

# ZFWAA

## *Dione 10FU/10FUT*

### LA-B412P REV 0.2 Schematic

Intel Processor (Ivy Bridge) + PCH (Panther Point)  
2014-01-02 Rev 0.2

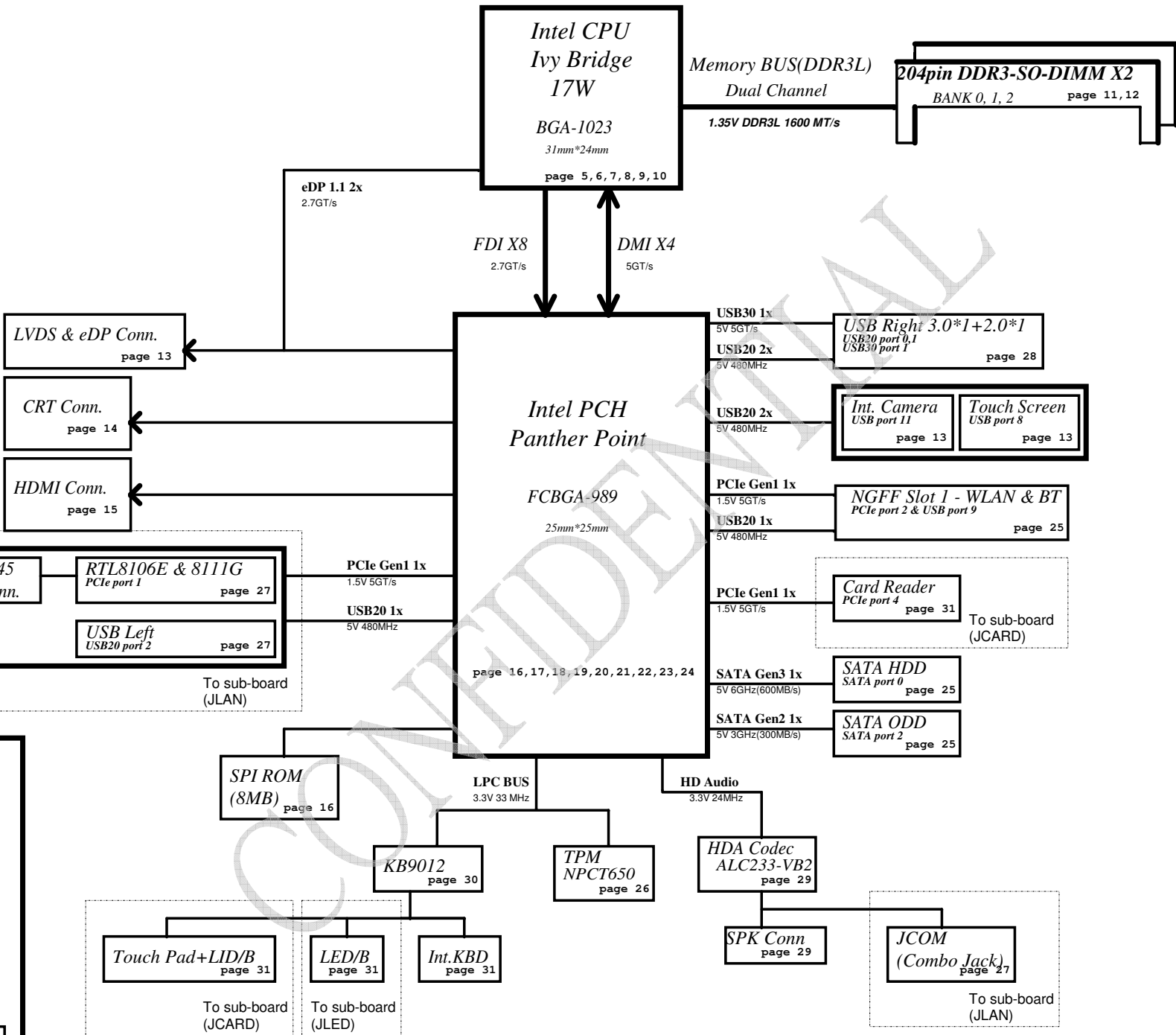
Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE CUSTOMER 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.				Cover Page		
				Document Number		
				LAB412P		
Date				Wednesday, January 22, 2014	Sheet	1 of 41

RTC CKT.  
page 16

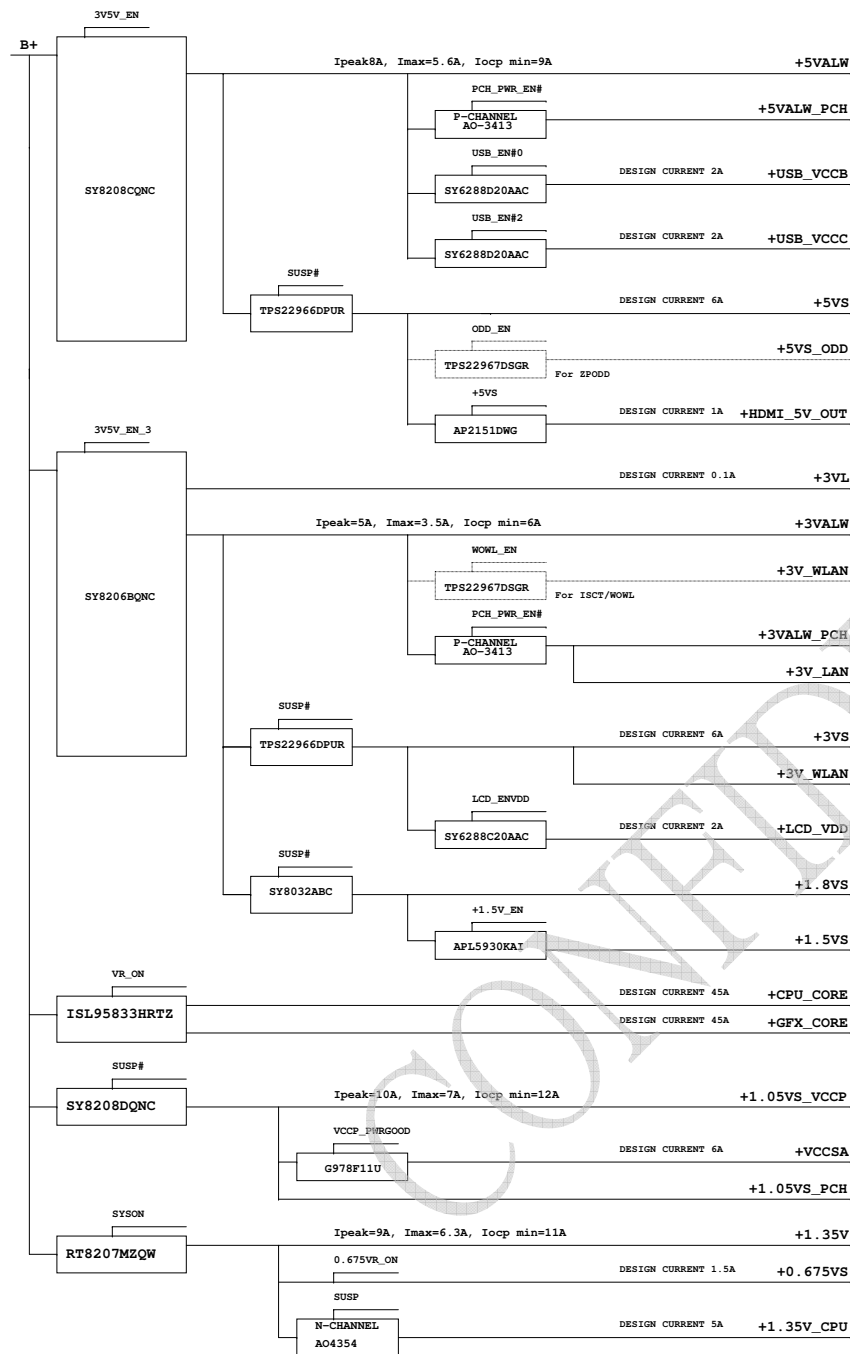
DC/DC Interface CKT.  
page 32

Power Circuit DC/DC  
page ??

GCLK  
SLG3NB244VTR  
page 26



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	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 PRODUCT DEVELOPMENT 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
				LAB412P	0.2
				Date	Wednesday, January 22, 2014
				Sheet	2 of 41



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	Power Tree
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
					LAB412P
				Date	Wednesday, January 22, 2014
				Drawn	3 of 41
				Rev	0.2

Voltage Rails						
( O MEANS ON X MEANS OFF )						
power plane  State	+RTCVCC	B+ +LCD_INV	+3VL	+5VALW +3VALW	+1.35V	+5VS +3VS +1.8VS +1.5VS +1.35V_CPU +0.675VS +CPU_CORE +GFX_CORE +VCCSA +1.05VS_VCCP +3V_WLAN +LCD_VDD
S0	O	O	O	O	O	O
S1	O	O	O	O	O	O
S3	O	O	O	O	O	X
S5 S4/AC	O	O	O	O	X	X
S5 S4/ Battery only	O	O	O	X	X	X
S5 S4/AC & Battery don't exist	O	X	X	X	X	X

PCH SM Bus Address			
Power	Device	HEX	Address
+3VS	DDR SO-DIMM 0	A0 H	1010 0000 b
+3VS	DDR SO-DIMM 1	A4 H	1010 0100 b
+3VS	Touch Pad		

EC SM Bus1 Address				EC SM Bus2 Address			
Power	Device	HEX	Address	Power	Device	HEX	Address
+3VL	Smart Battery	16 H	0001 0110 b	+3VS	PCH	96 H	1001 0110 b
+3VL	Smart Charger	12 H	0001 0010 b				

Function	CPU	PCH	ISPD	EMI/ESD/RF part				
description	Ivy Bridge	Panther Point	HDMI LOGO	EMI/ESD/RF part				
explain	i3-3217U	HM76	HDMI LOGO	EMI/ESD/RF part				
BTO	CPUR1@	HM76R1@	HDMI45@	EMI@	@EMI@	ESD@	@ESD@	@RF@

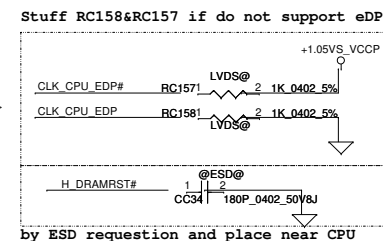
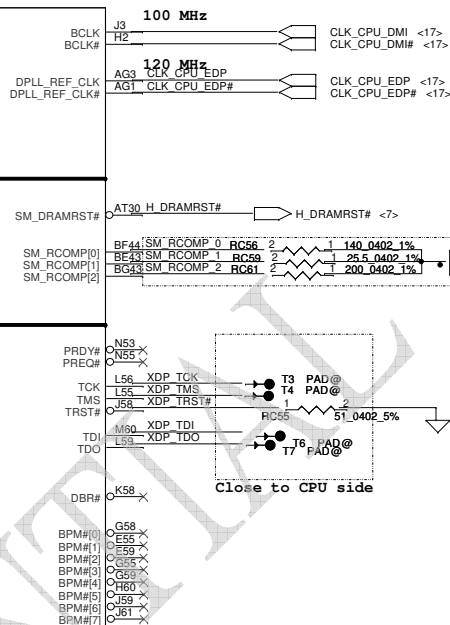
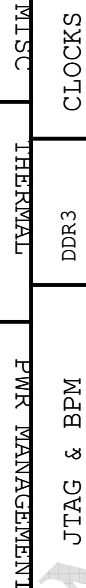
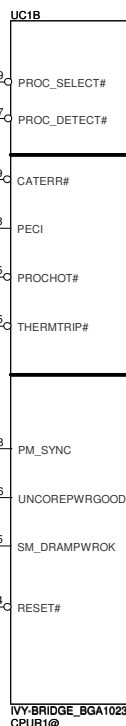
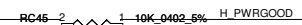
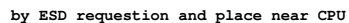
Red Word: always un-mount

Function	LVDS-eDP		Camera	CRT		ISCT		
description	LVDS-eDP		Camera	CRT		ISCT		
explain	LVDS	eDP	Camera	w/ CRT	w/o CRT	w/	w/o	
BTO	LVDS@	IEDP@	CAM_EMI@	CRT@	CRT@EMI@	NOCRT@	ISCT@	NOISCT@

Function	ZPODD		TPM	Touch Screen	
description	ZPODD		TPM	Touch Screen	
explain	w/	w/o	NPCT650	w/ TOUCH	
BTO	ZPODD@	NONZP@	TPM@	TOUCH_EMI@	

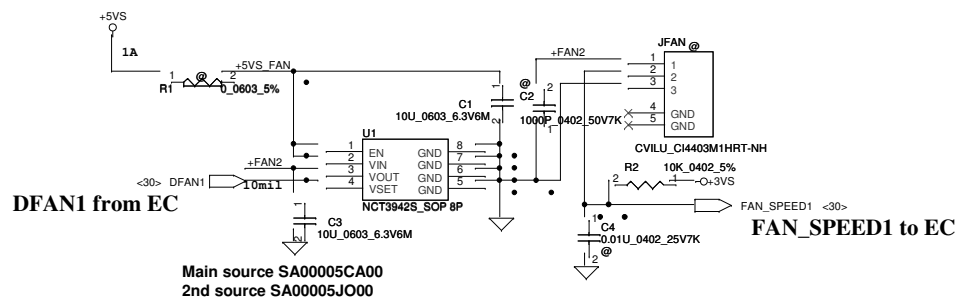
STATE	SIGNAL	SLP_S3#	SLP_S4#	SLP_S5#
Full ON		HIGH	HIGH	HIGH
S1 (Power On Suspend)		HIGH	HIGH	HIGH
S3 (Suspend to RAM)		LOW	HIGH	HIGH
S4 (Suspend to Disk)		LOW	LOW	HIGH
S5 (Soft OFF)		LOW	LOW	LOW
G3		LOW	LOW	LOW

Security Classification	Compal Secret Data			Compal Electronics, Inc.			
Issued Date	2013/12/17	Deciphered Date	2014/12/17	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 RESEARCH AND DEVELOPMENT 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.				Notes List			
				Rev	Document Number	Rev	
				Custom	LAB412P	0.2	
				Date	Wednesday, January 22, 2014	Sheet	4 of 41

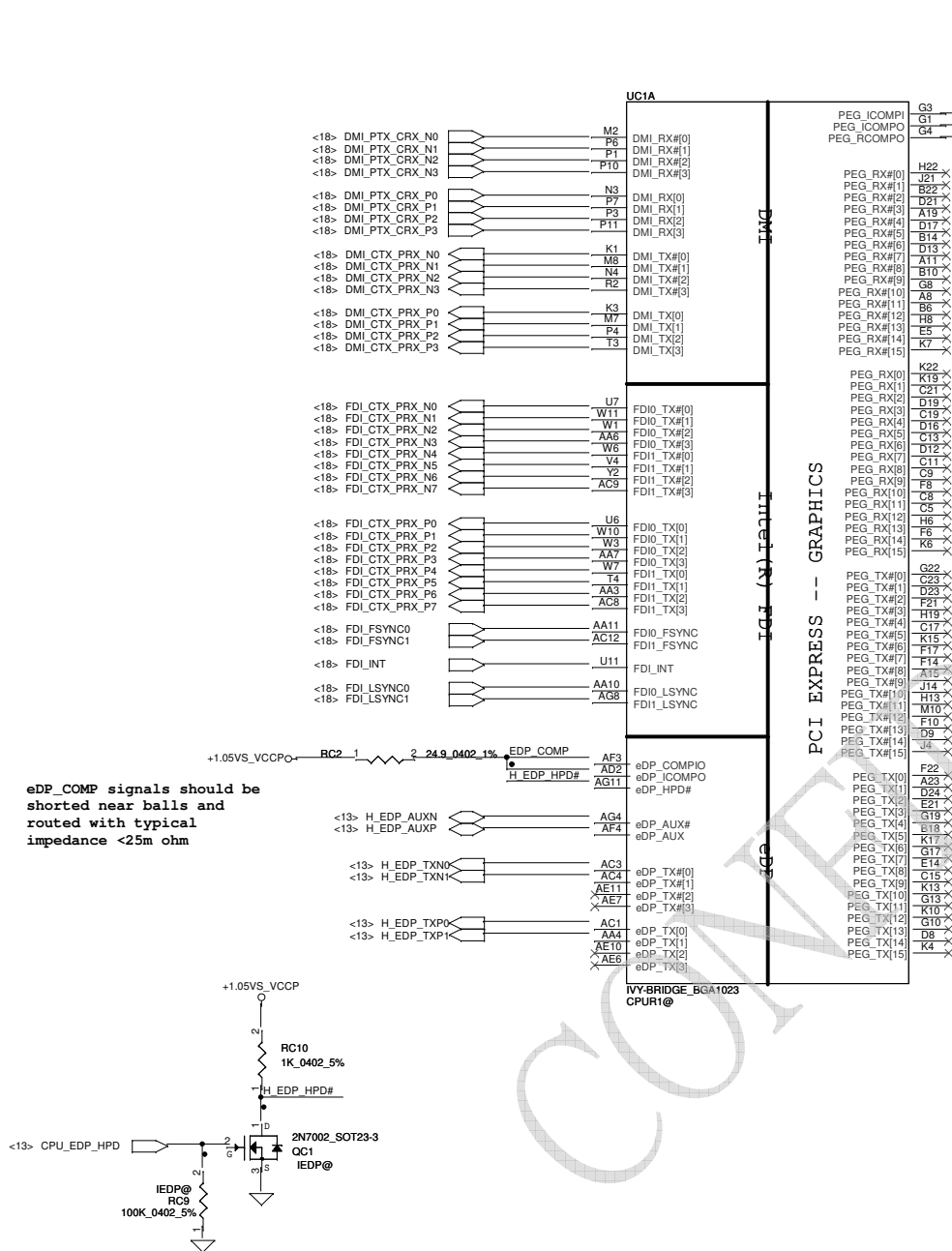


by ESD requestion and place near CPU

DDR3 Compensation Signals  
Layout Note: Place these  
resistors near Processor



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	Ivy Bridge_JTAG/XDP/FAN
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 FACTORY INFORMATION 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.				Doc No	Rev
				Document Number	0.2
				Custom	LAB412P
				Date:	Wednesday, January 22, 2014
				Sheet	5 of 41



