

Compal Confidential

Schematics Document

Intel Huron River

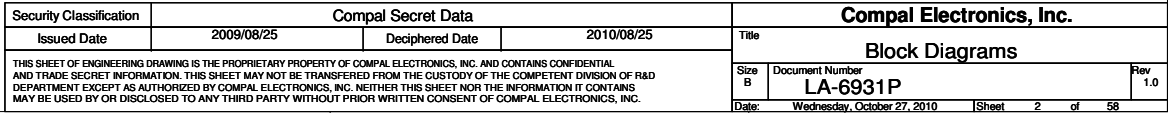
Sandy Bridge with Cougar Point core logic

2010-10-27

REV:1.0

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/08/25	Deciphered Date	2010/08/25	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 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
				Custom	LA-6931P
				Date	Wednesday, October 27, 2010
				Sheet	1 of 58
				Rev	1.0

Model Name : P5LM0
File Name : LA-6931P



Voltage Rails

Power Plane	Description	S1	S3	S5	DGPU (DIS)	IGPU (SG)
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		
BATT+	Battery power supply (12.6V)	N/A	N/A	N/A		
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF		
+0.75VS	0.75V switched power rail for DDR terminator	ON	OFF	OFF		
+1.05VS_VCCP	1.05V switched power rail for CPU (PCH)	ON	OFF	OFF		
+VGFX_CORE	Core voltage for IGPU	ON	OFF	OFF		
+1.5V	1.5V power rail for DDRIII	ON	ON	OFF		
+1.5VS	1.5V switched power rail	ON	OFF	OFF		
+1.8VS	1.8V switched power rail	ON	OFF	OFF		
+3VALW	3.3V always on power rail	ON	ON	ON*		
+3VALW_PCH	3.3V power rail for PCH	ON	ON	ON*		
+LAN_IO	3.3V power rail for LAN	ON	ON	ON*		
+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	USB always on power rail	ON	ON	ON*		
+RTCVCC	RTC power	ON	ON	ON		
+VGA_CORE	5V power rail for GPU	ON	OFF	OFF	ON	OFF
+1.5VSDGPU	1.5V power rail for VRAM	ON	OFF	OFF	ON	OFF
+1.8VSDGPU	1.8V switched power rail for GPU	ON	OFF	OFF	ON	ON

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

External PCI Devices

Device	IDSEL#	REQ#/GNT#	Interrupts
--------	--------	-----------	------------

EC SM Bus1 address

EC SM Bus2 address

Device	Address	Device	Address
--------	---------	--------	---------

Ibex SM Bus address

Device	Address
--------	---------

STATE	SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
		HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
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	
2	
* 3	0.4
4	
5	
6	
7	

BTO Option Table

BTO Item	BOM Structure
DIS Only	DIS@
Switchable Graphics	SG@
Granville	GRA@
Whistler	WHI@
For CIR	CIR@
USB2.0 bus	USB2@
DDR M1	M1@
DDR M3	M3@
For 45 level	45@

USB Port Table

USB 2.0	USB 1.1	Port	4 External USB Port
EHCI1	UHCI0	0	USB/B
		1	USB Conn.
	UHCI1	2	
		3	
	UHCI2	4	Mini Card 1
		5	Mini Card 2
EHCI2	UHCI3	6	
		7	
	UHCI4	8	USB Conn.
		9	eSATA USB
	UHCI5	10	CMOS Camera
		11	Finger Print
	UHCI6	12	USB3.0 @
		13	Blue Tooth

43 Level BOM Config

Granville DIS: GRA@ DIS@ CIR@ M1@
Whistler SG: WHI@ SG@ CIR@ M1@

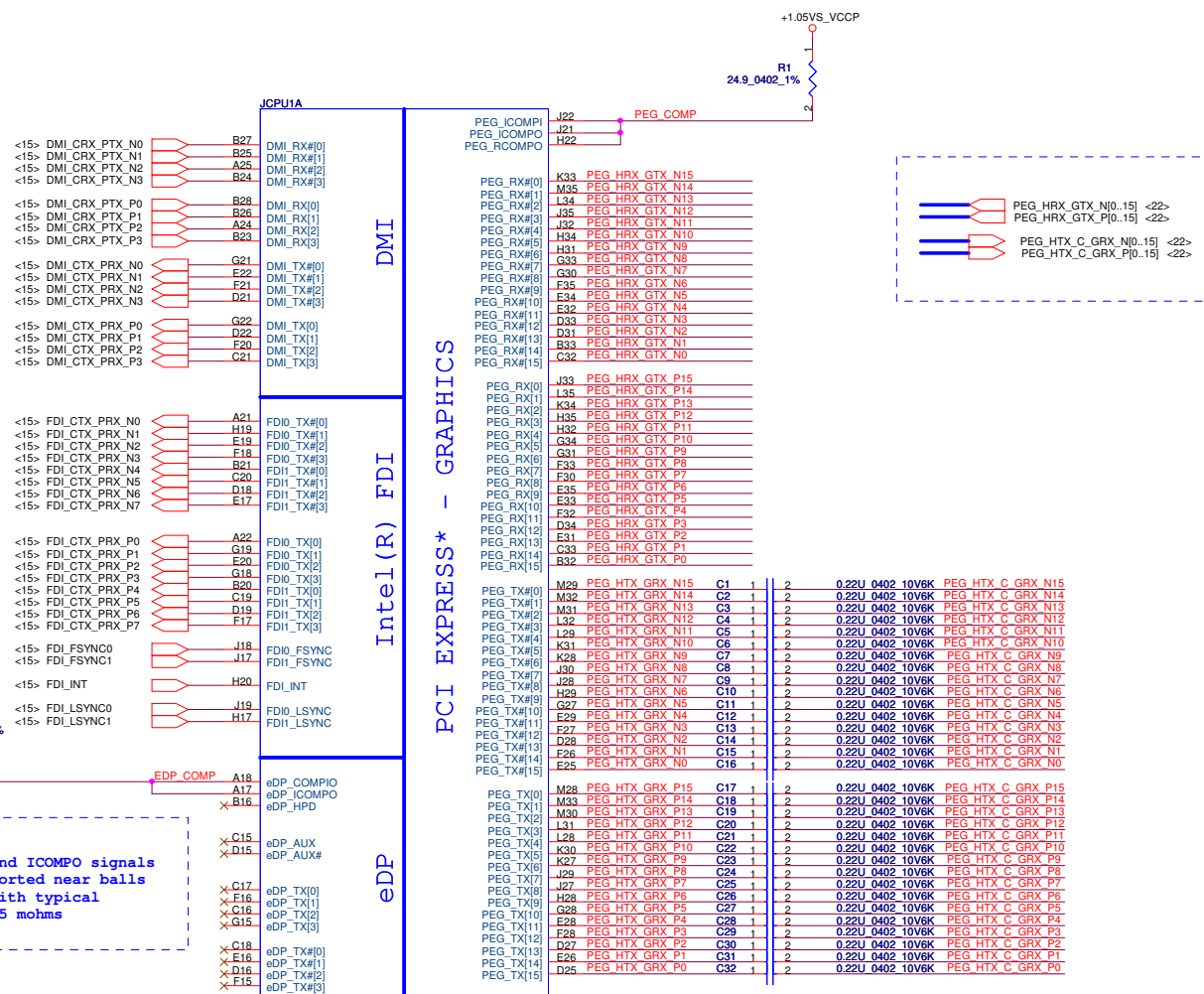
45 Level BOM Config

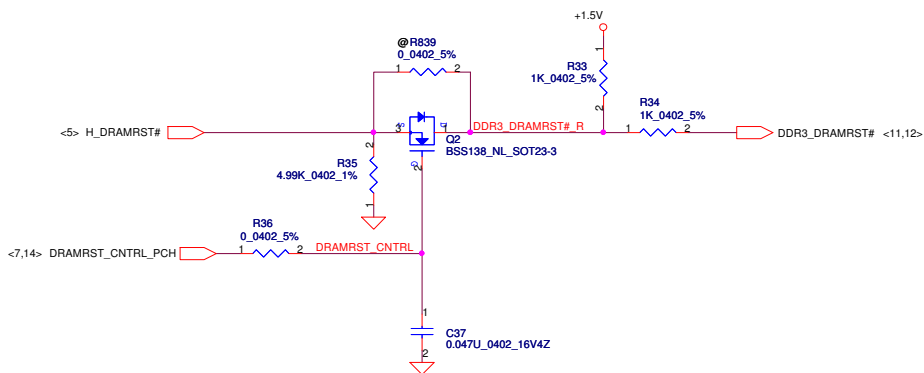
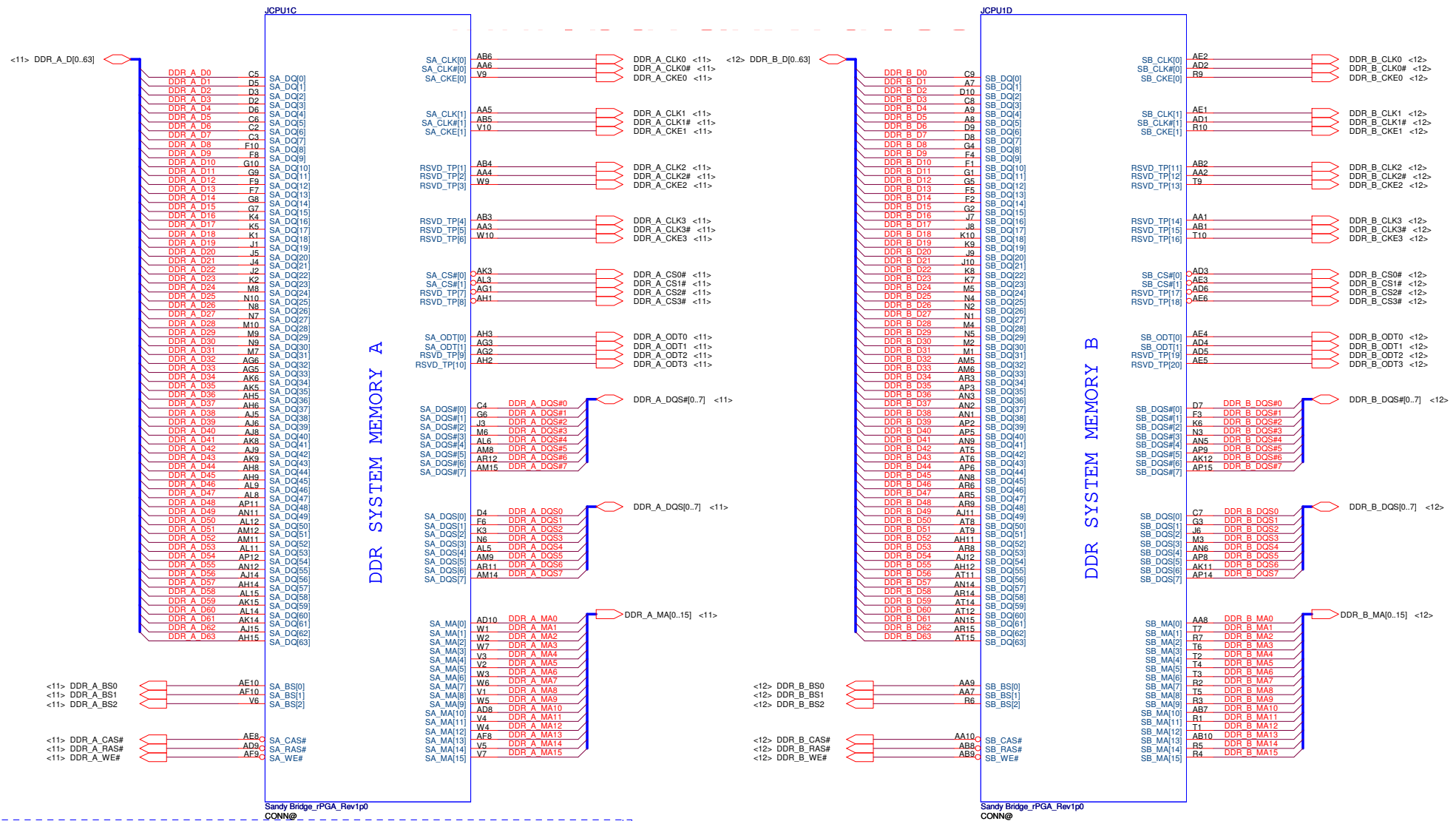
45@

VRAM BOM Config

X76255BOL01: HYNIX 1G (old die)
X76255BOL02 HYNIX 1G (new die)
X76255BOL04 HYNIX 2G

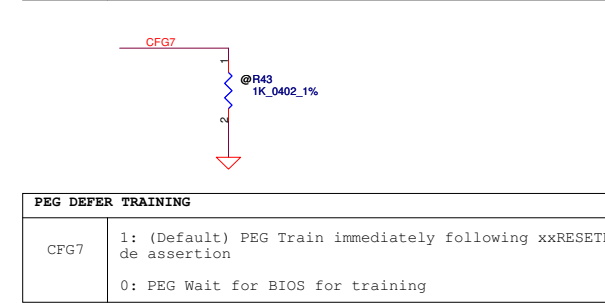
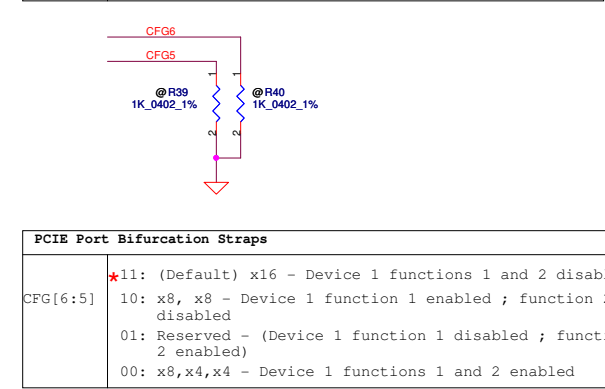
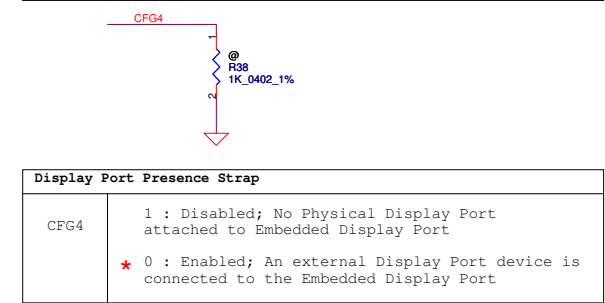
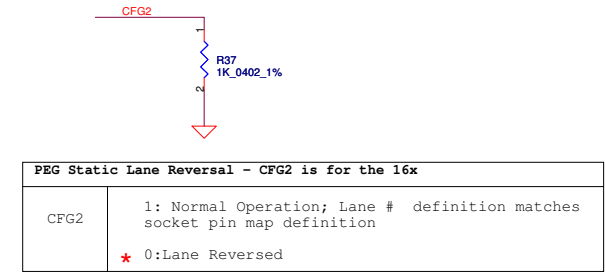
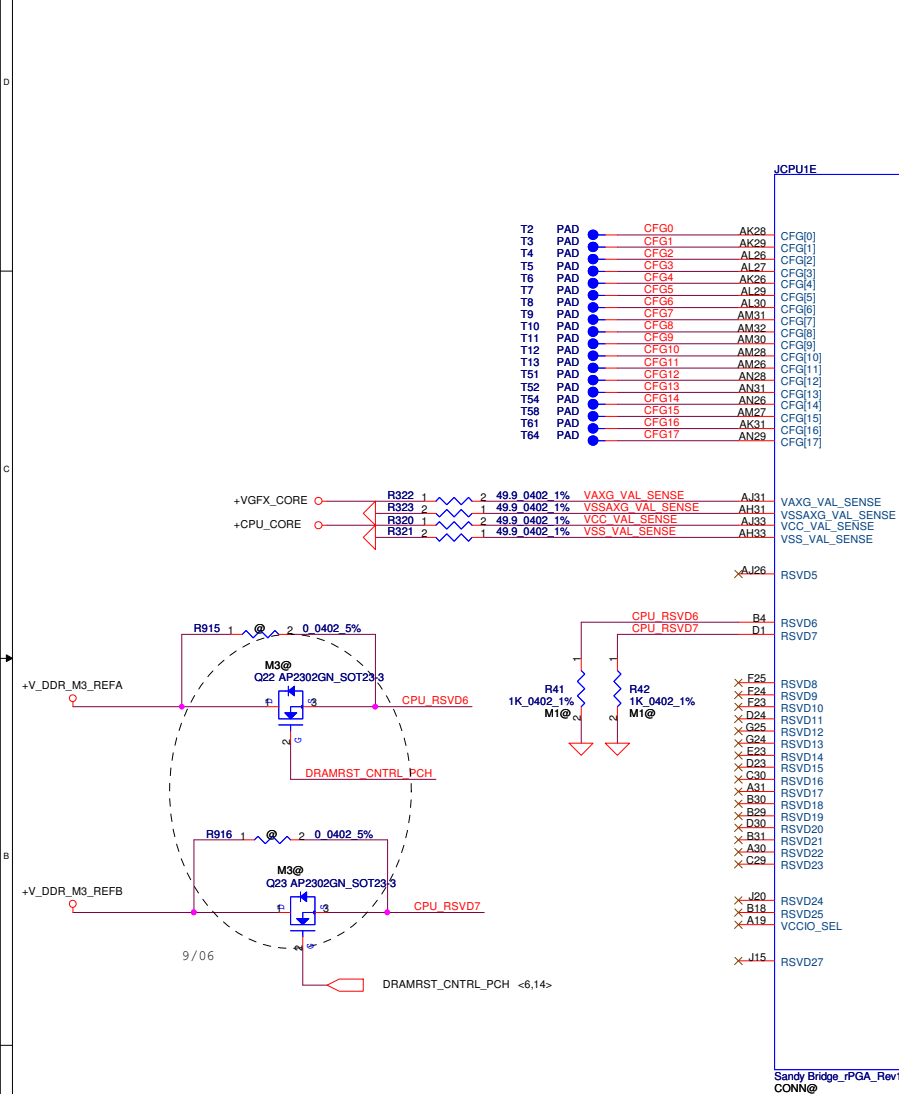
Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2009/08/25	Deciphered Date	2010/08/25	Title		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				Notes List		
Size B	Document Number				Rev	1.0
Date:	Wednesday, October 27, 2010				Sheet	3 of 58

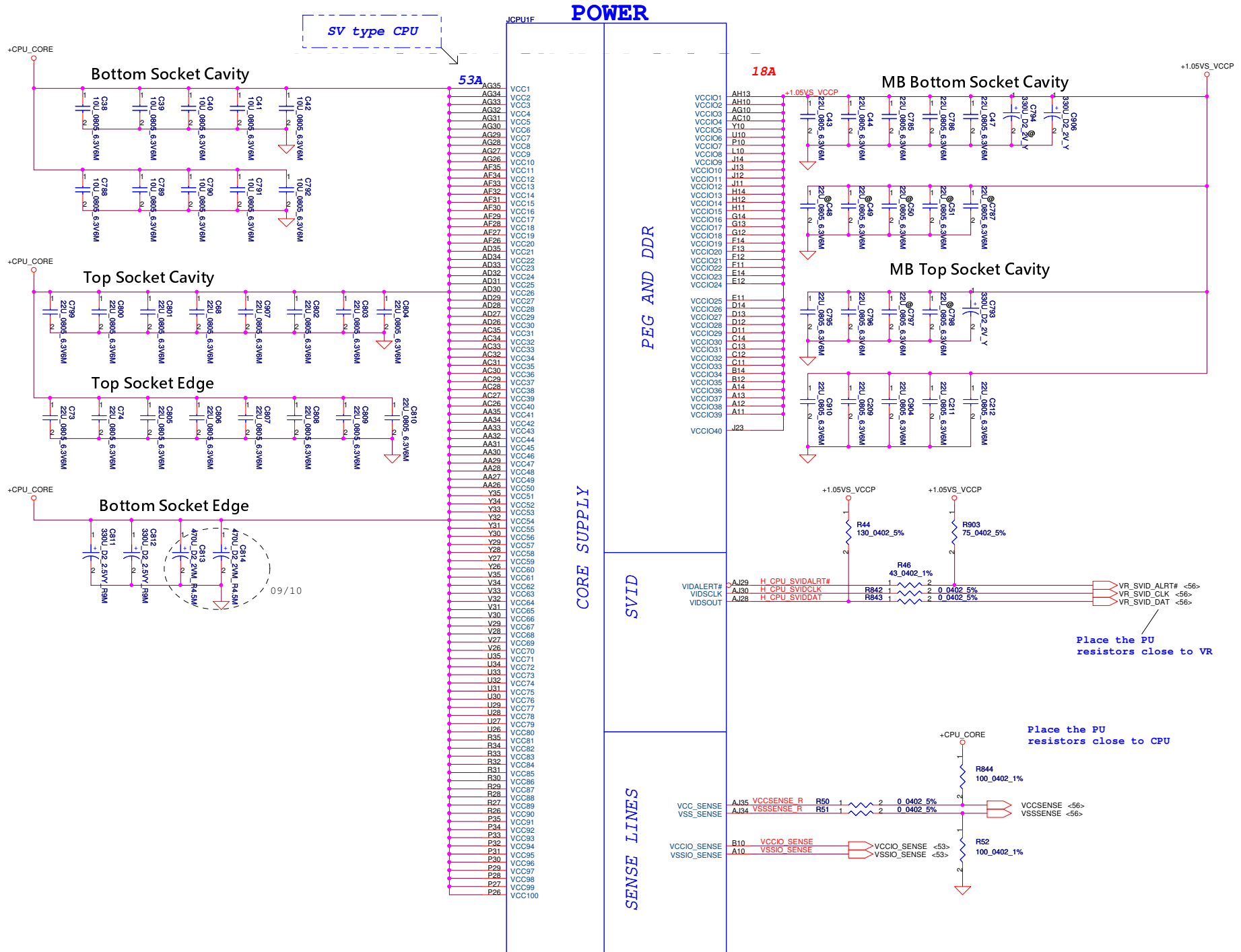




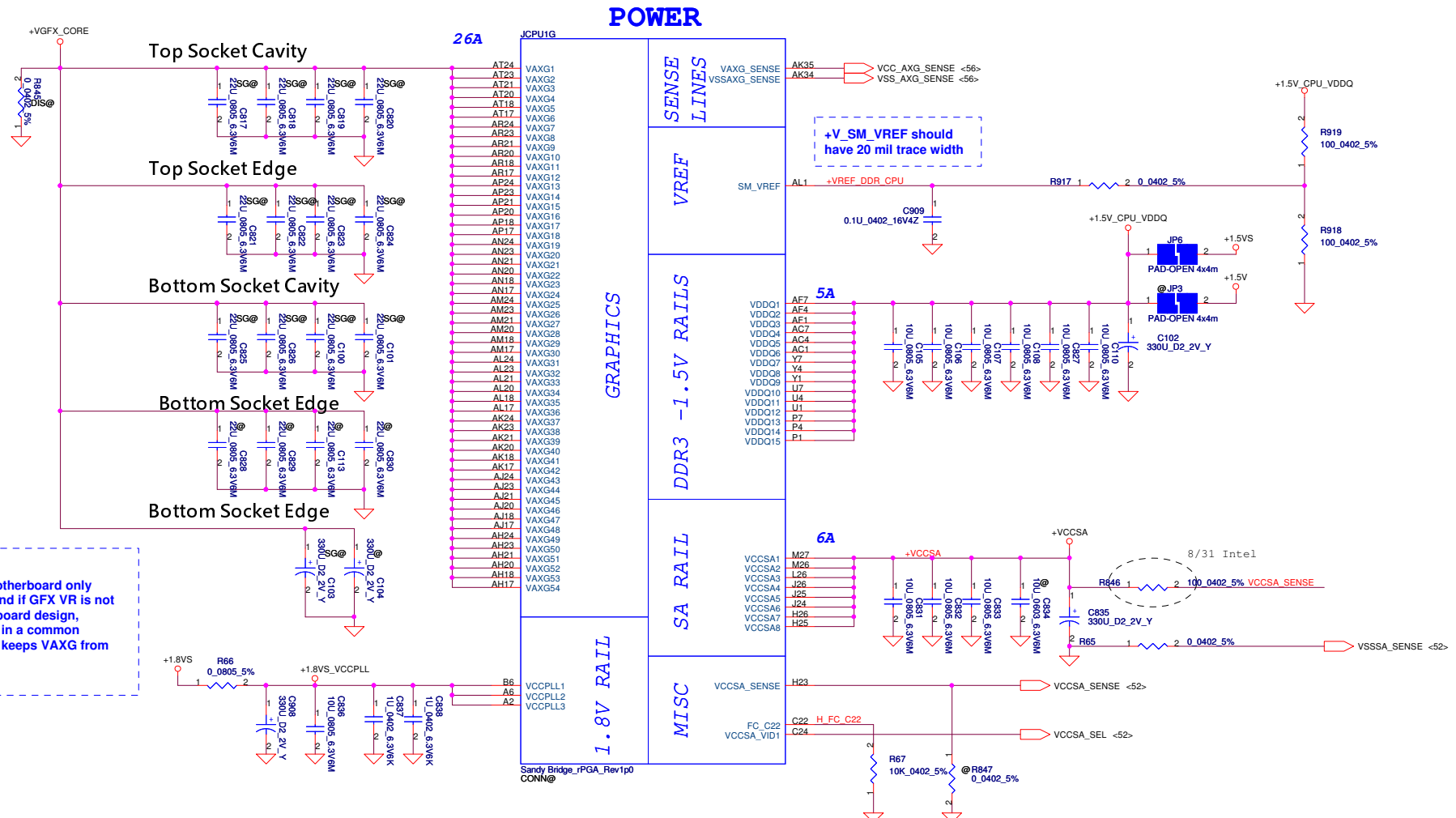
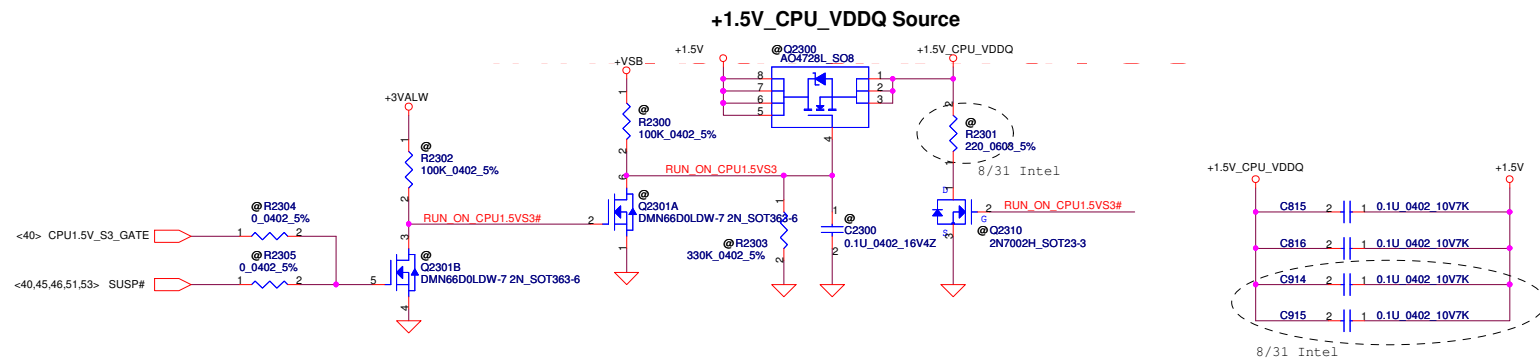
Security Classification		Compal Secret Data		<i>Compal Electronics, Inc.</i>						
Issued Date		2009/12/01		Deciphered Date		2010/12/31				
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY 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.				Title			<i>PROCESSOR(3/7) DDRIII</i>			
				Size		Document Number			Rev	
				Customer		<i>LA-6931P</i>			1.0	
				Date:		Wednesday, October 27, 2010			Sheet 6 of 58	

