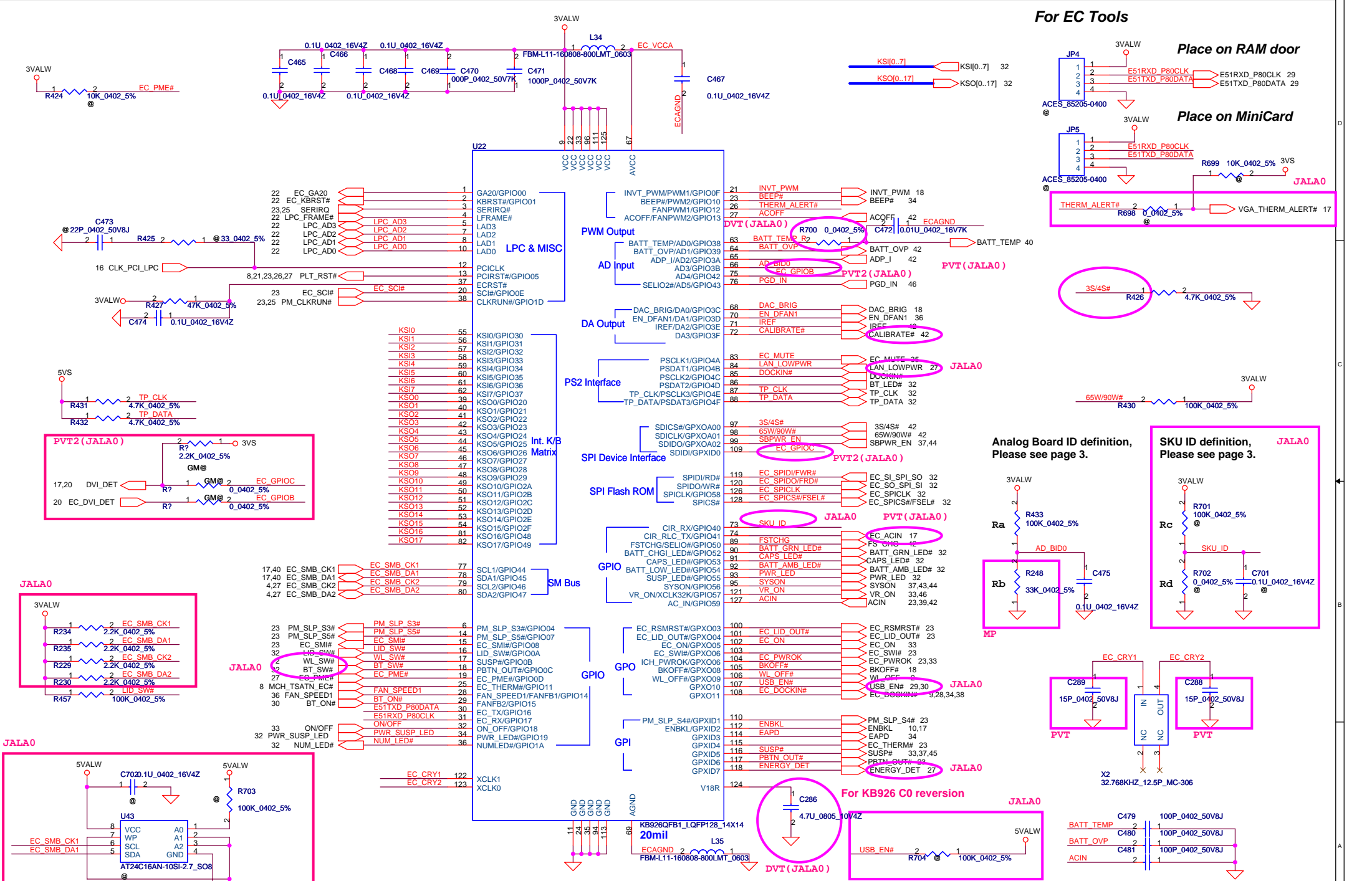
**Finger Print Conn.**



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

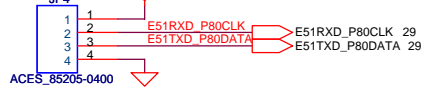


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED, COPIED, TRANSMITTED, OR DISCLOSED TO ANY THIRD PARTY WITHOUT THE PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.					
Document Number	401552	Rev	C	Date	Friday, May 16, 2008
				Sheet	30 of 50

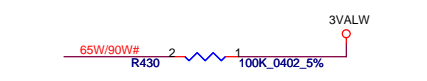
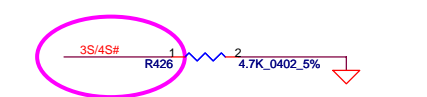
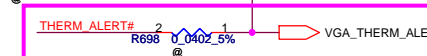
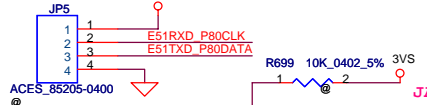


For EC Tools

Place on RAM door

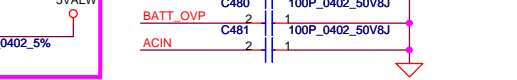
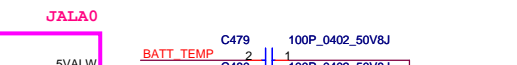
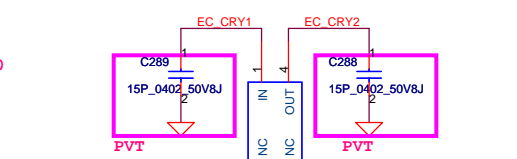
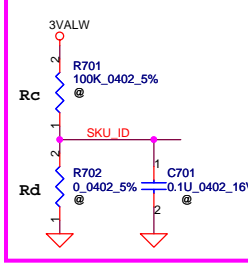
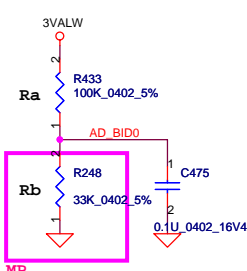


Place on MiniCard



Analog Board ID definition, Please see page 3.

SKU ID definition, Please see page 3.

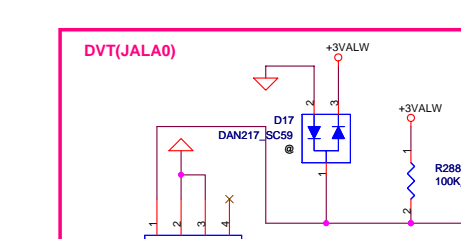
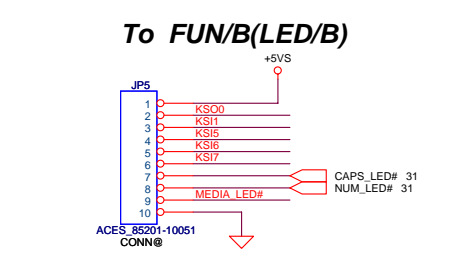
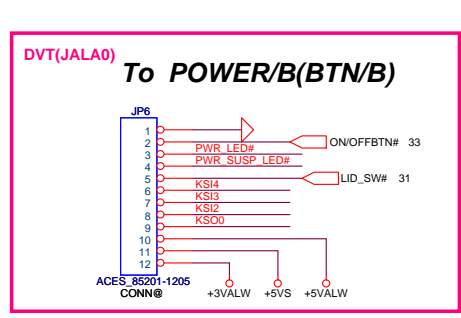
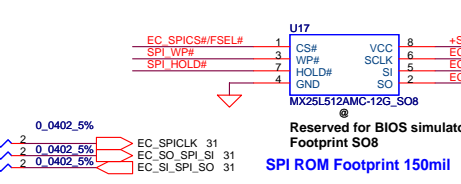
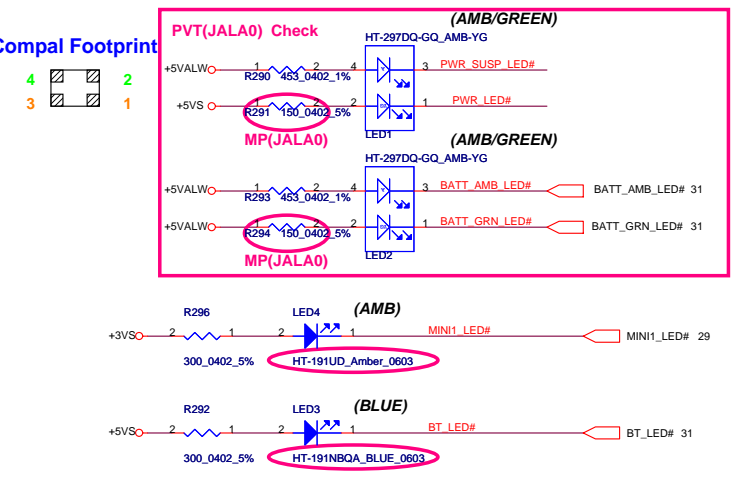
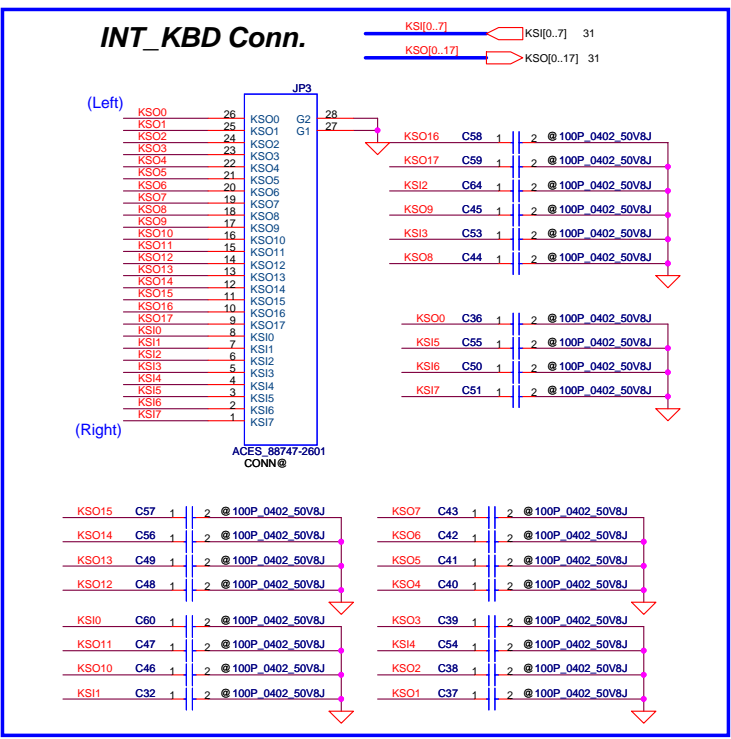
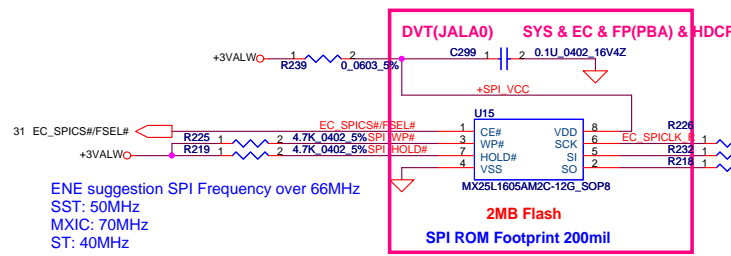


Security Classification	Compal Secret Data	
Issued Date	2007/09/20	Deciphered Date
		2008/09/20

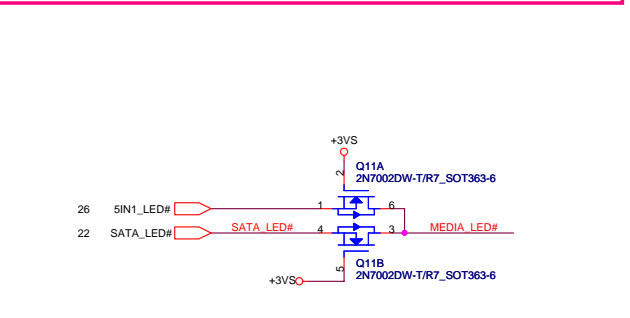
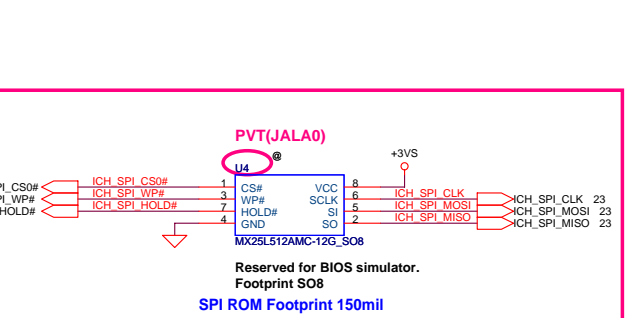
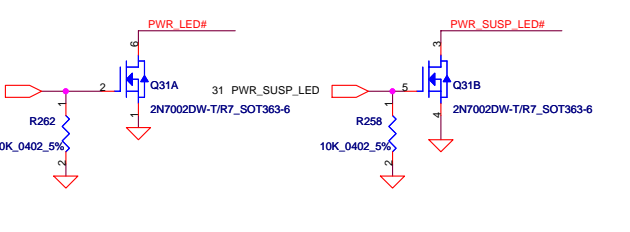
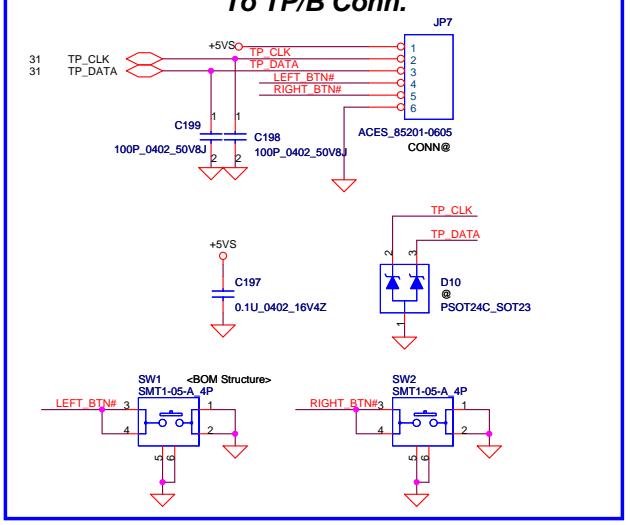
Compal Electronics, Inc.