<11> DDR\_A\_D[0..63]

<12> DDR\_B\_D[0..63]

UC1C

UC1D

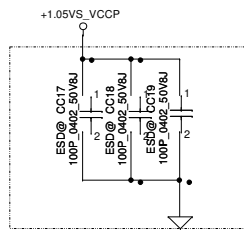
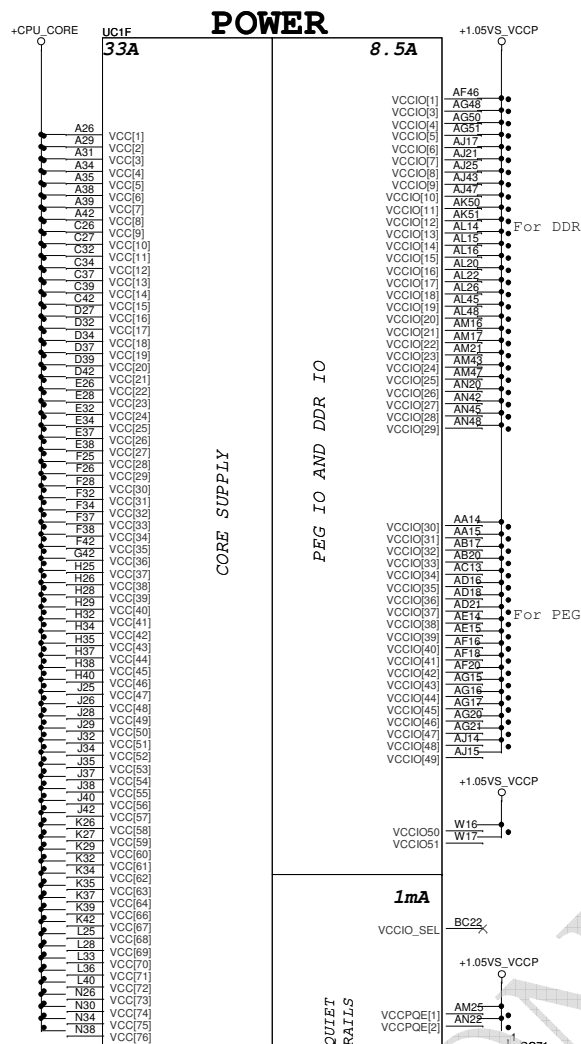
DDR SYSTEM MEMORY A

DDR SYSTEM MEMORY B

IVY-BRIDGE\_BGA1023  
CPU1@

IVY-BRIDGE\_BGA1023  
CPU1@

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	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 RESEARCH AND DEVELOPMENT 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
				LAB412P	0.2
				Date: Wednesday, January 22, 2014	Sheet 7 of 41



by ESD request and place near CPU

**1mA**

VCCIO\_SEL BC22

**QUIET RAILS**

VCCPOE[1] AM25  
VCCPOE[2] AN22

**SVID**

VIDALERT# A44  
VIDSCLK C44  
VIDSOUT C44

**SENSE LINES**

VCC\_SENSE F43  
VSS\_SENSE G43

VCCIO\_SENSE AN16  
VSS\_SENSE AN16

+1.05VS\_VCCP

RC91 130\_0402\_5%

+1.05VS\_VCCP

RC89 75\_0402\_5%

+CPU CORE

RC90 43\_0402\_1%

VR\_SVID\_ALERT# <40>  
VR\_SVID\_CLK <40>  
VR\_SVID\_DAT <40>

Pull high resistor on VR side

RC93 100\_0402\_1%

VCCSENSE <40>  
VSSSENSE <40>

RC97 100\_0402\_1%

Close to CPU

RC98 0\_0402\_1%

Close to CPU

RC96 0\_0402\_1%

Close to CPU

IVY-BRIDGE\_BGA1023  
CPU1R10

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	Ivy Bridge POWER-1
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 RESEARCH AND DEVELOPMENT 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	LAB412P
				Rev	0.2
				Date	Wednesday, January 22, 2014
				Sheet	8 of 41



# POWER

UC1G  
29A

AA46 VAXG[1]  
AB47 VAXG[2]  
AB50 VAXG[3]  
AB51 VAXG[4]  
AB52 VAXG[5]  
AB53 VAXG[6]  
AB55 VAXG[7]  
AB56 VAXG[8]  
AB58 VAXG[9]  
AB59 VAXG[10]  
AC61 VAXG[11]  
AD47 VAXG[12]  
AD48 VAXG[13]  
AD50 VAXG[14]  
AD51 VAXG[15]  
AD52 VAXG[16]  
AD53 VAXG[17]  
AD55 VAXG[18]  
AD56 VAXG[19]  
AD58 VAXG[20]  
AD59 VAXG[21]  
AE46 VAXG[22]  
N45 VAXG[23]  
P47 VAXG[24]  
P48 VAXG[25]  
P50 VAXG[26]  
P51 VAXG[27]  
P52 VAXG[28]  
P53 VAXG[29]  
P55 VAXG[30]  
P56 VAXG[31]  
T48 VAXG[32]  
T58 VAXG[33]  
T59 VAXG[34]  
T61 VAXG[35]  
U46 VAXG[36]  
V47 VAXG[37]  
V48 VAXG[38]  
V50 VAXG[39]  
V51 VAXG[40]  
V52 VAXG[41]  
V53 VAXG[42]  
V55 VAXG[43]  
V56 VAXG[44]  
V58 VAXG[45]  
V59 VAXG[46]  
W50 VAXG[47]  
W51 VAXG[48]  
W52 VAXG[49]  
W53 VAXG[50]  
W55 VAXG[51]  
W56 VAXG[52]  
W61 VAXG[53]  
V48 VAXG[54]  
V50 VAXG[55]  
V51 VAXG[56]

GRAPHICS

DDR3 - 1.5V RAILS

1mA

QUIET RAILS

1.8V RAIL

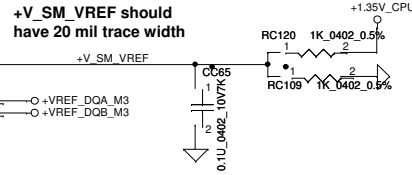
SA RAIL

1.2A

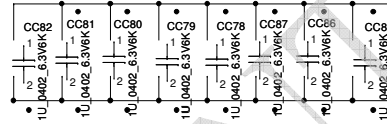
6A

Ivy-Bridge\_BGA1023  
CPU1@

+V\_SM\_VREF should  
have 20 mil trace width



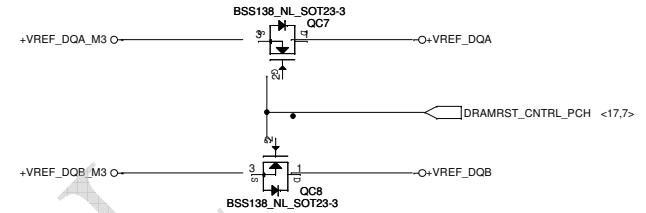
Place BOT OUT BGA



VCCSA_VID0	VCCSA_VID1	+VCCSA
0	0	0.90 V
0	1	0.80 V
1	0	0.725 V
1	1	0.675 V

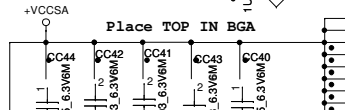
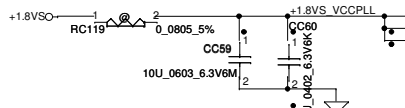
For Sandy Bridge

## Intel DDR Vref M3

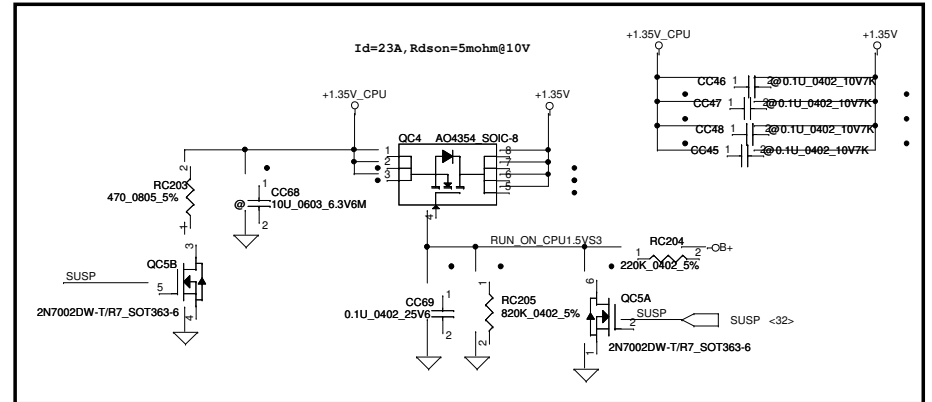


+1.35V\_CPU Decoupling:  
2X 470U(MLCC), 6X 10U, 8X 1U

VCCPLL Decoupling:  
1X 330U (6m ohm), 1X 10U, 2x1U



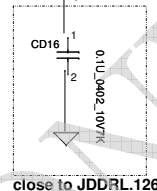
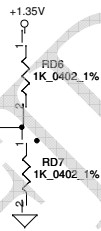
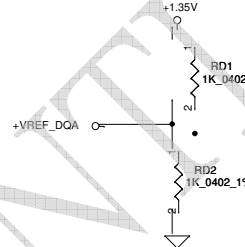
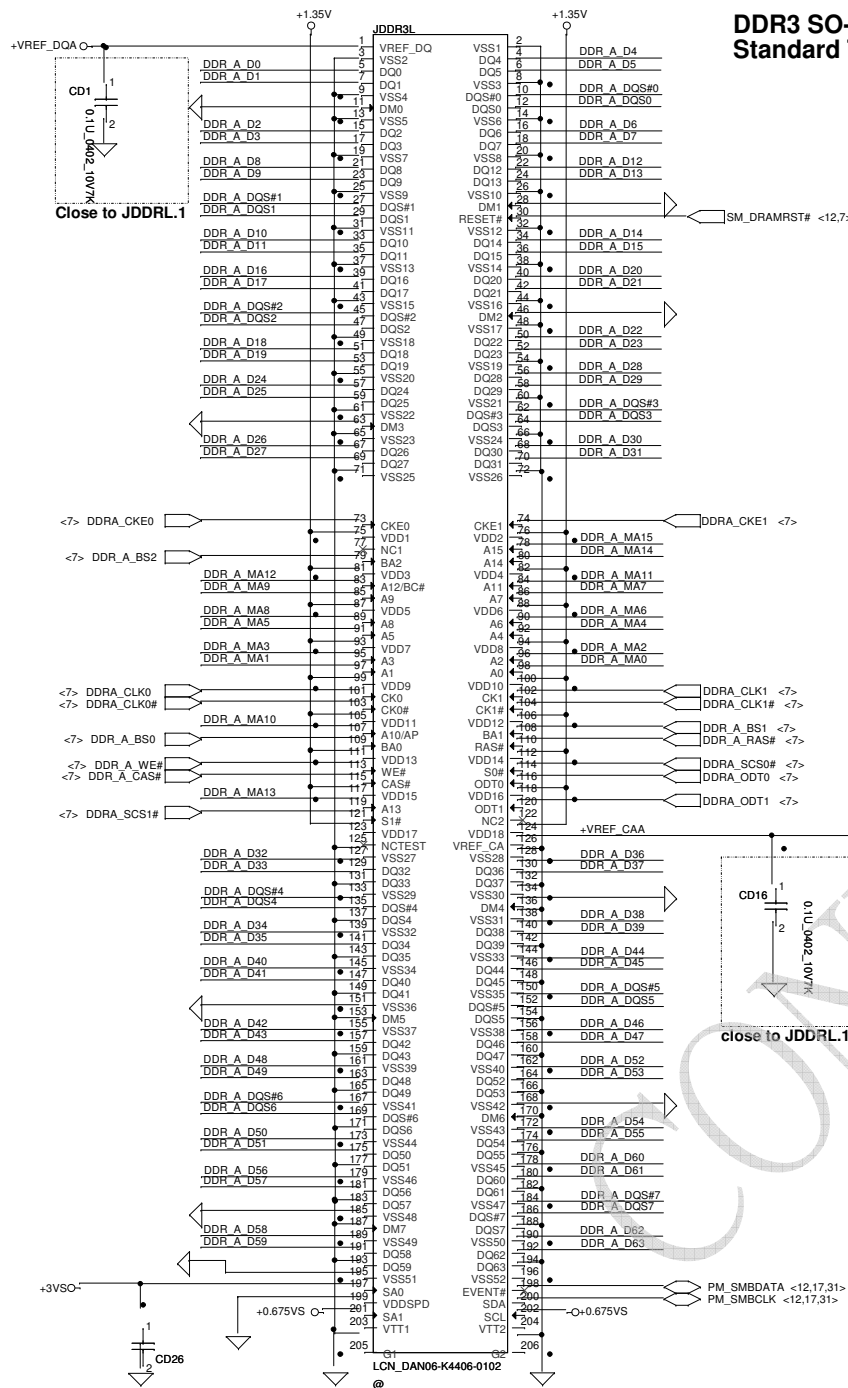
+VCCSA Decoupling:  
2X 47U (MLCC), 3X 10U, 5X 1U



Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	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 RESEARCH AND DEVELOPMENT TO ANY OTHER DIVISION OR TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number LAB412P
Date: Wednesday, January 22, 2014				Sheet 9 of 41



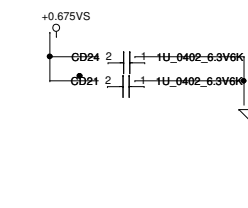
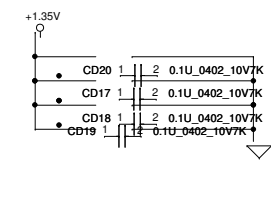
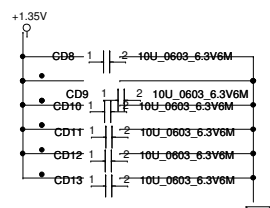
# DDR3 SO-DIMM A Standard Type



Layout Note:  
Place near JDDR1

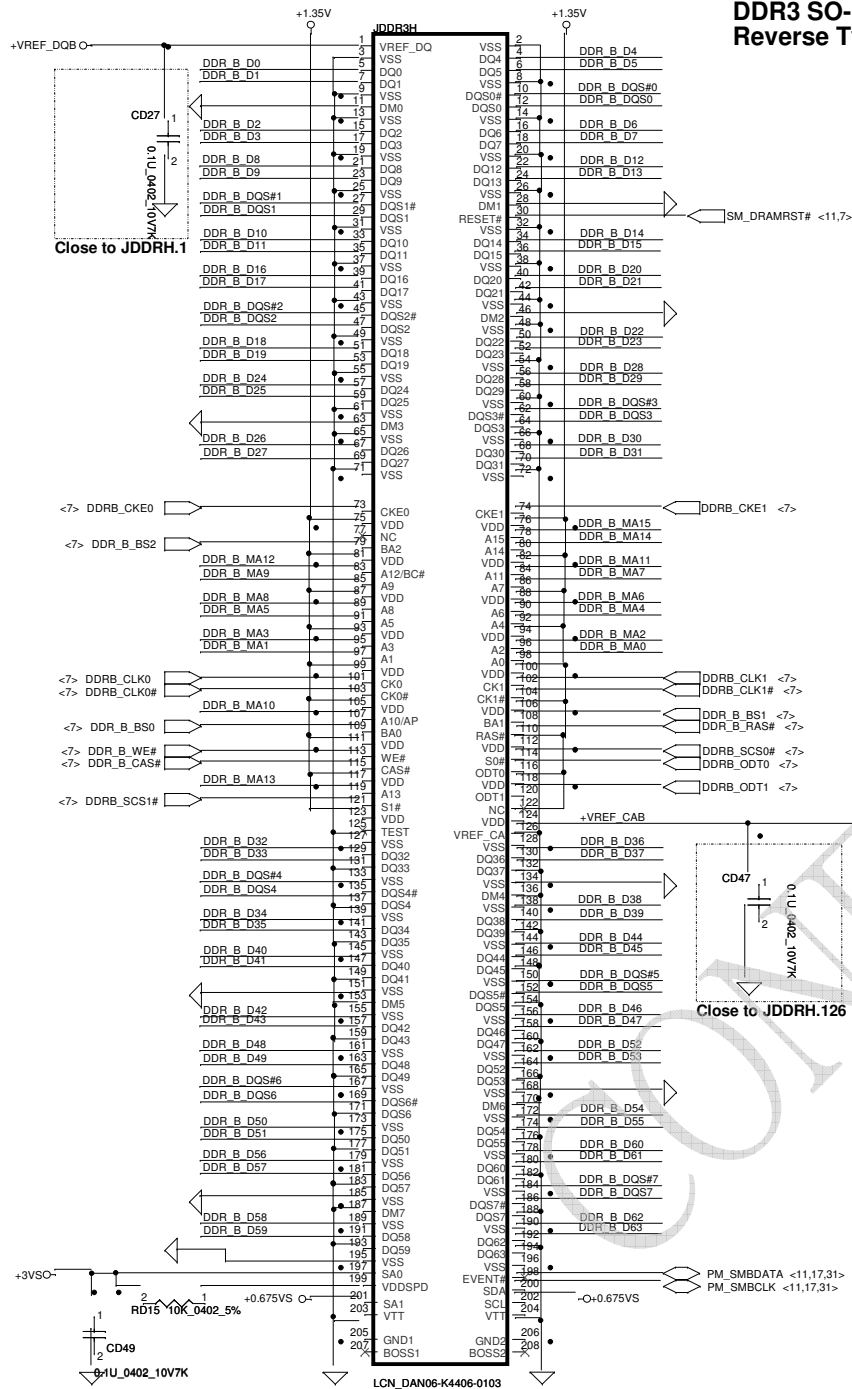
Layout Note: Place these 4 Caps near  
Command and Control signals of DIMMA