CFG Straps for Processor





Sandy Bridge iPGA Rev1p0				Compal Secret Data		Compal Electronics, Inc.	
Security Classification	2009/12/01	Deciphered Date	2010/12/31	Title		PROCESSOR(5/7) PWR,BYPASS	
Issued Date	2009/12/01	Deciphered Date	2010/12/31	Size	Document Number	Rev	1.0
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.				Custom	LA-6931P		
				Date:	Wednesday, October 27, 2010	Sheet	8 of 58

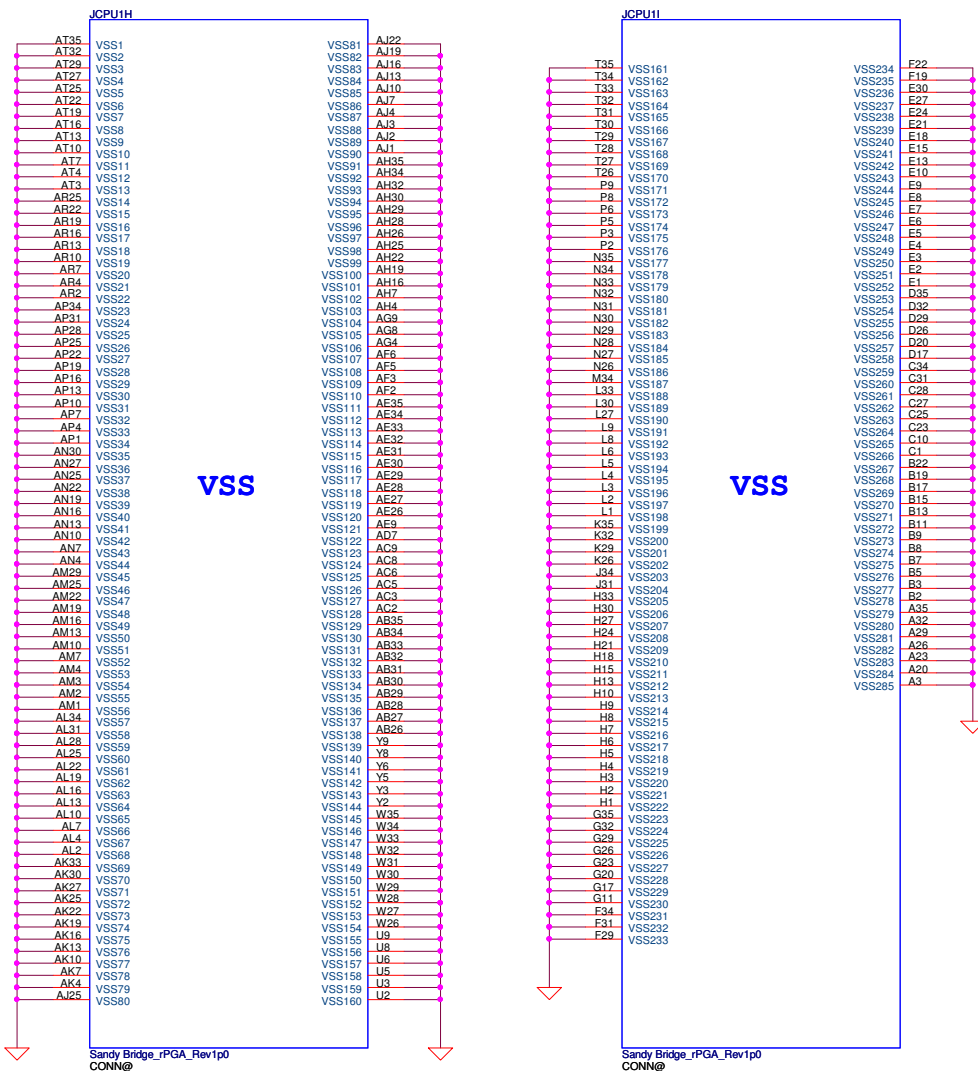


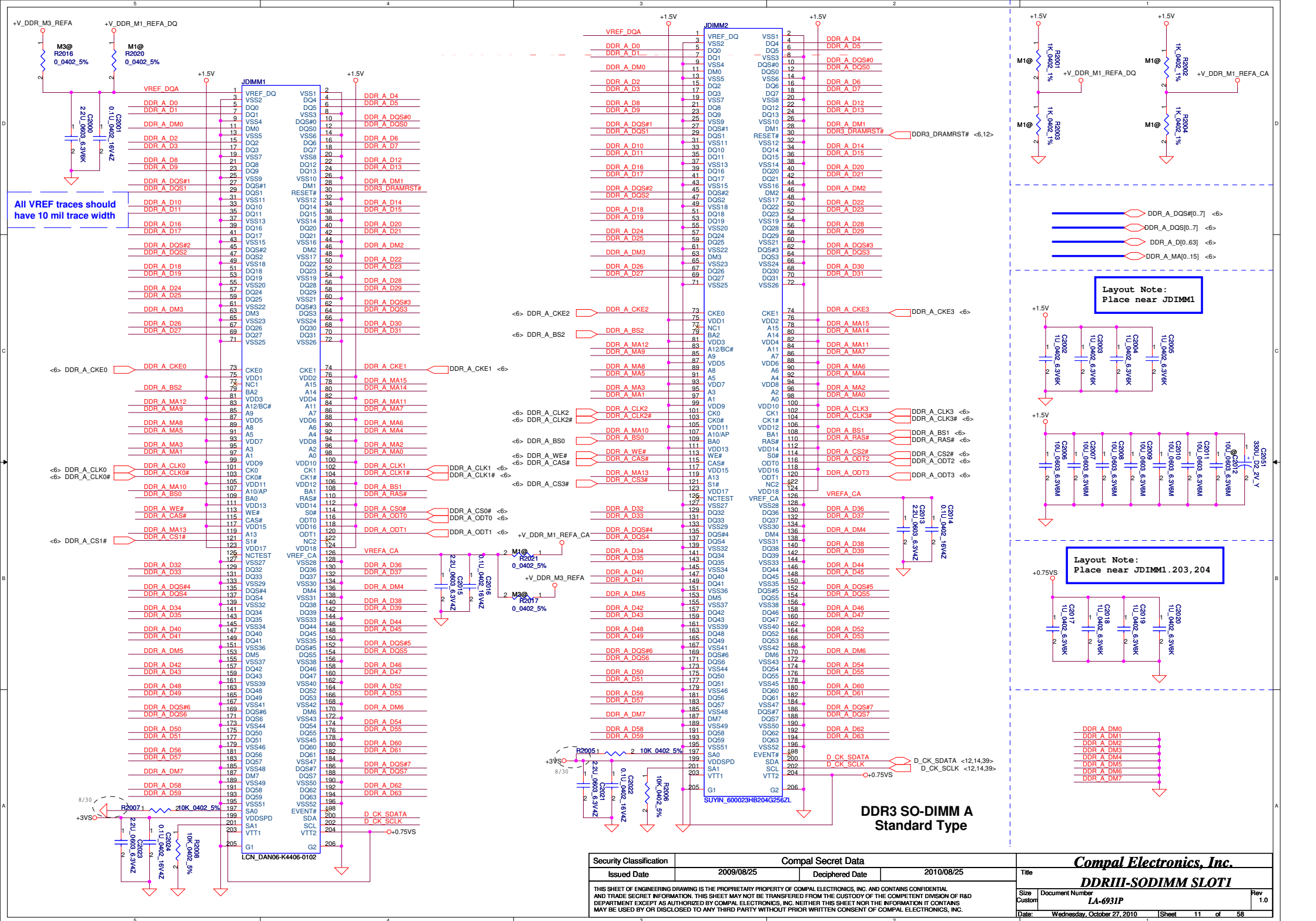
Security Classification		Compal Secret Data		Compal Electronics, Inc.			
Issued Date		2009/12/01	Deciphered Date	2010/12/31	Title		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.					PROCESSOR(6/7) PWR		
					Size	Document Number	Rev
						LA-6931P	1.0
					Date:	Wednesday, October 27, 2010	Sheet
							9 of 58

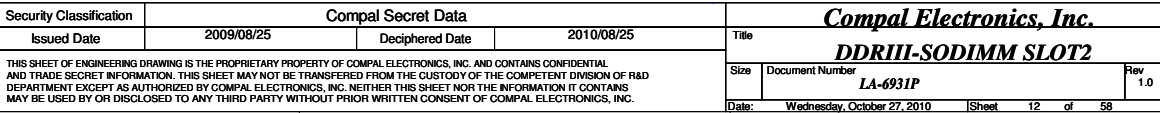
Compal Electronics, Inc.

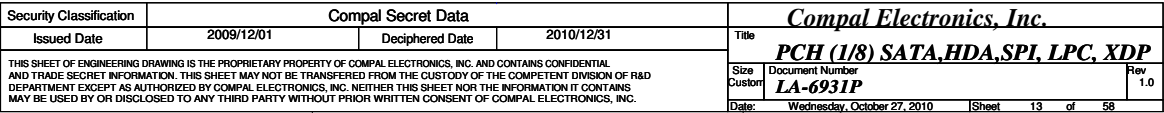
PROCESSOR(6/7) PWR

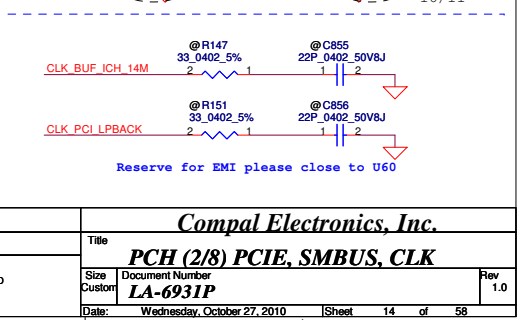
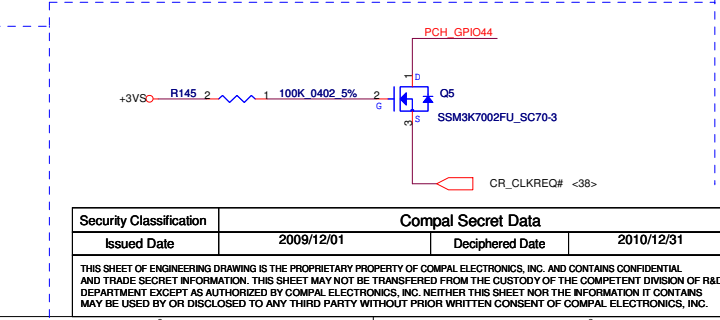
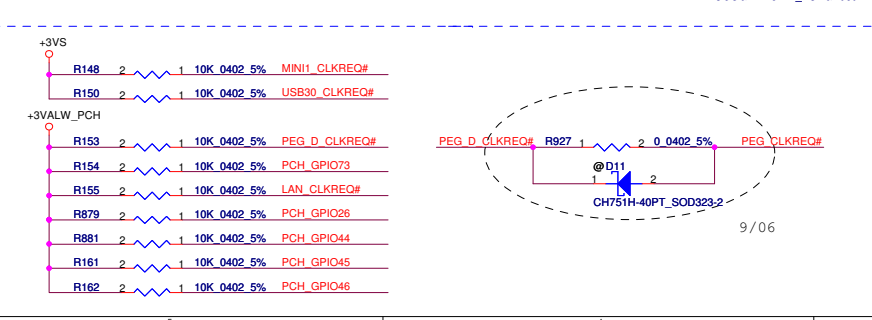
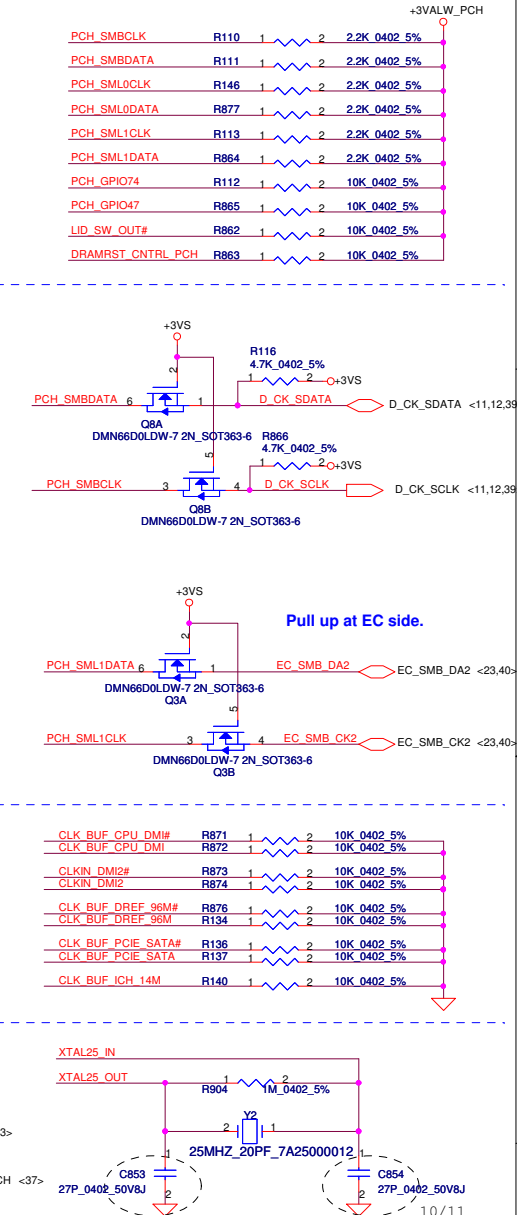
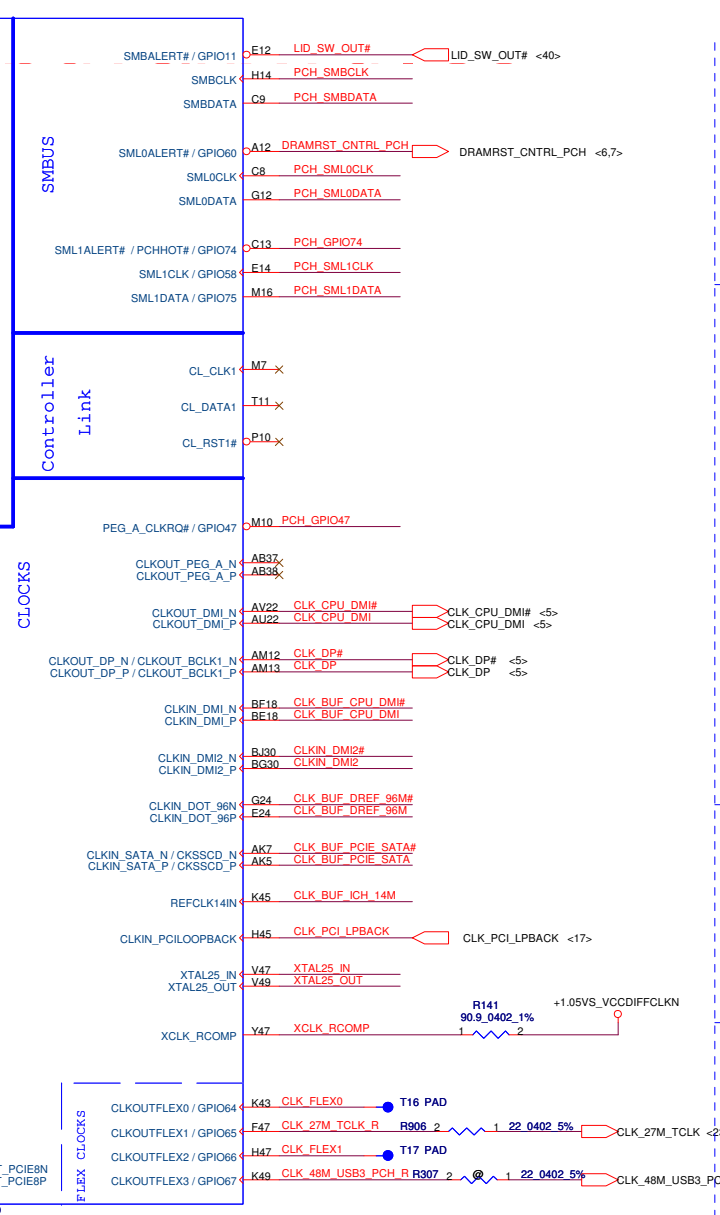
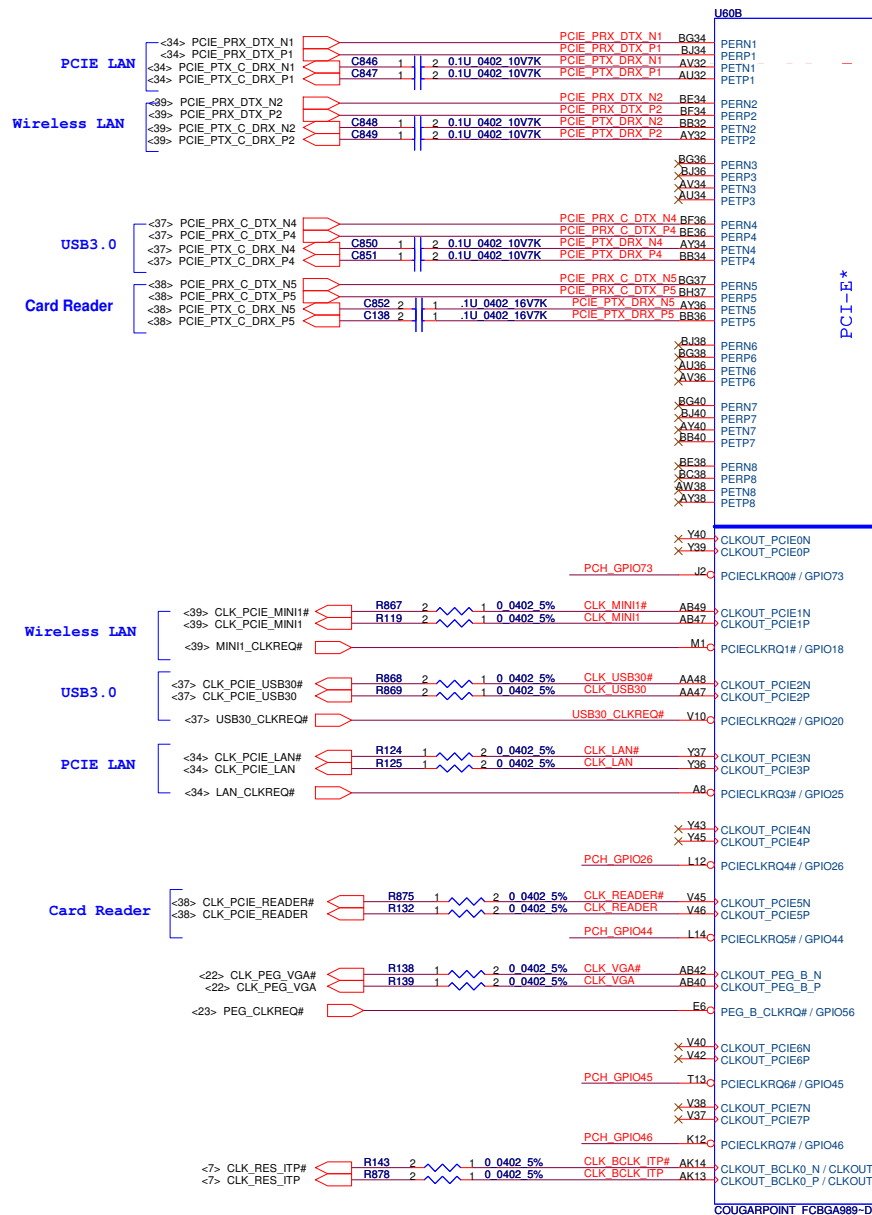
Rev 1.0