SCHEMATIC MB A4221

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 TRANSMITTED 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.



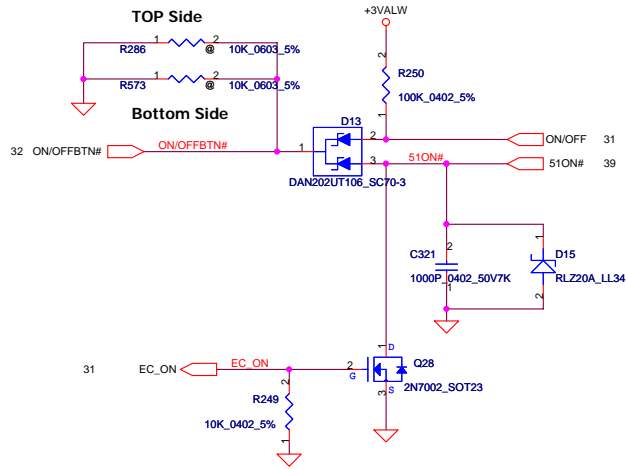
KSO0	
KSI1	PRESENTATION
KSI2	Program BTN#
KSI3	EMAIL BTN#
KSI4	IE BTN#
KSI5	E-KEY BTN#
KSI6	SYNC
KSI7	LOCK



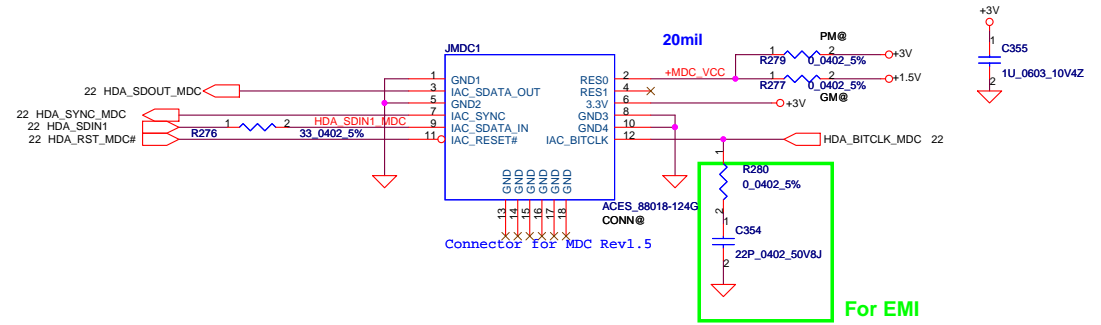
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED 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, REPRODUCED, DISCLOSED TO ANY THIRD PARTY, OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	401552
Date	Friday, May 16, 2008	Sheet	32	of	50

## Power Button

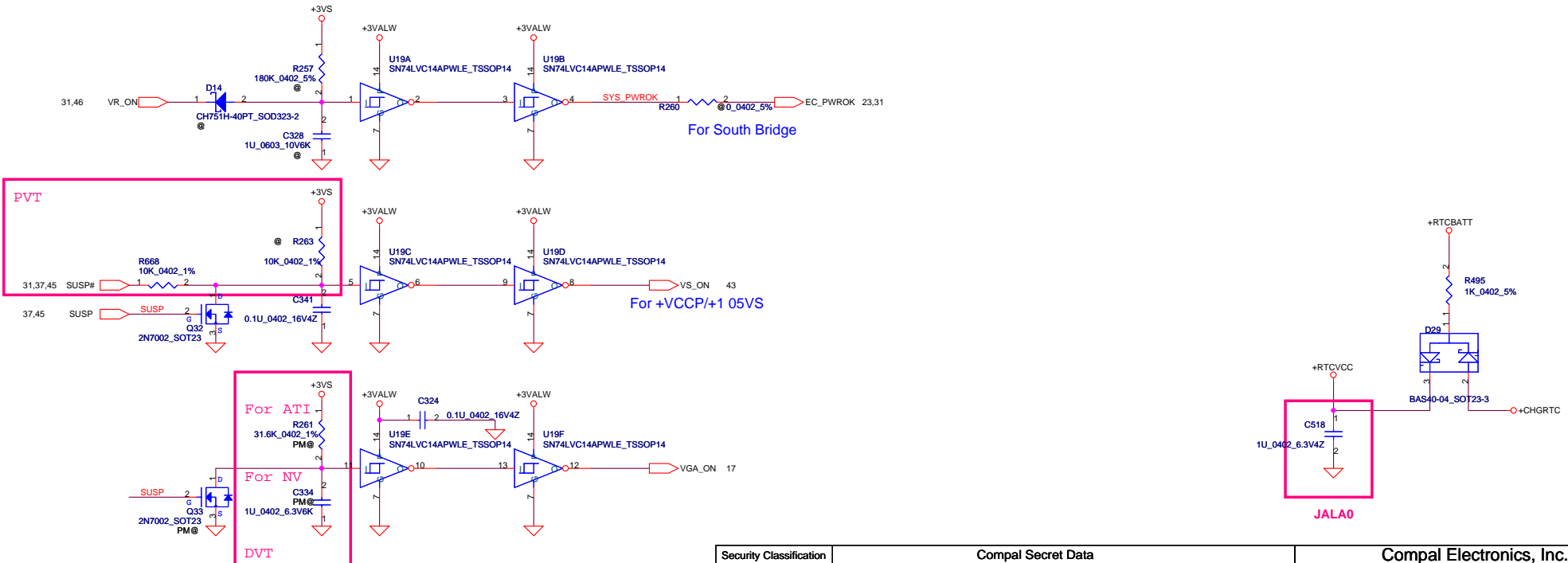
ON/OFF switch



## HDA MDC Conn.

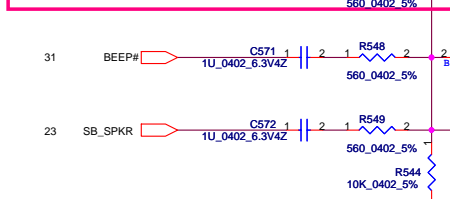


## Power ON Circuit



Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title
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 REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC.				Document Number
				401552
Date				Rev
Friday, May 16, 2008				C
Sheet				33 of 50

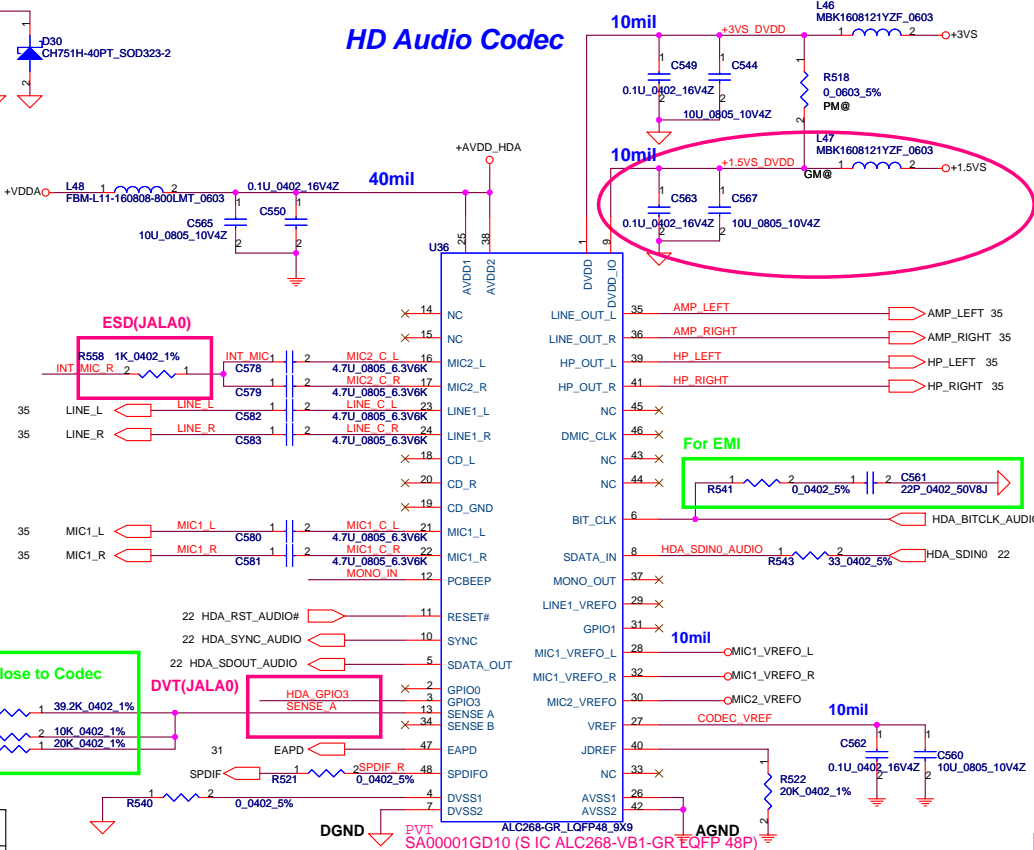
**Cardbus usage for JALA0**



**BOM Option**

ALC268	268@
ALC888S-VB	888VB@
ALC888S-VC	888VC@

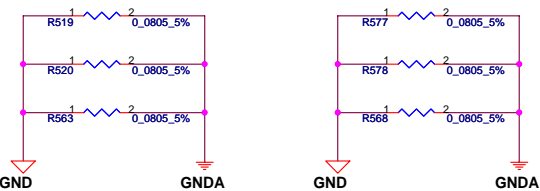
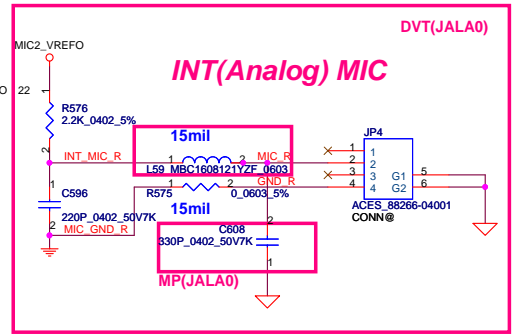
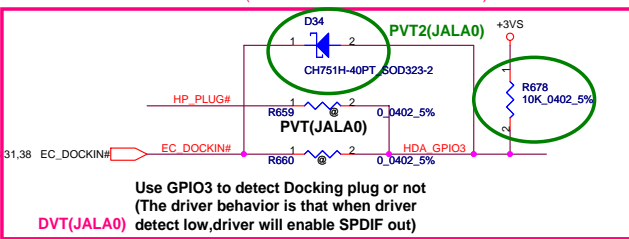
**HD Audio Codec**