Layout Note:  
Place near JDDR1.203 and 204

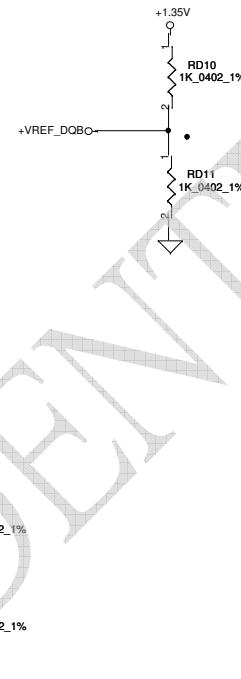


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	DDRIII-SODIMMO
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF COMPAL ELECTRONICS, INC. WITHOUT THE WRITTEN PERMISSION OF 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	LAB412P
				Rev	0.2
				Date	Wednesday, January 22, 2014 11:11

# DDR3 SO-DIMM B Reverse Type



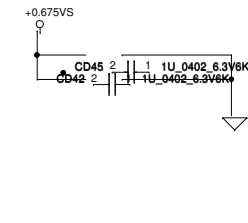
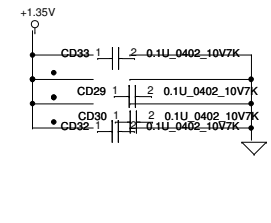
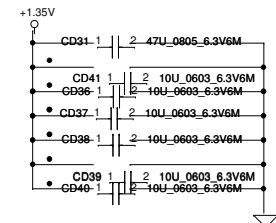
DDR\_B\_DQS#[0..7] <7>  
DDR\_B\_DQS#[0..7] <7>  
DDR\_B\_DQ[0..63] <7>  
DDR\_B\_MA[0..15] <7>



Layout Note:  
Place near JDDR.H

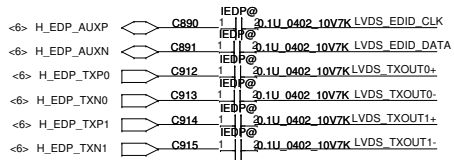
Layout Note: Place these 4 Caps near  
Command and Control signals of DIMMB

Layout Note:  
Place near JDDR.H.203 and 204

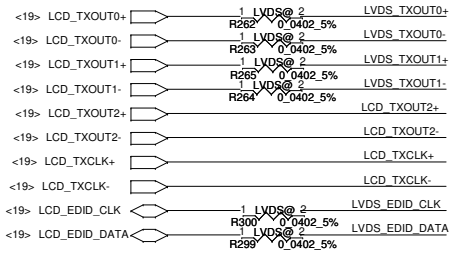


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	DDR3-SODIMM1
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF 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	LAB412P
				Rev	0.2
				Date:	Wednesday, January 22, 2014
				Sheet	12 of 41

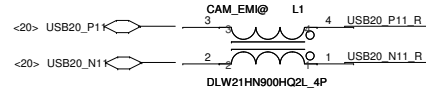
## For eDP Panel



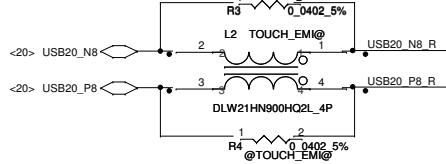
## For LVDS 1ch Panel



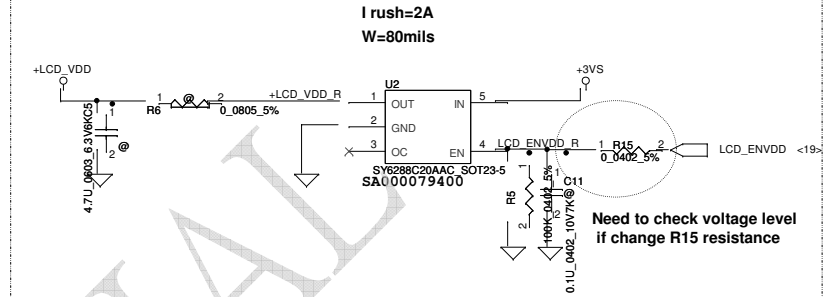
## Camera



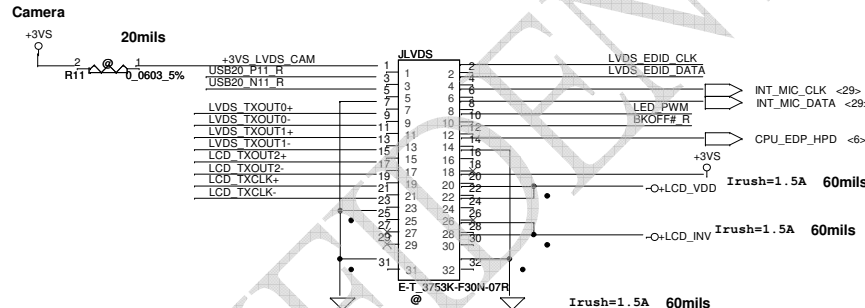
## Touch Screen



## LCD POWER CIRCUIT

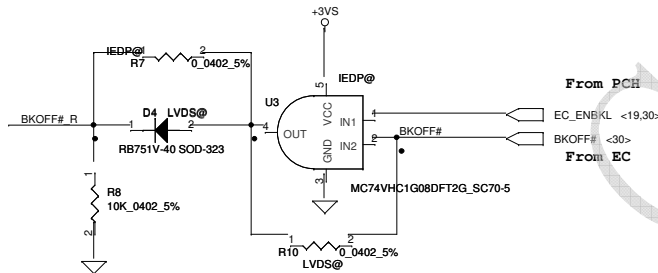


## LVDS colay eDP cable

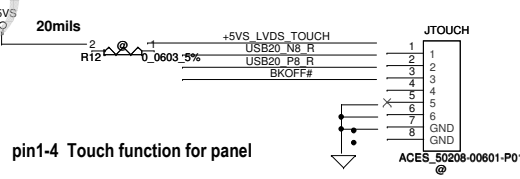


pin1,3,5,6,7,8 Camera function with single or dual MIC  
pin2,4,9,10-30 For LVDS or EDP panel

## Reserve for eDP panel potential issue

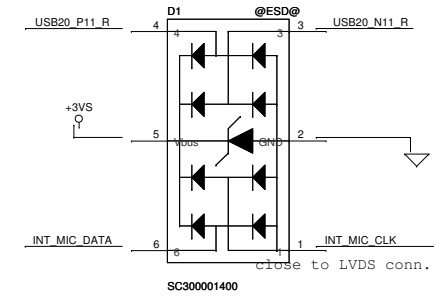


## Touch Screen

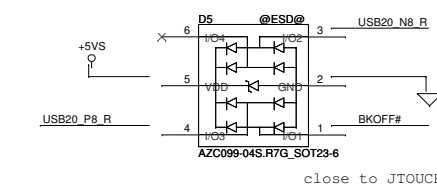


pin1-4 Touch function for panel

## Camera & MIC

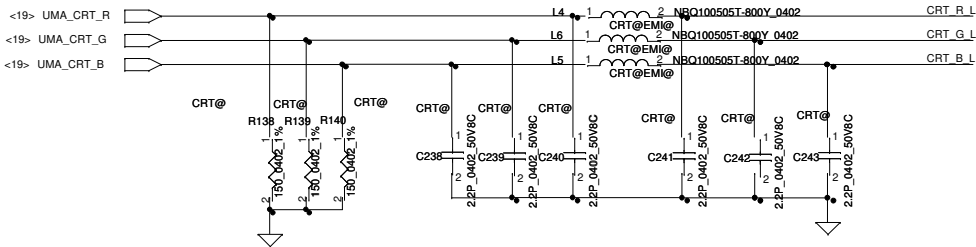


## Touch Panel

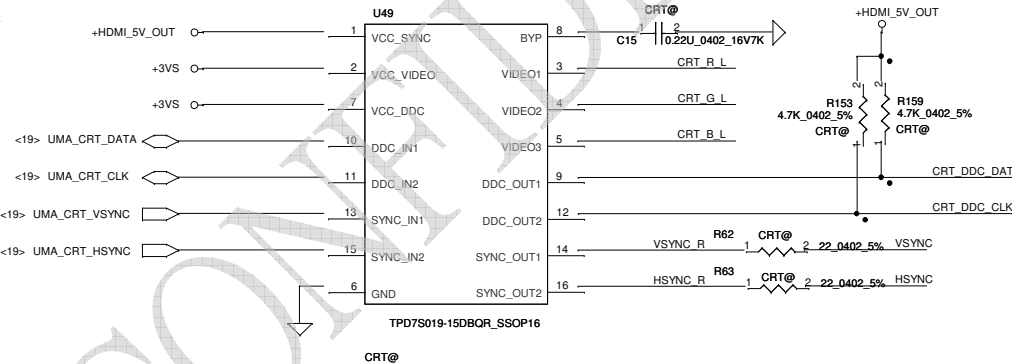
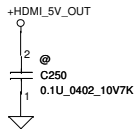
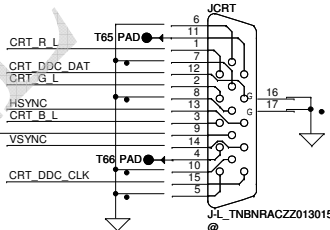


Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF RESEARCH AND DEVELOPMENT 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
				0.2
				Date: Wednesday, January 22, 2014 13 of 41

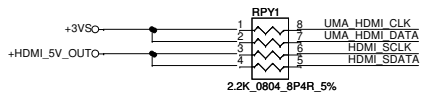
# CRT CONNECTOR



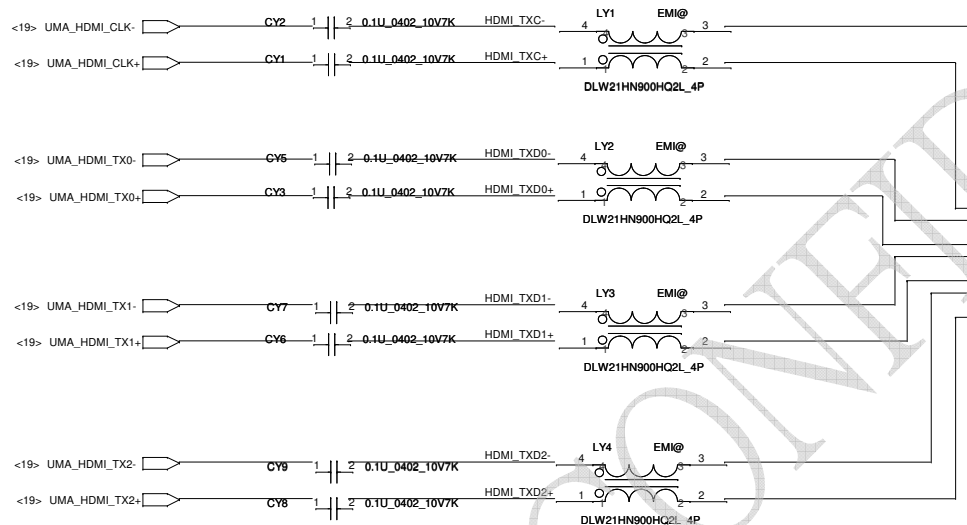
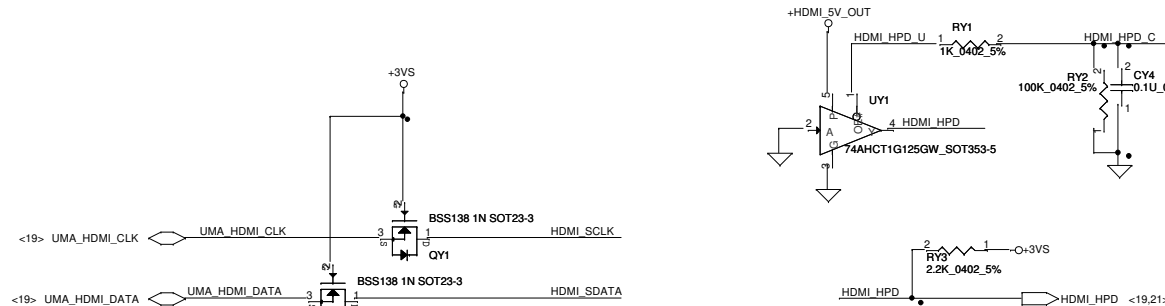
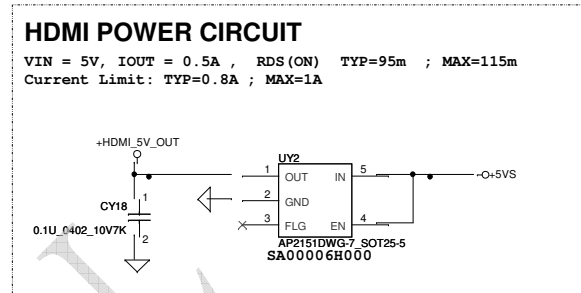
USE HDMI POWER



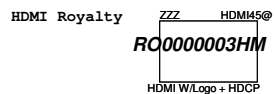
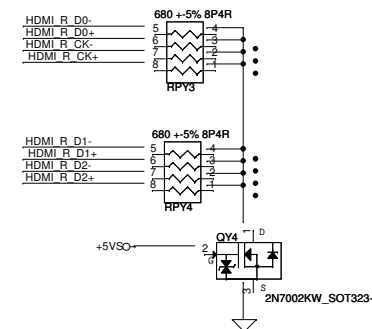
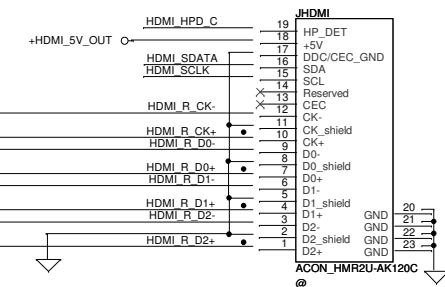
Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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
				LAB412P	0.2
				Date: Wednesday, January 22, 2014	Sheet 14 of 41



OE#	A	Y
L	L	L
L	H	H
H	X	Z

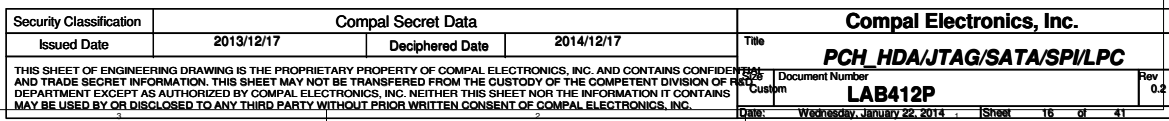


## HDMI Connector

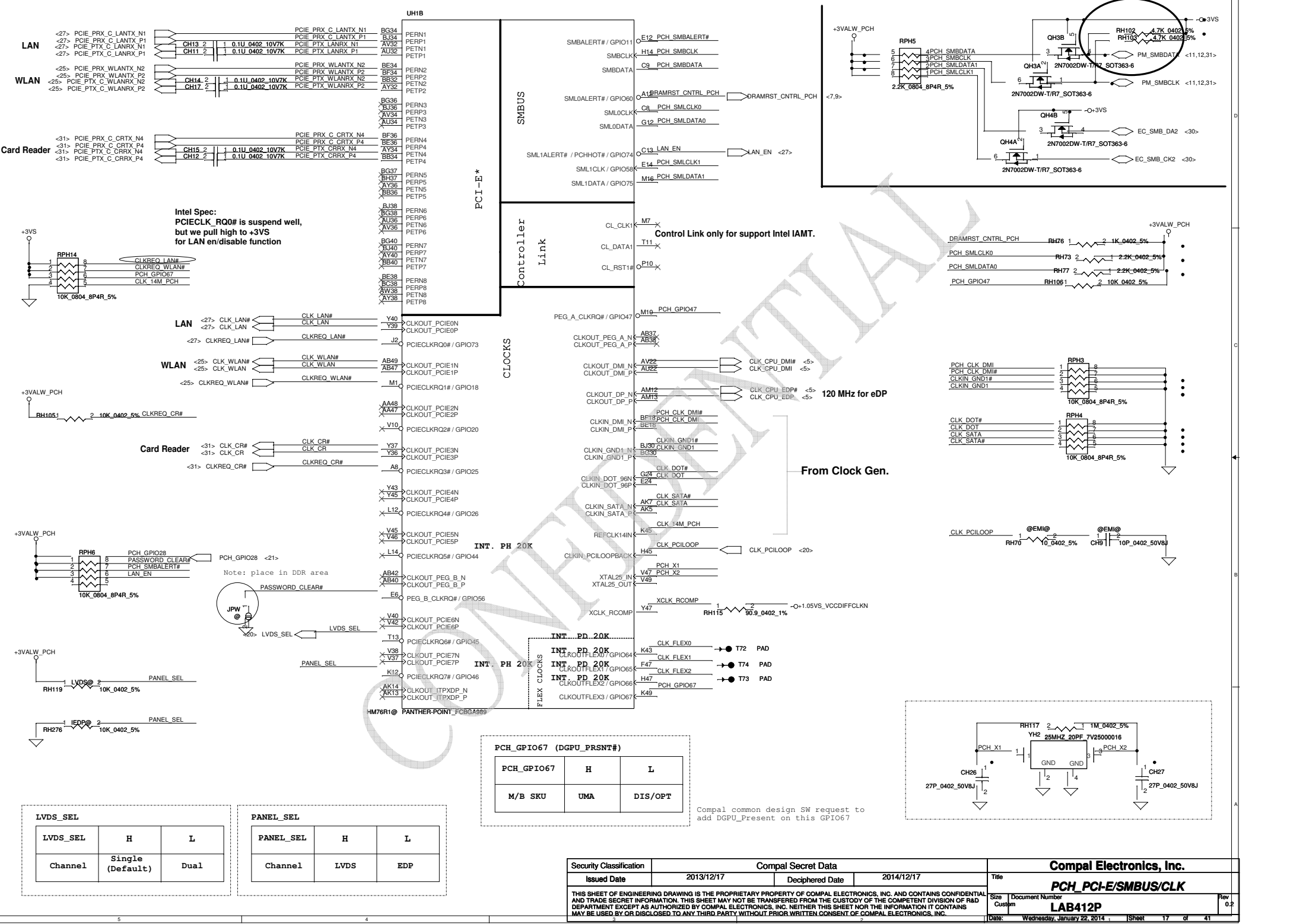


HDMI W/O Logo: RO0000001HM  
HDMI W/Logo: RO0000002HM  
HDMI W/Logo + HDCP: RO0000003HM  
please manually load  
this virtual material to 45@ BOM