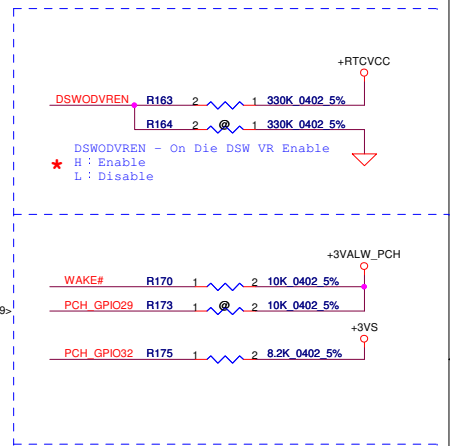
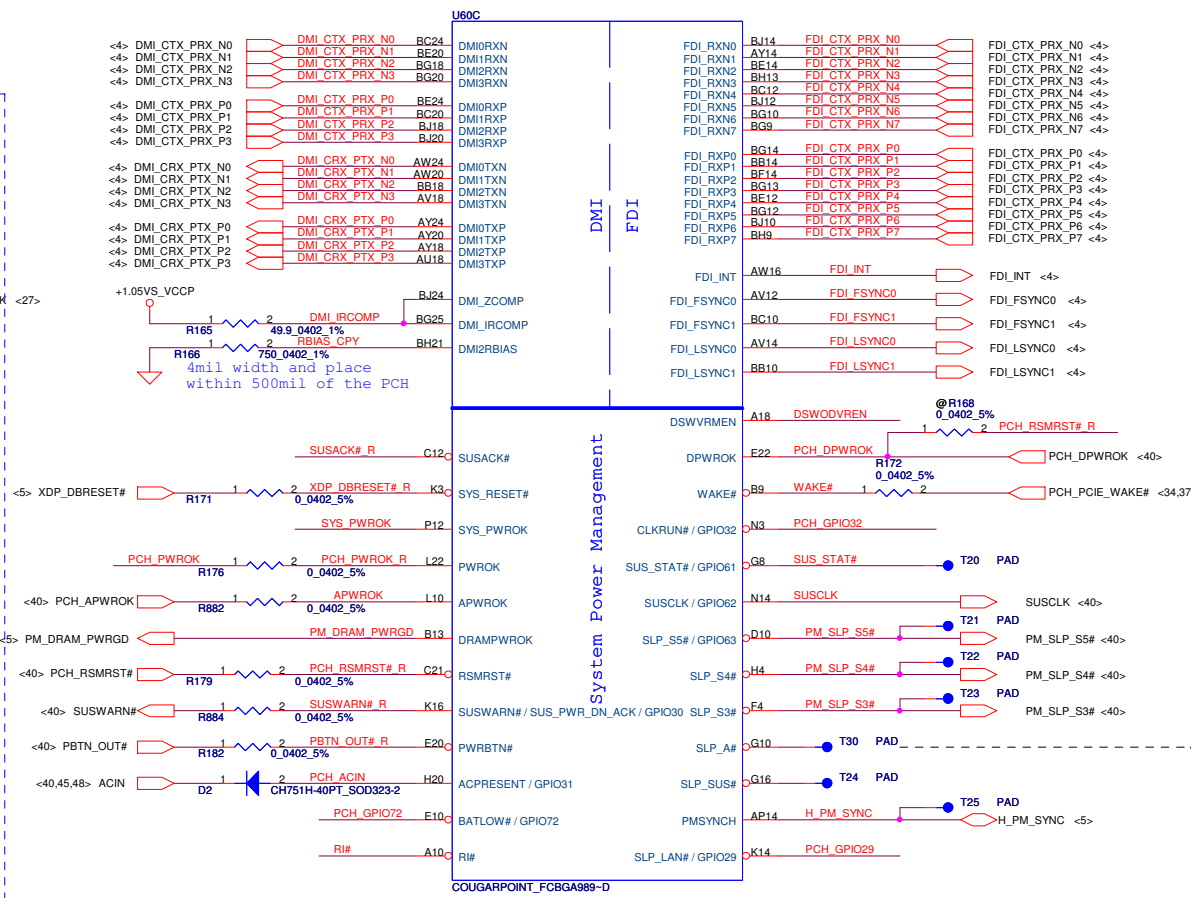
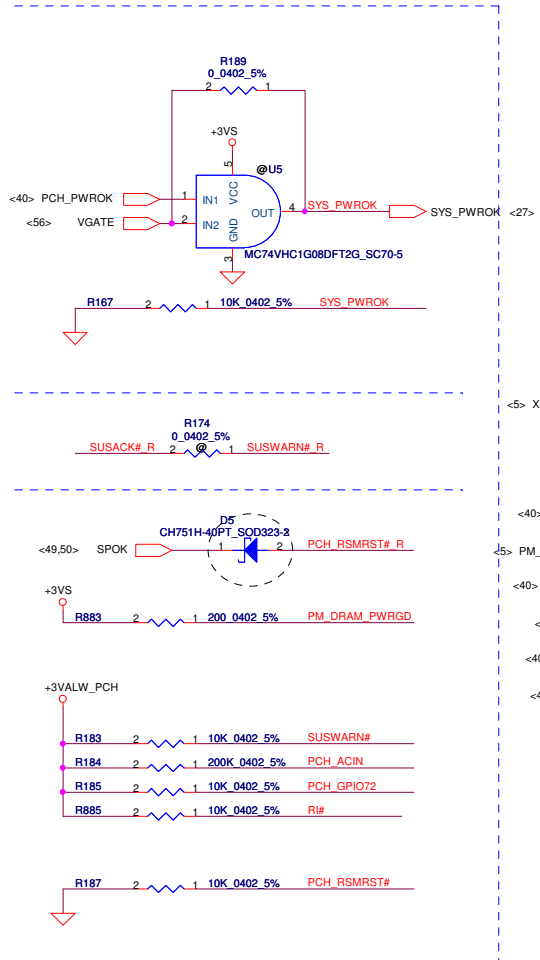




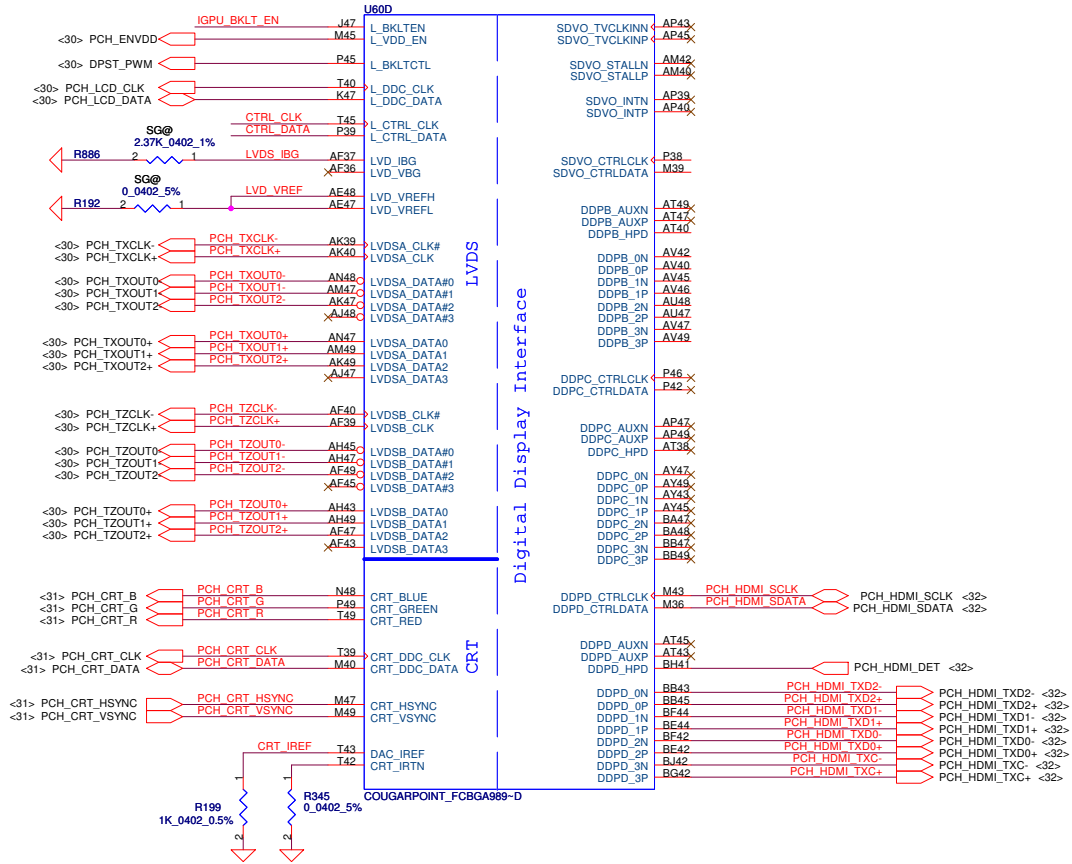
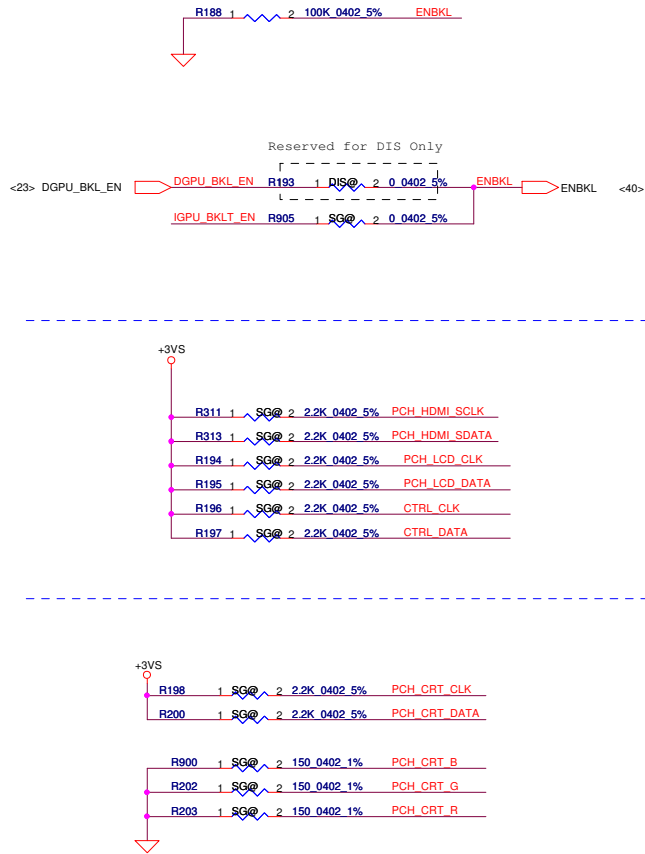




Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/12/01	Deciphered Date	2010/12/31	PCH (2/8) PCIE, SMBUS, CLK	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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 Custom	Document Number LA-6931P
				Date: Wednesday, October 27, 2010	Rev 1.0
				Sheet 14	of 58

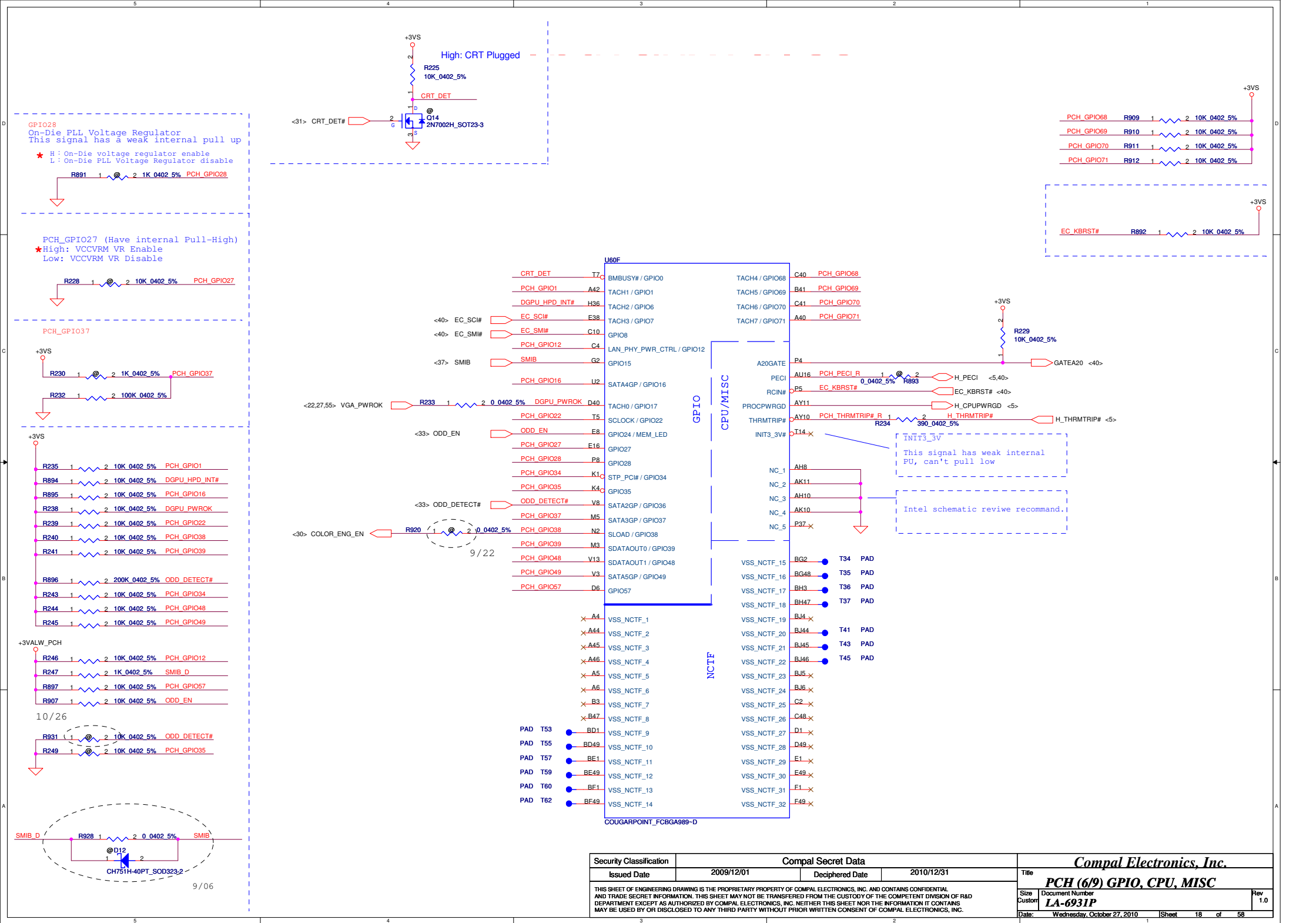


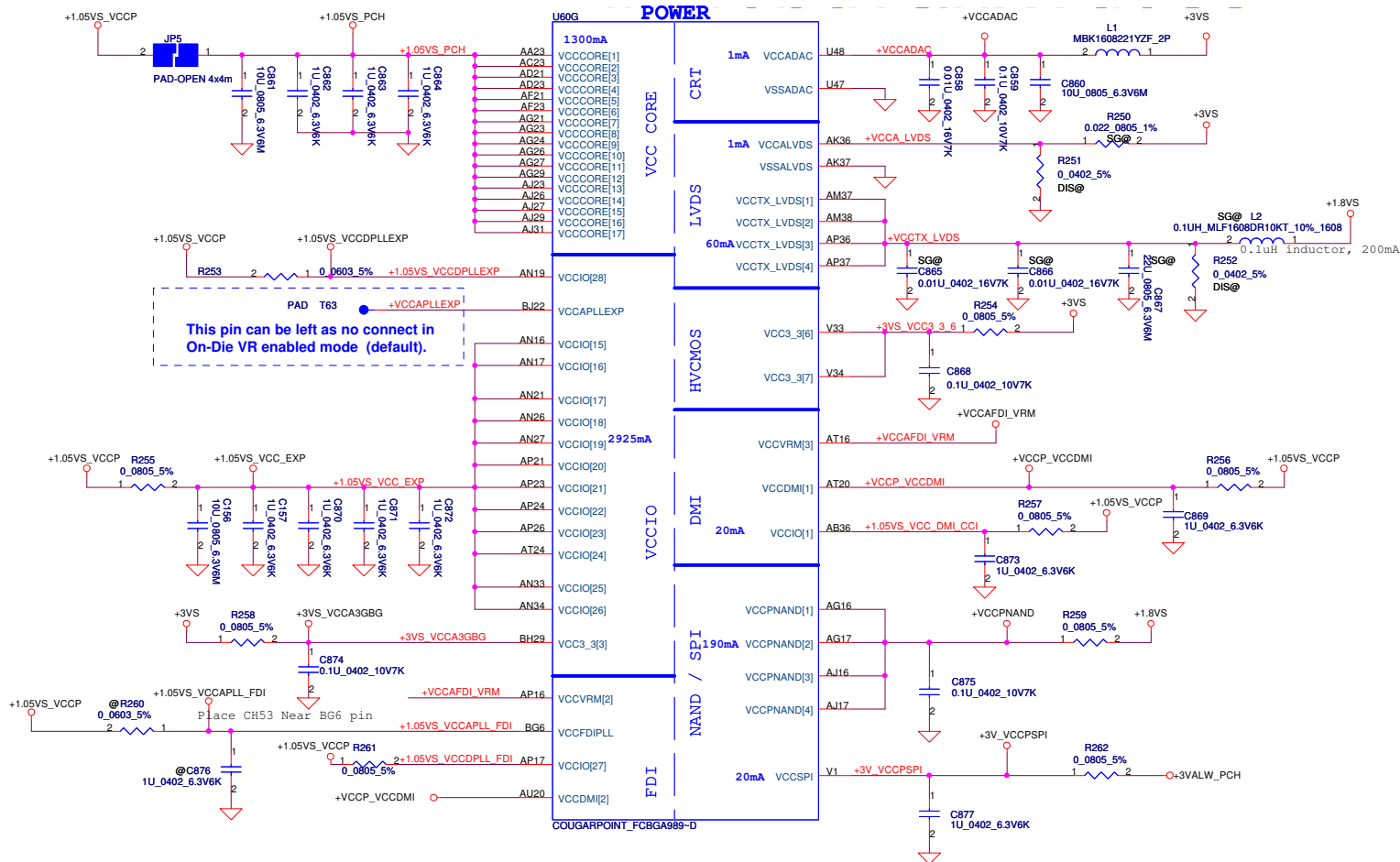
Can be left NC when IAMT is not support on the platform



Security Classification		Compal Secret Data		Compal Electronics, Inc.				
Issued Date		2009/12/01		Deciphered Date		2010/12/31		
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.				Title				
				PCH (4/9) LVDS,CRT,DP,HDMI				
				Size	Document Number		Rev 1.0	
				Custom	LA-6931P			
Date:		Wednesday, October 27, 2010		Sheet		16 of 58		

Security Classification		Compal Secret Data		Compal Electronics, Inc. PCH (5/9) PCI, USB, NVRAM	
Issued Date	2009/12/01	Deciphered Date	2010/12/31	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 Custom	Document Number LA-6931P
				Date:	Wednesday, October 27, 2010 Sheet 17 of 58

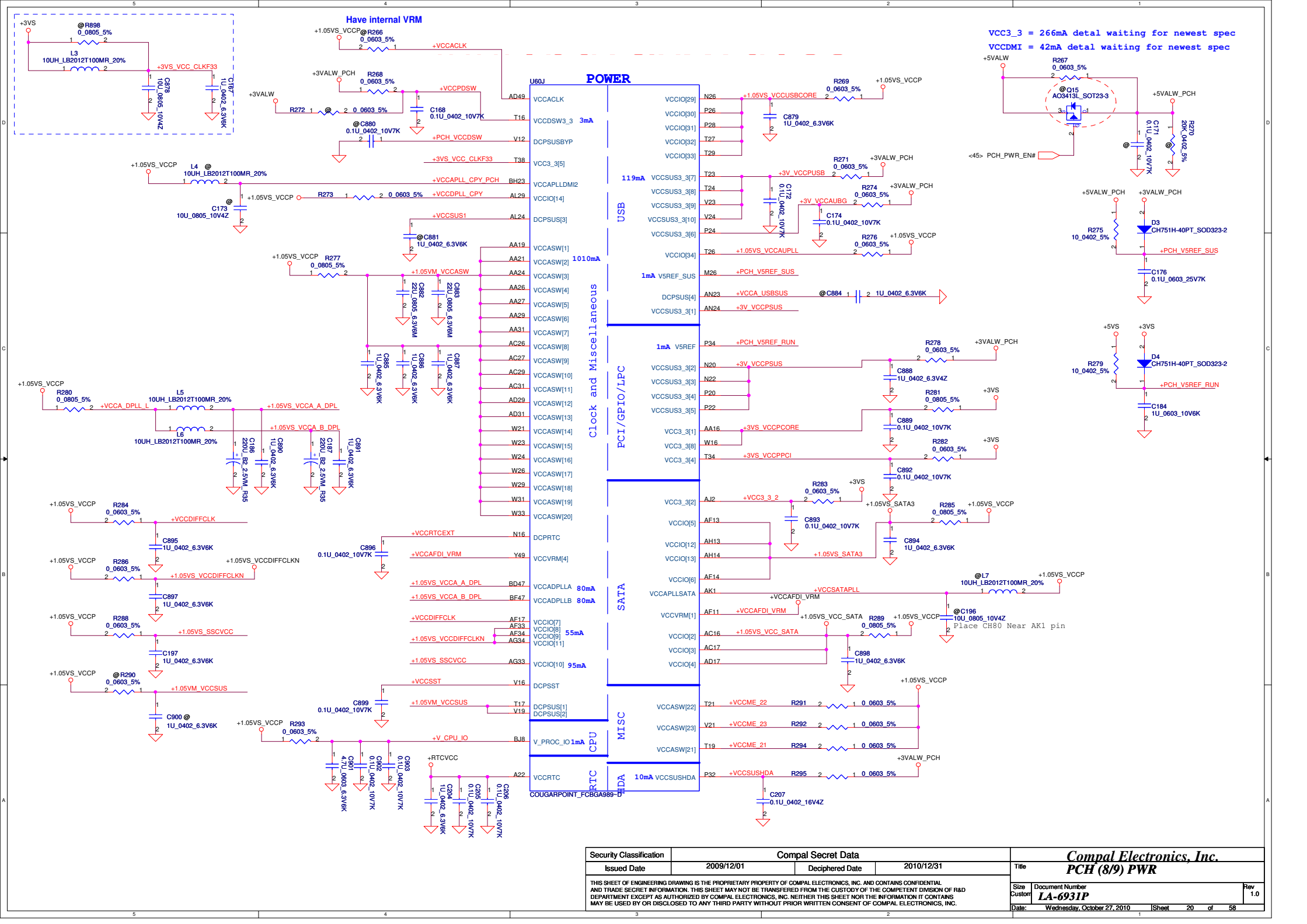


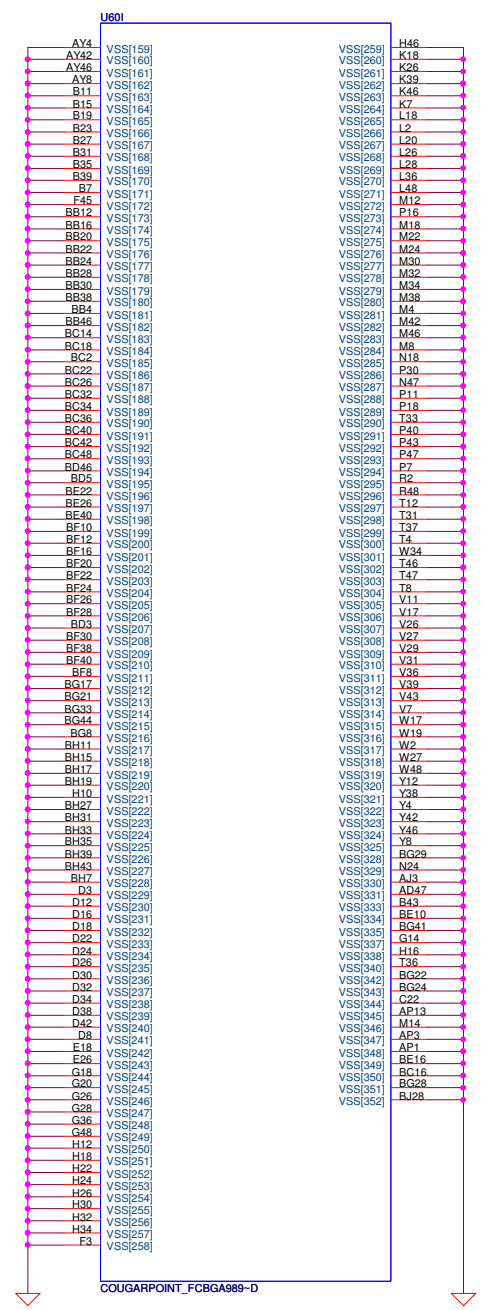
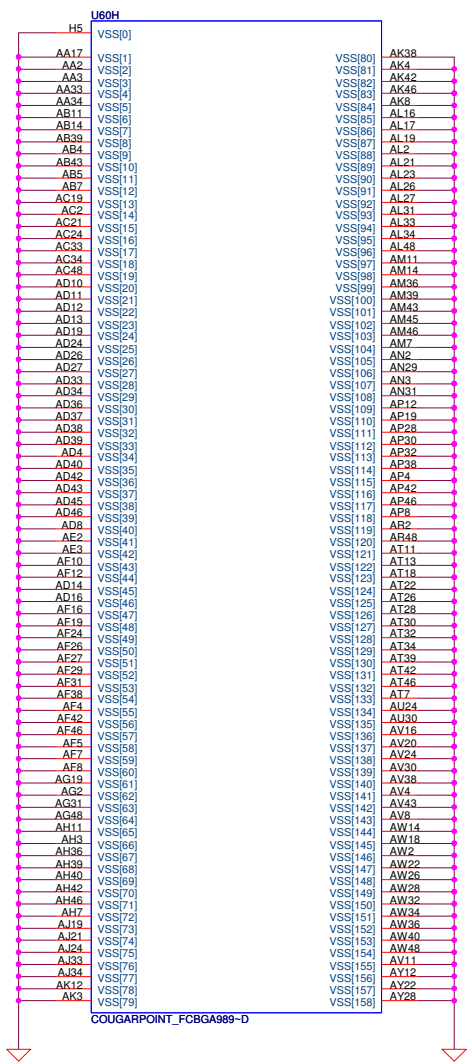


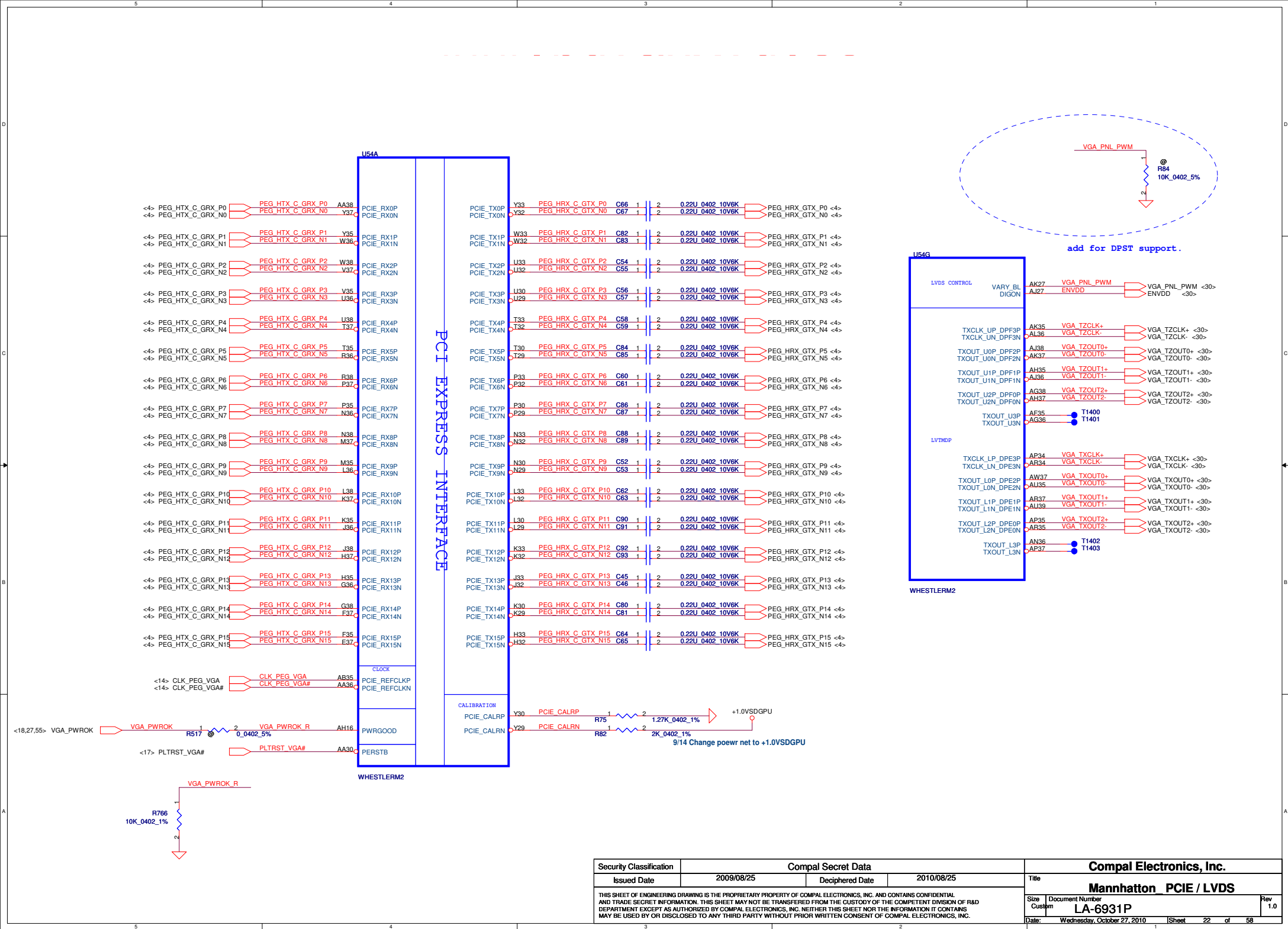
This pin can be left as no connect in On-Die VR enabled mode (default).