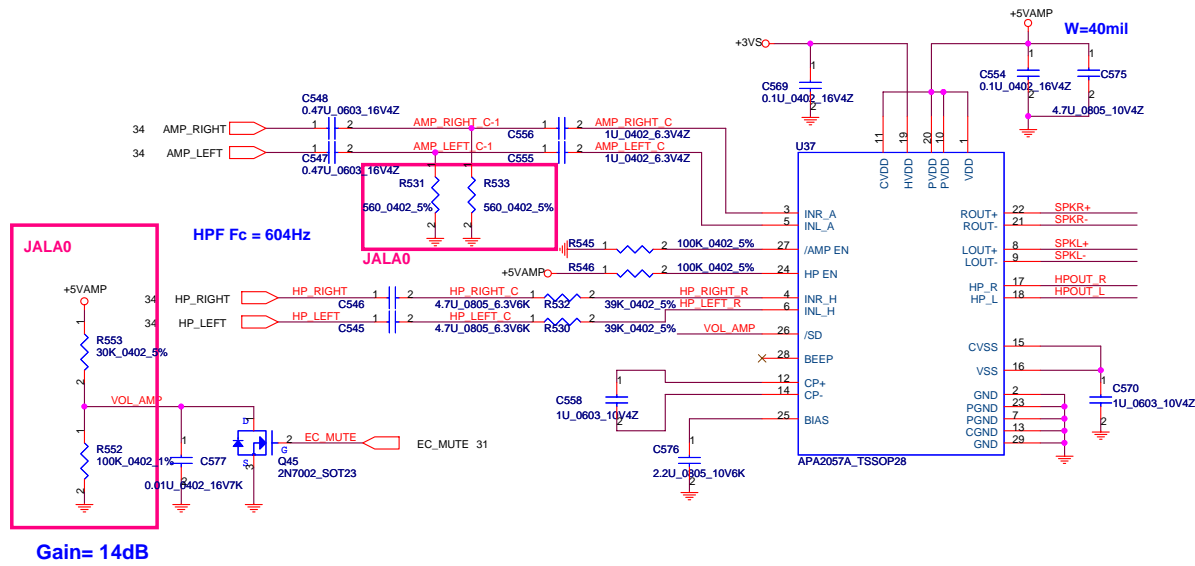
**Place close to Codec**

**HDA GPIO3 SENSE A**

Sense Pin	Impedance	Codec Signals
SENSE A	39.2K	PORT-A (PIN 39, 41)
	20K	PORT-B (PIN 21, 22)
	10K	PORT-C (PIN 23, 24)
	5.1K	PORT-D (PIN 35, 36)
SENSE B	39.2K	PORT-E (PIN 14, 15)
	20K	PORT-F (PIN 16, 17)
	10K	PORT-G (PIN 43, 44)
	5.1K	PORT-H (PIN 45, 46)

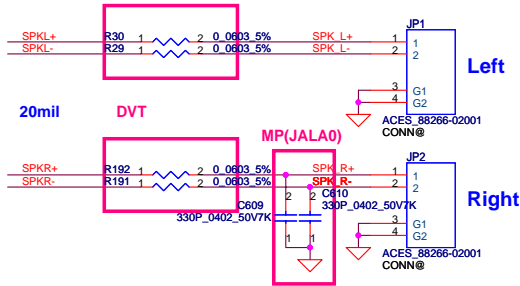


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.					
Document Number	401552	Rev	C	Date	Friday, May 16, 2008
				Sheet	34 of 50

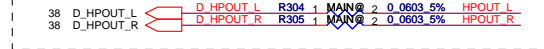


Gain= 14dB

**Int. Speaker Conn.**



**For Docking**



**For Docking**



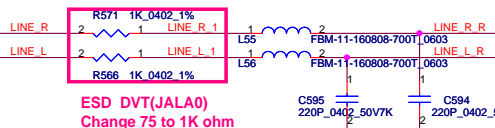
**For Docking**



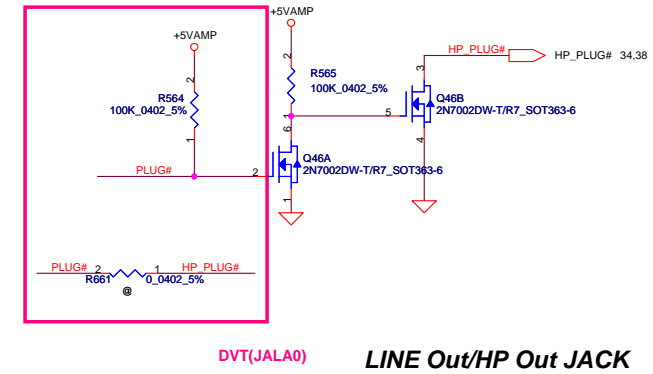
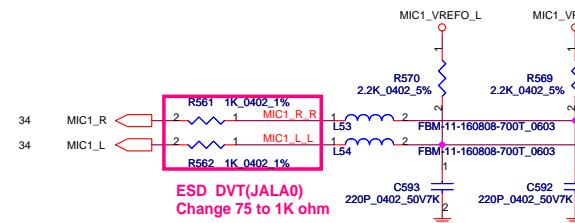
FSOV MP(JALAO)  
Change 75 to 54.9 ohm



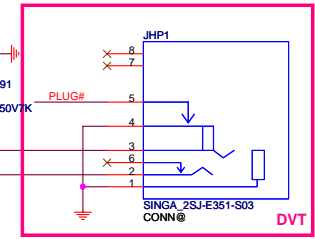
ESD DVT(JALAO)  
Change 75 to 1K ohm



ESD DVT(JALAO)  
Change 75 to 1K ohm

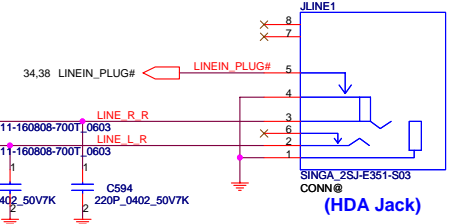


**LINE Out/HP Out JACK**



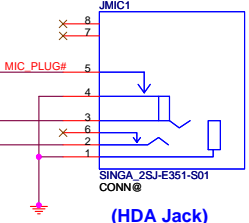
Change part

**LINE-IN JACK**



(HDA Jack)

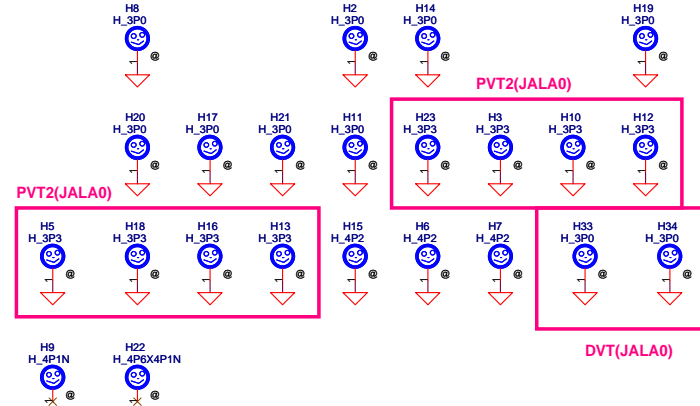
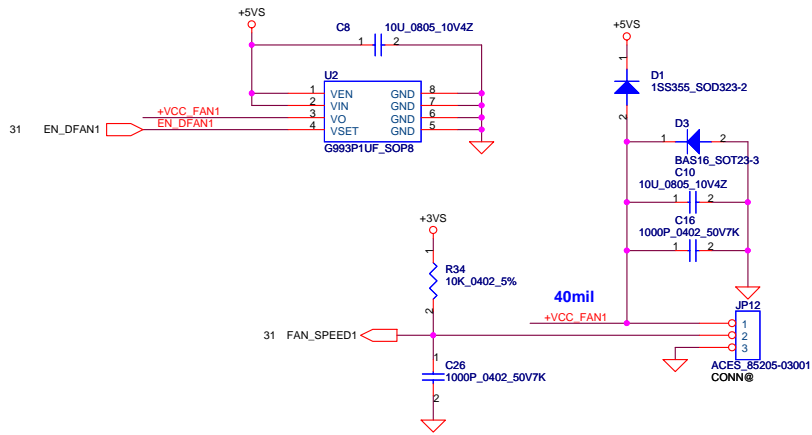
**MIC JACK**



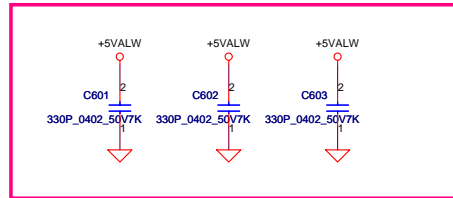
(HDA Jack)

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
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 REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC.					
Document Number	401552	Rev	C	Date	Friday, May 16, 2008
				Sheet	35 of 50

### FAN1 Conn



### EMI



ADD DVT(JALA0)

### EMI



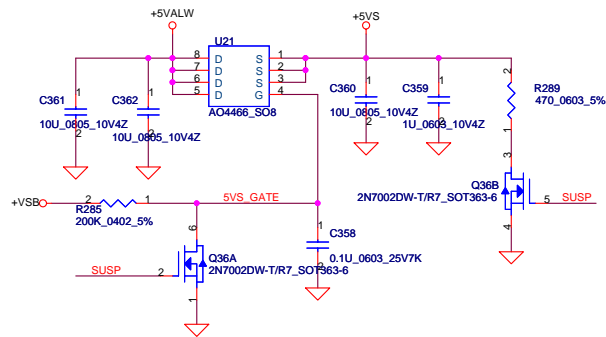
ADD PVT(JALA0)



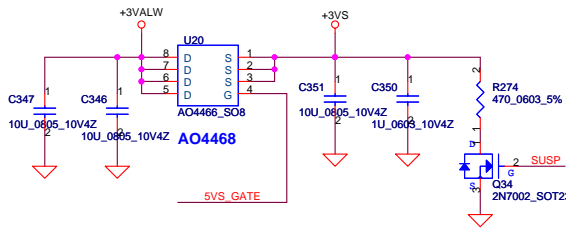
Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED 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.				Document Number
				401552
				Rev C
Date				Friday, May 16, 2008
				Sheet 36 of 50



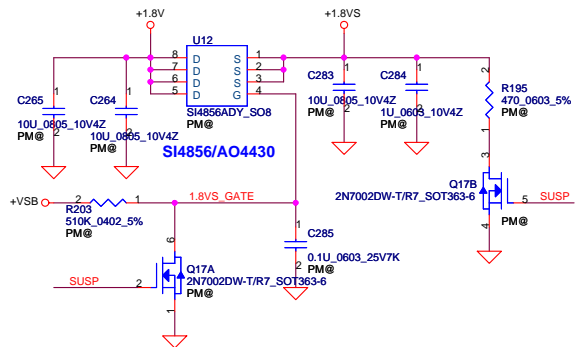
**+5VALW TO +5VS**



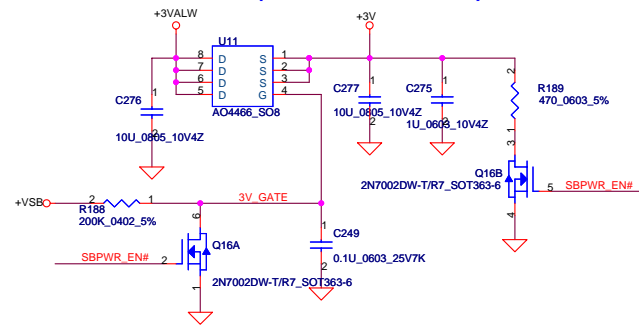
**+3VALW TO +3VS**



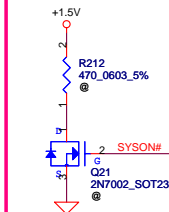
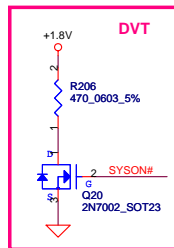
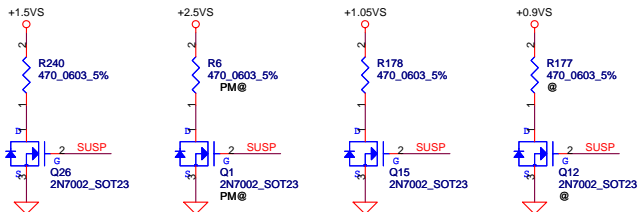
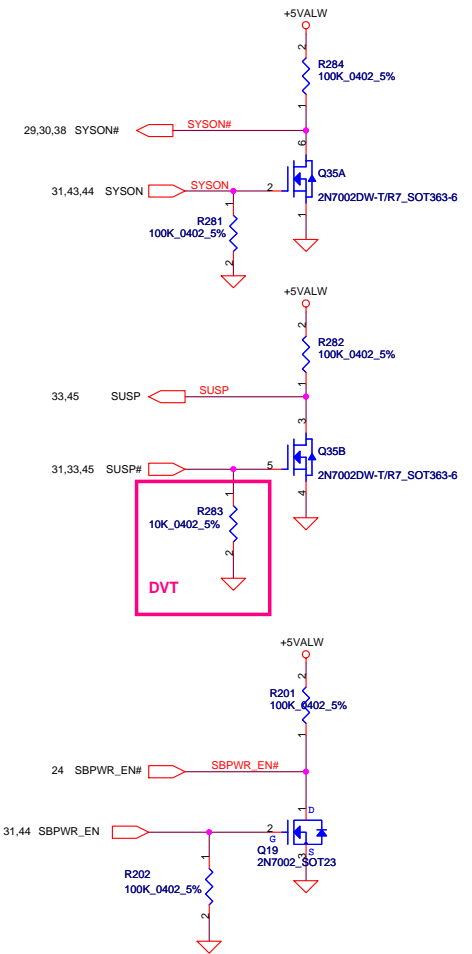
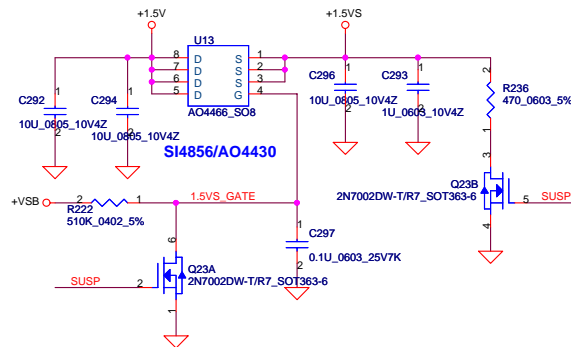
**+1.8V to +1.8VS**