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	HDMI Conn.
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	LAB412P
				Date	Wednesday, January 22, 2014
				Sheet	15 of 41







Intel Spec:  
PCIECLK\_RQ0# is suspend well,  
but we pull high to +3VS  
for LAN en/disable function

Note: place in DDR area

PCH_GPIO67 (DGPU_PRSENT#)		
PCH_GPIO67	H	L
M/B SKU	UMA	DIS/OPT

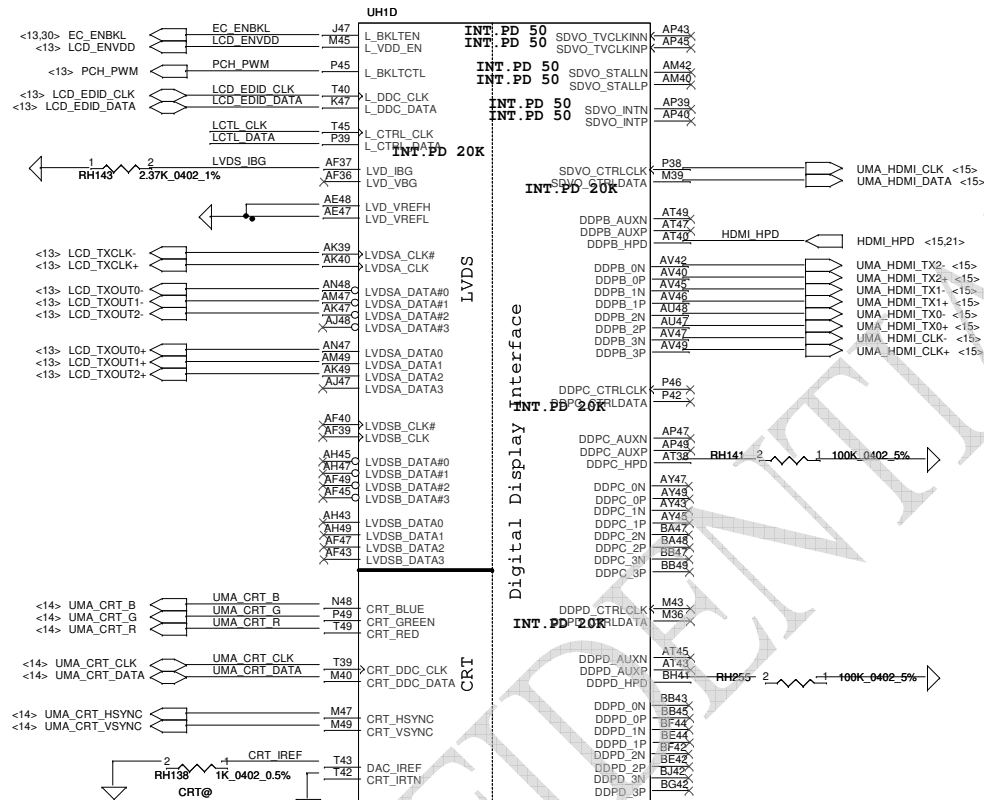
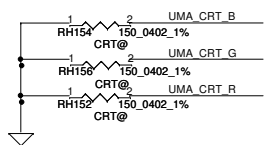
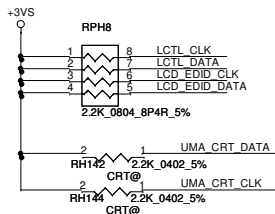
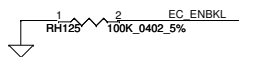
Compal common design SW request to  
add DGPU\_Present on this GPIO67

LVDS_SEL		
LVDS_SEL	H	L
Channel	Single (Default)	Dual

PANEL_SEL		
PANEL_SEL	H	L
Channel	LVDS	EDP

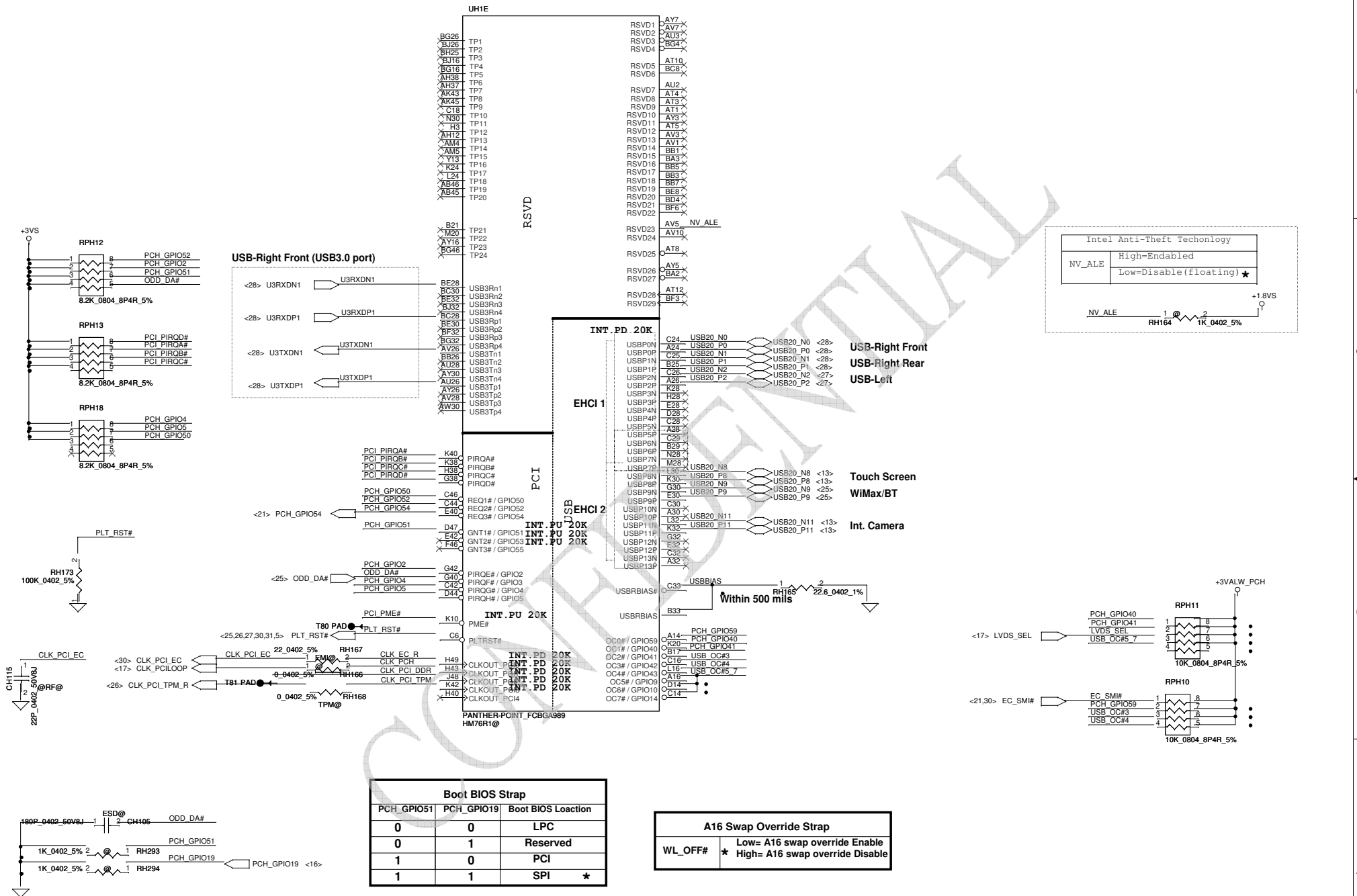
Security Classification	Compal Secret Data		Title	Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				PCH_PCI-E/SMBUS/CLK	
Size		Document Number	LAB412P		
Custom				Rev 0.2	
Date		Wednesday, January 22, 2014		Sheet 17 of 41	

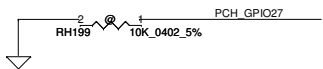




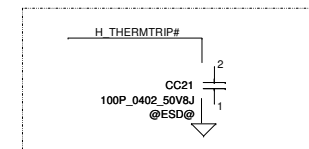
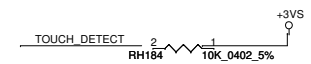
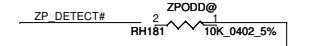
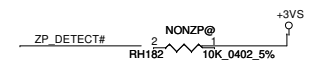
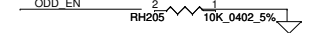
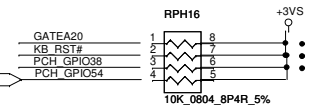
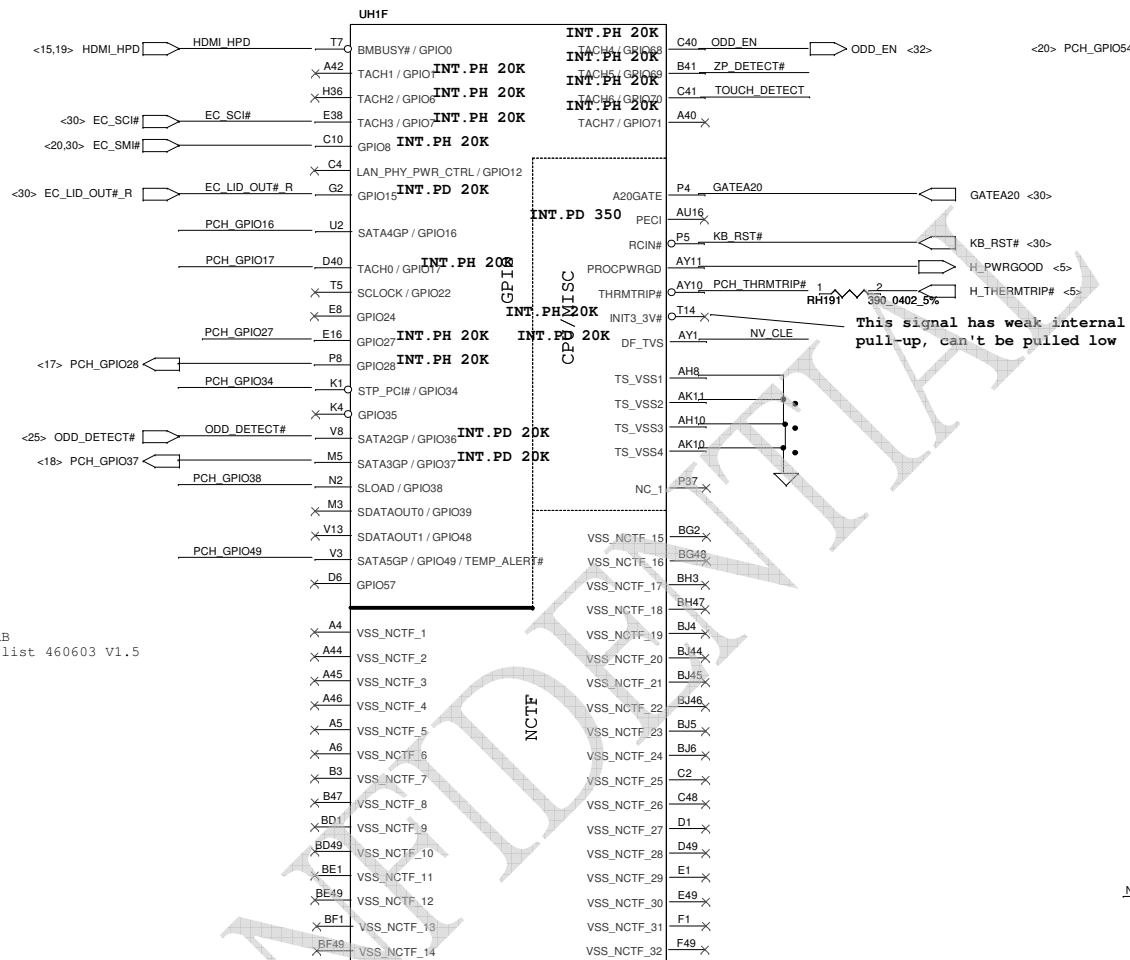
RH138  
1K\_0402\_5%  
NOCRT@

Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	PCH_CRT/LVDS/HDMI
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 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.					Rev 0.2
Date: Wednesday, January 22, 2014					Sheet 19 of 41

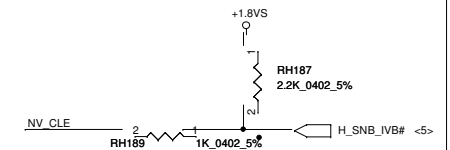




Follow Compal ORB  
and Intel Check list 460603 V1.5



DMI & FDI Termination Voltage	
NV_CLE	Set to VCC when HIGH
	Set to VSS when LOW



```

GPIO28 (pull high on P.17)
On-Die PLL Voltage Regulator
* H: Enable
  L: Disable

```

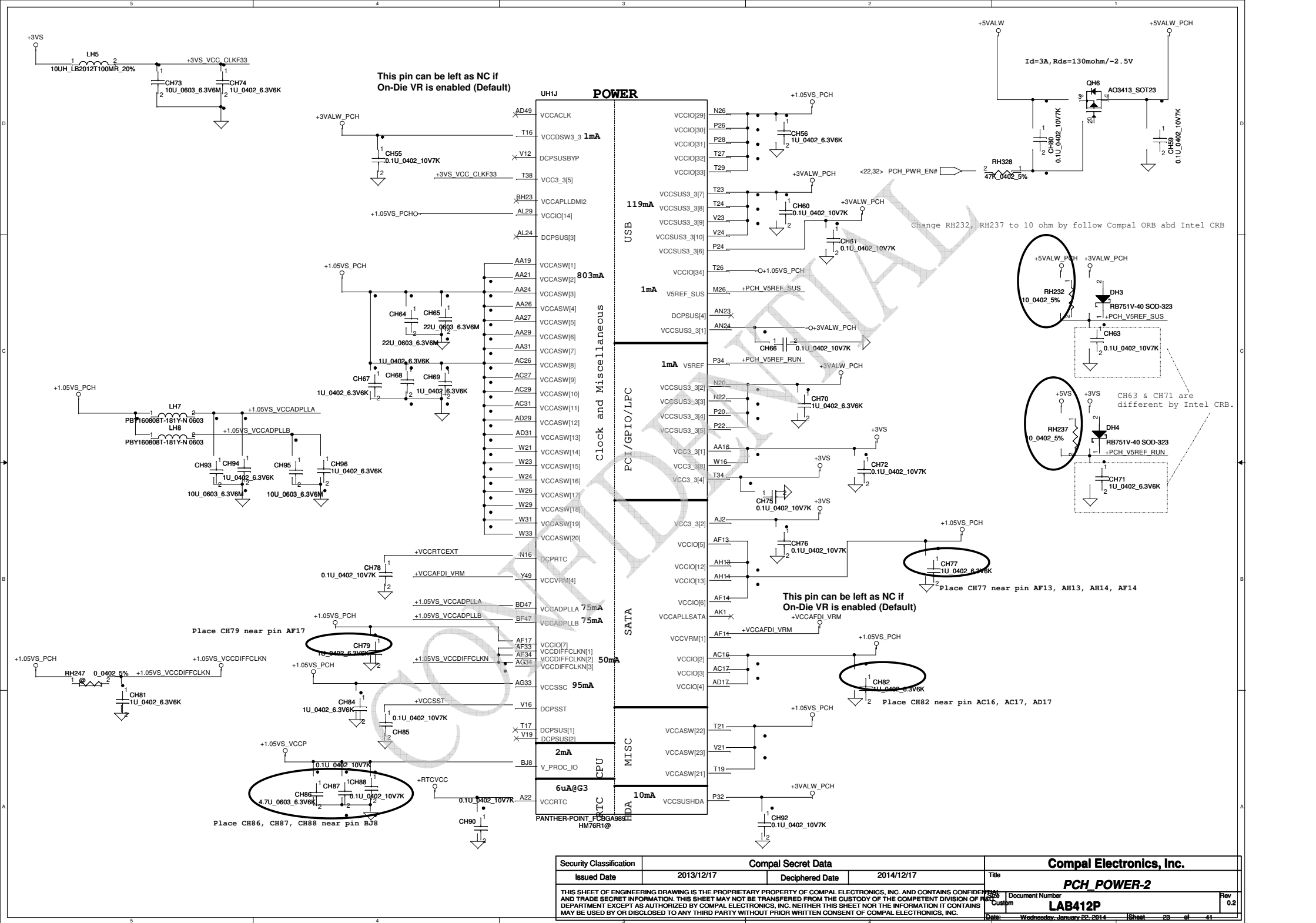
```
GPIO8
Integrated Clock Chip Enable (Removed)
H: Disable
★ L: Enable
```