Intel recommend VCCVRM==>1.5V FOR MOBILE
stuff RH197 and unstuff RH198 VCCVRM==>1.8V FOR DESKTOP
VCCVRM = 160mA detal waiting for newest spec

PCH Power Rail Table		
Voltage Rail	Voltage	SO Iccmax Current (A)
V_PROC_IO	1.05	0.001
V5REF	5	0.001
V5REF_Sus	5	0.001
Vcc3_3	3.3	0.266
VccADAC	3.3	0.001
VccADPLLA	1.05	0.08
VccADPLLB	1.05	0.08
VccCore	1.05	1.3
VccDMI	1.05	0.042
VccIO	1.05	2.925
VccASW	1.05	1.01
VccSPI	3.3	0.02
VccDSW	3.3	0.003
VccpNAND	1.8	0.19
VccRTC	3.3	6 uA
VccSus3_3	3.3	0.119
VccSusHDA	3.3 / 1.5	0.01
VccVRM	1.8 / 1.5	0.16
VccCLKDMI	1.05	0.02
VccSSC	1.05	0.095
VccDIFFCLKN	1.05	0.055
VccLVDS	3.3	0.001
VccTX_LVDS	1.8	0.06

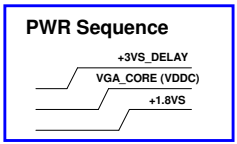
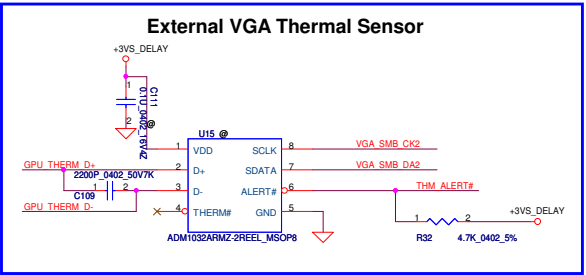
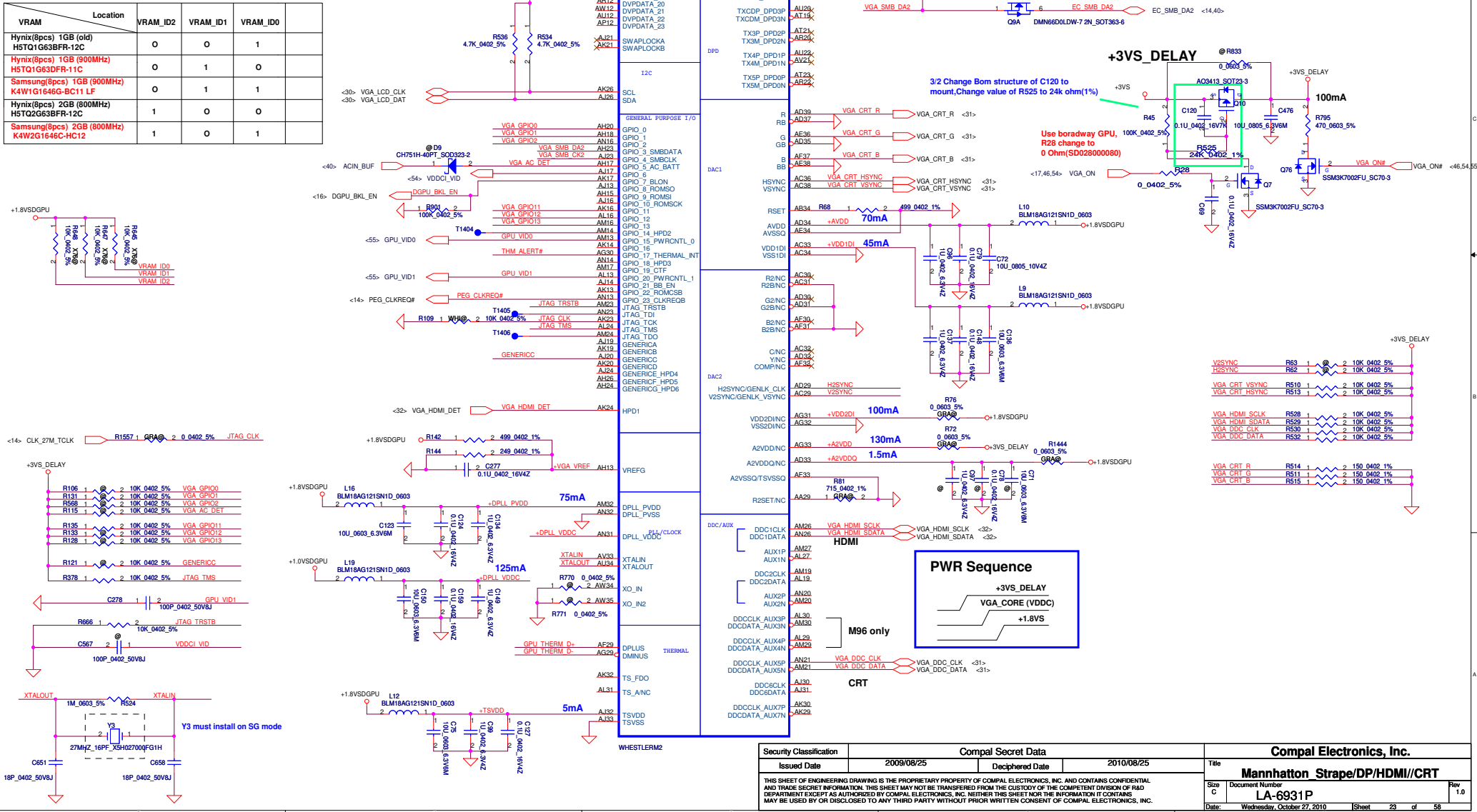




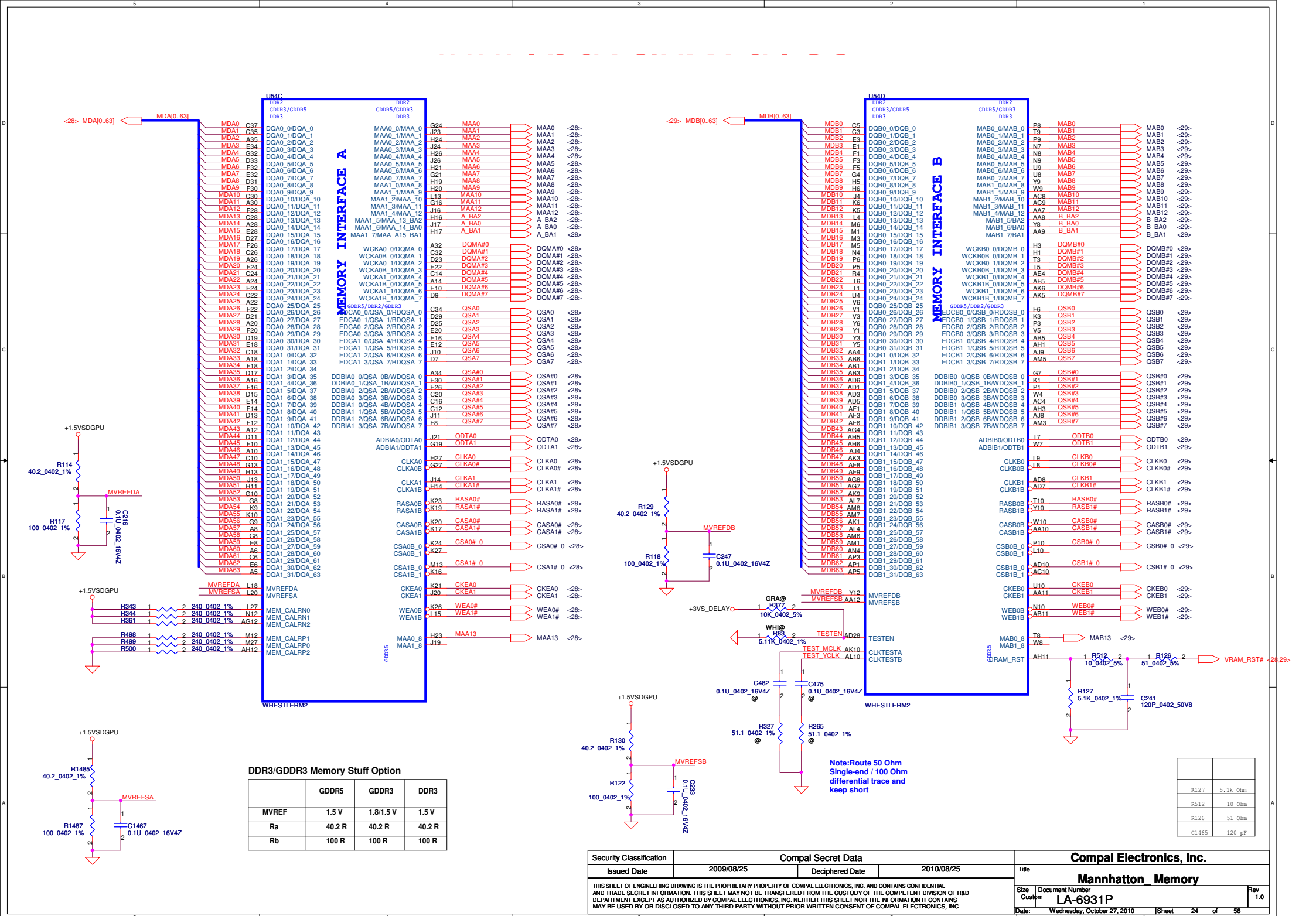


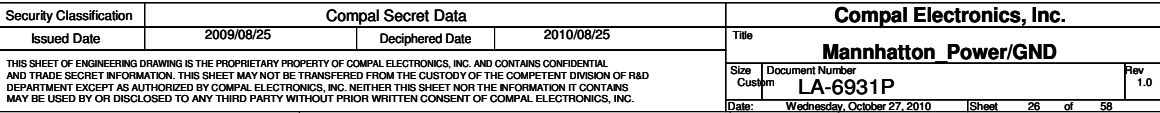
Strap Name		Pin Straps description	Default
TX_PWRS_ENB	GPIO0	Transmitter Power Saving Enable 0: 50% Tx output swing for mobile mode 1: full Tx output swing (Default setting for Desktop)	0
TX_DEEMPH_EN	GPIO1	PCI Express Transmitter De-emphasis Enable 0: Tx de-emphasis disabled for mobile mode 1: Tx de-emphasis enabled (Default setting for desktop)	0
BIF_GEN2_EN	GPIO2	0= Advertises the PCI-E device as 2.5 GT/s capable at power-on 1= Advertises the PCI-E device as 5.0 GT/s capable at power-on 5.0 GT/s capability will be controlled by software	0
CONFIG[1] CONFIG[2] CONFIG[0]	GPIO13 GPIO12 GPIO11	memory apertures CONFIG[3:0] 128 MB 000 256 MB 001 512 MB 010 b) If BIOS_ROM_EN = 0, then Config[2:0] defines the primary memory aperture size.	001
BIOS_ROM_EN	GPIO22	Enable external BIOS ROM device 0: Disable, 1: Enable	0
AUD[1] AUD[0]	HSYNC VSYNC	00: No audio function; 10: Audio for DisplayPort only; 01: Audio for DisplayPort and HDMI if adapter is detected; 11: Audio for both DisplayPort and HDMI	11
SMS_EN_HARD	H2SYNC	Can be unconnected if not used.	0
VIP_DEVICE _STRAP_DIS	V2SYNC	Can be unconnected if not used.	0

VRAM	Location	VRAM_ID2	VRAM_ID1	VRAM_ID0
Hynix(8pcs) 1GB (old) H5TQ1G63BFR-12C		0	0	1
Hynix(8pcs) 1GB (900MHz) H5TQ1G63DFR-11C		0	1	0
Samsung(8pcs) 1GB (900MHz) K4W1G1646G-BC11 LF		0	1	1
Hynix(8pcs) 2GB (800MHz) H5TQ2G63BFR-12C		1	0	0
Samsung(8pcs) 2GB (800MHz) K4W2G1646C-HC12		1	0	1

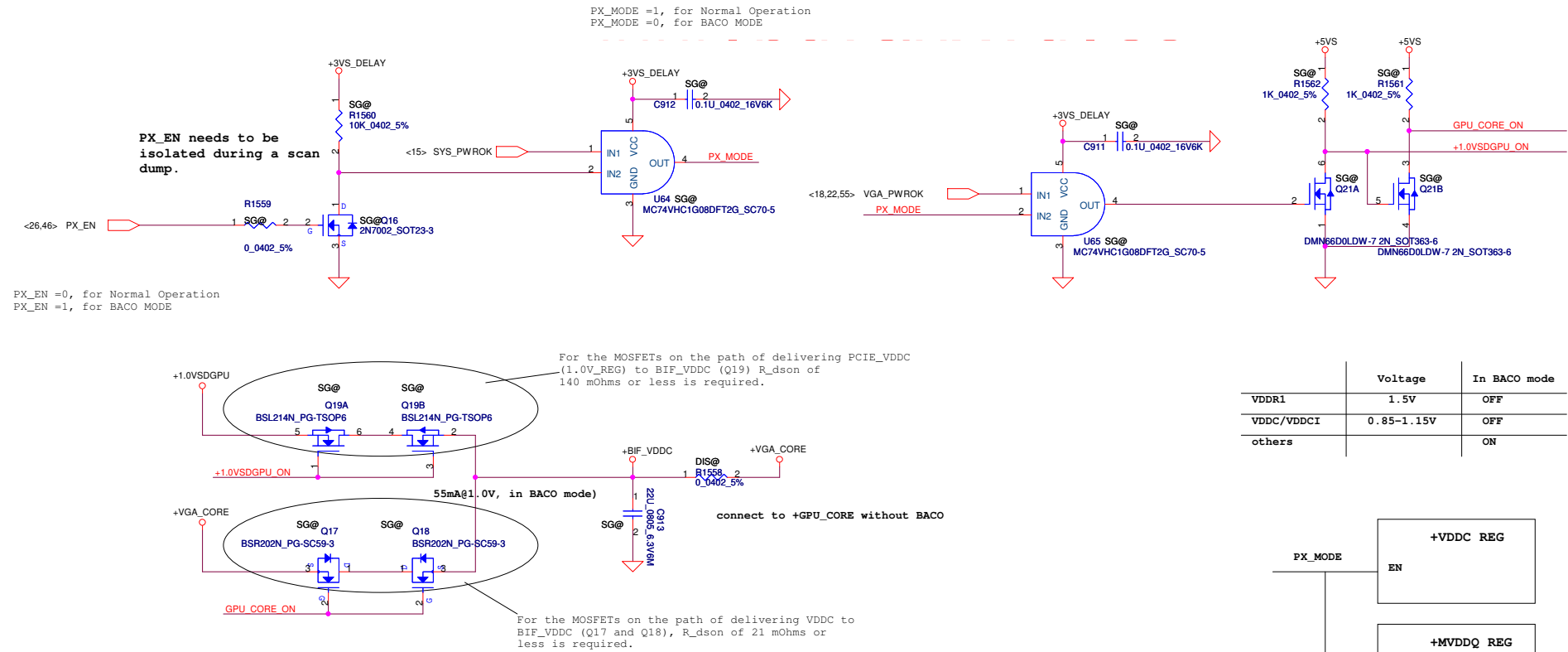


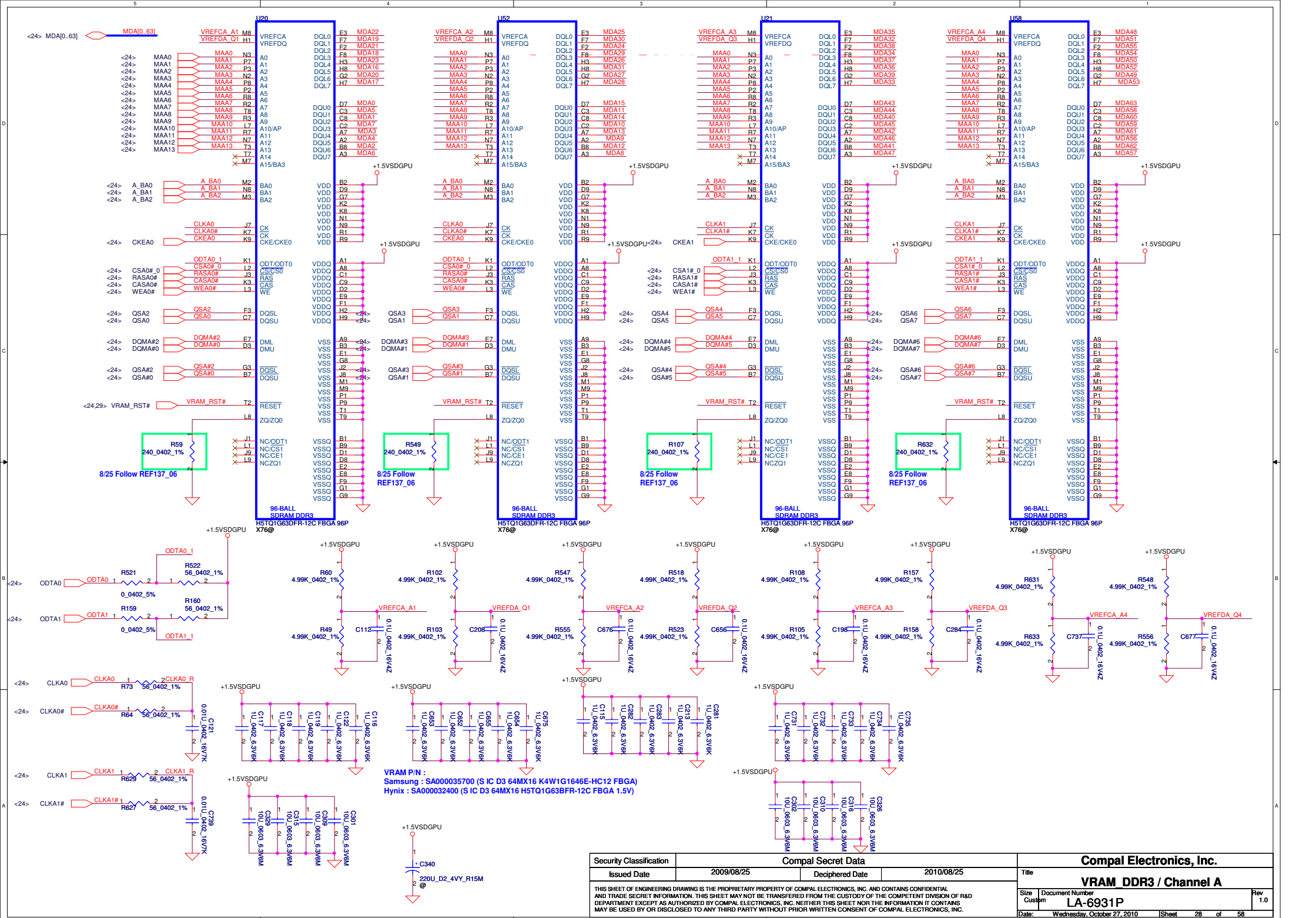
Security Classification	Compal Secret Data		
Issued Date	2009/08/25	Deciphered Date	2010/08/25
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT 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.			
Title		Mannhattan Strape/DP/HDMI/CRT	
Size C	Document Number	LA-6931P	
Date:	Wednesday, October 27, 2010	Sheet	23 of 58