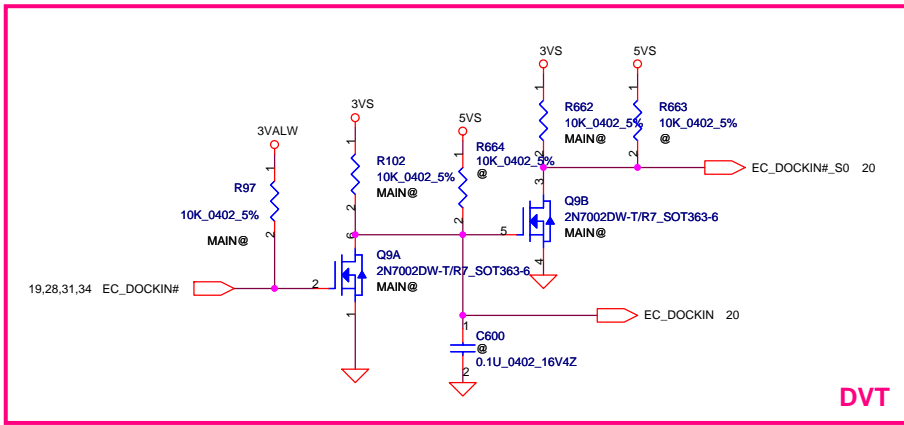
**+3VALW TO +3V(ICH9M AUX Power)**



**+1.5V to +1.5VS**

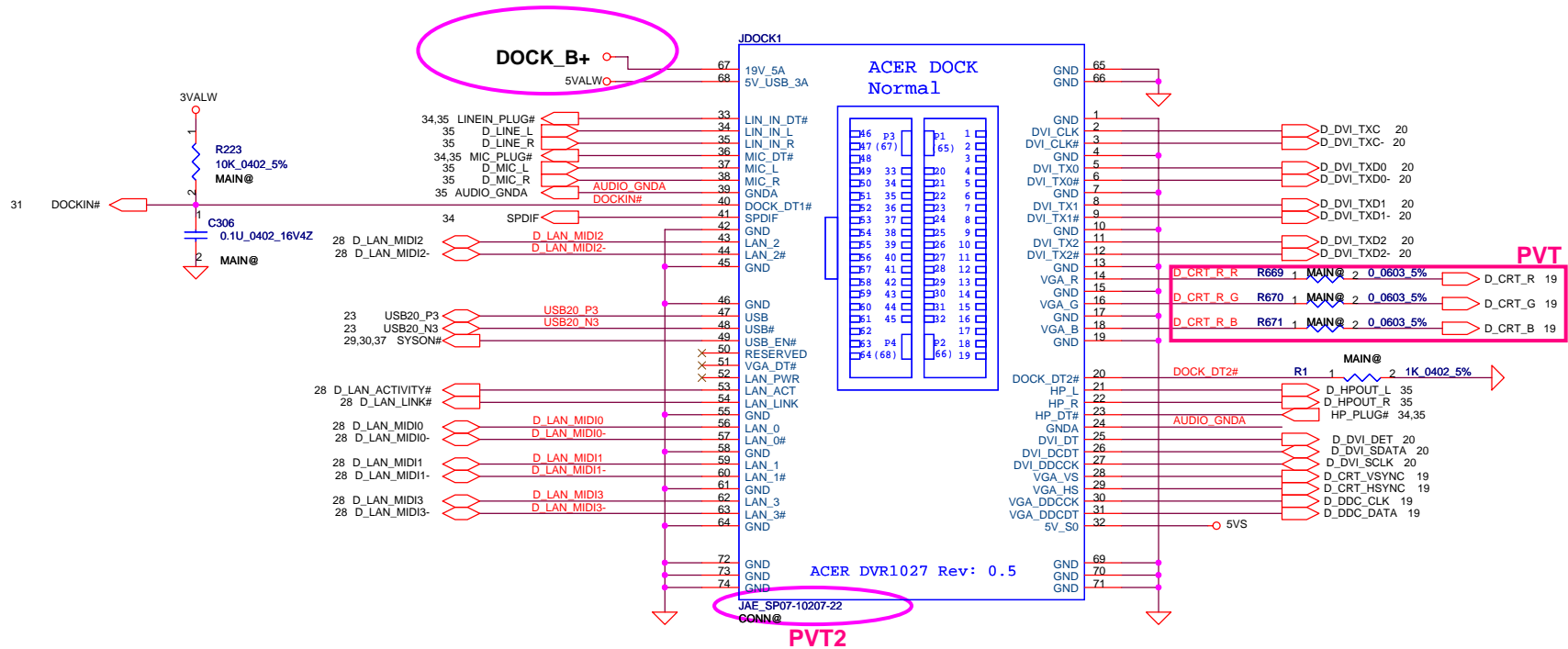


Security Classification	Compal Secret Data			Compal Electronics, Inc.			
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title			
				SCHEMATIC MB A4221			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	401552	Rev	C
				Date	Friday, May 16, 2008	Sheet	37 of 50



DVT

10/15 Acer DVR 1028 Rev0.3



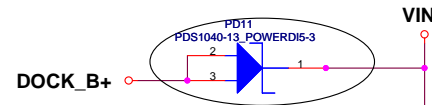
PVT

PVT2

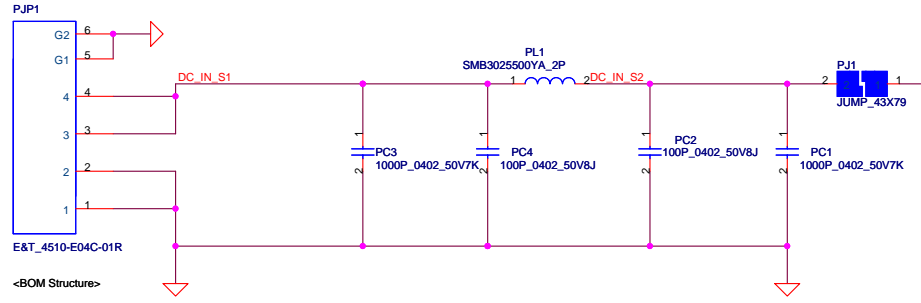
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED 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.				Document Number	Rev
				401552	C
				Date: Friday, May 16, 2008	Sheet 38 of 50

www.laptopfix.vn

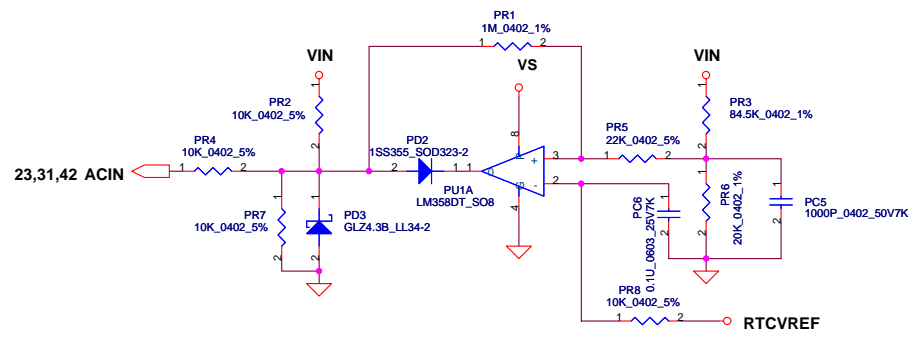
Place at HW side



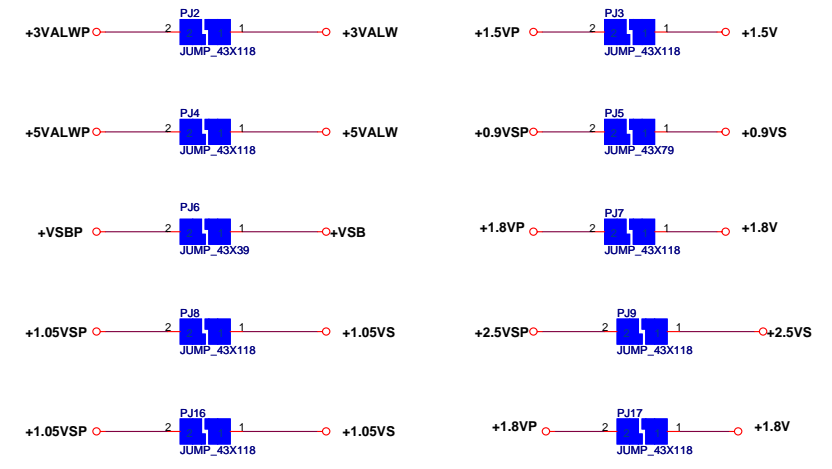
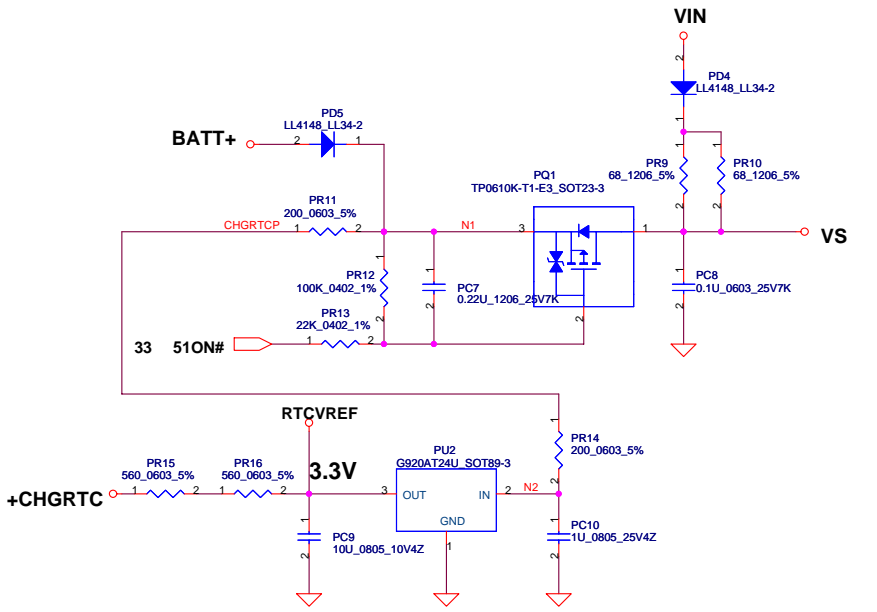
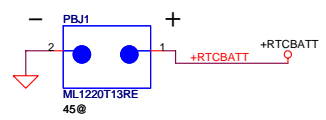
SP02000EF00