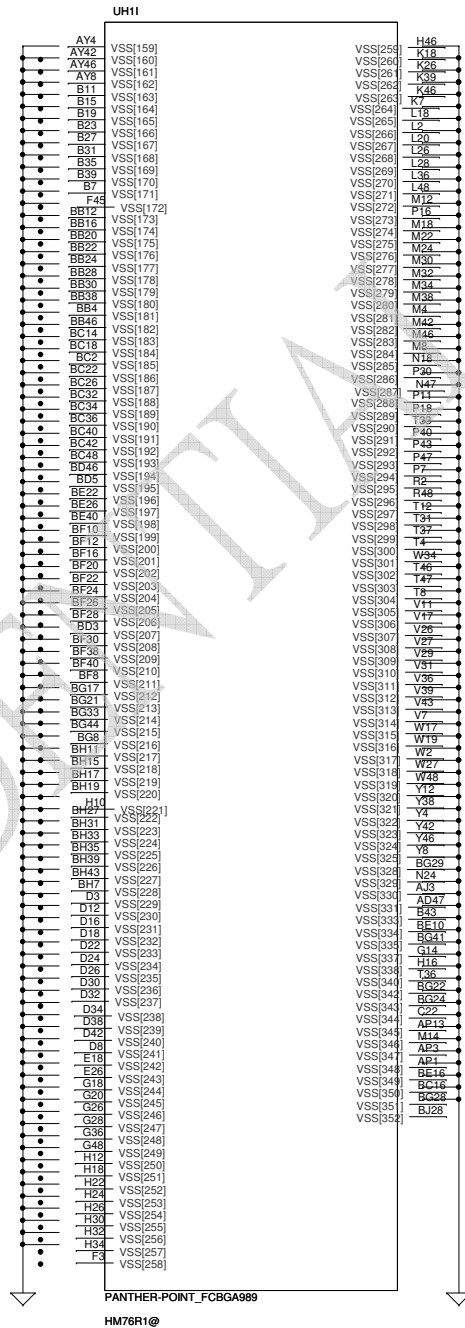
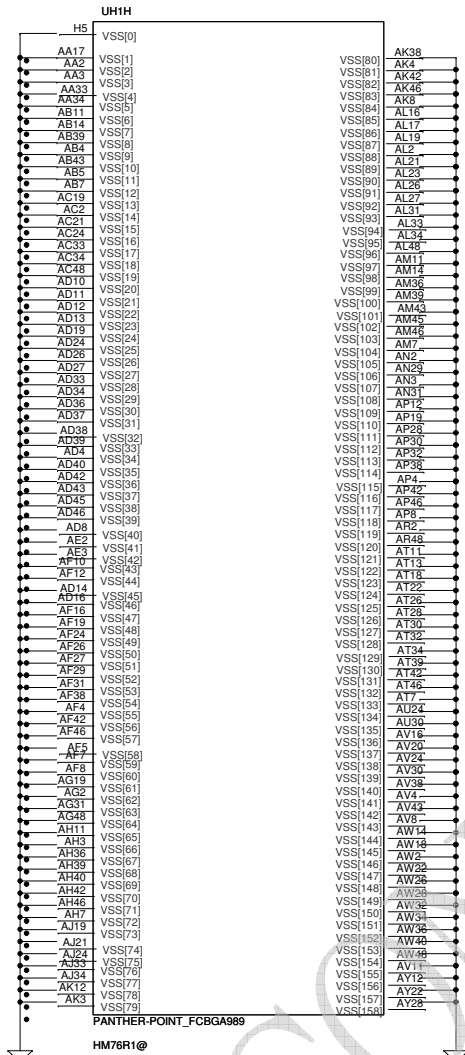
Integrated clock enable functionality  
is achieved by soft-strap  
The current default is clock enable

OPTIMUS_EN#		
OPTIMUS_EN#	H	L
SKU	NonOPT	Optimus

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	PCH_CPU/GPIO	
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 RESEARCH AND DEVELOPMENT 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	
				LAB412P	0.2	
				Date:	Wednesday, January 22, 2014	Sheet 21 of 41



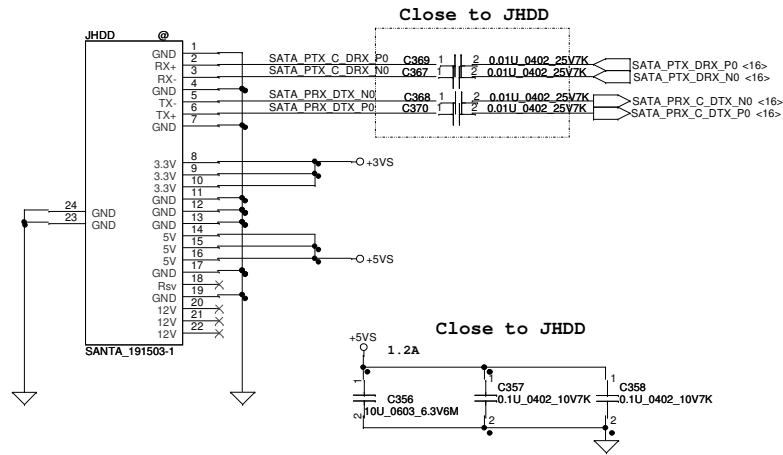




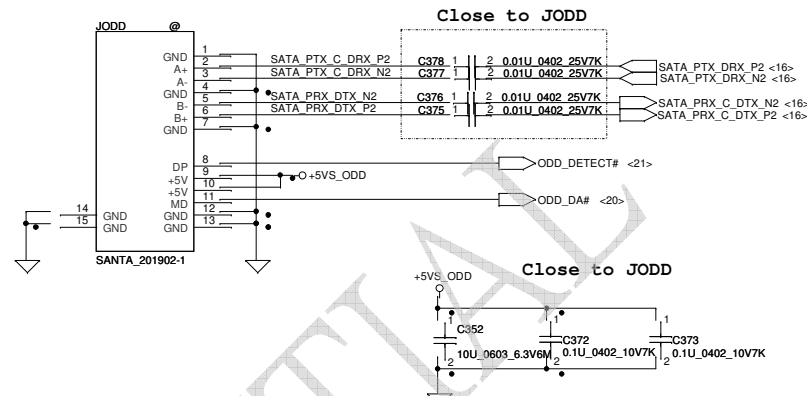
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	
				PCH_GND	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF 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
				LAB412P	0.2
				Date	Wednesday, January 22, 2014
				Sheet	24 of 41



## SATA HDD Conn.



## SATA ODD Conn



Power Consumption	
Peak	1800 mA
Read (CD)	1100 mA
Read (DVD)	950 mA
Write	1300 mA
Standby	20mA

## NGFF-Slot1-E-Key-WLAN

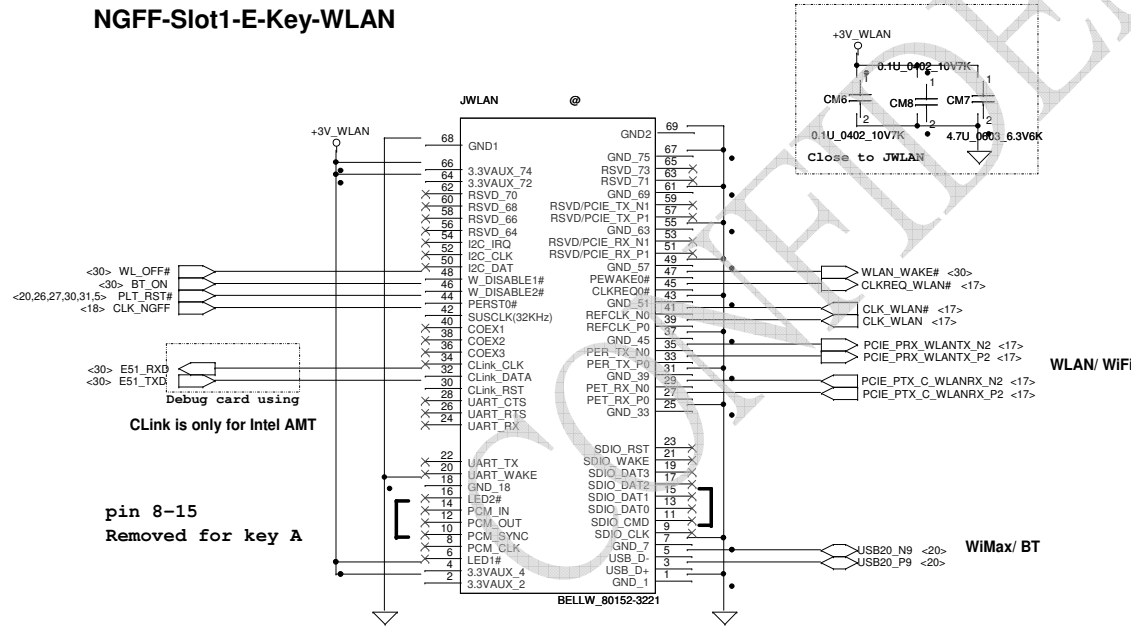
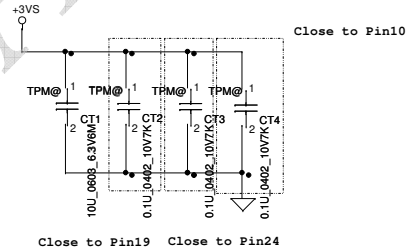
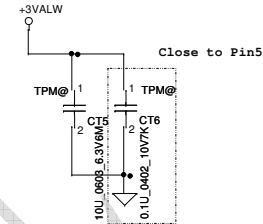
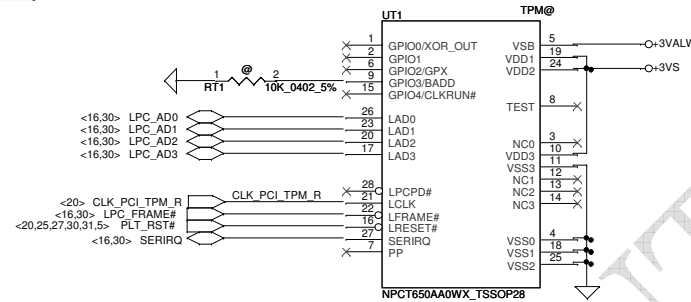
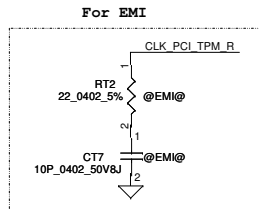


Table 23. SDIO Based Module Solution Pinout (Module Key E)

74	3.3V	GND	75
72	3.3V	RESERVED/REFCLKN1	73
70	UIM_Power_In/GPIO1/PEWake1#	RESERVED/REFCLKP1	71
68	UIM_Power_Out/CLKREQ1#	RESERVED/PET1L	69
66	UIM_SWP/PERST1#	RESERVED/PERP1	65
64	RESERVED	GND	63
62	ALERT# (IO/O/3.3)	RESERVED/PERN1	61
60	I2C_CLK (IO/O/3.3)	RESERVED/PERP1	59
58	I2C_DATA (IO/O/3.3)	GND	57
56	W_DISABLE1# (IO/O/3.3V)	PEWAKE0# (IO/O/3.3V)	55
54	Reserved/W_DISABLE2# (IO/O/3.3V)	CLKREQ0# (IO/O/3.3V)	53
52	PERST0# (IO/O/3.3V)	GND	51
50	SUSCLK(32KHz) (IO/O/3.3V)	REFCLKN0	49
48	CODE1 (IO/O/1.8V)	REFCLKP0	47
46	CODE2 (IO/O/1.8V)	GND	45
44	CODE3 (IO/O/1.8V)	PET0#	43
42	VENDOR DEFINED	PET0#	41
40	VENDOR DEFINED	GND	39
38	VENDOR DEFINED	PER0#	37
36	UART_CTS (IO/O/1.8V)	PER0#	35
34	UART_RTS (IO/O/1.8V)	GND	33
32	UART_Rx (IO/O/1.8V)	GND	31
Module Key	Module Key	Module Key	Module Key
Module Key	Module Key	Module Key	Module Key
Module Key	Module Key	Module Key	Module Key
Module Key	Module Key	Module Key	Module Key
22	UART Tx (IO/O/1.8V)	SDIO_Reset# (IO/O/1.8V)	23
20	UART Wake (IO/O/1.8V)	SDIO_Wake# (IO/O/1.8V)	21
18	GND	SDIO_DATA2# (IO/O/1.8V)	19
16	LED2# (IO/O)	SDIO_DATA2# (IO/O/1.8V)	17
14	PCM_IN/25 SD_IN (IO/O/1.8V)	SDIO_DATA2# (IO/O/1.8V)	15
12	PCM_OUT/25 SD_OUT (IO/O/1.8V)	SDIO_DATA2# (IO/O/1.8V)	13
10	PCM_SYNC/25 W5 (IO/O/1.8V)	SDIO_CMD0# (IO/O/1.8V)	11
8	PCM_CLK/25 SCK (IO/O/1.8V)	SDIO_CMD0# (IO/O/1.8V)	9
6	LED1# (IO/O)	GND	7
4	3.3V	USB_D-	5
2	3.3V	USB_D+	3
		GND	1

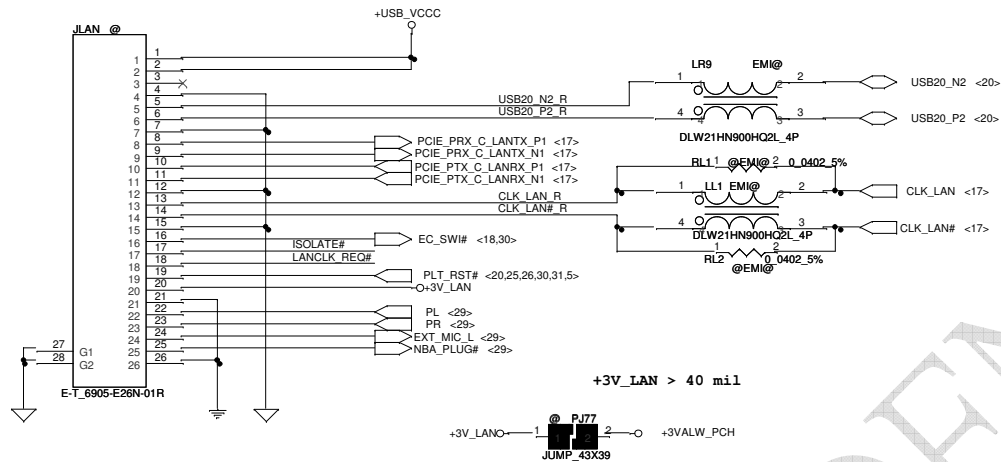
# TPM

BADD	ADDRESS
0	EEh - EFh
* Floating	7Eh - 7Fh



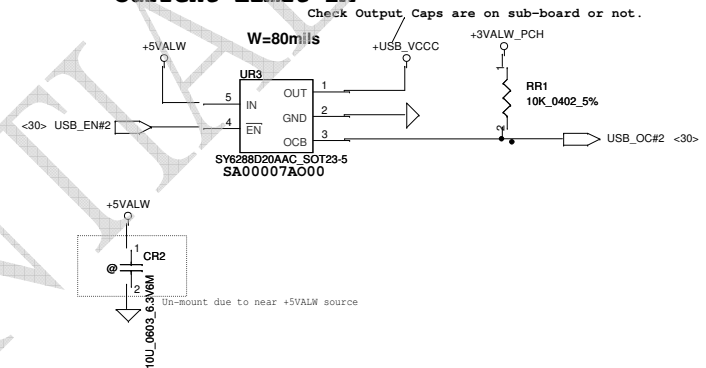
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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
				LAB412P	0.2
				Date	Wednesday, January 22, 2014
				Sheet	26 of 41

## LAN/USB Small board Conn

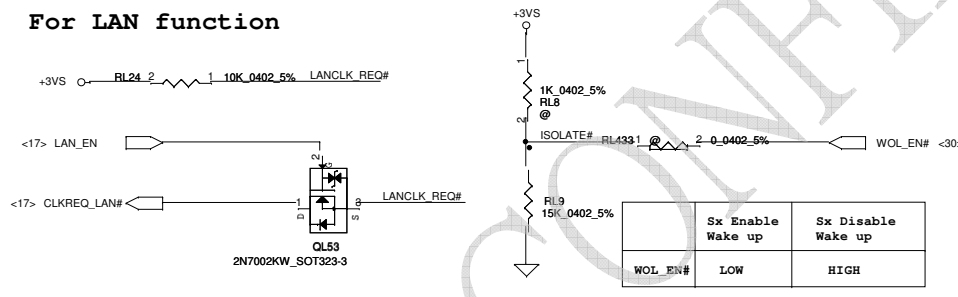


Left USB 2.0 x 1

Current Limit 2A



For LAN function



LAN	WOL	LAN_EN		ISOLATEB	
		S0	Sx	S0	Sx
0	0	0	0	1	1
0	1	0	0	1	1
1	0	1	1	1	1
1	1	1	1	1	0*

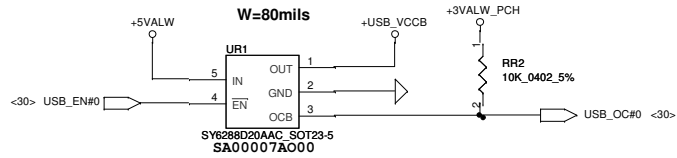
\*  
S3: after SUSP# assert low over 100ms  
S4/S5: after SYSON assert low over 100ms

**+3V\_LAN rising time (10%~90%) need > 1ms and <100ms.**

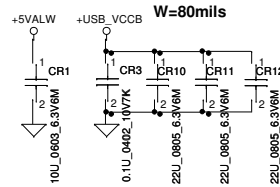
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	USB20/LAN conn.
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF RESEARCH 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
				LAB412P	0.2
				Date: Wednesday, January 22, 2014	Sheet 27 of 41