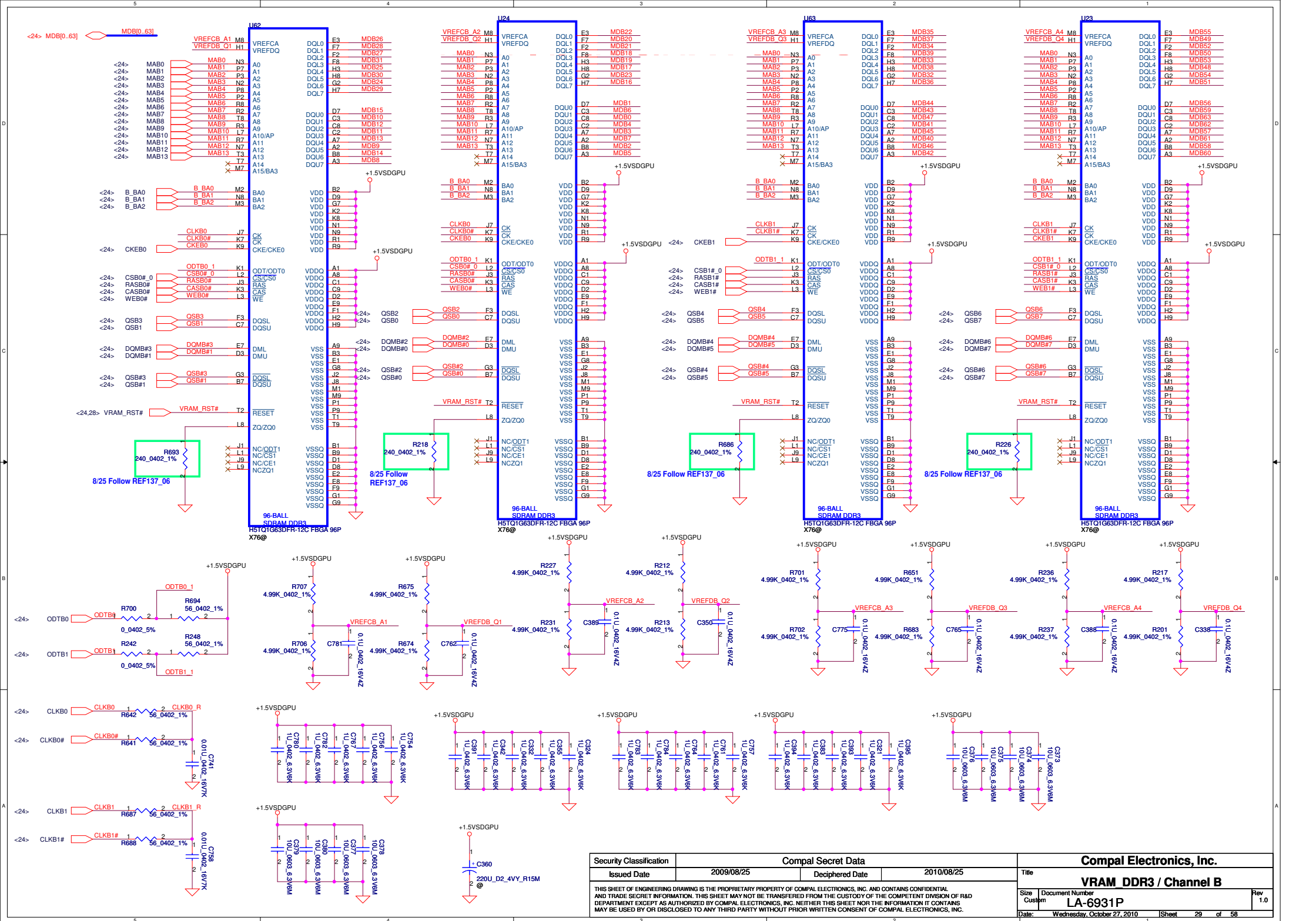




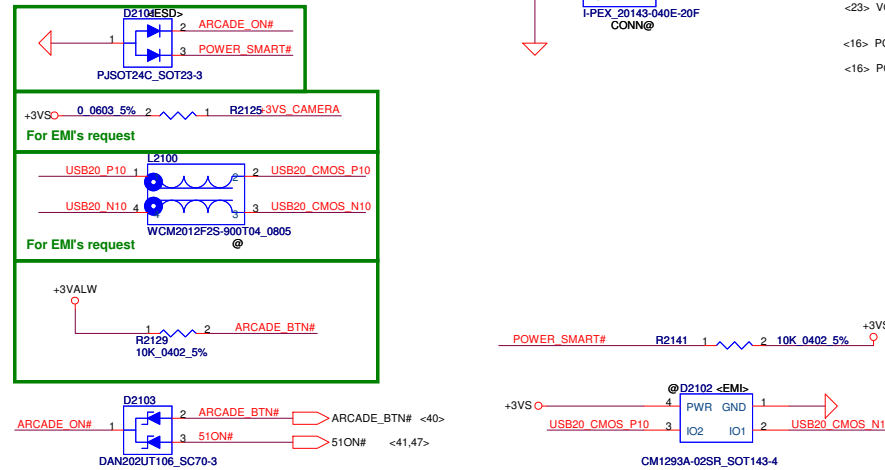
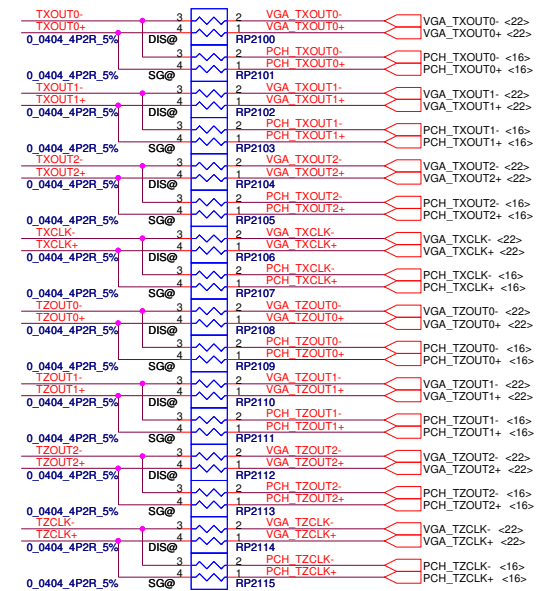
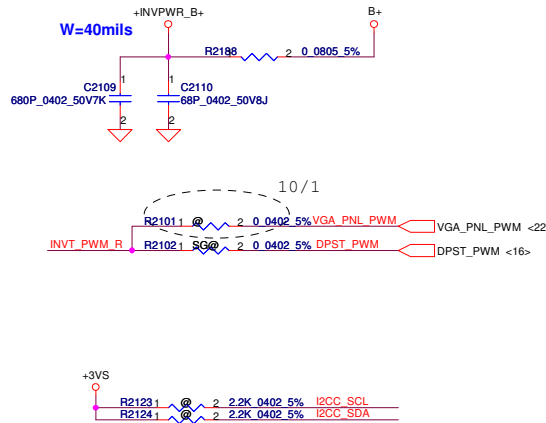
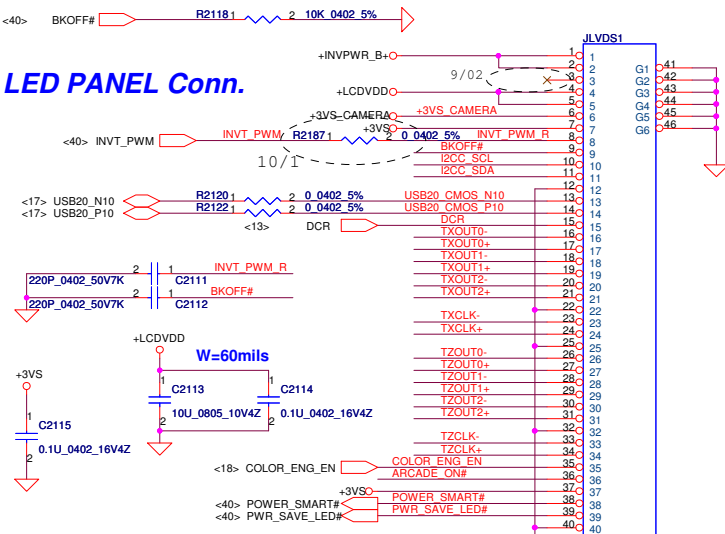
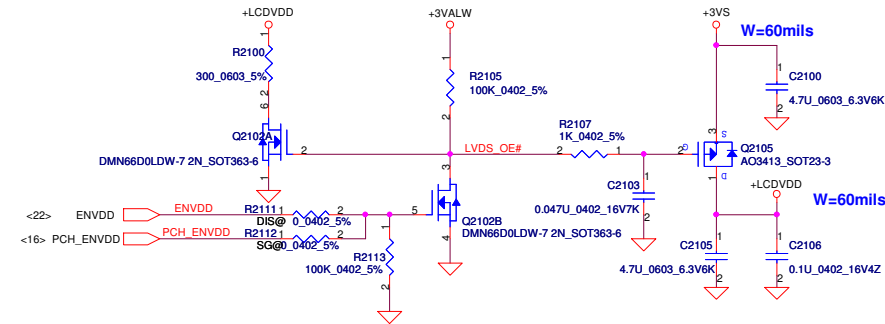
PX_EN =0, for Normal Operation
PX_EN =1, for BACO MODE





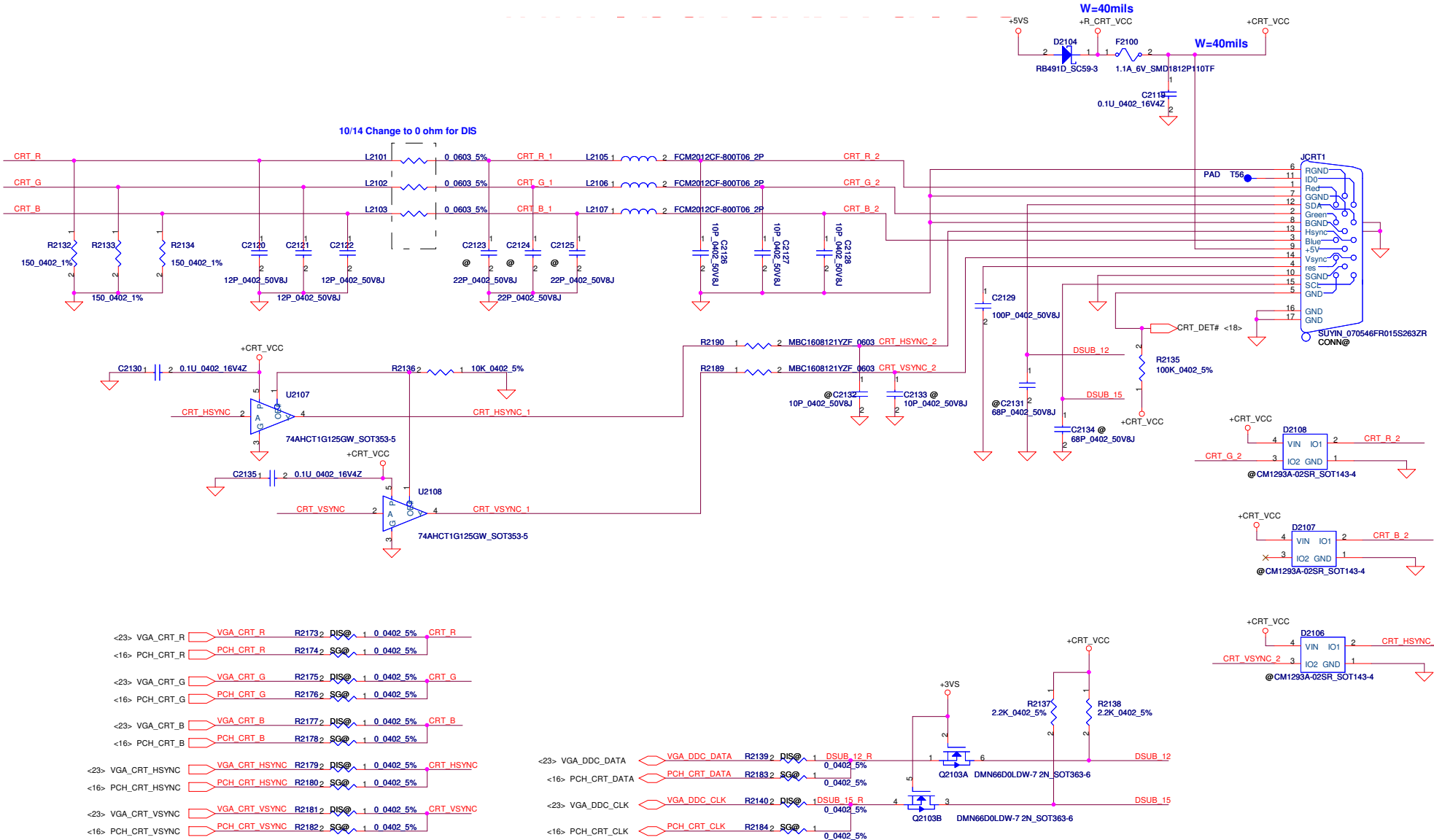


LCD POWER CIRCUIT

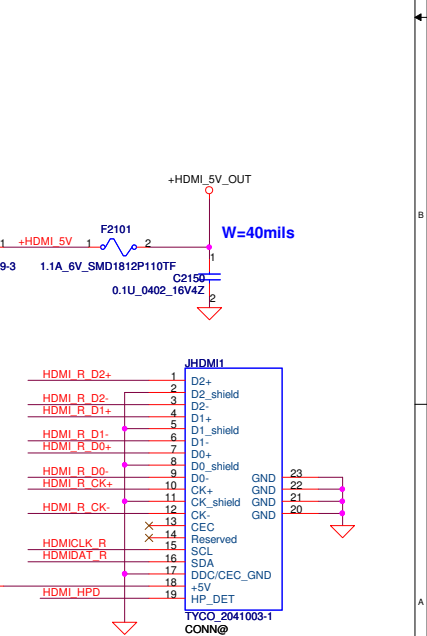
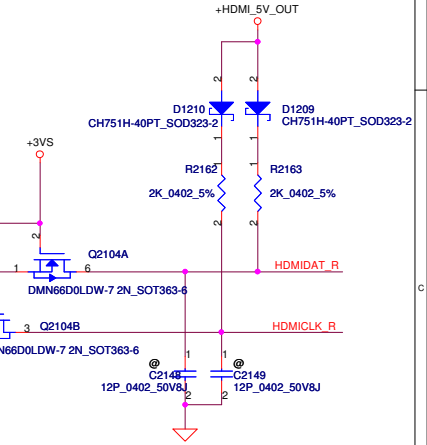
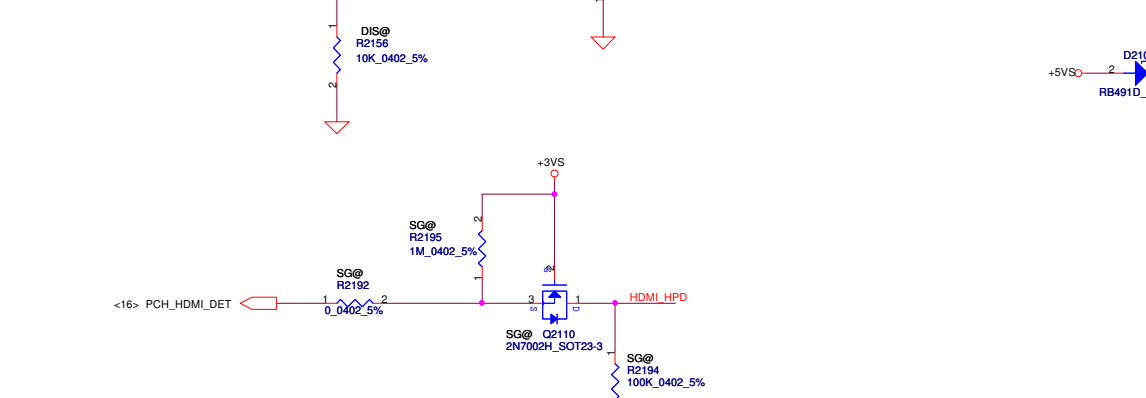
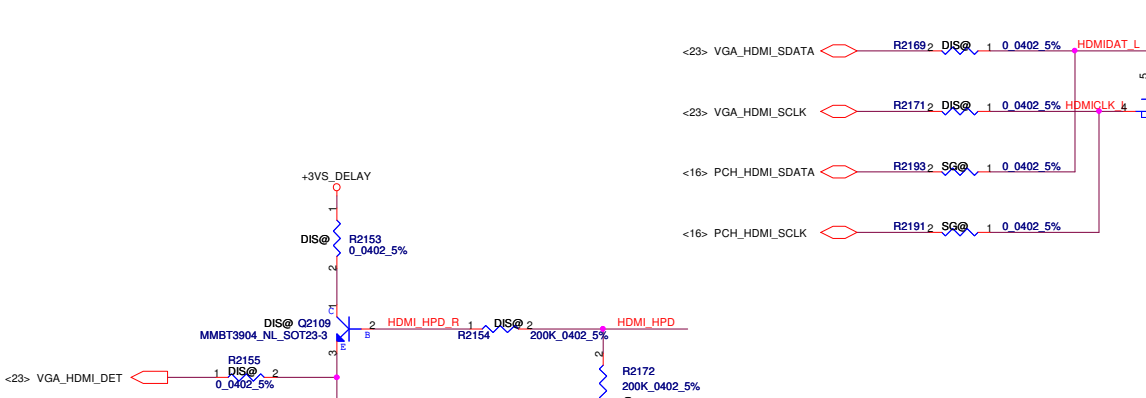
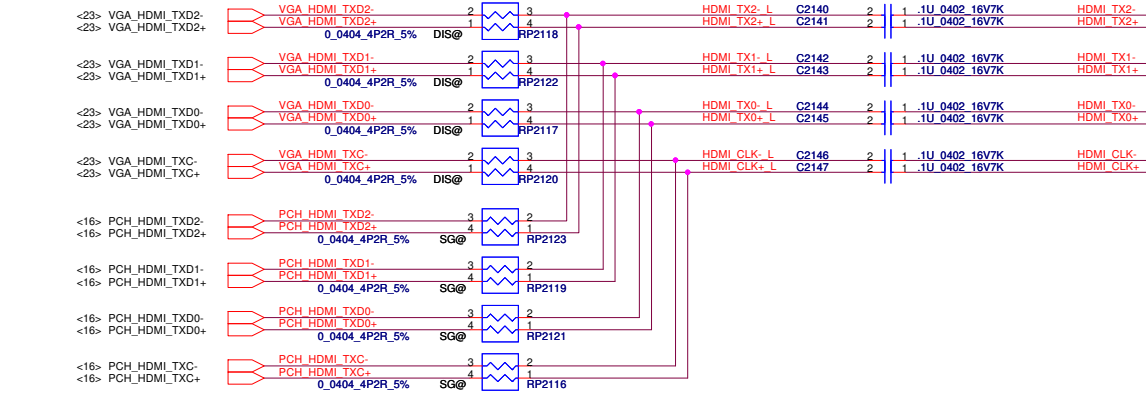
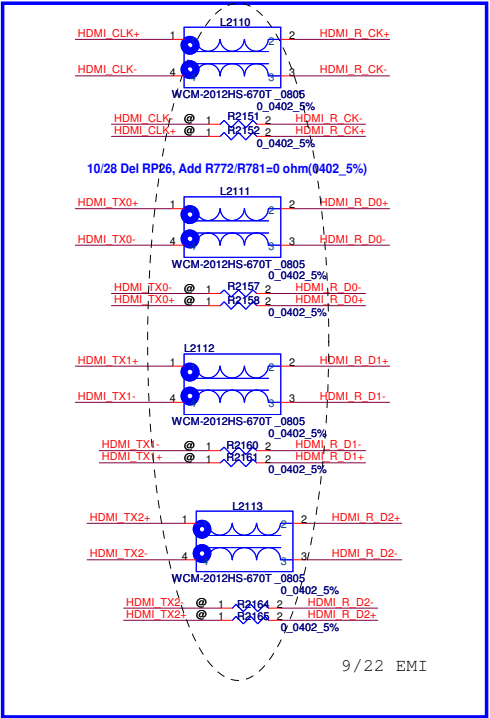
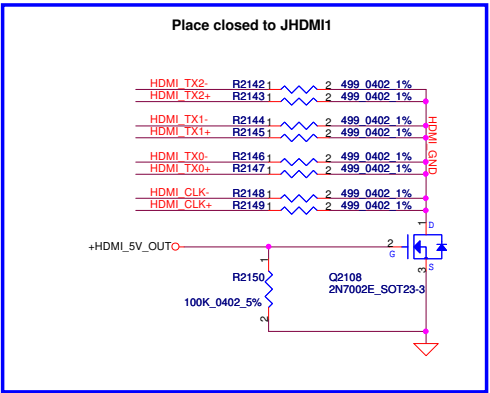


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/08/25	Deciphered Date	2010/08/25	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				LVDS Connector	
Size	Document Number	Date		Sheet	Rev
Custom	LA-6931P	Wednesday, October 27, 2010		30	1.0
				of	58

CRT Connector



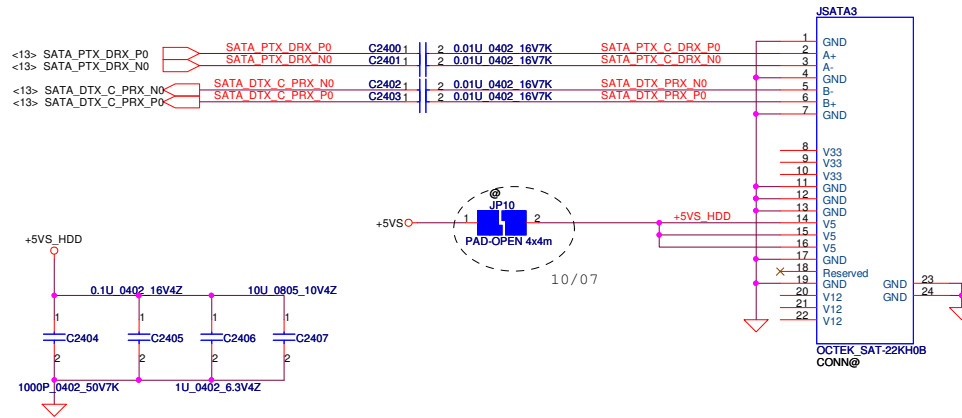
Security Classification		Compal Secret Data		Title	
Issued Date	2009/08/25	Deciphered Date	2009/08/25	Size B	Document Number
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF 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.				LA-6931P	Rev 1.0
				Date: Wednesday, October 27, 2010	Sheet 31 of 58



Security Classification				Compal Secret Data				Compal Electronics, Inc.			
Issued Date				2009/08/25				HDMI Level Shife & Conn			
Deciphered Date				2010/08/25				TYCO_2041003-1			
Date				Wednesday, October 27, 2010				Rev 1.0			

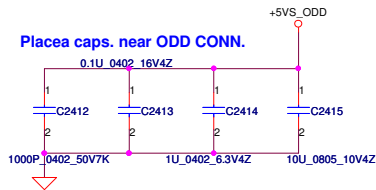
HDD

SATA HDD Conn.

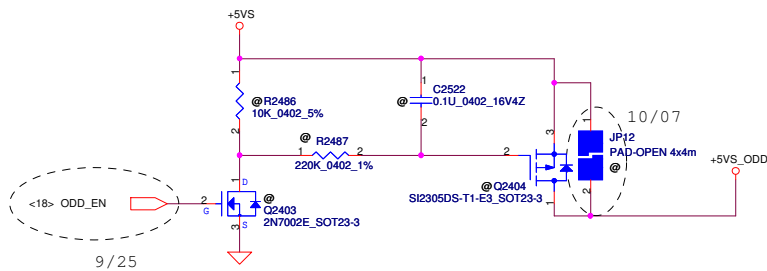
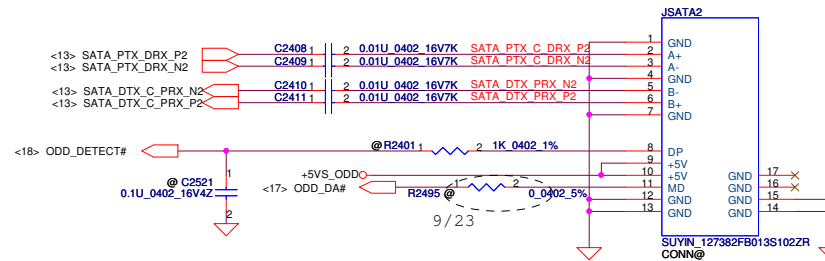


ODD

Placea caps. near ODD CONN.

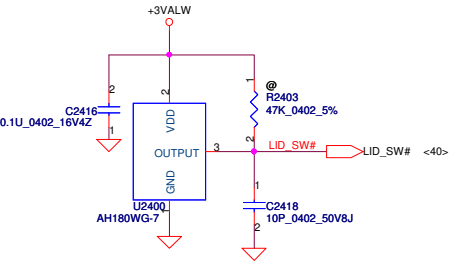


SATA ODD Conn.