<BOM Structure>



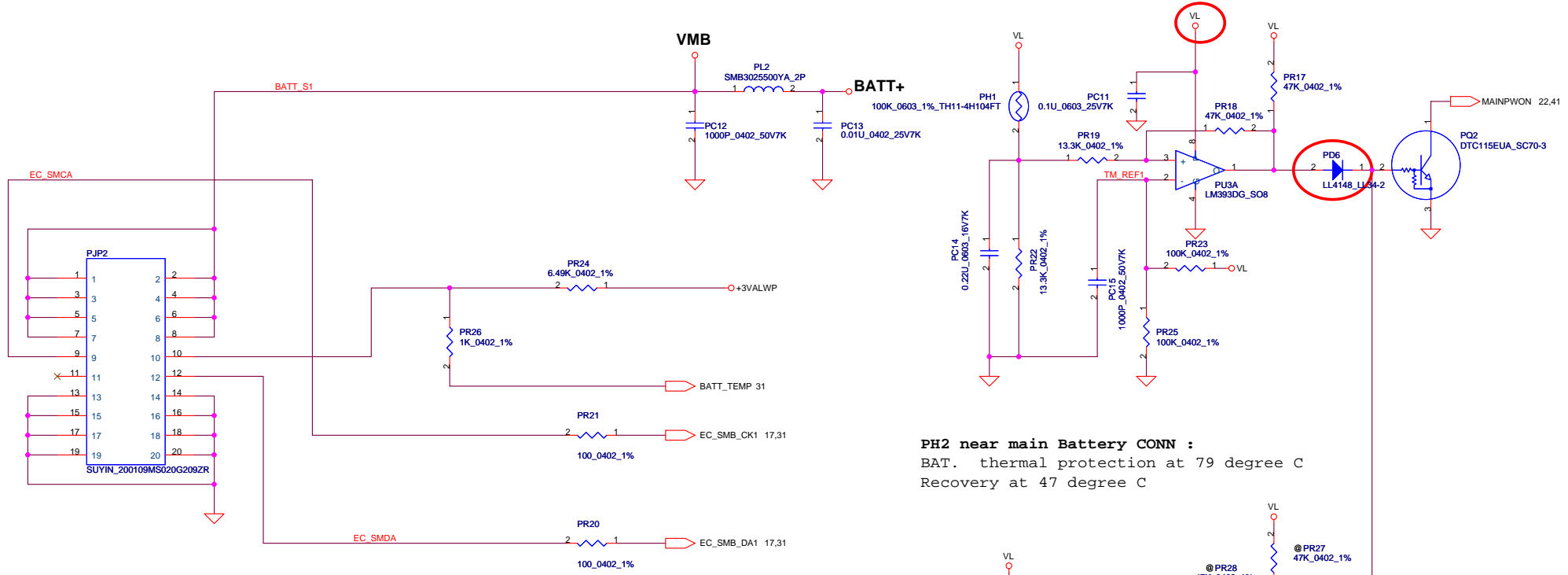
Vin Dectector			
	Min.	Typ	Max.
H-->L	16.976V	17.525V	17.728V
L-->H	17.430V	17.901V	18.384V



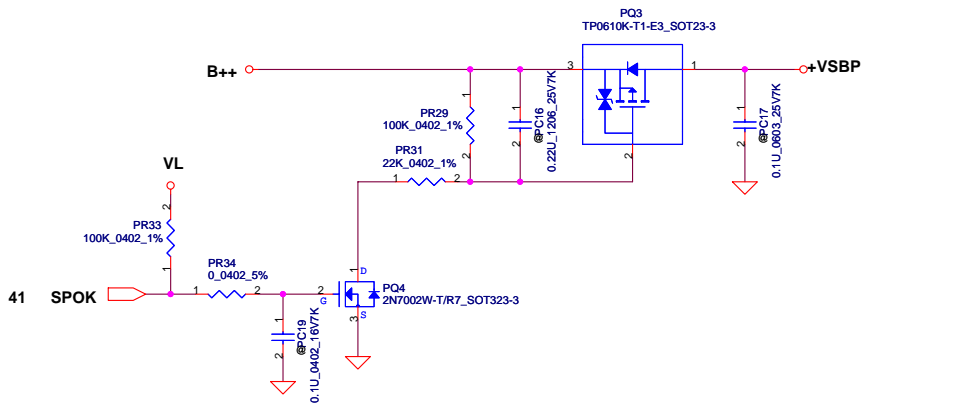
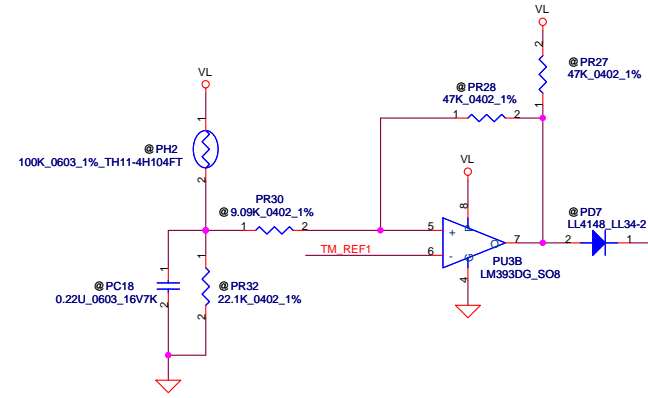
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. IT IS TO BE KEPT FROM THE PUBLIC AND THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE REPRODUCED OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	401552
Date	Friday, May 16, 2008	Sheet	39	of	50

www.laptopfix.vn

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

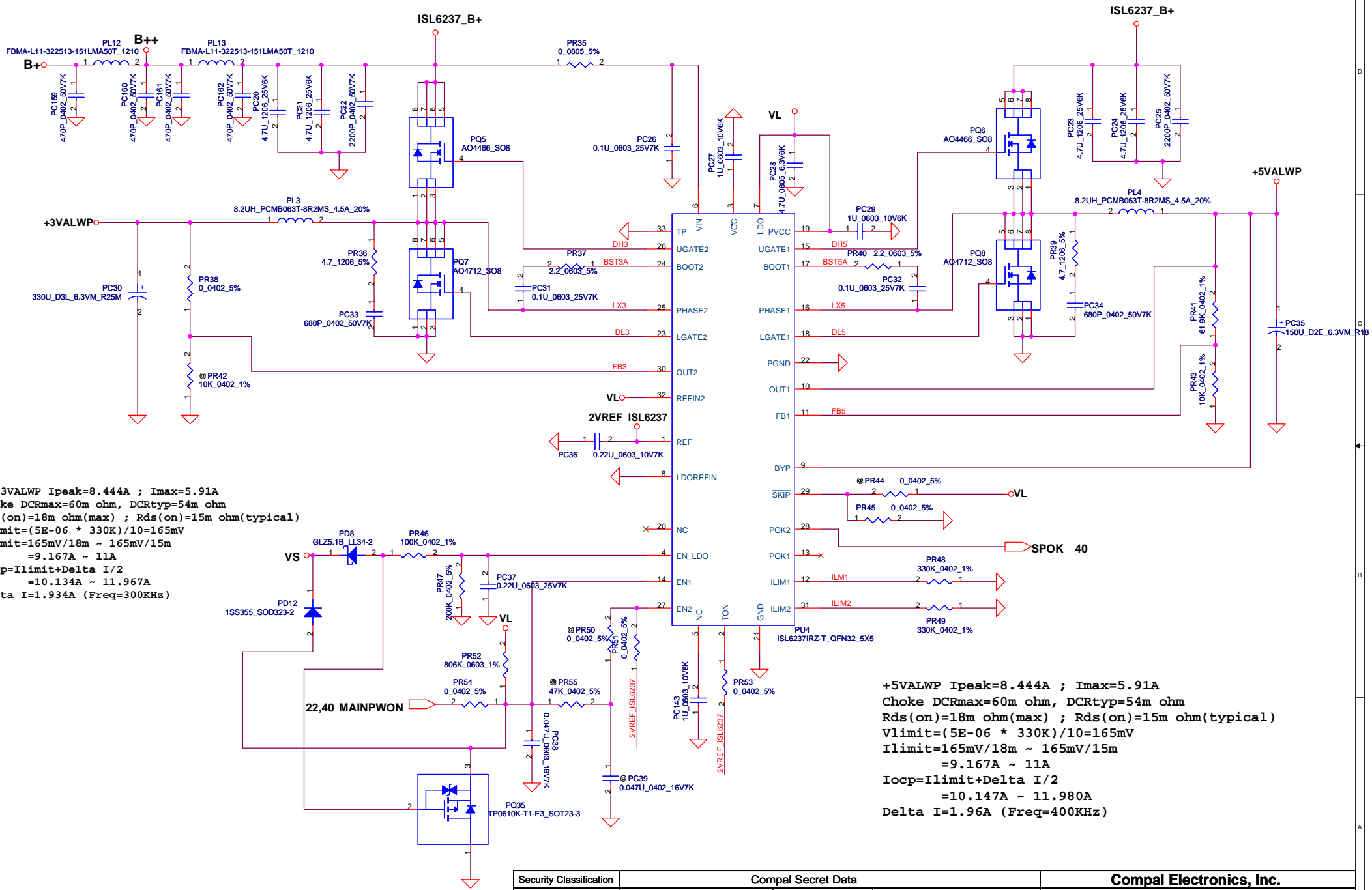


PH2 near main Battery CONN :  
 BAT. thermal protection at 79 degree C  
 Recovery at 47 degree C



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. IT IS TO BE KEPT STRICTLY CONFIDENTIAL AND NOT DISCLOSED TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	401552
				Date	Friday, May 16, 2008
				Sheet	40 of 50
				Rev	C

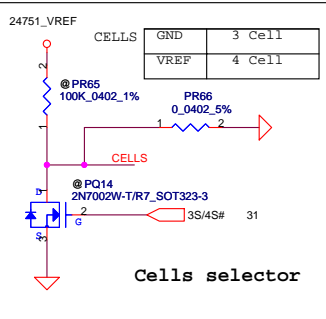
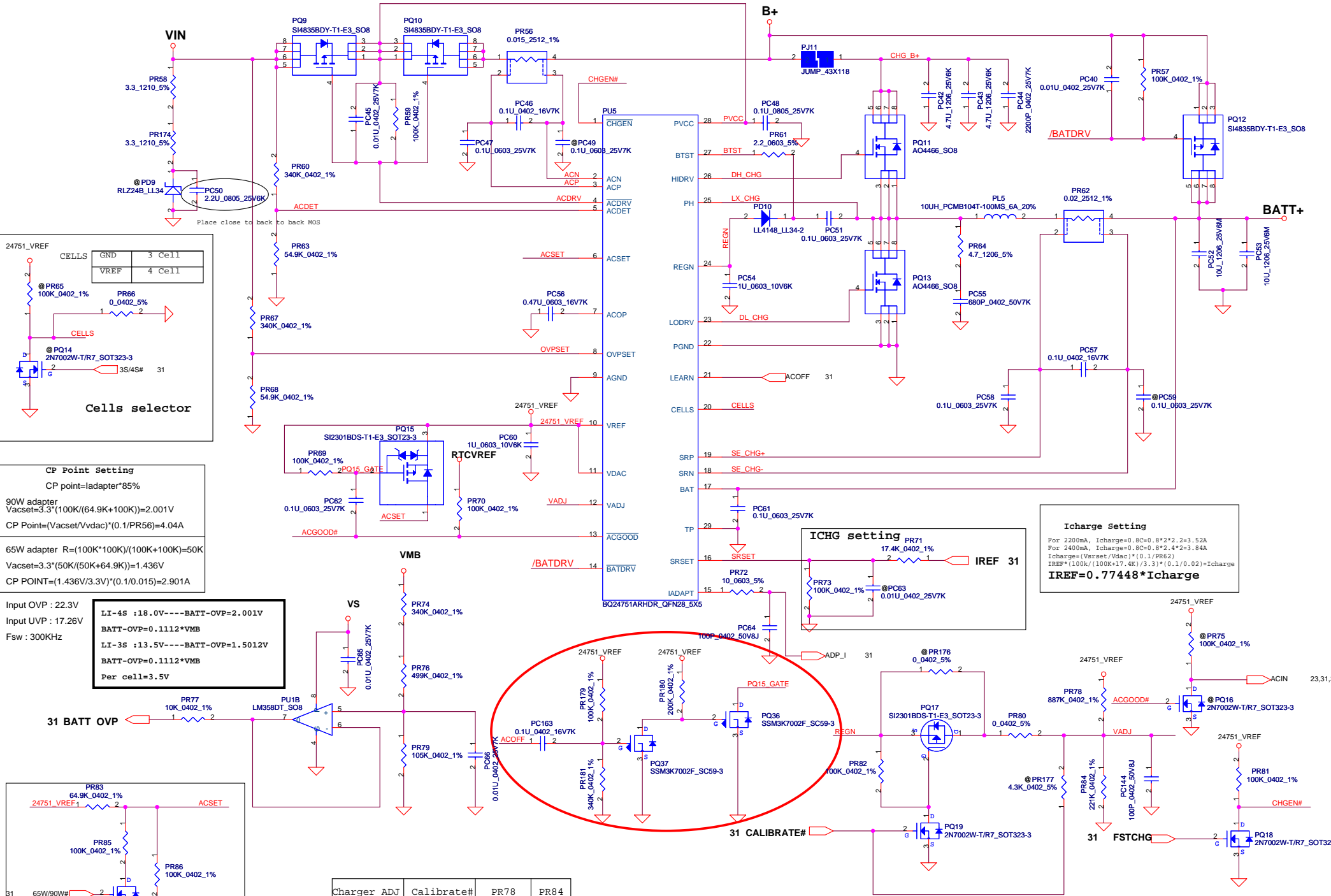
www.laptopfix.vn