## Right USB power switch

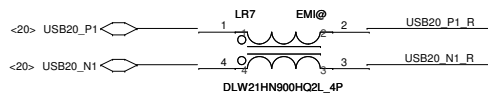
Current Limit 2A



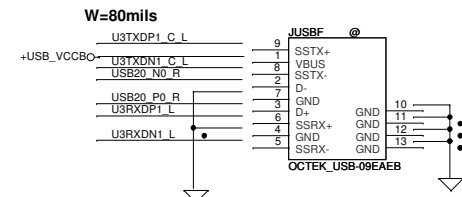
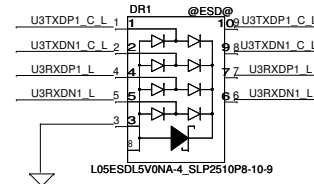
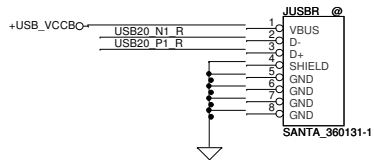
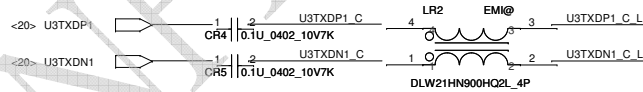
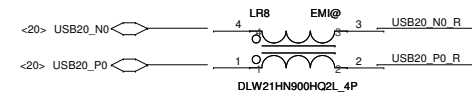
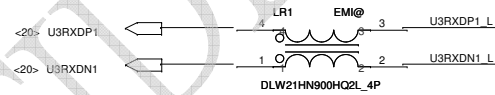
CLOSE to UR1



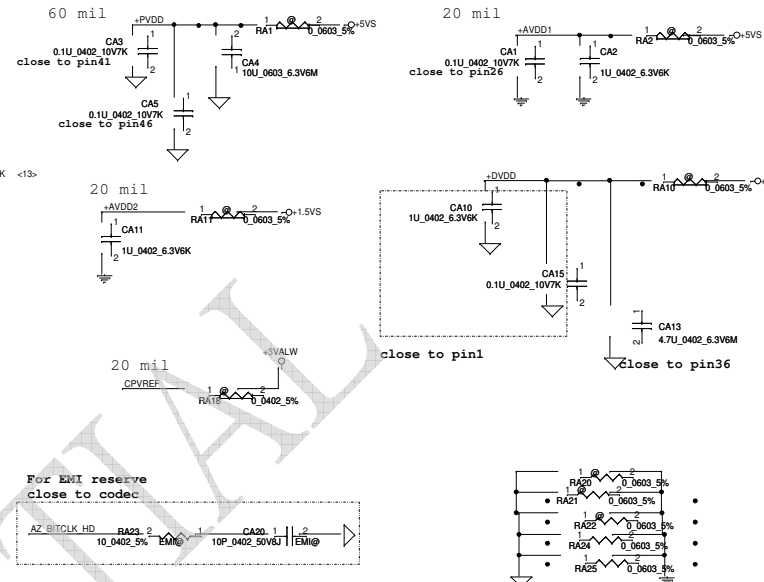
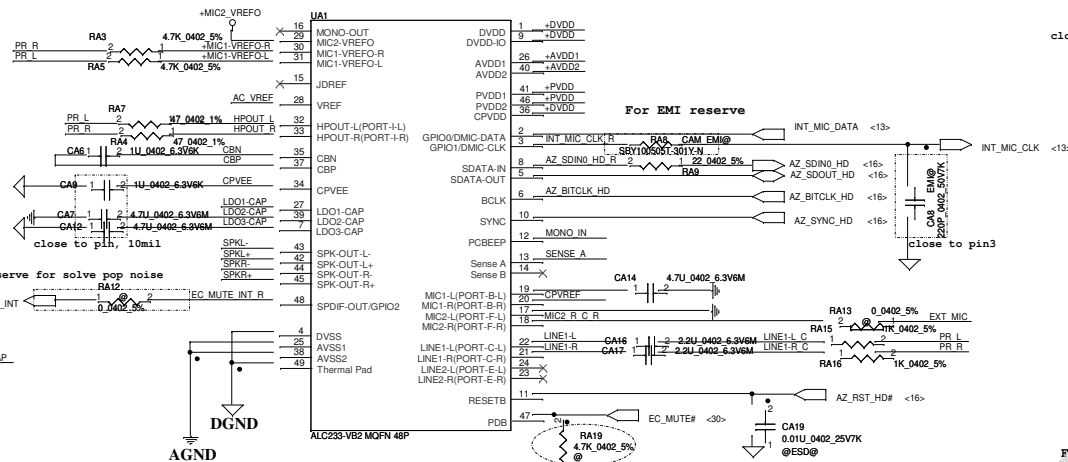
## Right rear USB2.0 Conn.



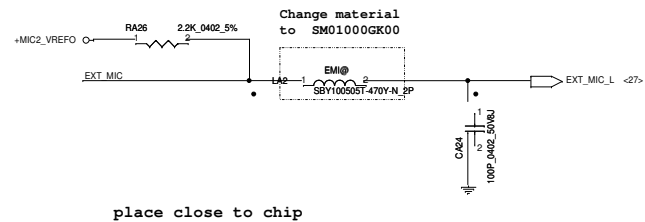
## Right front USB 3.0 Conn.



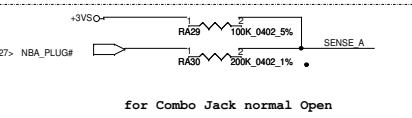
Security Classification	Compal Secret Data		Title	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Document Number
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF 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.				Rev
RUSB20/30				0.2
LAB412P				
Date: Wednesday, January 22, 2014				Sheet 28 of 41



## Combo Jack



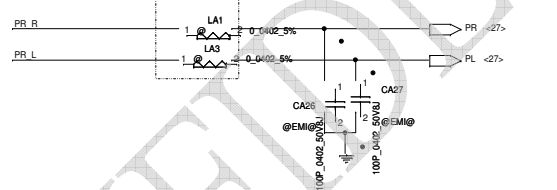
place close to chip



for Combo Jack normal Open

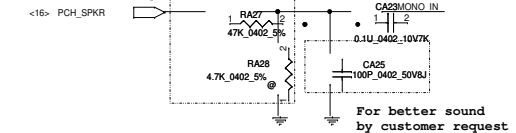
(ALC233VB supported iPhone headset/ Headphone/ MIC in)

For EMI protection  
use SM01000GK00



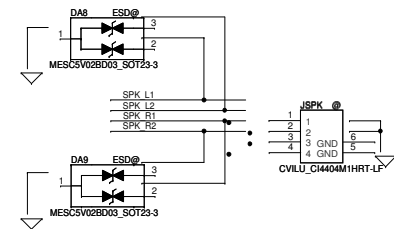
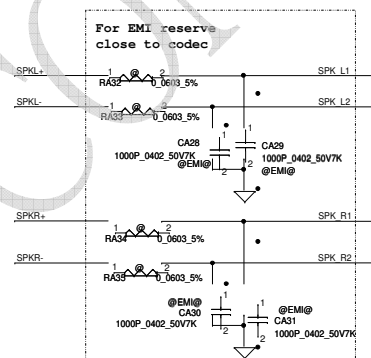
## Beep sound

### PCI Beep



For better sound  
by customer request

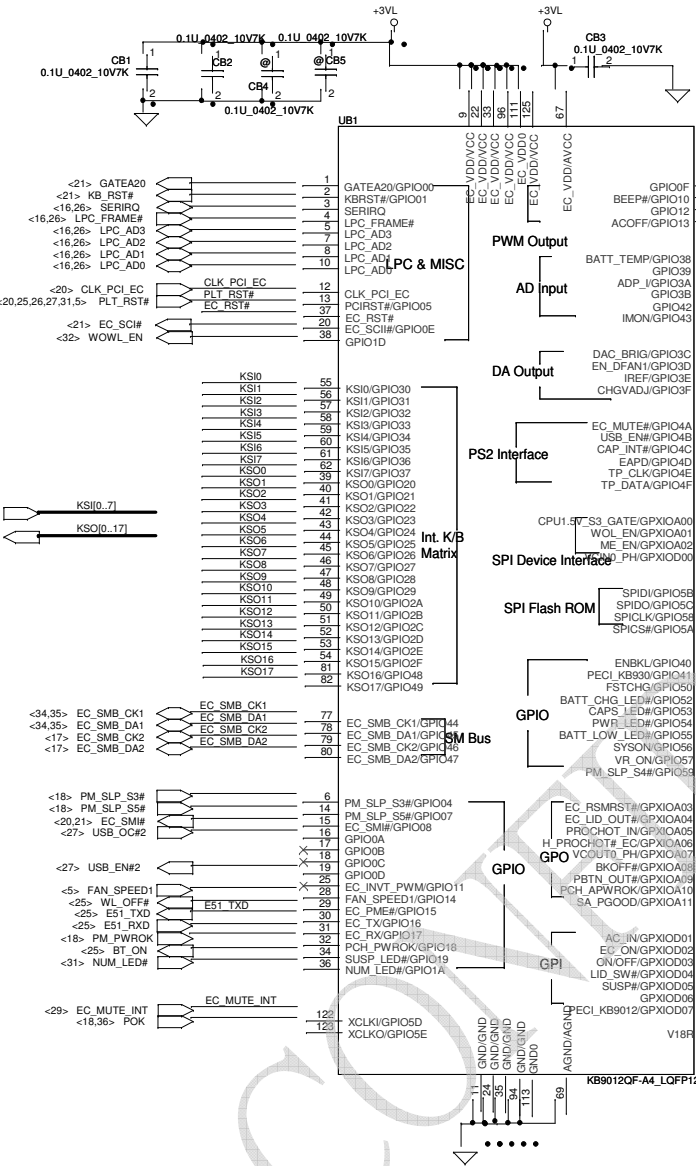
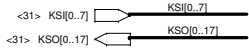
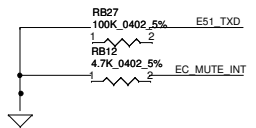
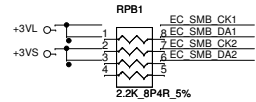
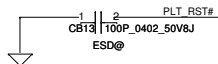
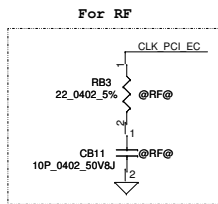
## SPK Conn.



Speaker 4 ohm: 40mil  
Speaker 8 ohm: 20mil

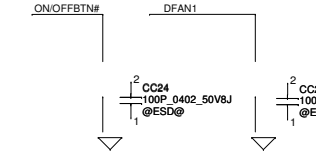
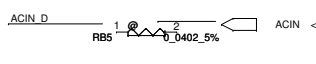
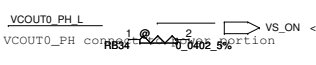
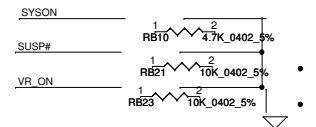
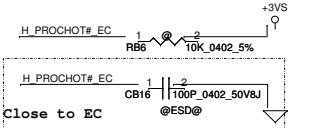
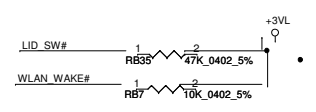
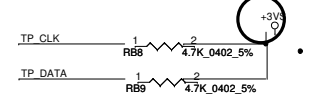
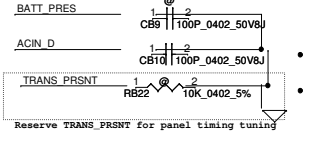
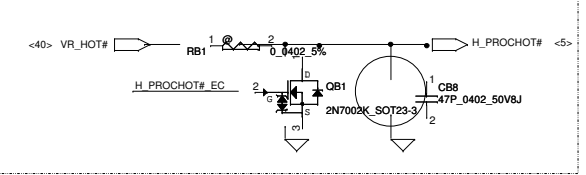
EXT\_MIC · EXT\_MIC\_L  
RA13 · LA2 · CA24  
close to small board connector

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title	HDA-ALC233VB
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 C	Document Number
					LAB412P
				Rev	0.2
				Drawn	Wangsheng, JINJUNY 22, 2014
				Sheet	29 of 41

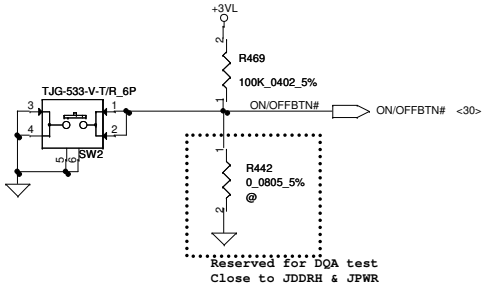


**Voltage Comparator Pins FOR 9012 A4**

VCIN0 pin109	>1.2V	<1.2V
VCIN1 pin102	HIGH (default)	LOW
VCOUT0 pin104	HIGH (default)	LOW
VCOUT1 pin103	HIGH	LOW (default)

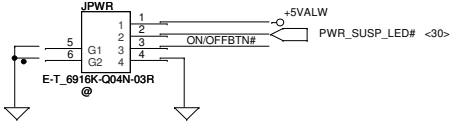


Power Button

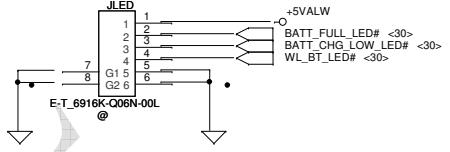


PBTN/B to M/B

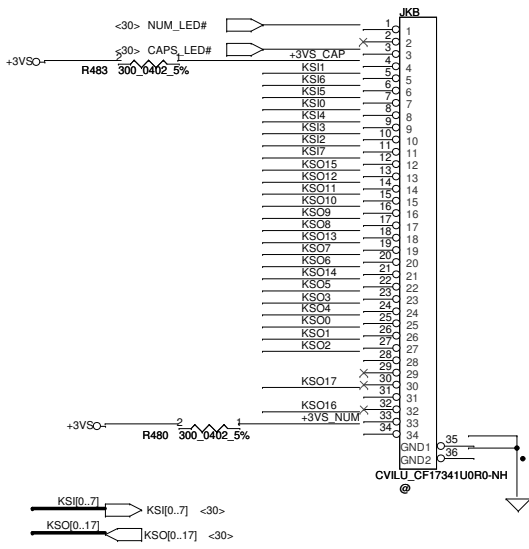
NOTICE: ON/OFFBTN# must have pull-high resistor on motherboard



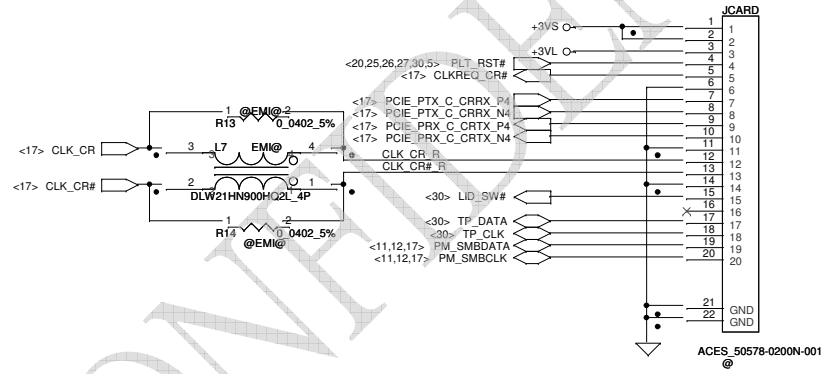
LED Small board to Conn



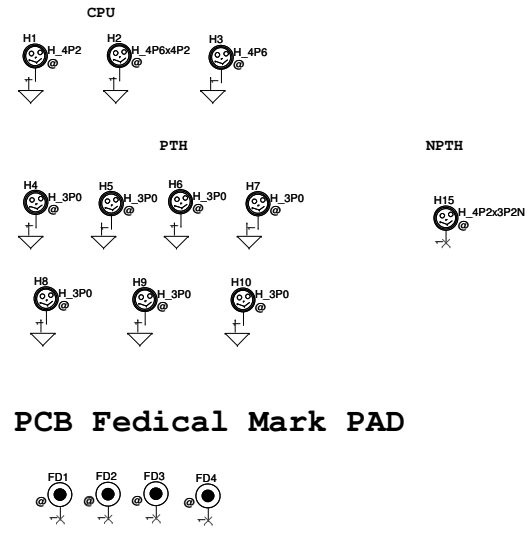
KEYBOARD CONN.