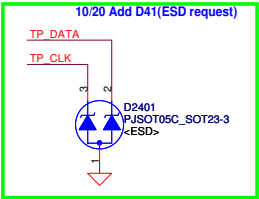
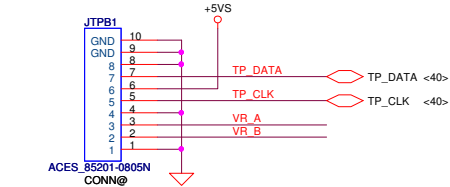
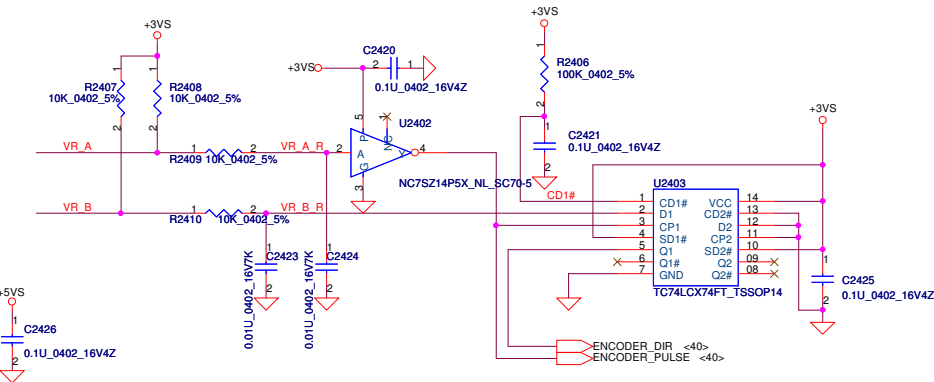


Security Classification		Compal Secret Data		Title		Compal Electronics, Inc.	
Issued Date	2009/08/25	Deciphered Date	2010/08/25	Size	HDD & ODD Connector		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. 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		
				LA-6931P	1.0		
Date:				Wednesday, October 27, 2010	Sheet	33	of 58

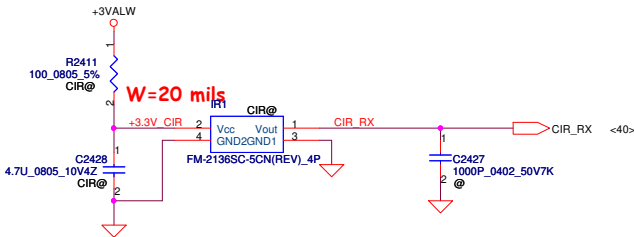
Lid Switch



Touch Pad

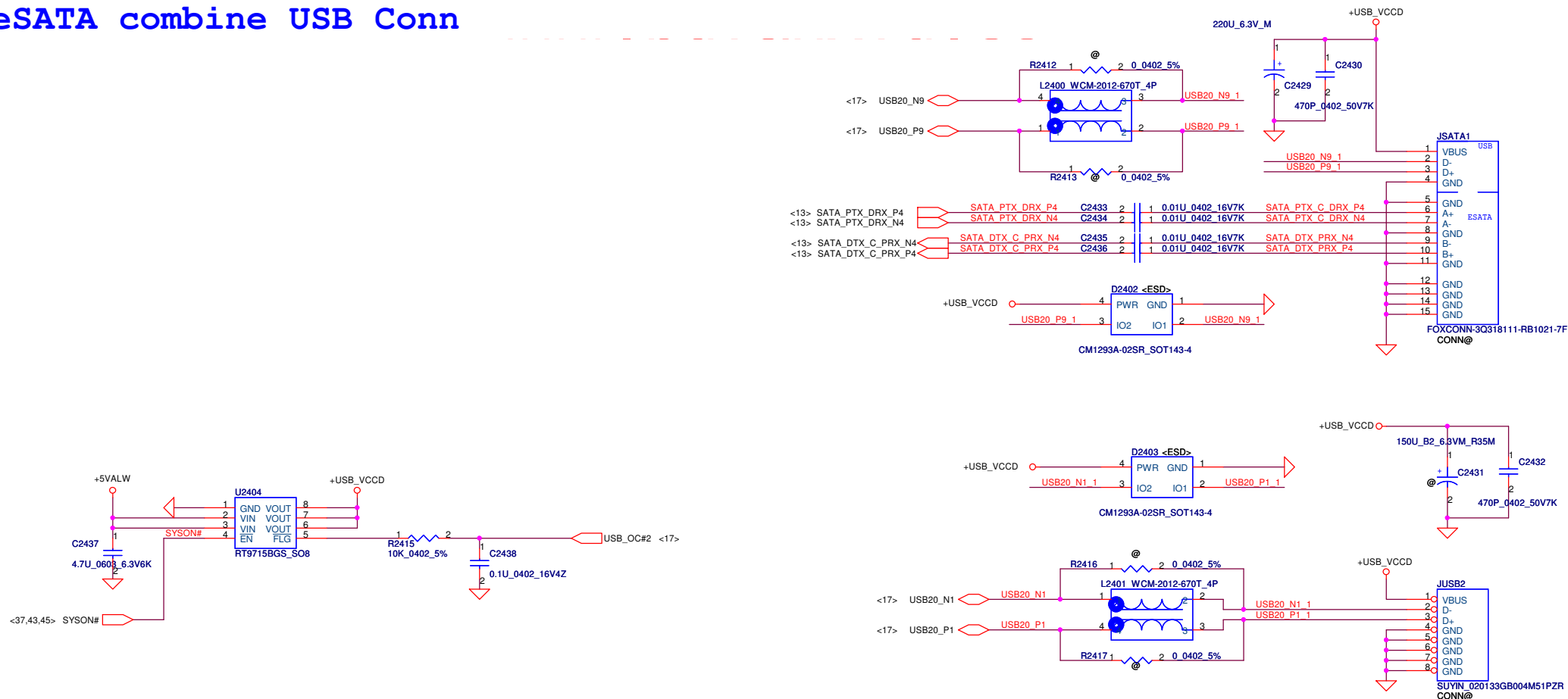


CIR

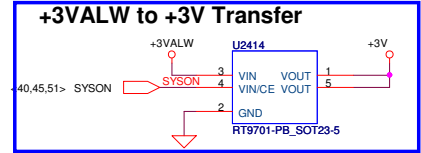
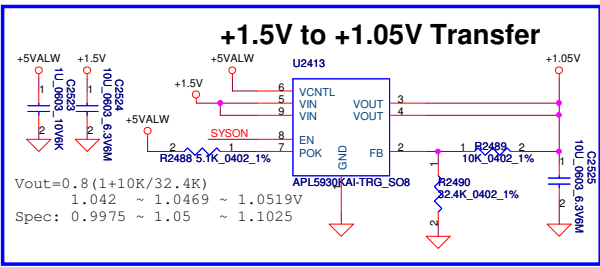


Security Classification		Compal Secret Data		Title	
Issued Date	2009/08/25	Deciphered Date	2010/08/25	LID/RTC/CIR	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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
					LA-6931P
				Date	Wednesday, October 27, 2010
				Sheet	35 of 58
				Rev	1.0

eSATA combine USB Conn

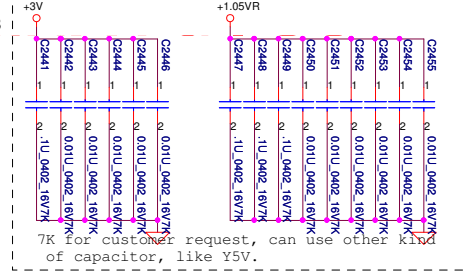
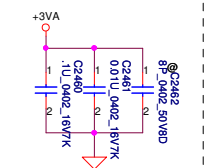
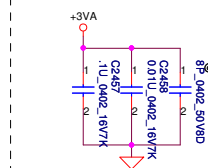


Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2009/08/25	Deciphered Date	2010/08/25	Title USB / eSATA		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY 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
				Custm	LA-6931P	1.0
				Date:	Wednesday, October 27, 2010	Sheet 36 of 58

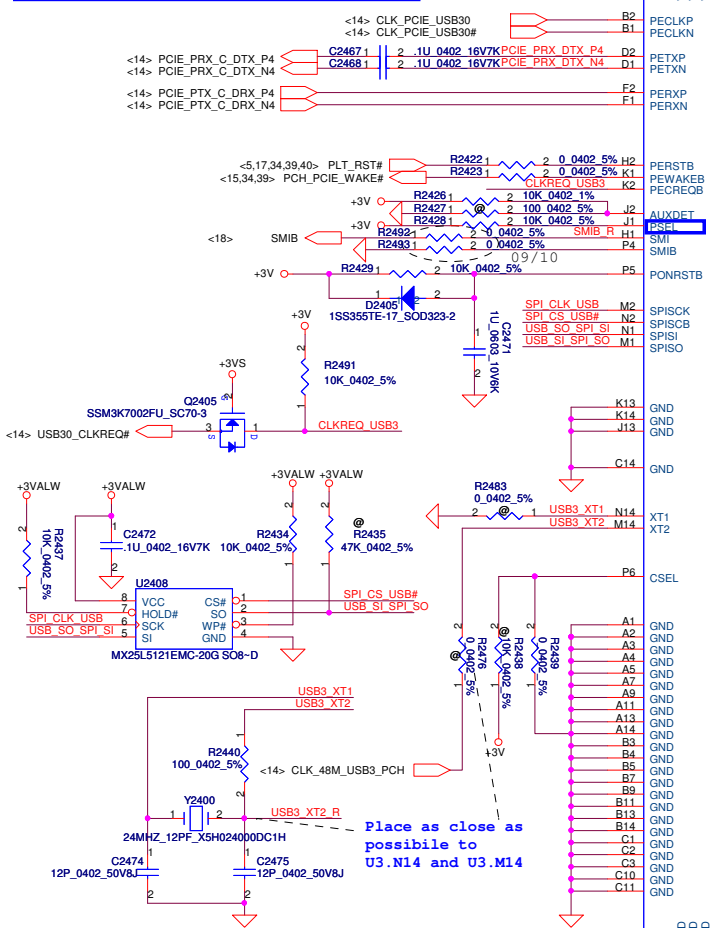
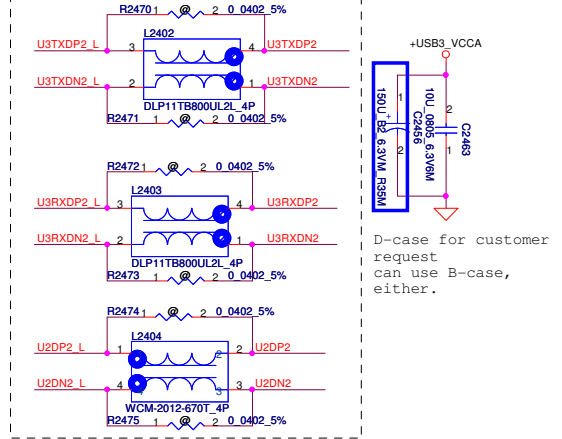


Close to U2407.D7

Close to U2407.P13



For EMI request (need confirm)



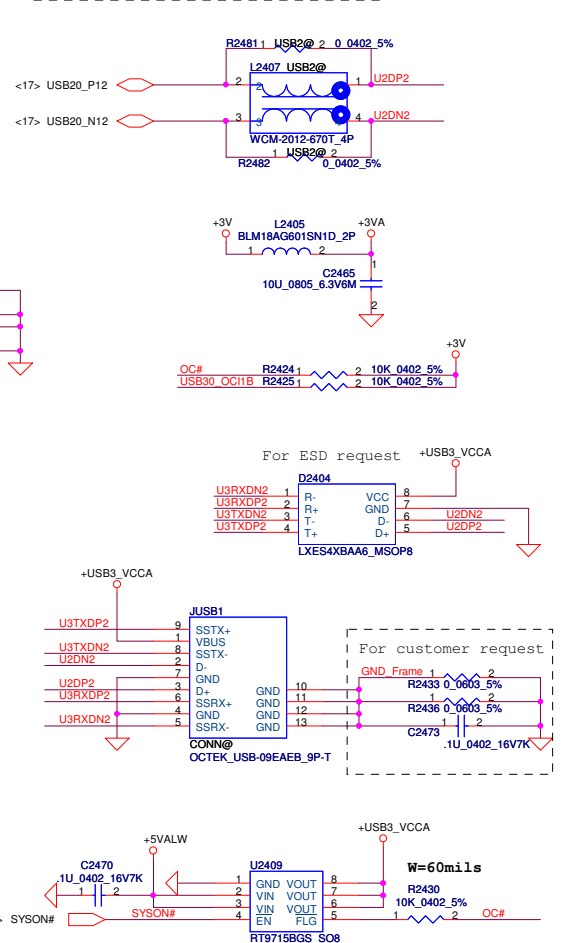
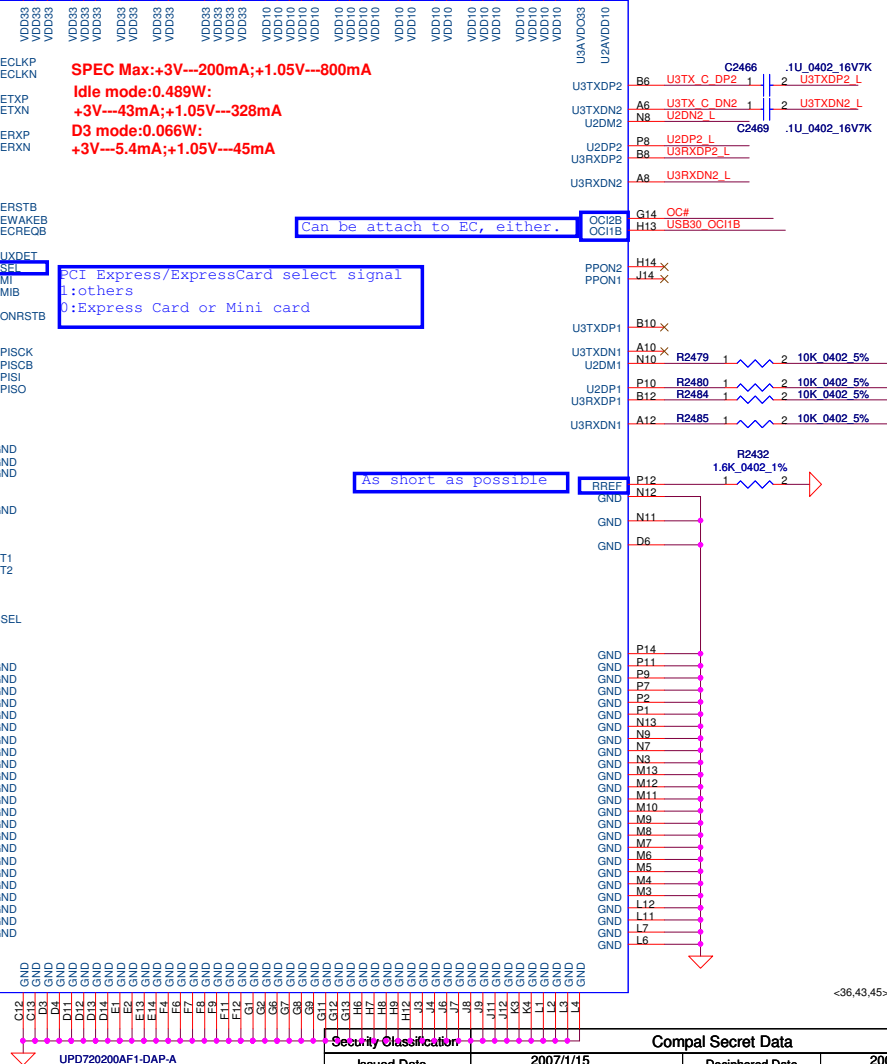
SPEC Max: +3V---200mA; +1.05V---800mA
Idle mode: 0.489W:
+3V---43mA; +1.05V---328mA
D3 mode: 0.066W:
+3V---5.4mA; +1.05V---45mA

PCI Express/ExpressCard select signal
 1: others
 0: Express Card or Mini card

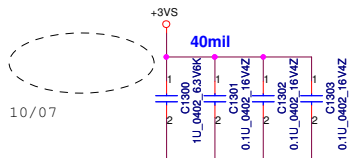
As short as possible

Pin compare table for support USB remote wakeup or not

	AUXDET(Pin J2)	CSEL(Pin P6)	CLK
Support USB remote wakeup	pull high 10k to VDD33	Tied to GND	Must use 24MHz crystal: mount Y2400,2440,C2474,C2475
Not support USB remote wakeup	Tied to GND	pull high to VDD33	Can use either 48MHz or 24MHz When use 48MHz clock: mount R2476,R2483

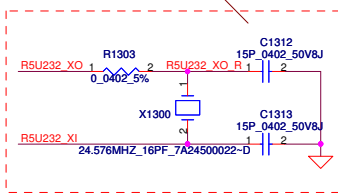


Compal Secret Data				Title	
Issued Date	2007/1/15	Deciphered Date	2008/1/15	USB3.0 PD720200	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT 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 Custom	Document Number
				Date: Wednesday, October 27, 2010	Sheet 37 of 58

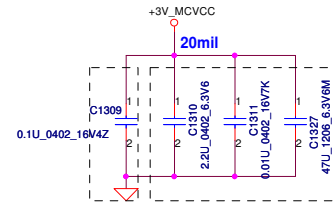


These caps close to U2 : Pin 12,37,48

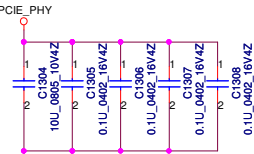
Layout Note:
Place them close to U2



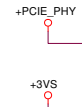
Memory Card Power



Layout Note:
Place them as close as possible to JREAD1
Place C1309 close to U2.36



These caps close to U2 : Pin 13,19,23,32,47



U2

Power

IEEE1394

CardReader

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

PCIE

Layout Note:
Add GND shield for Xtal

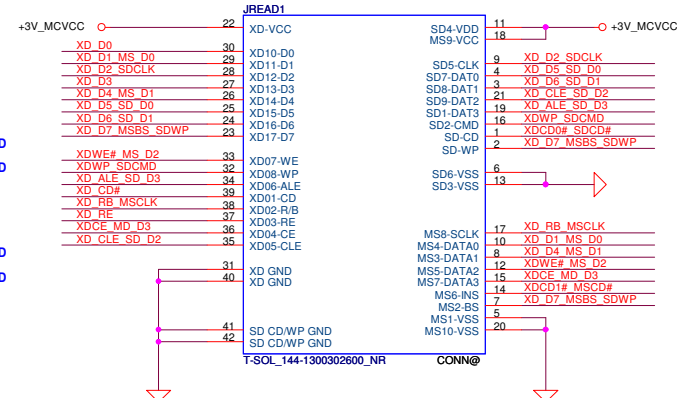
Impedance: 50 ohm (Microstrip)

Shield GND

Shield GND

Shield GND

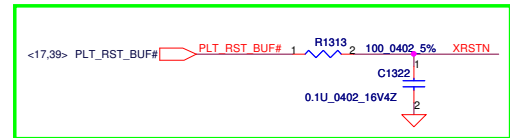
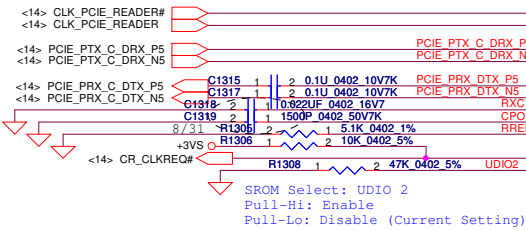
5 IN 1 CardRead



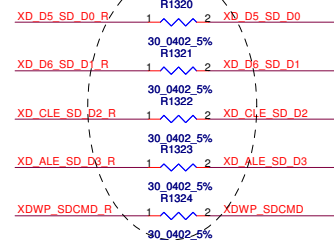
Layout Note:
Place them as close as possible to U2

Layout Note:
Place them as close as possible to JP1394
Reserve them for test
if any EMI issue.

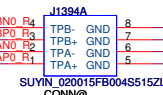
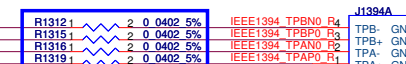
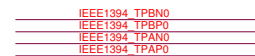
Layout Note:
Differential pair impedance=110+/-6 Ohm
TPAP/N0 and TPBP/N0 mismatch <5m1



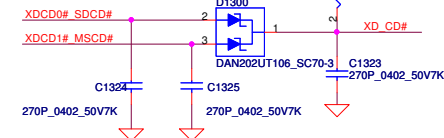
Layout Note:
Place them close to U2



Layout Note:
Add GND shield for 1394.



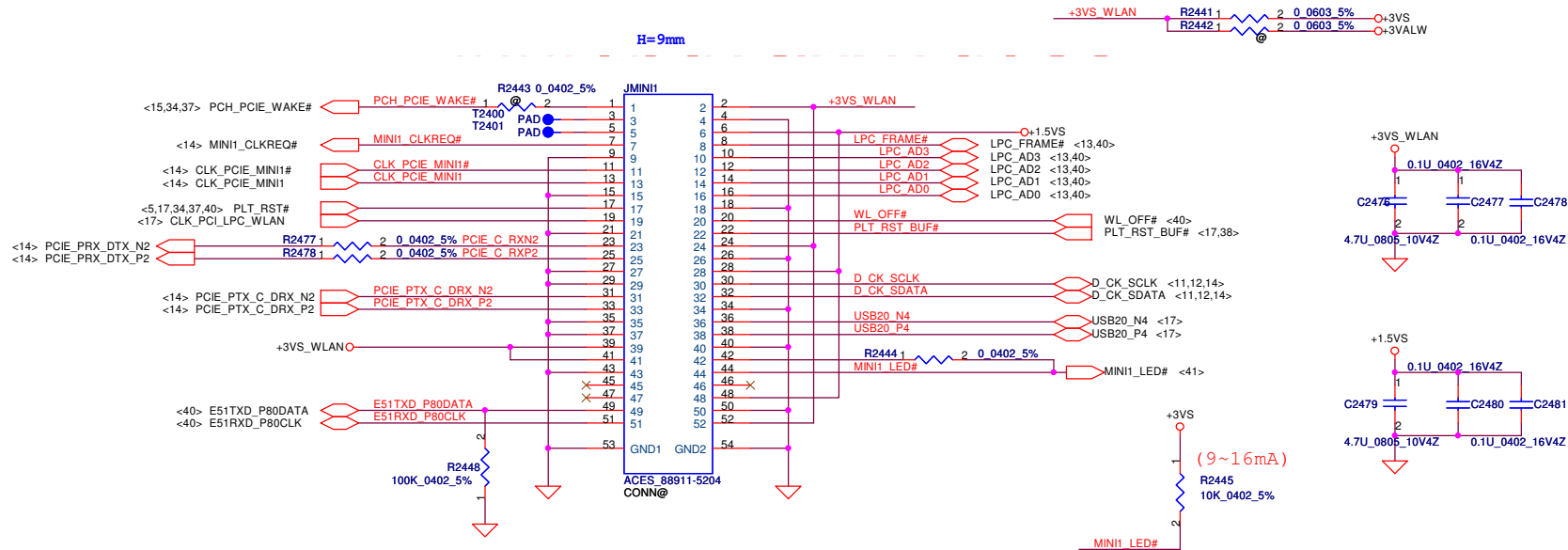
MFIO	SD8	MS8	XD
00	WP	BS	D7
01	D1	-	D6
02	D0	-	D5
03	D7	D1	D4
04	D6	D5	D3
05	CLK	-	D2
06	-	D0	D1
07	D5	D4	D0
08	CMD	-	WP#
09	D4	D2	WE#
10	D3	D6	ALE
11	D2	-	CLE
12	-	D3	CE#
13	-	D7	RE#
14	-	CLK	R/B#



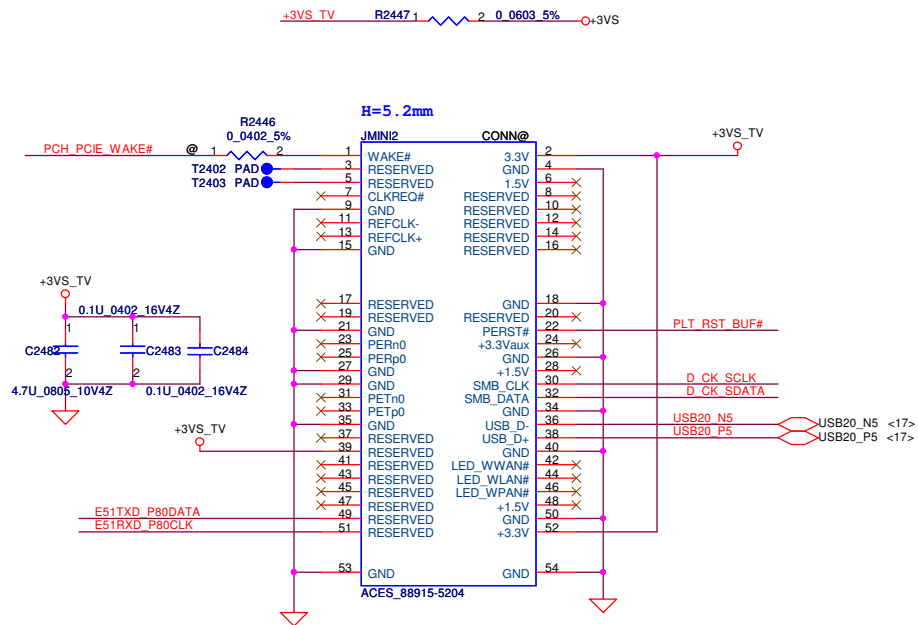
When these pins are both set to Low, the xD Picture Card is detected.