+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)  
 $V_{limit} = (5E-06 * 330K) / 10 = 165mV$   
 $I_{limit} = 165mV / 18m \sim 165mV / 15m$   
 $= 9.167A \sim 11A$   
 $I_{ocp} = I_{limit} + \Delta I / 2$   
 $= 10.134A \sim 11.967A$   
 $\Delta I = 1.934A$  (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)  
 $V_{limit} = (5E-06 * 330K) / 10 = 165mV$   
 $I_{limit} = 165mV / 18m \sim 165mV / 15m$   
 $= 9.167A \sim 11A$   
 $I_{ocp} = I_{limit} + \Delta I / 2$   
 $= 10.147A \sim 11.980A$   
 $\Delta I = 1.96A$  (Freq=400KHz)

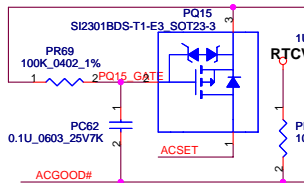
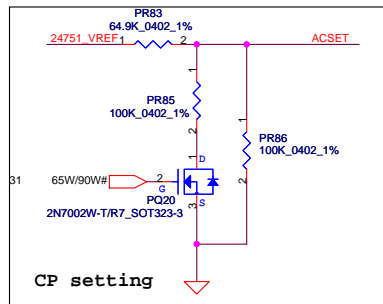
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED 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.					
Size	Document Number	Date		Sheet	Rev
	401552	Friday, May 16, 2008		41	C
				of	50



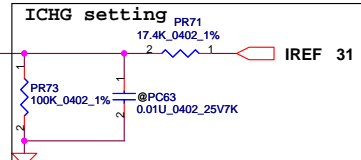
**CP Point Setting**  
 CP point=ladapter\*85%  
 90W adapter  
 $V_{acset}=3.3 \cdot (100K / (64.9K + 100K)) = 2.001V$   
 $CP\ Point = (V_{acset} / V_{vdac}) \cdot (0.1 / PR56) = 4.04A$   
 65W adapter  $R = (100K \cdot 100K) / (100K + 100K) = 50K$   
 $V_{acset} = 3.3 \cdot (50K / (50K + 64.9K)) = 1.436V$   
 $CP\ POINT = (1.436V / 3.3V) \cdot (0.1 / 0.015) = 2.901A$

Input OVP : 22.3V  
 Input UVP : 17.26V  
 Fsw : 300KHz

LI-4S : 18.0V --- BATT-OVP=2.001V  
 BATT-OVP=0.1112 \* VMB  
 LI-3S : 13.5V --- BATT-OVP=1.5012V  
 BATT-OVP=0.1112 \* VMB  
 Per cell=3.5V



Charger ADJ	Calibrate#	PR78	PR84
4.0V	L	@	@
4.1V	L	887K	221K
4.2V	H		

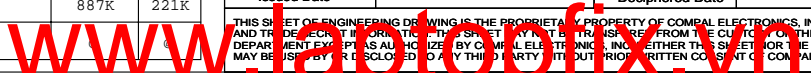


**Icharge Setting**  
 For 2200mA,  $I_{charge} = 0.8C = 0.8 \cdot 2.2 = 3.52A$   
 For 2400mA,  $I_{charge} = 0.8C = 0.8 \cdot 2.4 = 3.84A$   
 $I_{charge} = (V_{acset} / V_{dac}) \cdot (0.1 / PR62)$   
 $IREF = (100K / (100K + 17.4K)) \cdot (3.3) \cdot (0.1 / 0.02) = I_{charge}$   
 **$IREF = 0.77448 \cdot I_{charge}$**

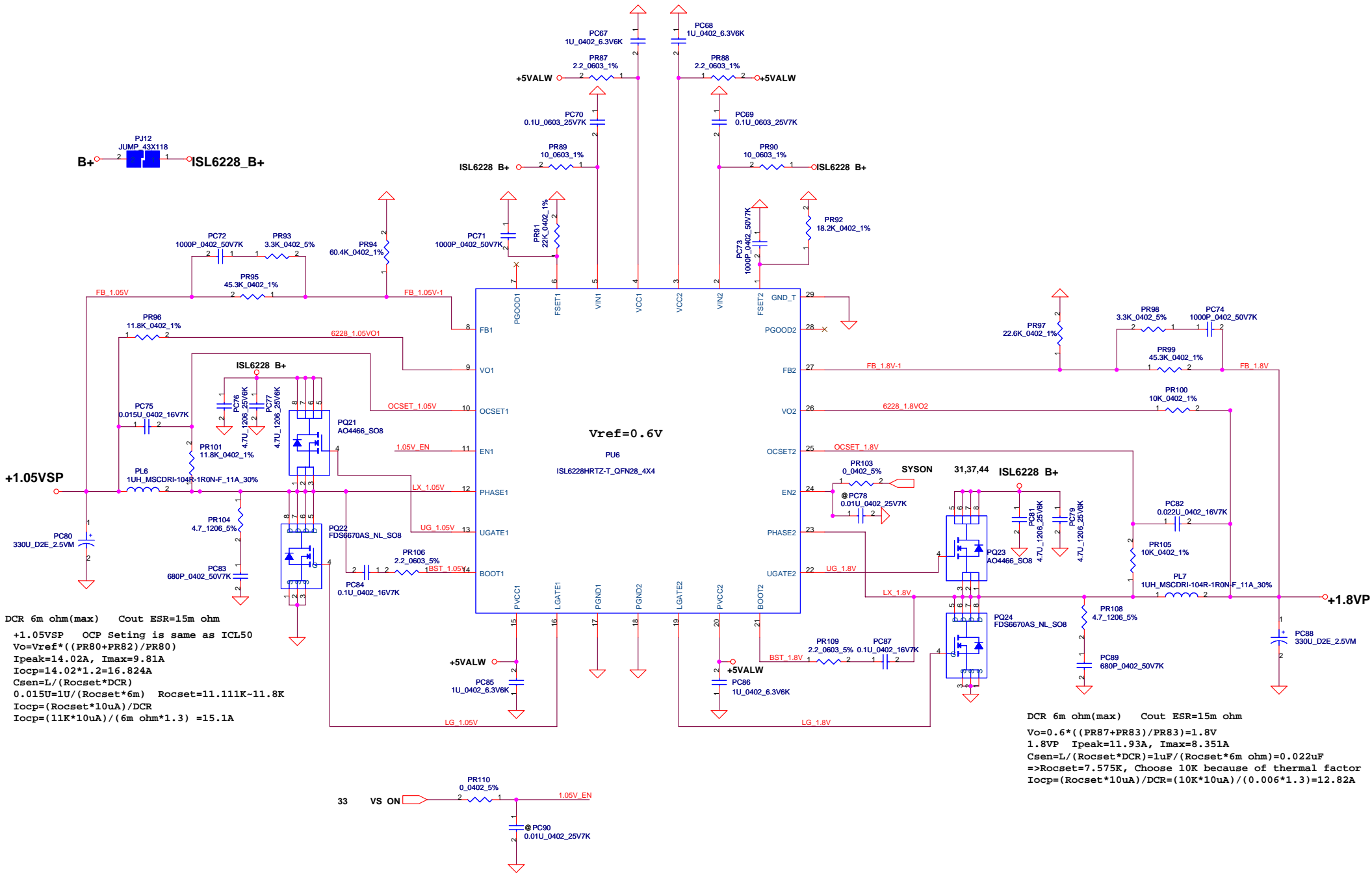
Security Classification: **Compal Secret Data**  
 Issued Date: 2007/09/20  
 Deciphered Date: 2008/09/20

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. IT IS TO BE KEPT STRICTLY CONFIDENTIAL AND NOT TO BE DISCLOSED TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

**Compal Electronics, Inc.**  
**SCHEMATIC MB A4221**  
 Document Number: **401552**  
 Date: Friday, May 16, 2008 | Sheet: 42 of 50

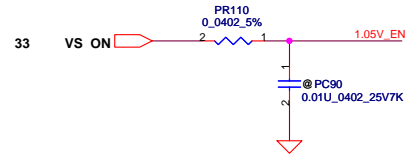






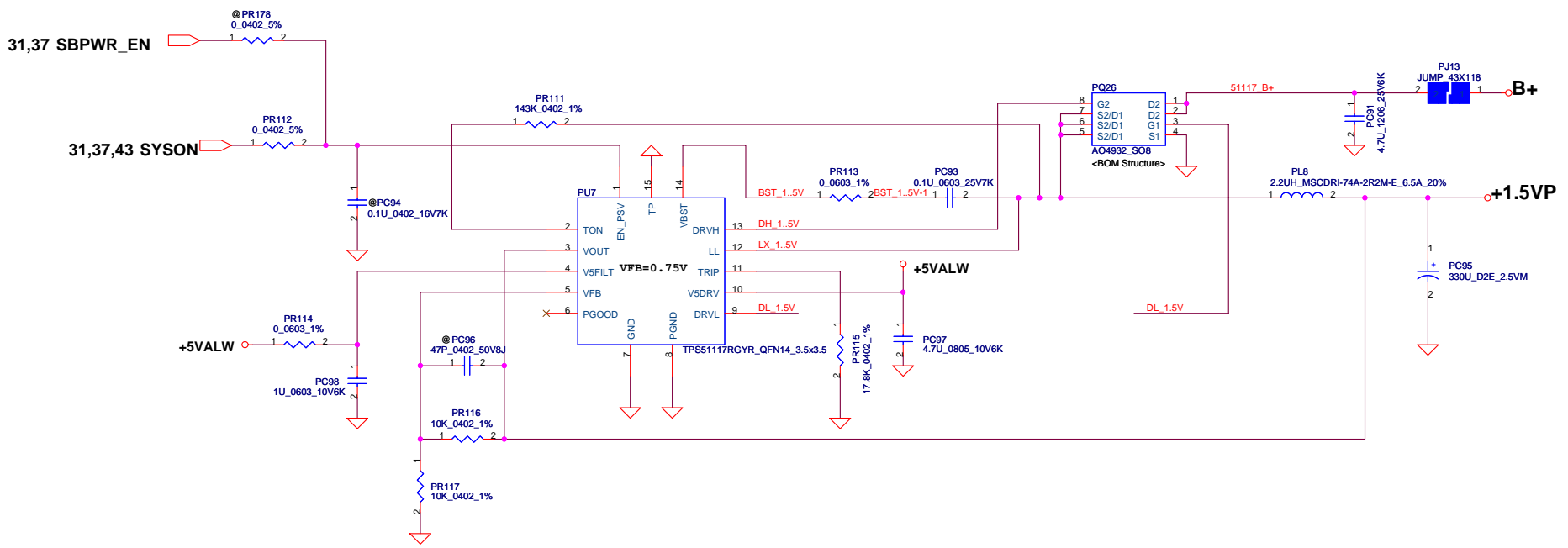
DCR 6m ohm(max) Cout ESR=15m ohm  
 +1.05VSP OCP Setting is same as ICL50  
 $V_o = V_{ref} * ((PR80 + PR82) / PR80)$   
 $I_{peak} = 14.02A$ ,  $I_{max} = 9.81A$   
 $I_{ocp} = 14.02 * 1.2 = 16.824A$   
 $C_{sen} = L / (Rocset * DCR)$   
 $0.015u = 1u / (Rocset * 6m)$  Rocset = 11.111K-11.8K  
 $I_{ocp}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