Card Reader + TP + Lid SW



Screw Hole

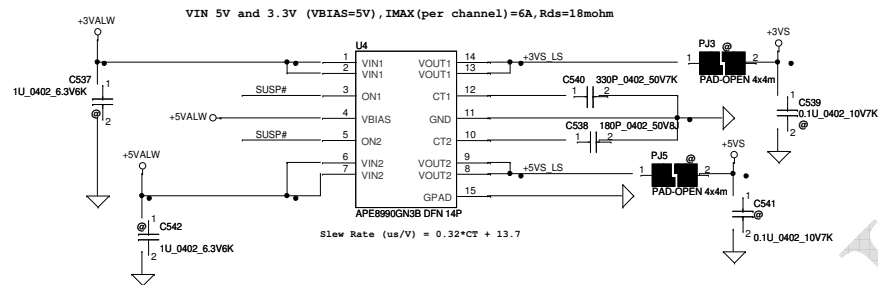


ISPD

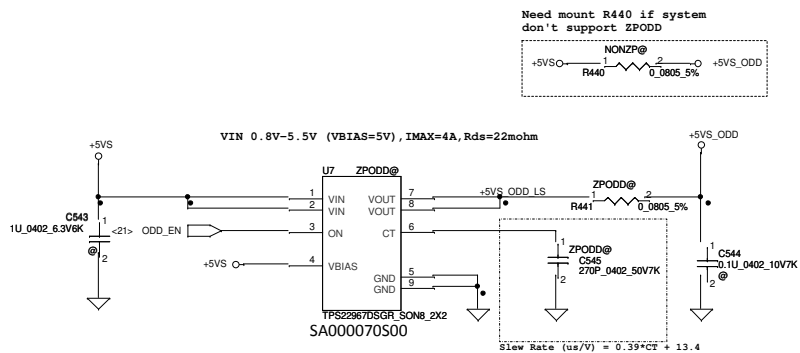
DA600152000  
PCB LA-B412P

Security Classification		Compal Secret Data		Title	
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Sub conn./ISPD/KB/Screw	
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
				LAB412P	0.2
				Date: Wednesday, January 22, 2014	Sheet 31 of 41

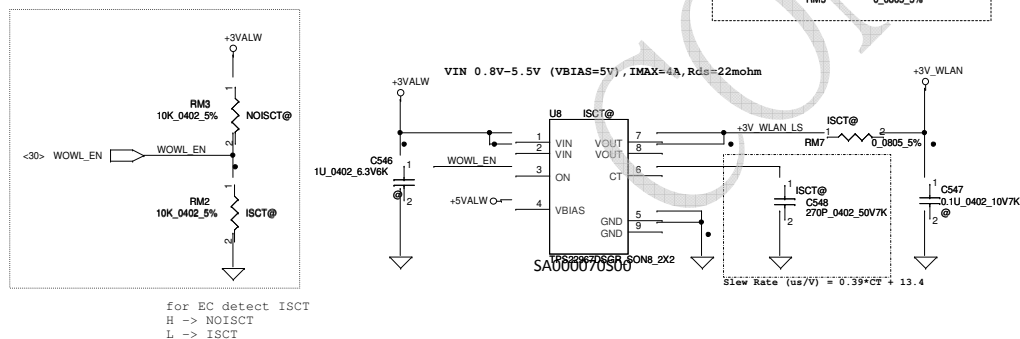
**+5VALW TO +5VS**  
**+3VALW TO +3VS**  
**Load switch**



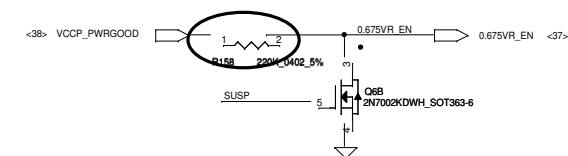
**+5VS TO +5VS\_ODD**



**+3VALW TO +3V\_WLAN**  
**for ISCT**



**For S3 CPU Power Saving**



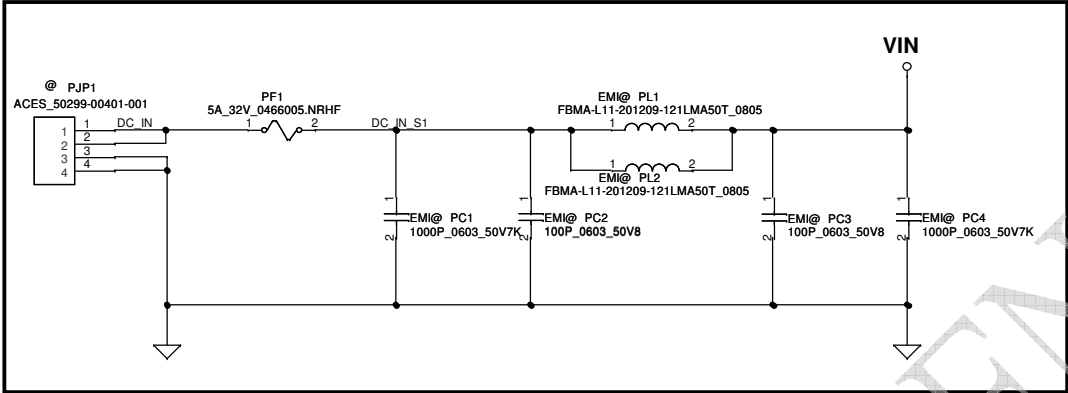
Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2013/12/17	Deciphered Date	2014/12/17	Title		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				DC-DC INTERFACE		
				Size	Document Number	Rev
				LAB412P		0.2
Date: Wednesday, January 22, 2014				Sheet	22 of 41	



Mark Green frame that means this part is not belong to layout module part .

Function Field :

Support 37.1  
RTC 38.2  
EMI Part 47.1

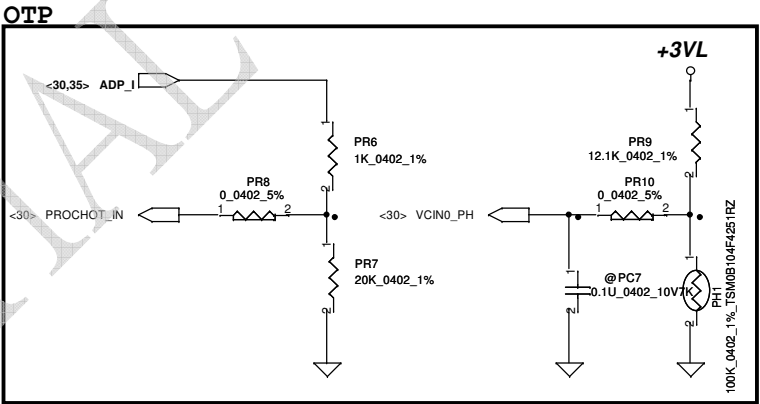
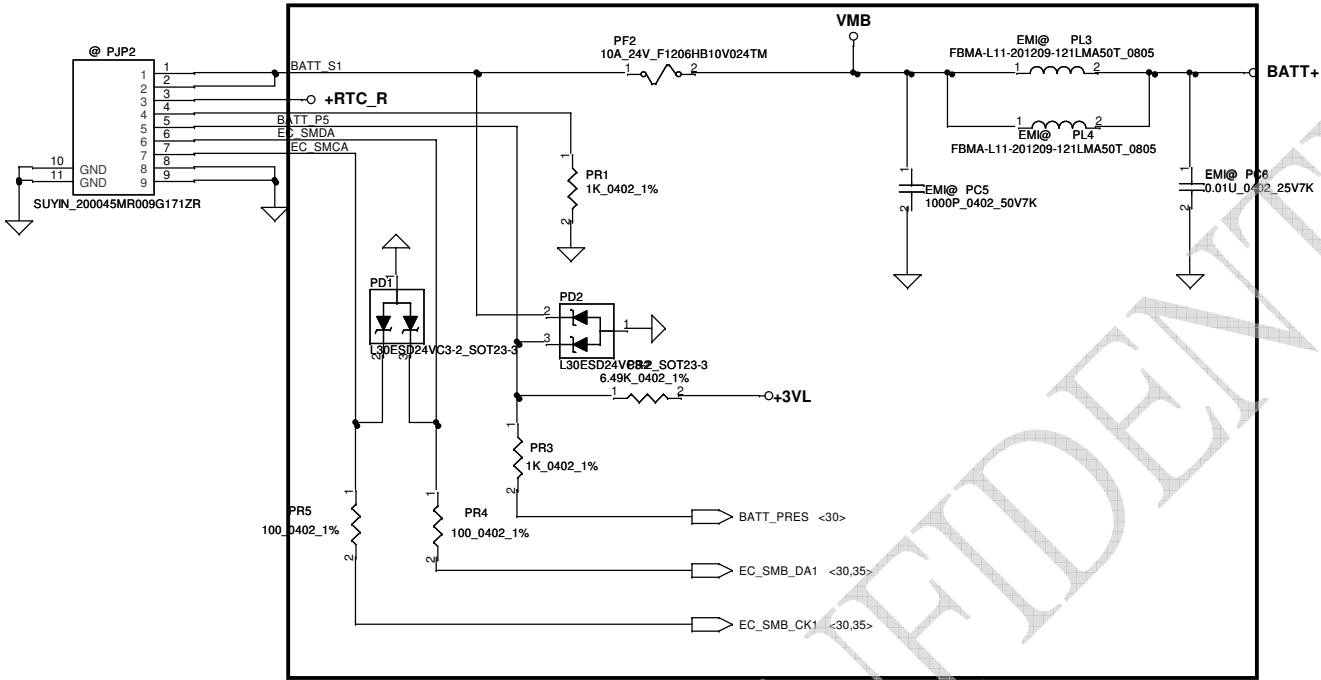


Security Classification		Compal Secret Data		Title	
Issued Date	2013/11/26	Deciphered Date	2014/11/26	DCIN / RTC Battery	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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 A3	Rev 0.2
Date: Wednesday, January 22, 2014		Sheet 33 of 41		Compal Electronics, Inc.	

Mark Green frame that means this part is not belong to layout module part .

Function Field :

Support 37.1  
OTP 39.7  
EMI Part 47.1



	Initial	Recovery
45W UMA	0.55V	0.43V

	Initial	Recovery
CPU OTP	90 C	70 C

# Module model information

BQ24735A\_V1.mdd

BQ24735A\_V2.mdd

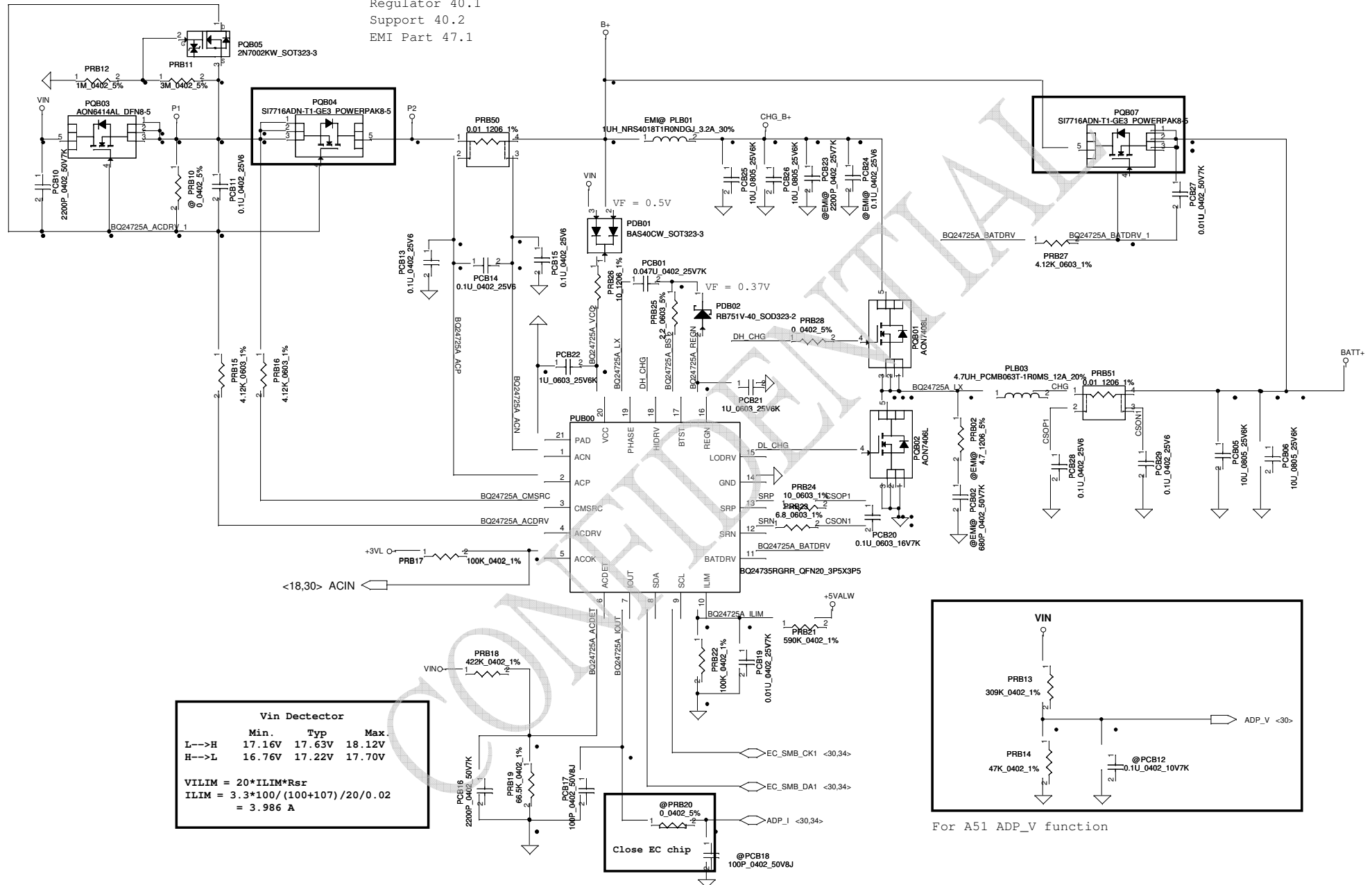
Mark Green frame that means this part is not belong to layout module part .

## Function Field :

Regulator 40.1

Support 40.2

EMI Part 47.1



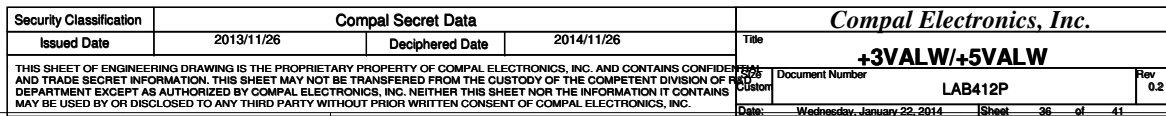
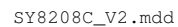
Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/11/26	Deciphered Date	2014/11/26	Title
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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
				LAB412P
				Rev 02
				Date: Wednesday, January 22, 2014
				Sheet 35 of 41

SY8206B\_V2.mdd

Function Field :

Support 35.2

EMI Part 47.1



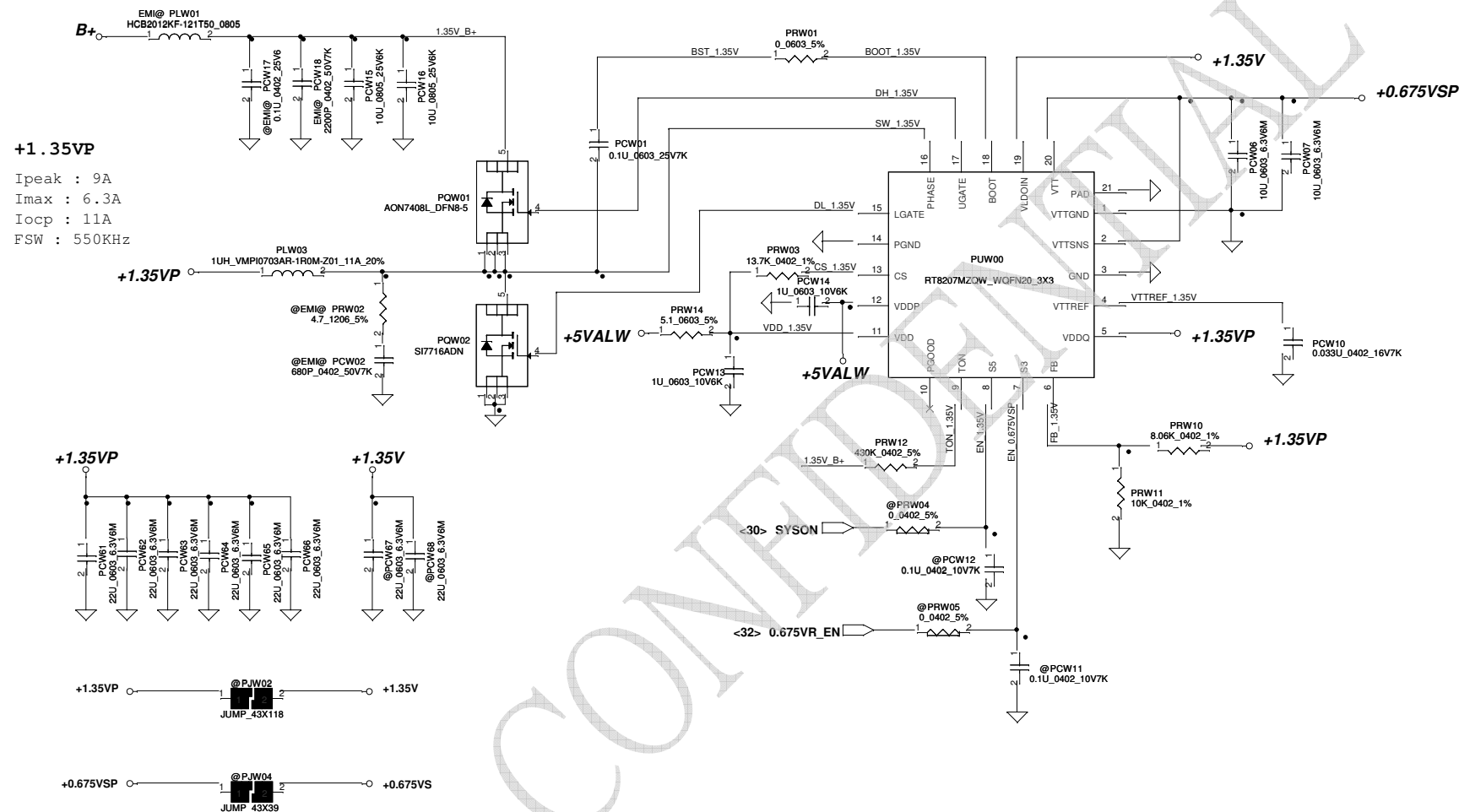
# Module model information

RT8207M\_V1.mdd For Single layer  
RT8207M\_V2.mdd For Dual layer

Mark Green frame that means this part is not belong to layout module part .