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/12/01	Deciphered Date	2010/12/31	Title	RSU232
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 OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size	Document Number
				Custom	LA-6931P
				Date	Wednesday, October 27, 2010
				Sheet	38 of 58
				Rev	1.0

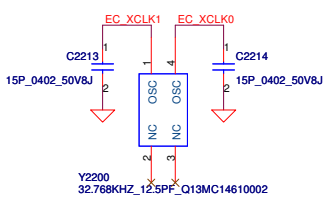
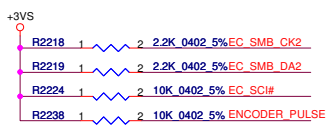
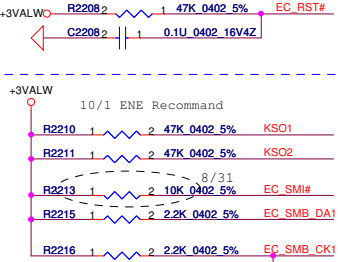
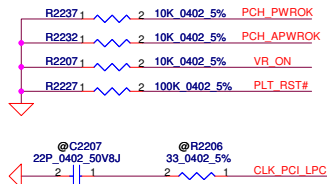
WLAN



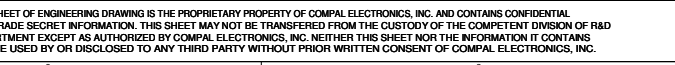
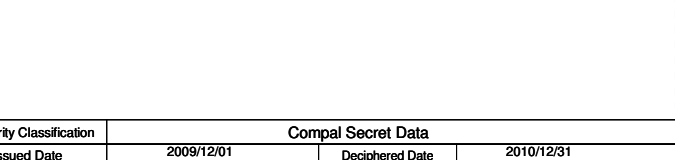
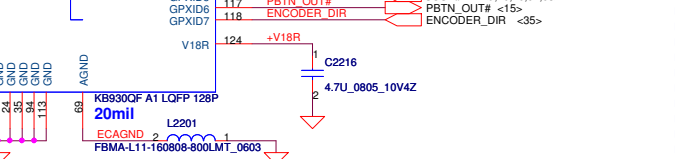
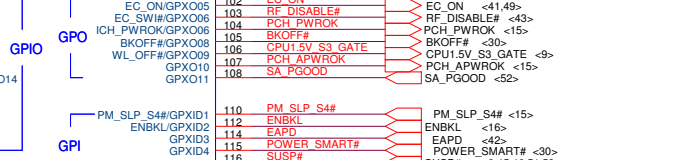
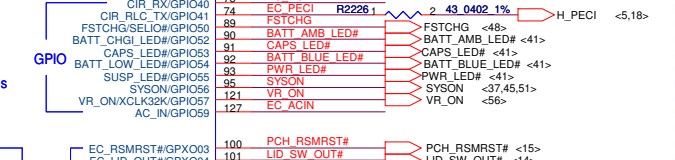
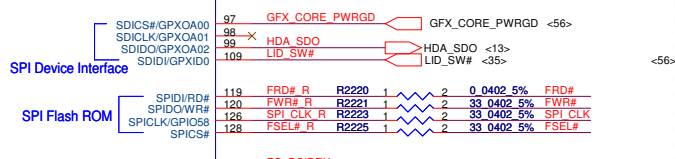
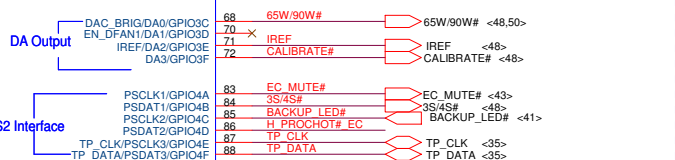
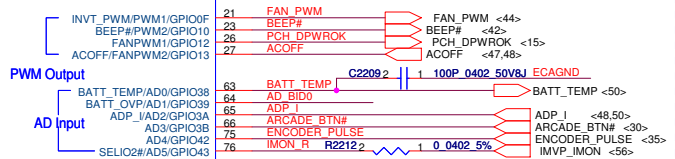
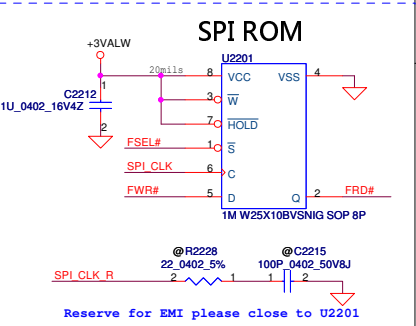
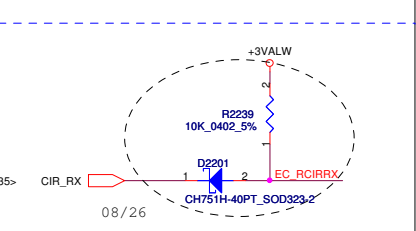
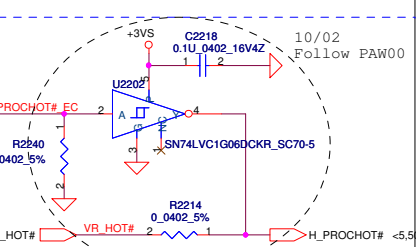
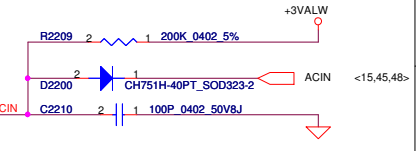
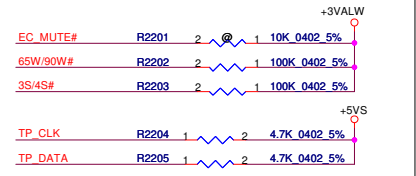
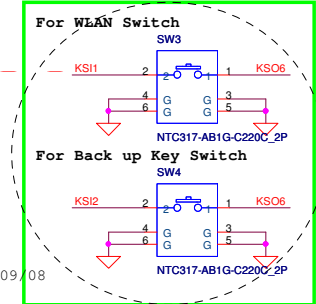
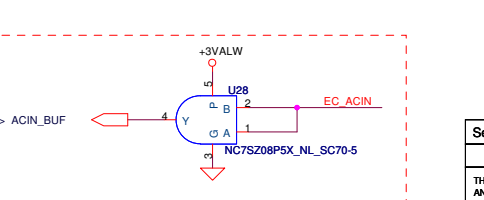
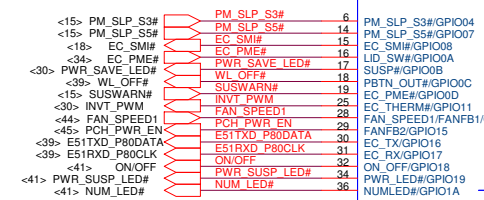
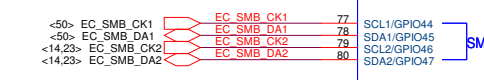
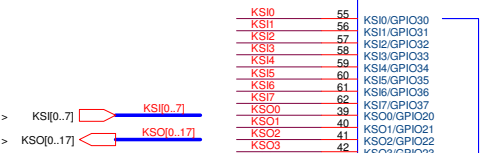
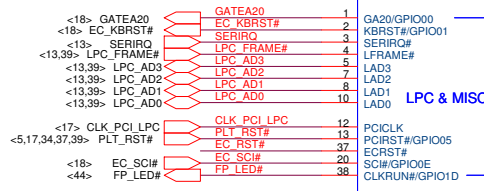
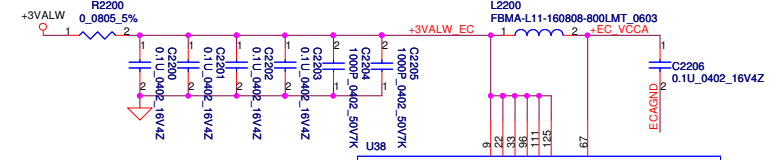
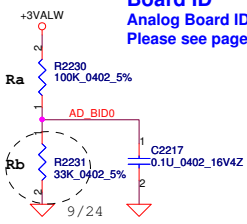
MINI



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/08/25	Deciphered Date	2010/08/25	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 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
				Custom	1.0
				Date	Wednesday, October 27, 2010
				Sheet	39 of 58



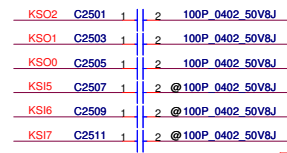
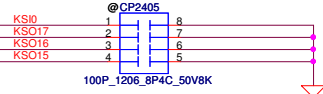
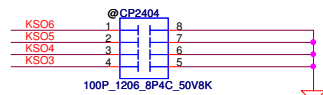
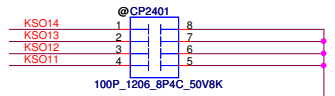
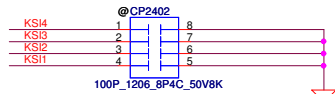
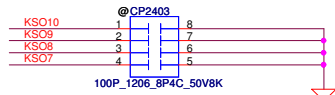
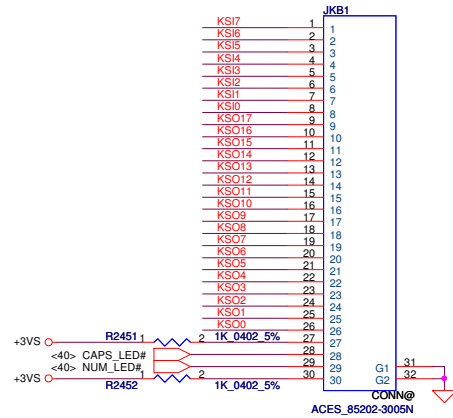
Board ID
Analog Board ID definition,
Please see page 3.



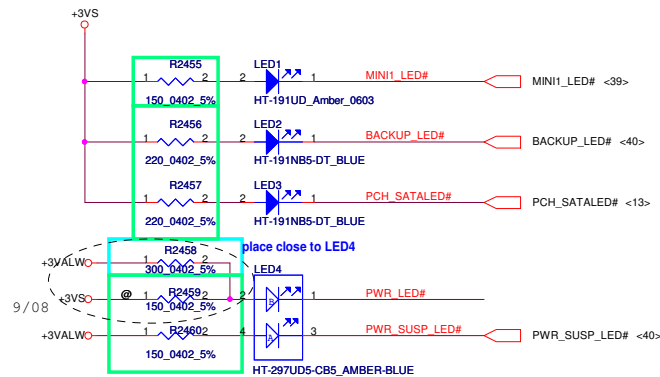
Security Classification		Compal Secret Data		Title	
Issued Date	2009/12/01	Deciphered Date	2010/12/31	EC ENE-KB930	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM 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
				Custom	LA-6931P
				Date:	Wednesday, October 27, 2010
				Sheet	40 of 58
				Rev	1.0

INT_KBD Conn.

KS[0..7] KS[0..7] <40>
KSO[0..17] KSO[0..17] <40>

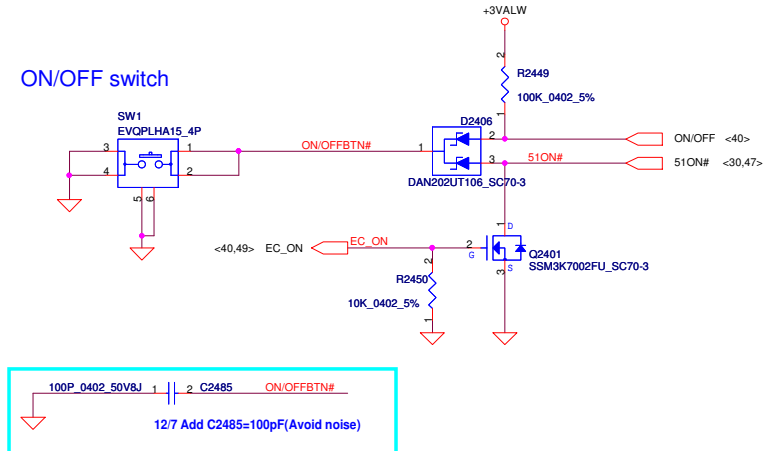


LED

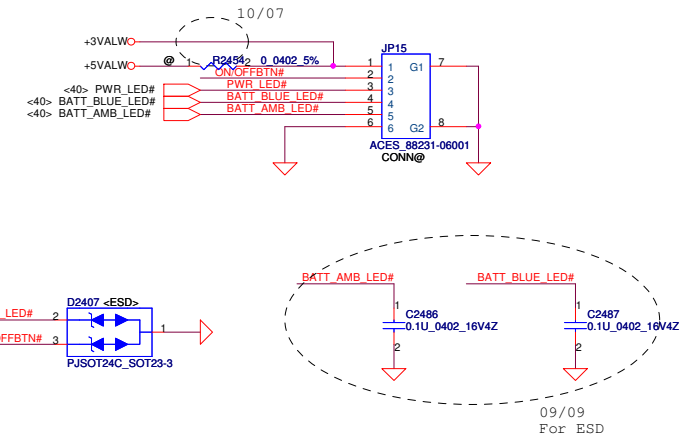


Power Button

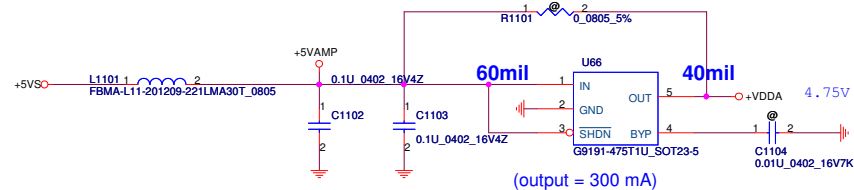
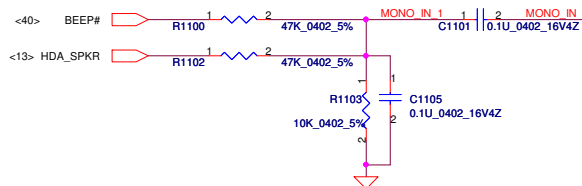
ON/OFF switch



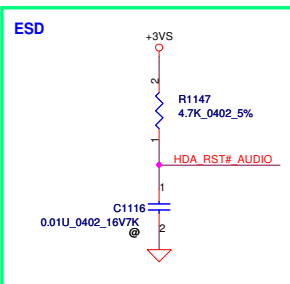
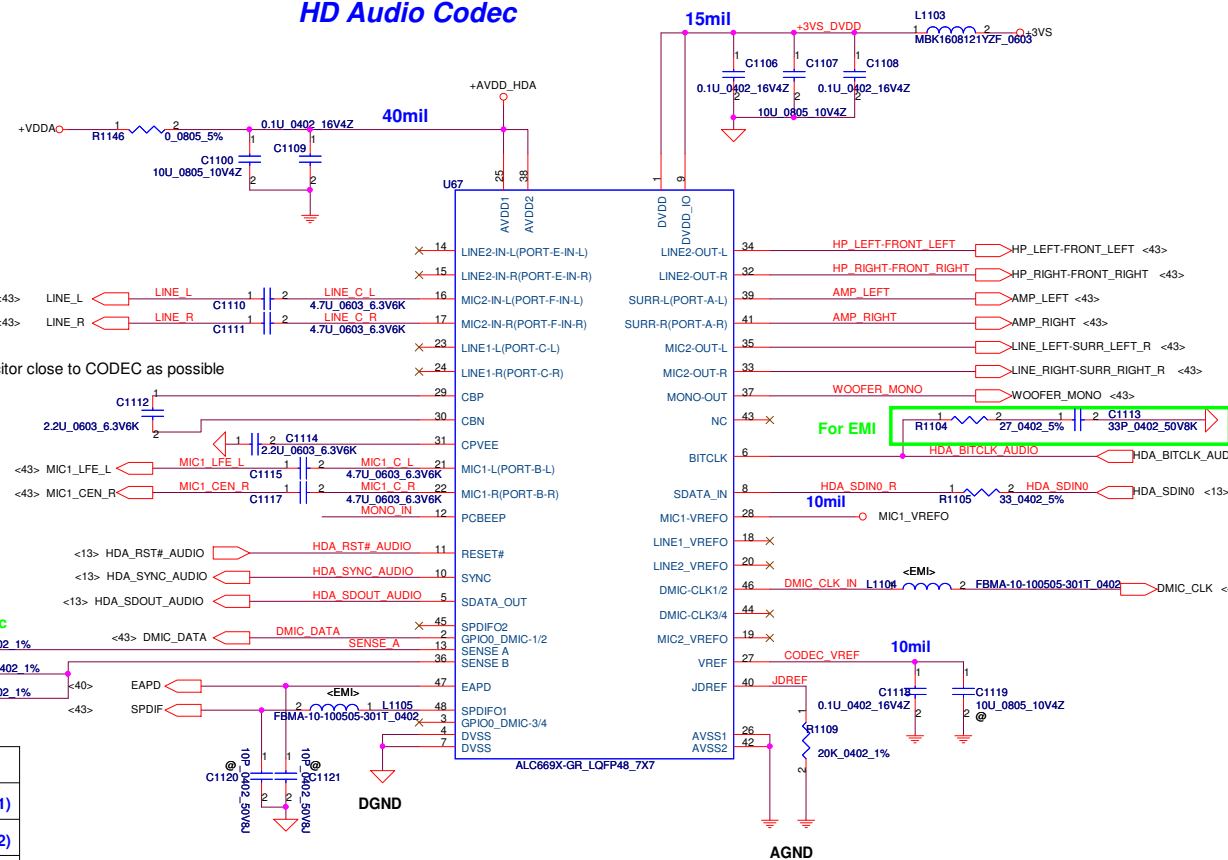
Power Conn



Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2009/08/25	Deciphered Date	2010/08/25	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 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
				B	LA-6931P	1.0
				Date:	Wednesday, October 27, 2010	Sheet 41 of 58



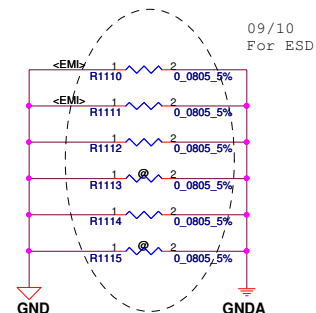
HD Audio Codec



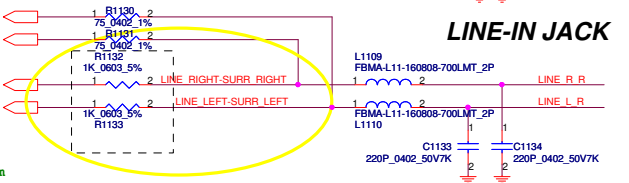
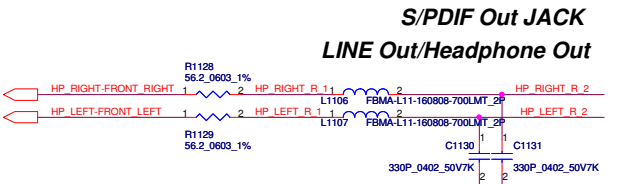
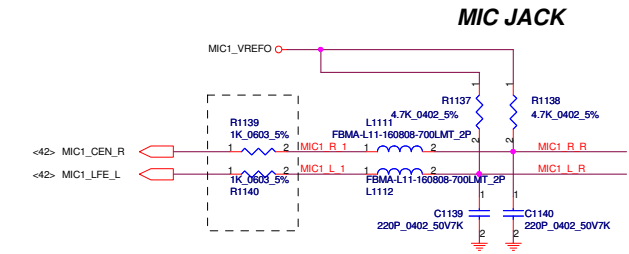
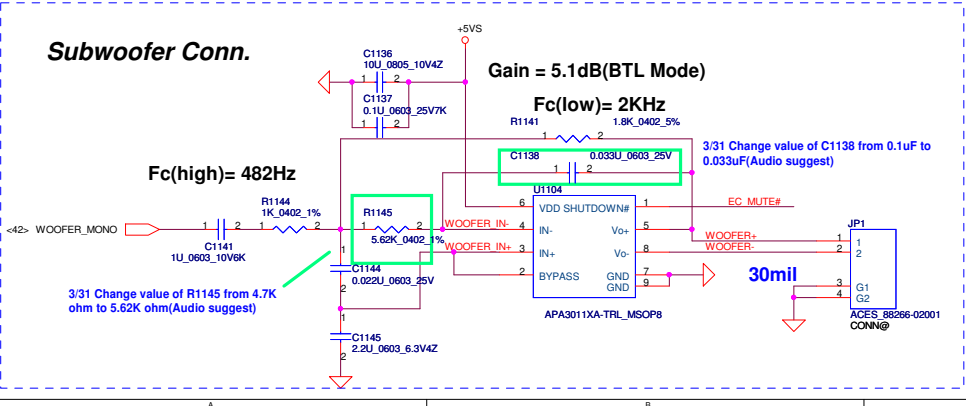
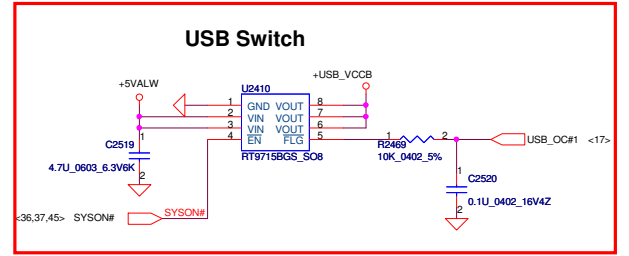
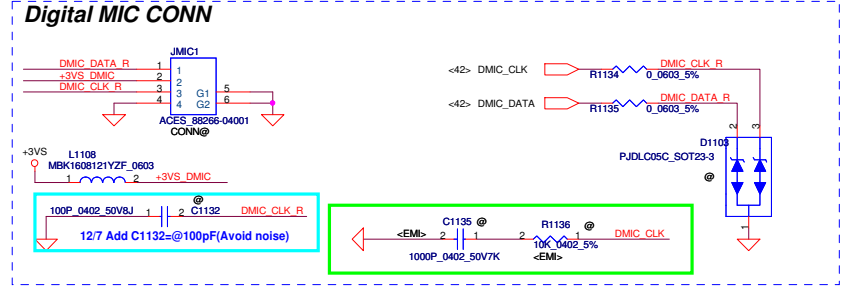
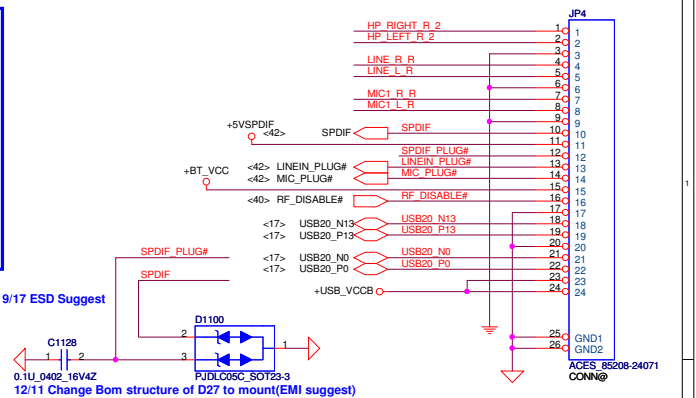
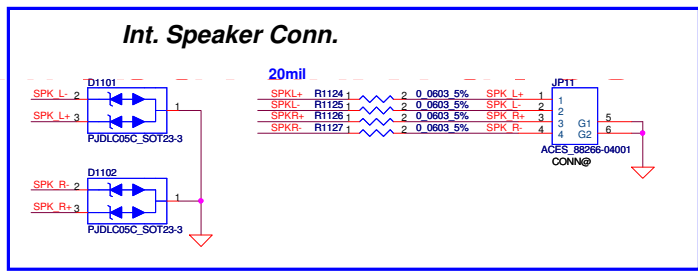
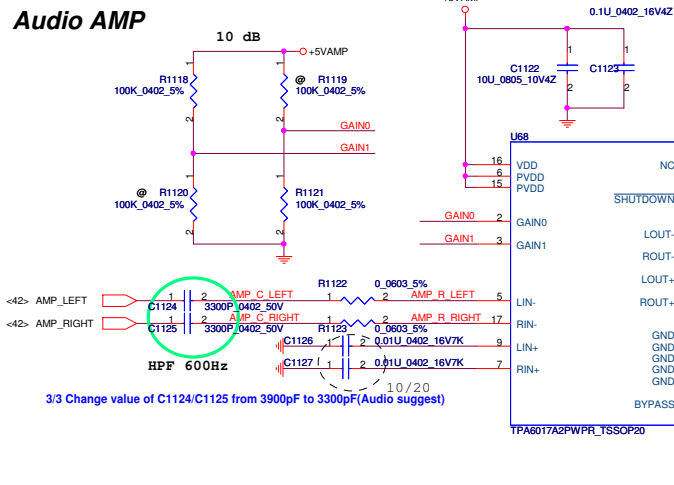
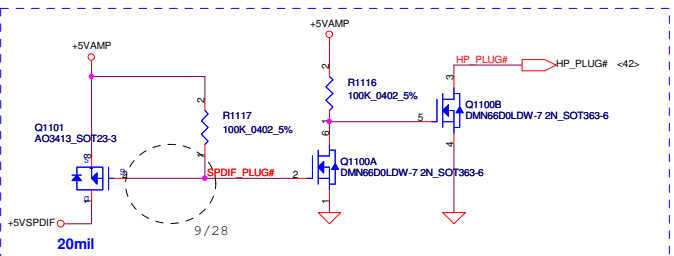
capacitor close to CODEC as possible

Place close to Codec

Sense Pin	Impedance	Codec Signals
SENSE A	20K	PORT-A (PIN 39, 41)
		PORT-B (PIN 21, 22)
		PORT-C (PIN 23, 24)
SENSE B	39.2K	PORT-E (PIN 32, 34)
	20K	PORT-F (PIN 33, 35)
		PORT-H (PIN 37)



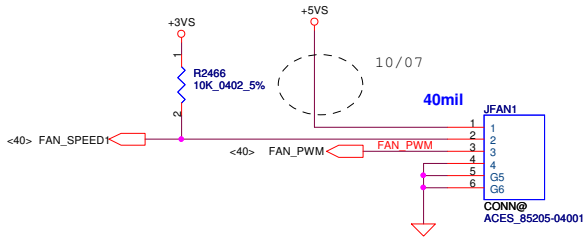
Security Classification		Compal Secret Data		Title	
Issued Date	2009/08/25	Deciphered Date	2010/08/25	HD Audio Codec ALC669X	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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 B	Document Number LA-6931P
				Date: Wednesday, October 27, 2010	Sheet 42 of 58