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



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. IT IS TO BE USED ONLY BY THE COMPETENT DIVISION OF R&D.				Document Number	401552
DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE REPRODUCED OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Date	Friday, May 16, 2008
				Sheet	43 of 50

www.laptopfix.vn

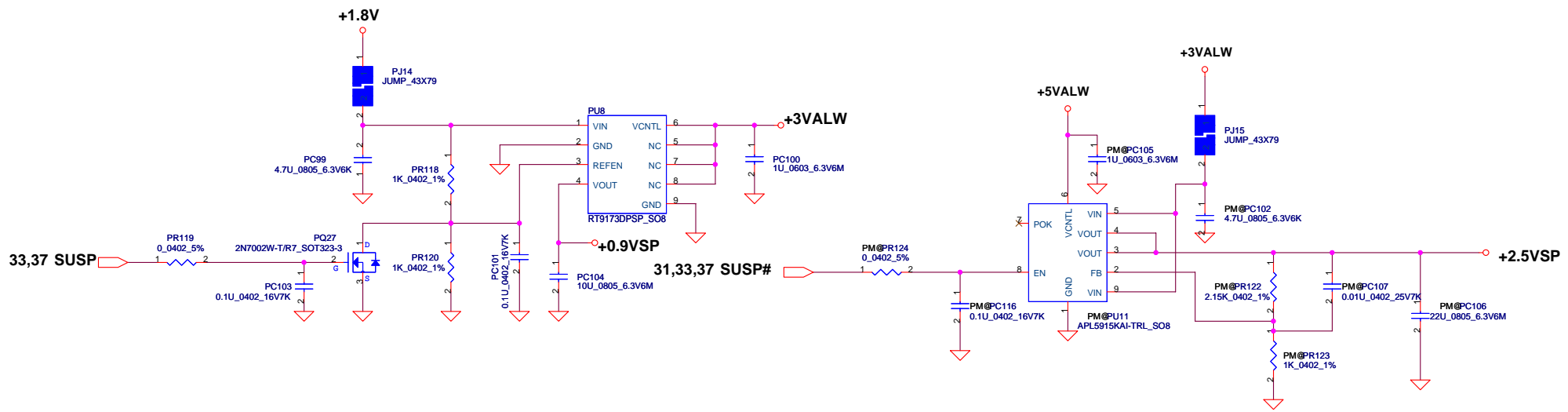


VFB=0.75V  
 $V_o = VFB * (1 + PR87 / PR88) = 0.75 * (1 + 10K / 10K) = 1.5V$   
 $Ton = 19 * e^{-12} * 143000 * ((2/3) * V_o + 100mV) / 19 + 50ns$   
 $= 2.645e-7 \text{ us}$   
 $=> V_o / Vin = D = Ton / Ts \Rightarrow Ts = 3.35us$   
 $Fsw = 298KHz$

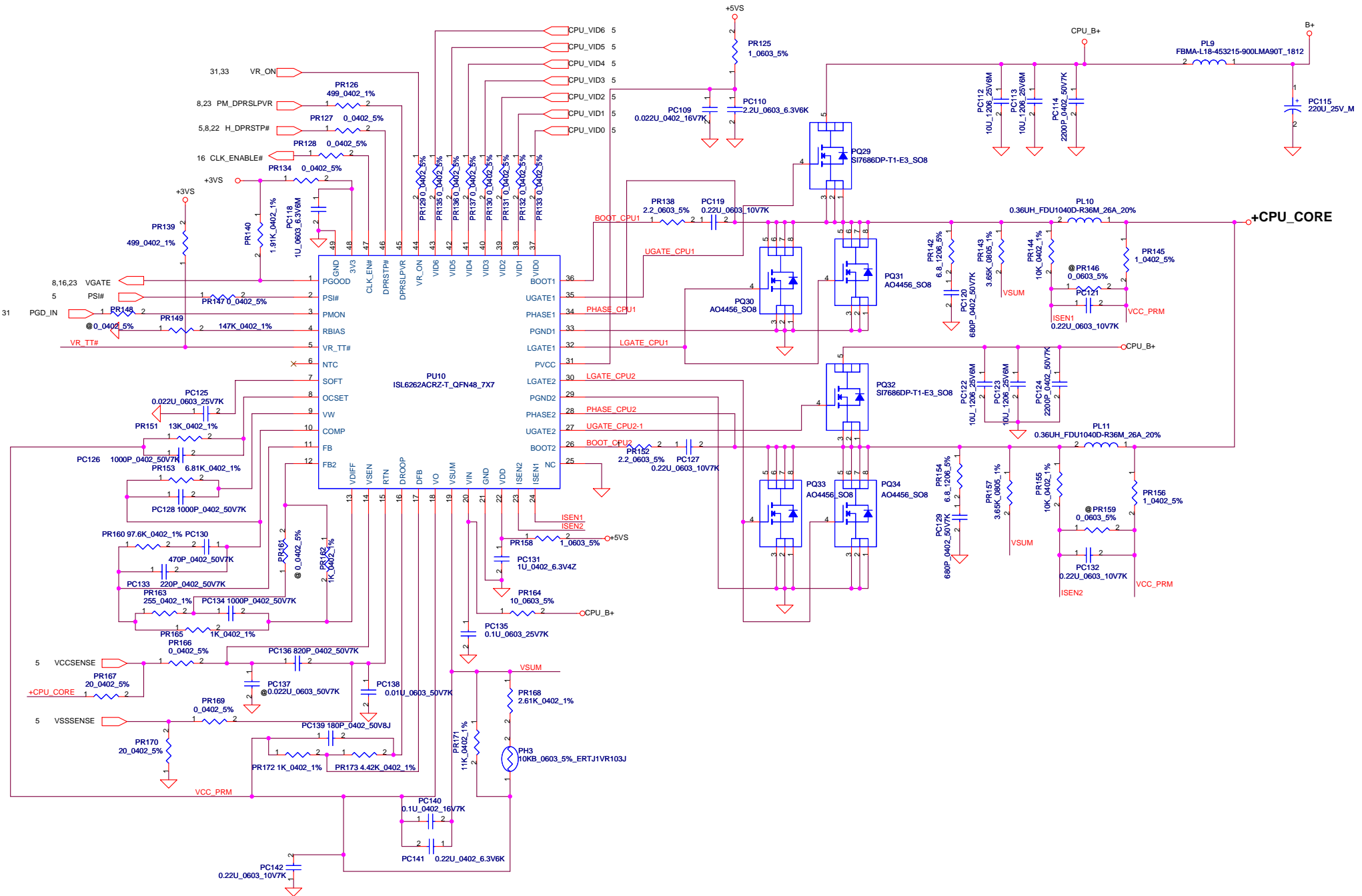
Cout ESR=15m ohm  
 $I_{peak} = 4.71A, I_{max} = 3.297A, I_{ocp} = 5.652A$   
 $\Delta I = ((19 - 1.5) * (1.5 / 19)) / (L * Fsw) = 2.107A$   
 $=> 1/2 \Delta I = 1.053A$   
 $V_{trip} = R_{trip} * I_{ocp} = 17.8K * 10uA = 0.178V$   
 $I_{ocpmin} = V_{trip} / R_{dsonmax} * 1.2 + 1.053A$   
 $= 0.178 /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

Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MUST BE TRANSFERRED FROM THE CUSTOMER TO THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. IN WRITING. THE INFORMATION IT CONTAINS MAY BE RELEASED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number
				401552
				Rev C
				Date
				Friday May 16 2008
				Sheet 44 of 50

www.laptopfix.vn



Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MUST BE TRANSFERRED FROM THE CUSTOMER TO THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. WITHOUT THE INFORMATION IT CONTAINS MAY BE REPRODUCED OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number
www.laptopfix.vn				401552
Date				Friday May 16 2008
Sheet				45 of 50
Rev				C

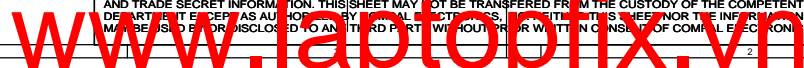


Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL INFORMATION. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC.				Document Number
401552				Rev
Date				Friday May 16 2008
Sheet				46 of 50

www.taotopix.com

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	Delete PD1.	Because we can cost down and DOCK_B+ has another one.	0.1	39	1 Delete PD1 SCSB540C080 (S SCH DIO B540C-13-F SMC)	20071108	EVT
2	3/5V exit on battery mode shutdown.	To prevent 3/5V exit on battery mode shutdown.	0.2	41	Add SC100001K00 (S DIO 1SS355 SOD323 T/R-5K	20071221	DVT
3	PD11 has over temp. issue.	Because PD11 has over temperature issue in JAQ60, we change it to a 10A diode.	0.2	39	Change PD11 from SCSB540C080 to SCS00002F00 .	20071221	DVT
4	Add snubber in 3/5V by EMI request.	Add snubber in 3/5V by EMI request.	0.2	41	Add PR36 and PR39 to SD001470B80	20071221	DVT
5	Down size.	Down size. by sourcer request.	0.2	46	Change PC136 from SE025821K80 to SE000003W00	20071221	DVT
6	Down size.	Down size. by sourcer request.	0.2	46	Change PC120 and PC129 from SE024681J80 to SE074681K80	20071221	DVT
7	Down size.	Down size. by sourcer request.	0.2	43	Change PC72 and PC74 from SE068102J80 to SE074102K80	20071221	DVT
8	2nd source trial run TI controller.	2nd source trial run TI controller.	0.2	41	Add PC143 SE080105K80	20071221	DVT
9	Add snubber in 3/5V by EMI request.	Add snubber in 3/5V by EMI request.	0.2	41	Add PC33 and PC34 SE074681K80	20071221	DVT
10	To meet Jeta SPEC.	To meet Jeta SPEC.	0.2	42	Add PC144 SE074102K80	20071221	DVT
12	Add EMI solution.	Add 3/5V boost resistor.	0.3	41	Add PR37, PR40 SD013220B80 (S RES 1/10W 2.2 +-5% 0603)	20080102	DVT
13	Add EMI solution.	Add charger boost resistor.	0.3	42	Add PR61 SD013220B80 (S RES 1/10W 2.2 +-5% 0603)	20080102	DVT
14	Add EMI solution.	Add charger snubber.	0.3	42	Add PR64 SD001470B80(S RES 1/4W 4.7 +-5% 1206) Add PC55 SE074681K80(S CER CAP 680P 50V K X7R 0402 )	20080102	DVT
15	Add EMI solution.	Add 1.05V/1.8V boost resistor.	0.3	43	Add PR106, PR109 SD013220B80 (S RES 1/10W 2.2 +-5% 0603)	20080102	DVT
16	Add EMI solution.	Add 1.05V snubber.	0.3	43	Add PR104 SD001470B80(S RES 1/4W 4.7 +-5% 1206) Add PC83 SE074681K80(S CER CAP 680P 50V K X7R 0402 )	20080102	DVT
17	Add EMI solution.	Add 1.8V snubber.	0.3	43	Add PR108 SD001470B80(S RES 1/4W 4.7 +-5% 1206) Add PC89 SE074681K80(S CER CAP 680P 50V K X7R 0402 )	20080102	DVT
18	Add EMI solution.	Add CPU boost resistor.	0.3	46	Add PR138, PR152 SD013220B80 (S RES 1/10W 2.2 +-5% 0603)	20080102	DVT
19	Add EMI solution.	Add 3/5V input capacitor filter..	0.3	41	Add PC159, PC160, PC161, PC162 SE074471K80(S CER CAP 470P 50V K X7R 0402)	20080102	DVT
20	Add EMI solution.	Add 3/5V input beat	0.3	41	Add PL12, PL13 SM010016410(S SUPPRE_ KC FBMA-L11-322513-151LMA50T)	20080102	DVT
21							
22							
23							

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
<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&amp;D DEPARTMENT WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC. ANY INFORMATION CONTAINED HEREIN IS UNCLASSIFIED AND IS NOT TO BE DISCLOSED TO ANOTHER PARTY WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC.</small>				Document Number	401552
Date	Friday, May 16, 2008	Sheet	47	of	50