## Function Field :

Regulator 35.3  
Support 35.4  
EMI Part 47.1



Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/11/26	Deciphered Date	2014/11/26	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 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
				0.2
				Sheet 37 of 41

## Module model information

SY8033\_V1.mdd

Mark Green frame that means this part is not belong to layout module part .

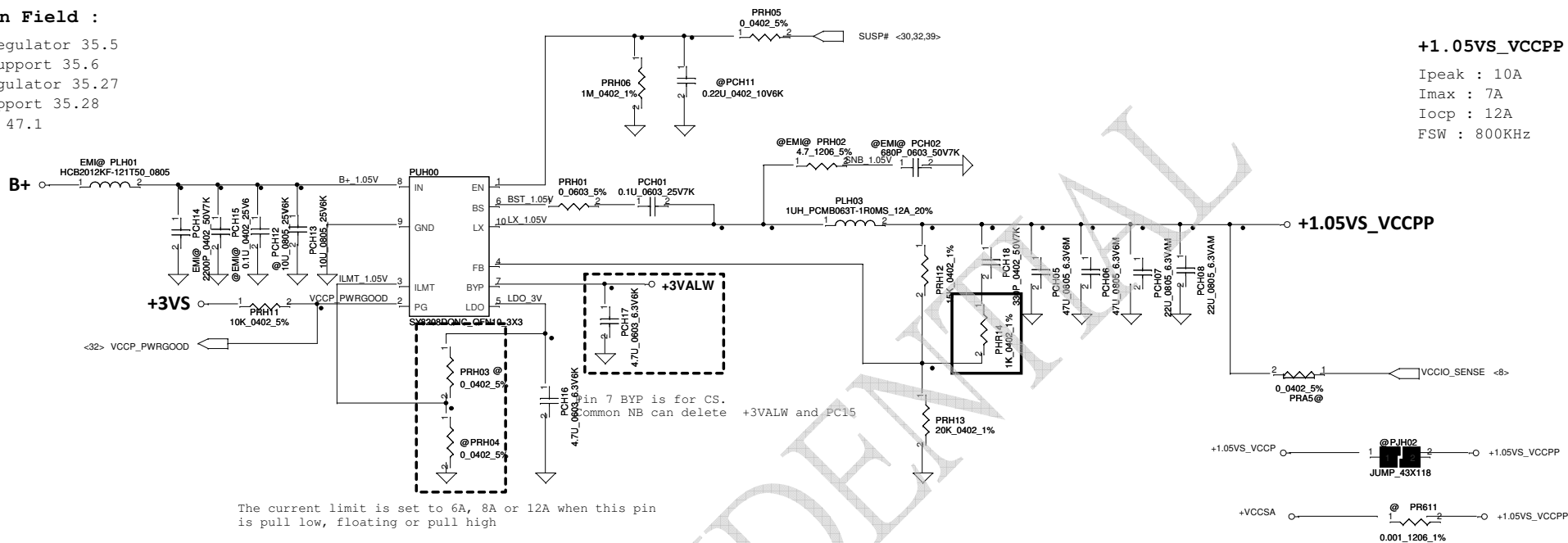
EN pin don't floating  
If have pull down resistor at HW side, pls delete PR2

## Function Field :

+1.05V Regulator 35.5  
+1.05V Support 35.6  
+1.0V Regulator 35.27  
+1.0V Support 35.28  
EMI Part 47.1

## +1.05VS\_VCCPP

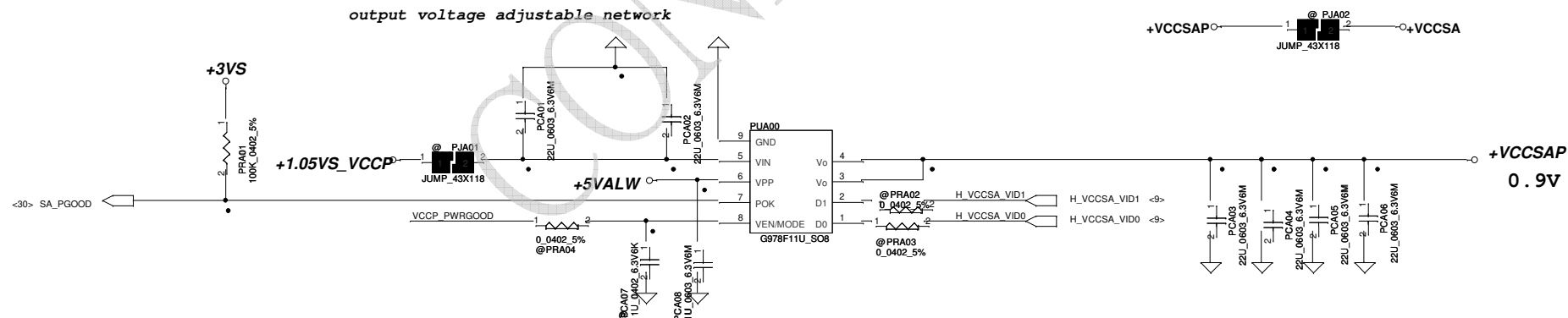
Ipeak : 10A  
Imax : 7A  
Iocp : 12A  
FSW : 800KHz



The current limit is set to 6A, 8A or 12A when this pin  
is pull low, floating or pull high

VID [0]	VID[1]	VCCSA Vout
0	0	0.9V
0	1	0.85V
1	0	0.775V
1	1	0.75V

output voltage adjustable network



Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/11/26	Deciphered Date	2014/11/26	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 RESEARCH AND DEVELOPMENT 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
				LAB412P
				Rev 0.2
				Date: Wednesday, January 22, 2014 Sheet 38 of 41

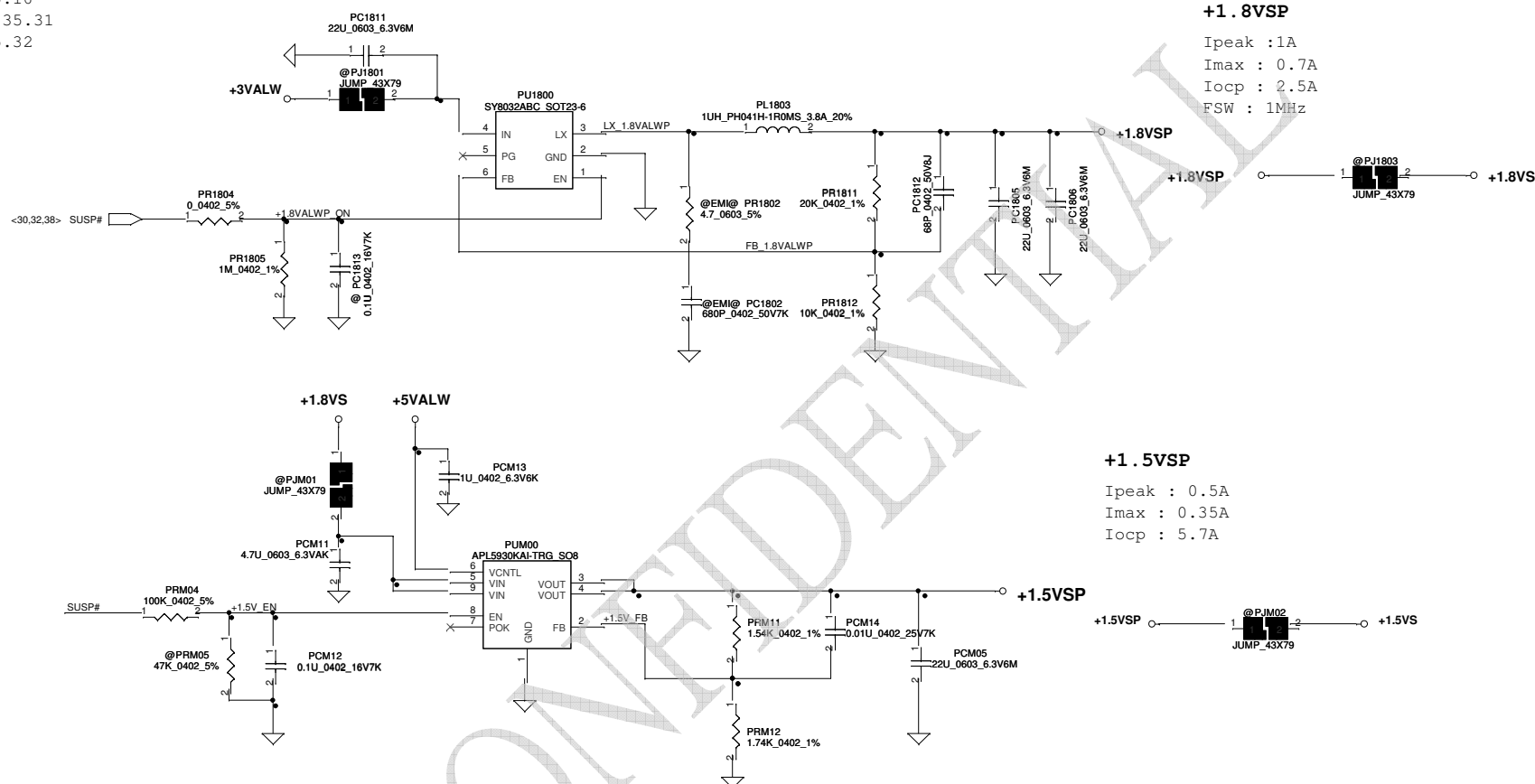
# Module model information

SY8033\_V1.mdd

Mark Green frame that means this part is not belong to layout module part .

## Function Field :

+1.8V Regulator 35.15  
+1.8V Support 35.16  
+1.5V Regulator 35.31  
+1.5V Support 35.32  
EMI Part 47.1



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/11/26	Deciphered Date	2014/11/26	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 CUSTOMER 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
				LAB412P	0.2
				Date	Wednesday, January 22, 2014
				Sheet	39 of 41

# Module model information

ISL95833\_V1A.mdd

ISL95833\_V1B.mdd

## Design Note

This circuit is for ULV 1+1 17W.

CPU: IccMax=33A, TDC=16A(TDP NOM)

Loadline: -2.9 m V/A

Output Cap. follow Intel PDDG

330uF/9m\*3, 22uF\_0805\*12, 2.2uF\_0402\*16

GFX(GT2): IccMax=33A, TDC=21.5A

Loadline: -3.9 m V/A

Output Cap. follow Intel PDDG

330uF/9m\*2, 22uF\_0805\*6, 10uF\_0603\*6, 1uF\_0402\*11

After module layout change to  
ISL95833B(SA000057V10)

Close GFX L/S MOS

For VR\_HOT#, already  
pull high at power side.

+1.05VS\_VCCP

PR18 and PR30  
27.4K ohm for 100 degree  
61.9K ohm for 110 degree

Close CPU L/S MOS

$C_n = L / ((R_{ntcnet} * R_{sum}) / (R_{ntcnet} + R_{sum}) + DCR)$   
If  $C_n$  is correctly selected, when the load current has a  
square change, the output voltage also has a square response.

## Layout Note

### Reduce Acoustic Noise

1. The AL bulk capacitor of B+ should be very close to CPU\_CORE MOSFET.
2. Input ceramic caps must place on symmetry same location on top side and bottom side.

MDV1525 Vds=30V  
Rds(on)=11.5-14m ohm@Vgs=4.5V

OCP setting=39.9~44.99A

0.22uH DCR= 0.97+-5% m ohm, Idc-Isat= 25-34A

MDU1511 Vds=30V  
Rds(on)=2.7-3.3m ohm@Vgs=4.5V

VDD source use +5VS and PG00D source use +3VS  
Please confirm power on and down sequence,  
make sure VGATE after CPU\_CORE on.

MDV1525 Vds=30V  
Rds(on)=11.5-14m ohm@Vgs=4.5V

OCP setting=39.9~44.99A

0.22uH DCR= 0.97+-5% m ohm, Idc-Isat= 25-34A

MDU1511 Vds=30V  
Rds(on)=2.7-3.3m ohm@Vgs=4.5V

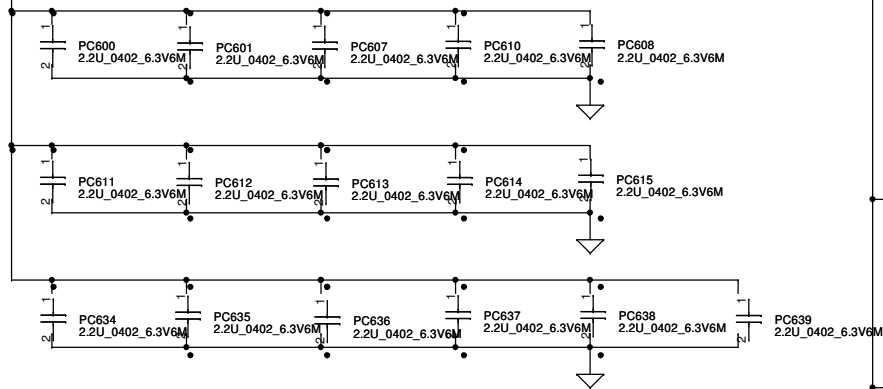
Close CPU choke

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/11/26	Deciphered Date	2014/11/26	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 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.				CPU/GFX CORE	
				Document Number	
LAB412P				Rev 0.4	

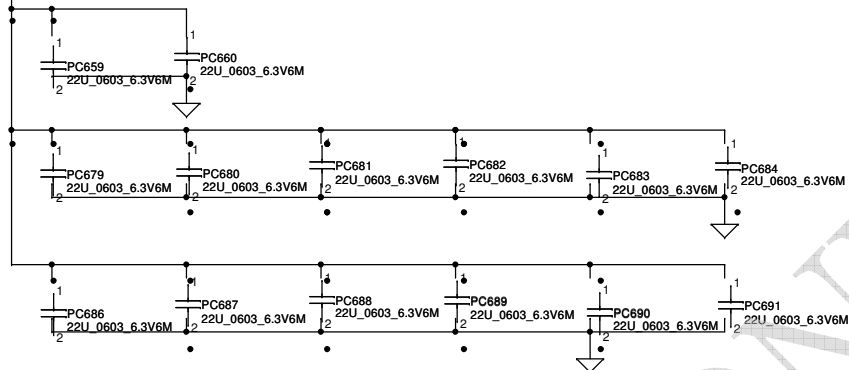


CPU\_Core output CAP (Including MLCC) 36.4

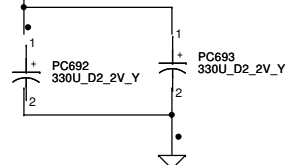
+CPU\_CORE



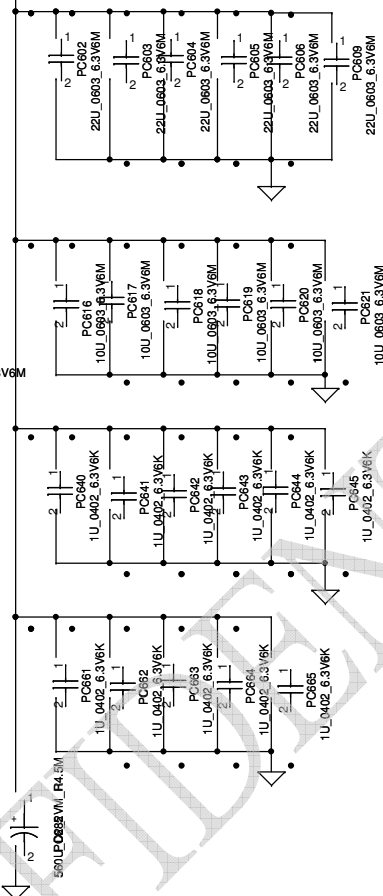
+CPU\_CORE



+CPU\_CORE



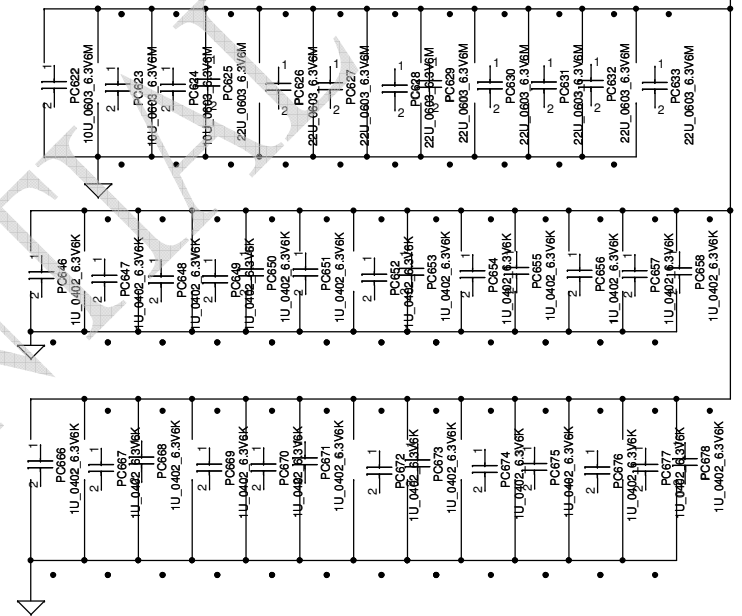
+GFX\_CORE



GFX output CAP (Including MLCC) 36.5

VCCP output Cap (Including MLCC) 36.6

+1.05VS\_VCCP



Chief River ULV	330uF*9m	22uF	10uF	2.2uF	1uF	470uF	560uF
CPU	2	14		16			
GFX_CORE		6	6		11		1
1.05V_VCCP		9	3		26		

Security Classification	Compal Secret Data				Compal Electronics, Inc.		
Issued Date	2013/11/26	Deciphered Date	2014/11/26		Title	PWR - PROCESSOR DECOUPLING	
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	Rev
						LAB412P	0.2
					Date:	Wednesday, January 22, 2014	Sheet 41 of 41