PHASE	PAGE	MODIFICATION LIST	PURPOSE
DVT	P.4	Change R25 , R18 , R11 , R19 from 56 to 54.9 ohm	Reference standard circuit
	P.4	Delete R10	Foe ESD
	P.4	Change CPU temp sensor U9 , R55 / R56 from 100 to 0 ohm , delete R64 / R652	ADI had issue , for SMSC / Fintek temp sensor , no used for OD output
	P.8	Change R525 , R527 connected from +1.05Vs to GND	Reference standard circuit
		Change Cantiga GM U30 as SA00001P930 (Ver:B0)	Revision upgrade
		Change Cantiga PM U30 as SA00001Z030 (Ver:B0)	
	P.12	Change L42 , L18 , C499 , C229 , C280 , C232 as GM@	Reference standard circuit
	P.12	Change R596 , R597 as PM@	For UMA CRT
	P.12	Add C597 (220U)	Reserved
	P.12	Add C597 (220U)	Reference standard circuit
	P.12	Change R110 , C187 , C196 as stuff , R117 un-stuff	DFX
	P.12	C461 down size as 10U_0603	NA
	P.16	Change Q30 (dual N-MOS) as Q48 , Q49 (2 single N-MOS)	NA
	P.17	C500 down size as 680P_0402	For BOM
	P.17	Add L57 , L58 , C598 , C599 for +1V8RUN	+1V8RUN ripple (+1V8RUN is for MXM +PEX1V2)
	P.17	Add R599 as 0ohm	Reserve R598 , D31
	P.17	Update JMXM1 footprint	NA
	P.17	Change Q41 (dual N-MOS) as Q50 , Q51 (2 single N-MOS)	NA
	P.18	C364 down size as 680P_0402	For BOM
	P.18	C365 , C366 , C367 change from 220P to 820P	For EMI
	P.19	D5 change as RB411DT146_SOT23-3	Common part
	P.19	Change Q40 (dual N-MOS) as Q52 , Q53 (2 single N-MOS)	NA
	P.19	Change C401 , C409 , C419 as 15P	For DISCRETE CRT
	P.19	Change C402 , C410 , C420 as 12P	For DISCRETE CRT
	P.19	C408 , C418 , C423 (22P) stuff for UMA only	For UMA CRT only
	P.19	Change L1 , L2 from FCM1608C-121T_0603 as 10ohm_0603	For CRT
	P.20	Change Q7 from 2N7002_SOT23(Dual N-MOS) as Q7 & Q47(Single BSH111 N-MOS)	For DVI SMBUS level shifter
	P.20	Add R600 & R602 (4.7K ohm) pull high +3Vs	For DVI SMBUS
	P.20	Reserve R601 & R603 (2.7K ohm) pull high +5Vs	For DVI SMBUS
	P.20	Reserve U39 & U40 (SN74CBTD3306CPWR_TSSOP8)	For DVI & HDMI SMBUS
	P.20	Change D21 from RB751V_SOD323 as CH751H-40PT_SOD323-2	NA
	P.22	Change R478 from 33 ohm as 1K ohm	Customer request
	P.22	LAN_RST# connect to GND	No used Integrated LAN
	P.22	R169 un-stuff	For mobile
	P.22	Add CR_CPPE#(GPIO7) & CR_WAKE#(GPIO22)	For JMB385 power management
	P.22	Swap PCIE(x1) port 2 & port 4	NA
	P.22	R385 un-stuff , U28 stuff	For sequence
	P.25	U34.127 is used as external IDSEL	NA
	P.25	R489 un-stuff	For PCMCIA Lan card not support PM_CLKRUN# function
	P.25	Update JPCM1 footprint	For DFX
	P.26	Reserve R655 , R656 , D33 for CR_CPPE# & CR_WAKE#	For JMB385 power management
	P.26	Cantiga JMB385 U32 as SA00001W910 (Ver:B)	Revision upgrade
	P.27	Delete BCM5787M co-lay schematic	NA
	P.27	Update U25 footprint	For DFX
	P.28	Change T1 from GSL5009 as GSL5009-1(SP050003T10)	NA
	P.28	Add C375 , C383 (68P)	For EMI
	P.29	Add R658	Add 80 port function on JMINI2
	P.30	D32(SC300000B00) stuff	For ESD
	P.31	Add R604	NA
	P.31	R248 change from 0 ohm as 8.2K ohm	Foe Board ID as 1 define

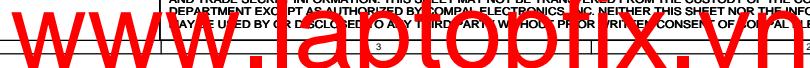
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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.				Size	Document Number
				Date	Friday, May 16, 2008
				Sheet	48 of 50
				Rev	C

www.laptopfix.vn




PHASE	PAGE	MODIFICATION LIST	PURPOSE	
DVT	P.31	C286 change from 3.3U as 4.7U	Stable KB926 internal +1.8V regulator , ENE suggestion value	
	P.32	JP6 pin define reverse	NA	
	P.32	Change SW3 & SW4 type	NA	
	P.32	U15 change from 1MB as 2MB capacity SPI ROM	Add Finger print code	
	P.33	R261 change from 10K as 31.6K	Fix ATI MXM sku can't power on for battery mode issue	
	P.33	C334 change from 0.1U as 1U	Fix nVIDIA MXM sku power on issue	
	P.34	Delete Internal(Digital) MIC reserved circuit	NA	
	P.34	Change R574 (0 ohm) as L59 (MBC1608121YZF)	For EMI	
	P.34	Add R660 to connect HDA_GPIO3 with DOCKIN#	For docking spdif feature enable	
	P.34	Change R574 (0 ohm) as L59 (MBC1608121YZF)	For EMI	
	P.35	R559 / R560 change from 47 ohm as 75 ohm	For Audio precision FSOV	
	P.35	R561 / R562 / R566 / R571 change from 75 ohm as 1K ohm	For ESD , Realtek suggestion value	
	P.36	Add C601 , C602 , C603 (330P) on +5VALW	For EMI	
	P.37	R283 change from 100K to 10K	NA	
	P.37	R206 , Q20 stuff	For +1.8V discharge	
	P.38	Add switch to enable/disable EC_DOCKIN#_S0 for HDMI SMBUS	NA	
	P.38	Update JDock1 footprint	NA	
	PVT1	P.16	Change C308 / C311 (33P) as 27P	For RTC accuracy
P.23		Use 4MB SPI ROM	For Kinabalu_High & Kinabalu_Low	
P.23		Add test point T32 / T33 / T34 / T35	Reserved for PCIE(X1) port 1	
P.25		Change U35 as SA000026P10(OZ2210GN-B1)	For B1 version	
P.27		Change U23 as SA000025P20(BCM5764MKMLG P20)	For B0 version	
P.27		Reserved R673 , R674 (0 ohm)	For Lan SMBUS	
P.27		Reserved Lan GPIO0(LAN_ALERT#) / LAN_ALERT#_EC / R675 , R676 , R677 to EC	For Lan ASF workaroud	
P.27		U23 Pin17 / Pin5 / Pin55 connect to U23 Pin18 for power +Lan_VDDIO_1.2	U23 Pin18 is power source +Lan_VDDIO_1.2 for U23 Pin17 / Pin5 / Pin55	
P.27		U23 Pin38 / Pin52 NC	NA	
P.29		Change JMINI1 for Robson2 , chnagne JMINI2 for Wireless	NA	
P.31		Add LAN_ALERT#_EC & EC_ACIN for EC	Reserved for ASF workrund & Nvidia MXM power saving	
P.33		Add R668(10K) & reserved R263(10K)	Fine tune +1.05VS timing for UMA boot display flash	
P.34		Change U36 as ALC268-VB1-GR(SA00001GD10)	Version upgrade	
P.34		Stuff R659 & un-stuff R660	For SPDIF feature on docking	
P.36		Add C604 , C605 (820P_0402)	For EMI	
P.50		Chipset change as GM(SA00002JT10) / PM(SA00002JJ00) / ICH9M(SA00002JH00)	Version upgrade	
PVT2		P.27	Update U23 CIS symbol	U23 Pin38 , 52 can't be changed as NC
		P.34	Add D34 , R678	For ACER docking SPDIF feature (No SPDIF on board)
	P.38	Update JDock1 CIS symbol	Docking connector modify (add boss x 2) for DFX	
	P.35	Delete D2 , D4 (Int SPK ESD diode)	NA	
	P.34	Delete D9 (Int MIC ESD diode)	NA	
	P.35	Add C609 , C610 (330P_0603) on Right SPK	For EMI	
	P.34	Add C608 (330P_0603) on Int MIC	For EMI	
	P.08	Add Test point (T39 , T40 , T41 , T42)	Add Management Engine JTAG pins	
	P.27	Add C612 , C614 (0.1u_0402) for +LAN_AVDD	For lower 1000Base-T Comm-Mode O/P Voltage < 50mV	
	P.27	Add C615 , C616 , C617 (0.1u_0402) for +LAN_AVDDL	For lower 1000Base-T Comm-Mode O/P Voltage < 50mV	
	P.08	Add U41, R679 , R680 , R681 , R682 , R683 , R684 , R685 , T43	Reserved for Management Engine JTAG debug	
	P.07	Chipset change as GM(SA00002JT50) / PM(SA00002JJ50)	Version upgrade	
	P.20 , P.31	Add EC_DVI_DET , EC_GPIOB , EC_GPIOC , R687 , R688 , R691	Reserved for DVI detect delay control (by EC)	
	MP	P.24	R73 , R148 change from 10_0402 to 100_0402 C128 , C204 change from 0.1U_0402 to 1U_0402	For USB issue on ICH9M A3 stepping
		P.34 , P.35	C608 , C609 , C610 change from 330P_0603 to 330P_0402	For 330P_0402 is standard part
		P.31	Change R248 as 33K	Board ID upgrade
		P.30	Add R692 / R693 (0_0603)	Reserved S3 power rail for check finger print sensor S3 resume too slow

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
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 TRANSMITTED 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 THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.					
Size	Document Number	Date	Friday, May 16, 2008	Sheet	49 of 50
	401552				




PHASE	PAGE	MODIFICATION LIST	PURPOSE
P.20		Add D35	Reserved for HDMI_HPD
P.30		Add R694 / R695 (0_0603)	Reserved for check
P.27		Delete C612 , C614 , C615 , C616 , C617 (0.1u_0402)	No need
P.16		Stuff R689 / R690	Reserved for LAN power saving
P.35		R559 , R560 change from 75 to 54.9 ohm Chipset change as GM(SA00002JTB0) / PM(SA00002JJA0) / ICH9M(SA00002JH70)	For FSOV between 420mv~480mv Version upgrade
P.32		R291 , R294 change from 300_0402_5% to 150_0402_5%	For ACER Hank's request to fine tune brighter
P.20		R84 , R85 , R86 , R91 change from 2K_0402_5% to 4.7K_0402_5%	For UMA DVI/HDMI monitor P193WA (x) detect issue (On JAL90)

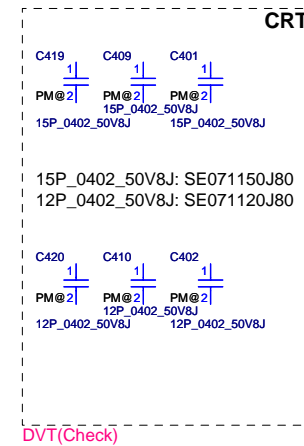
**PCB**

ZZZ  
  
 LA4221MB Rev0: DA600007R00  
 LA4221MB Rev1: DA600007R10  
 LA4221MB with Sub/B Rev1: DAZ04800100  
 PCB 047 LA-4221P REV1 M/B


**IC**

U30  
  
 CANTIGA ES\_FCBGA1329  
 DVT CANTIGA PM: SA00001ZO30 (S IC EB88CTPM QR34 B0 FCBGA 1329 ES)  
 PVT CANTIGA PM: SA00002JJ00 (S IC AC88CTPM QT78 B2 FCBGA 1329 PM)  
 PVT2 CANTIGA PM: SA00002JJ50 (S IC AC88CTPM QU38 B3 FCBGA 1329 PM)  
 Pre-MP CANTIGA PM: SA00002JJA0 (S IC AC82PM45 SLB97 B3 FCBGA1329 PM ABO!)


**For Discrete**




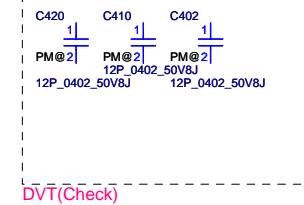
**DC Cable**


ZZZ  
  
 DC Cable (65W)  
 @ PVT(54 Rank)  
 DC301003R00(CONN SET 048 DCJACK-MB 2DW-G756-I50 65W)

U30  
  
 CANTIGA ES\_FCBGA1329  
 DVT(Check\_TBD) CANTIGA GL: SA000023Z00 (S IC CANTIGA ES FCBGA 1329 MCH GL)

ZZZ  
  
 DC Cable (90W)  
 @ PVT(54 Rank)  
 DC301003S00(CONN SET 048 DCJACK-MB 2DW-G756-I49 90W)

U10  
  
 ICH9ME@  
 ICH9-M ES\_FCBGA676  
 ICH9-M: SA00002G120  
 (S IC AF82801IEM QT10 A3 PBGA 676P ICH9M)



U6  
  
 SPI2MB@  
 W25X16-VSSIG\_S08  
 MP Winbond: SA00001KN00  
 (S IC FL 16MBIT W25X16-VSSIG SOIC 8P)

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	SCHMATIC MB A4221
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 TRANSMITTED 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.				Document Number	401552
Date:	Friday, May 16, 2008	Sheet	50	of	50