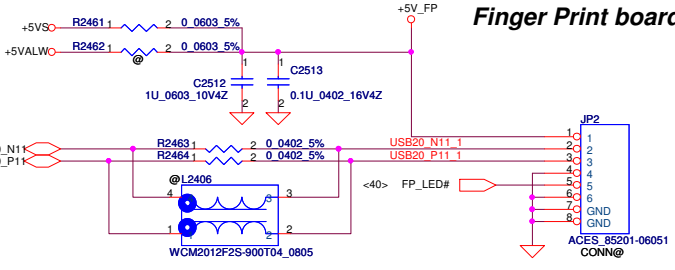
For ESD
I/O status:
a. input/output mount 75 ohm
b. input only mount 1K ohm

Security Classification		Compal Secret Data		Compal Electronics, Inc.			
Issued Date		2009/08/25		Deciphered Date		2010/08/25	
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.				Title			
				Amplifier & Audio Jack&USB			
				Size	Document Number	Rev	
				Custom	LA-693IP	1.0	
Date:				Wednesday, October 27, 2010		Sheet 43 of 58	

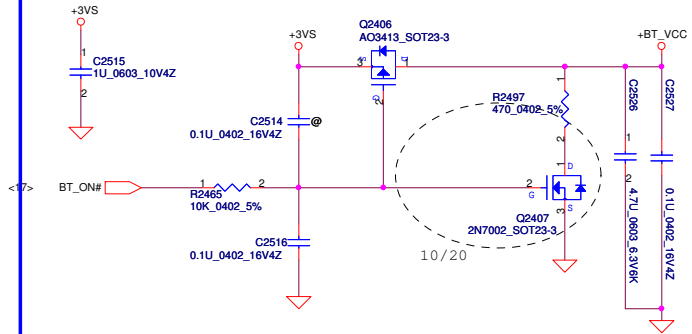
FAN1 Conn



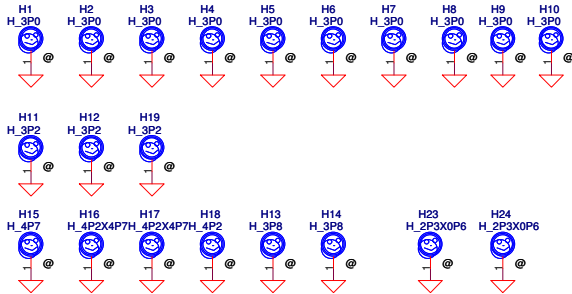
Finger Print board



BT



Screw



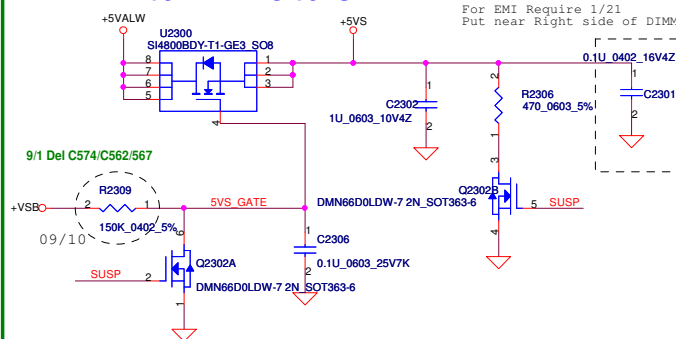
NON-PDH

2/25 Change footprint of H22

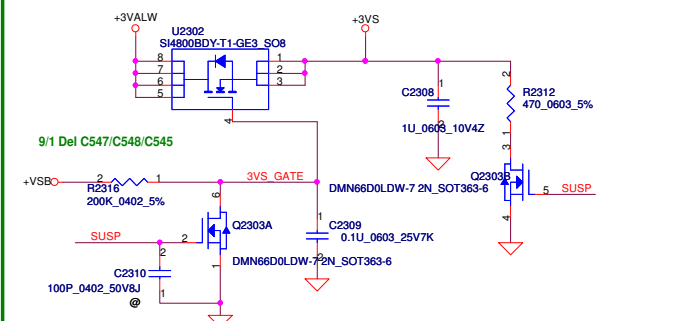


Security Classification		Compal Secret Data				Compal Electronics, Inc.				
Issued Date		2009/08/25		Deciphered Date		2010/08/25		Title		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT 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.								FAN & Screw Hole		
								Size	Document Number	Rev
								B	LA-6931P	1.0
								Date:	Wednesday, October 27, 2010	Sheet

+5VALW TO +5VS

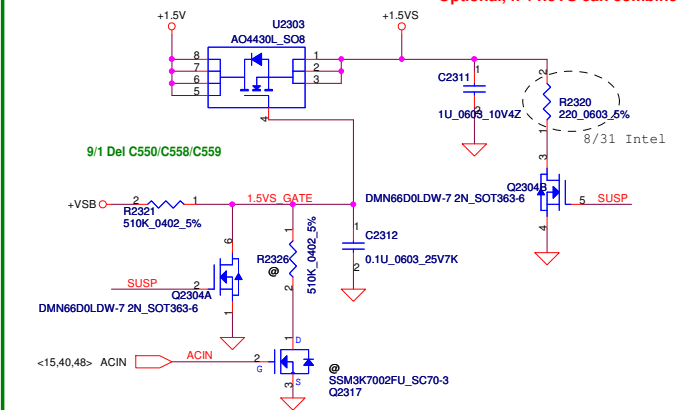


+3VALW TO +3VS



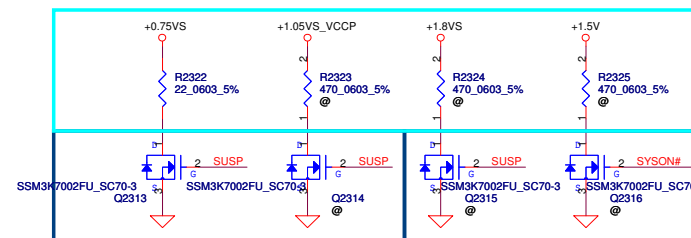
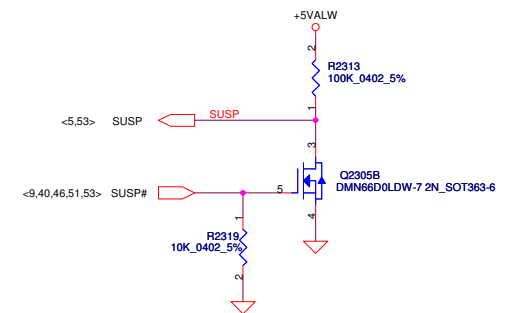
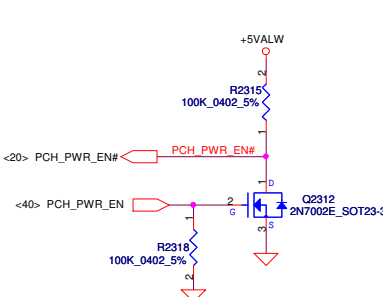
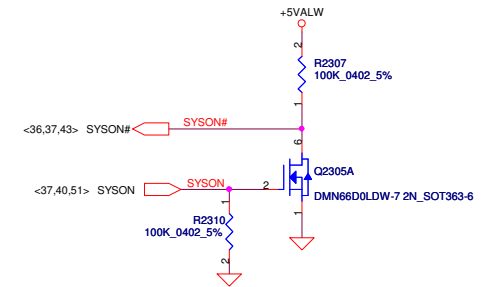
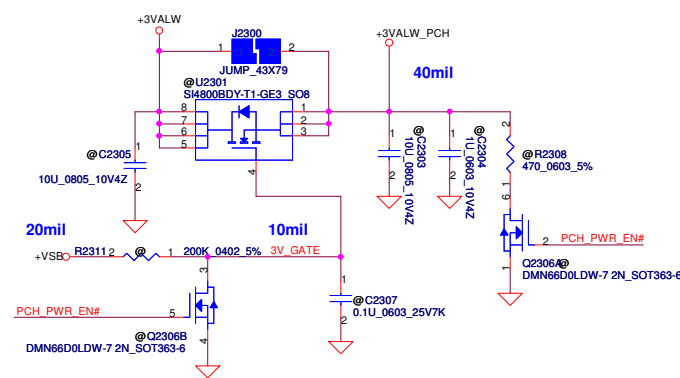
+1.5V to +1.5VS

Optional, if +1.5VS can combine with +1.5V_1

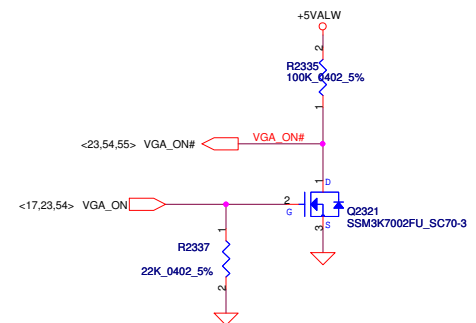
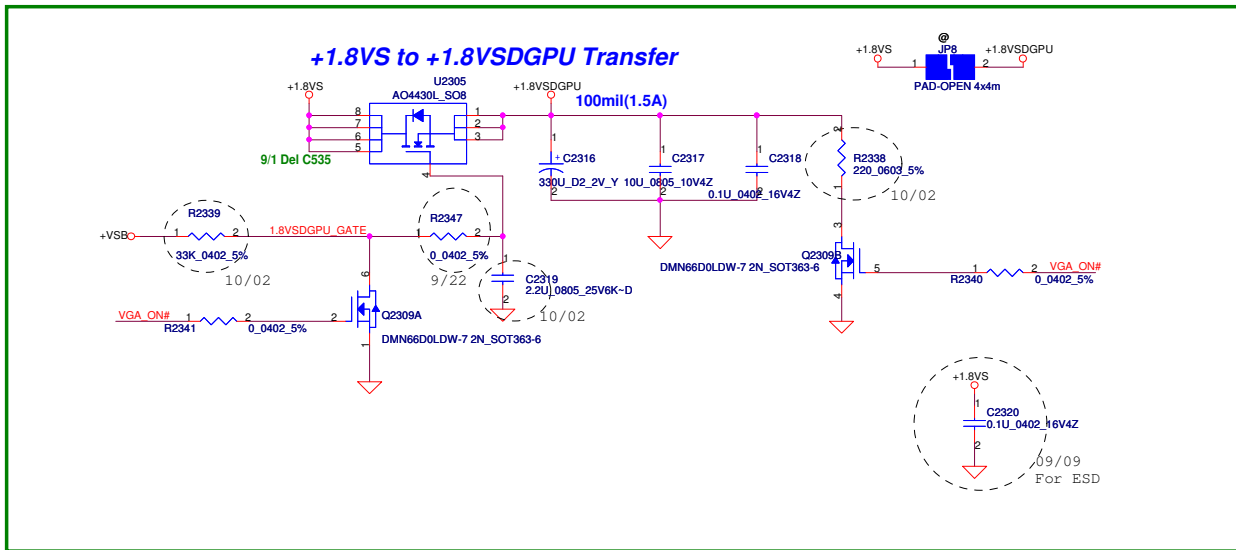
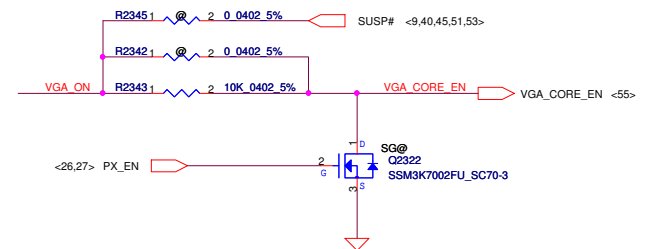
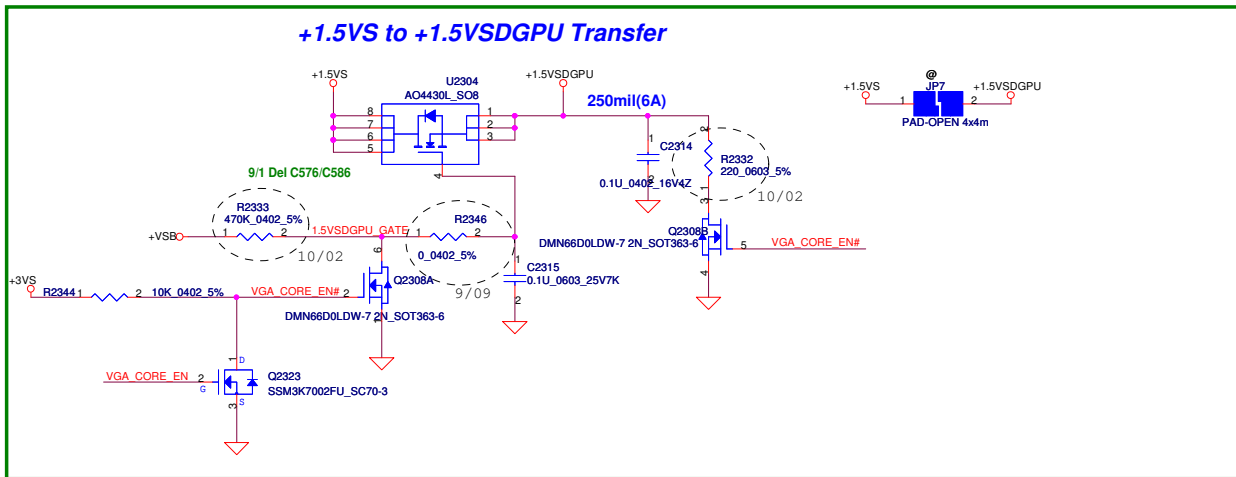


+3VALW TO +3VALW(PCH AUX Power)

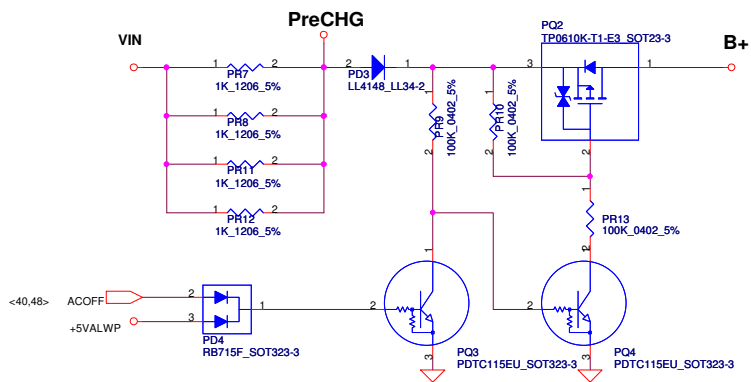
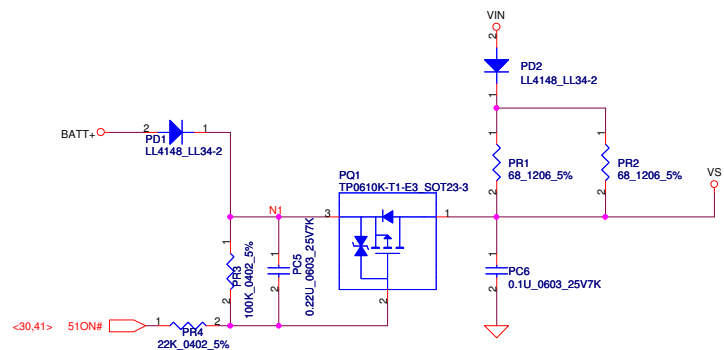
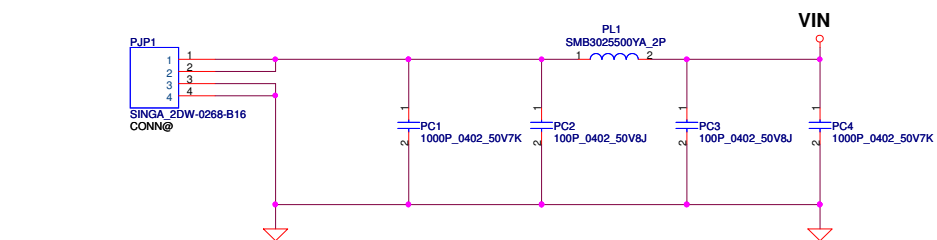
Short J5 for PCH VCCSUS3.3



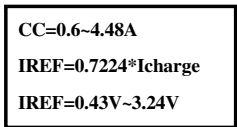
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/08/25	Deciphered Date	2010/08/25	DC Interface	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE 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 B	Document Number
				LA-6931P	Rev 1.0
				Date: Wednesday, October 27, 2010	Sheet 45 of 58



Security Classification		Compal Secret Data		Compal Electronics, Inc.									
Issued Date		2009/08/25	Deciphered Date		2010/08/25	Title	VGA DC Interface						
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 B	Document Number	Rev 1.0				
							LA-6931P						
							Date		Wednesday, October 27, 2010		Sheet 46 of 56		



Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2010/01/25	Deciphered Date	2010/12/31	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.				PWR DCIN / Pre-charge	
				Size	Rev
				Custom	0.1
				Date:	Wednesday, October 27, 2010
				Sheet	47 of 10

$$CP = 85\% \cdot I_{ada} ; CP = 4.07A$$


6251VDD

PR134
47K_0402_5%

PR135
10K_0402_1%

PR133
10K_0402_1%

PR136
14.3K_0402_1%

PQ115
PDTTC115EU SOT323-3

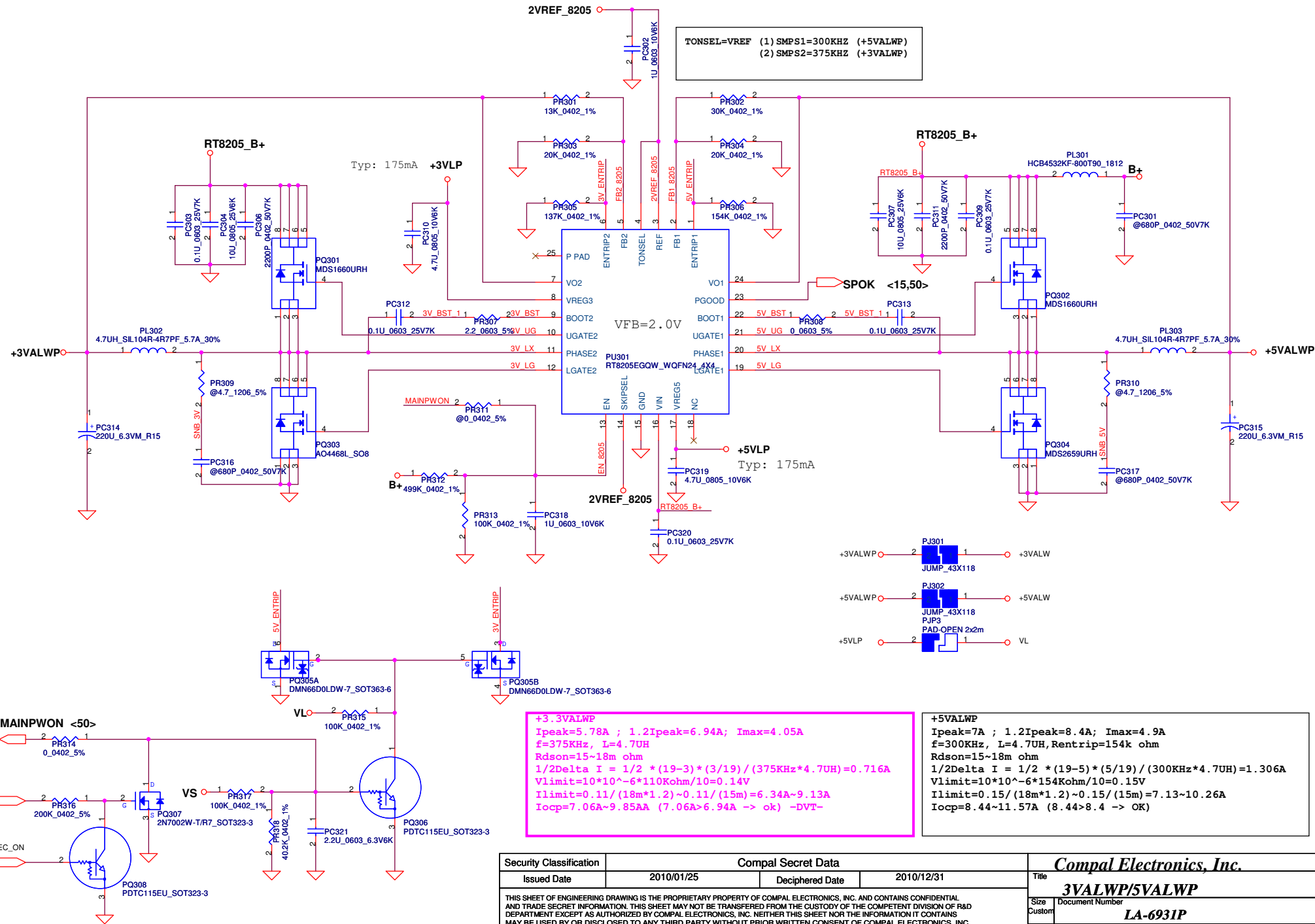
ACPRN

PACIN

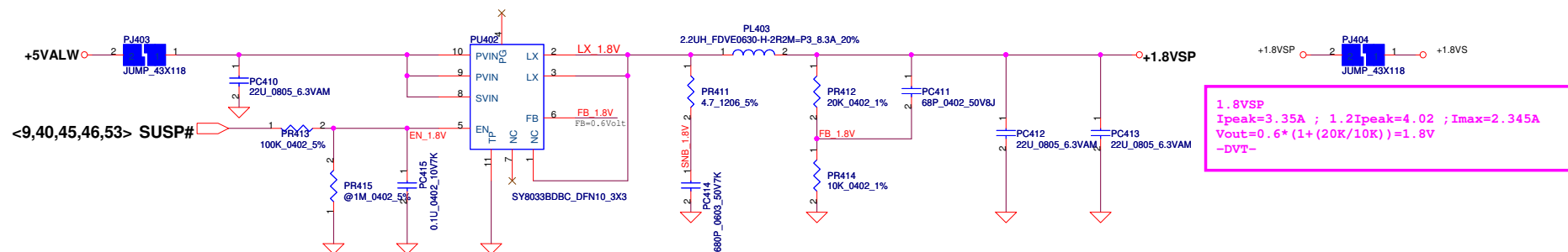
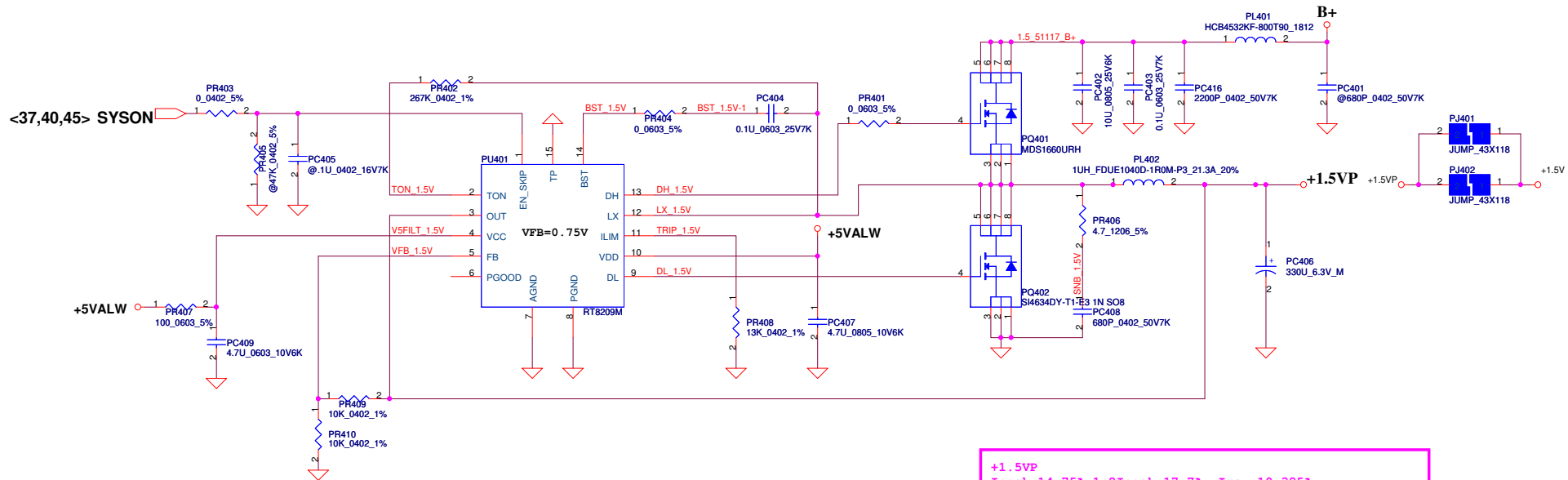
ACIN

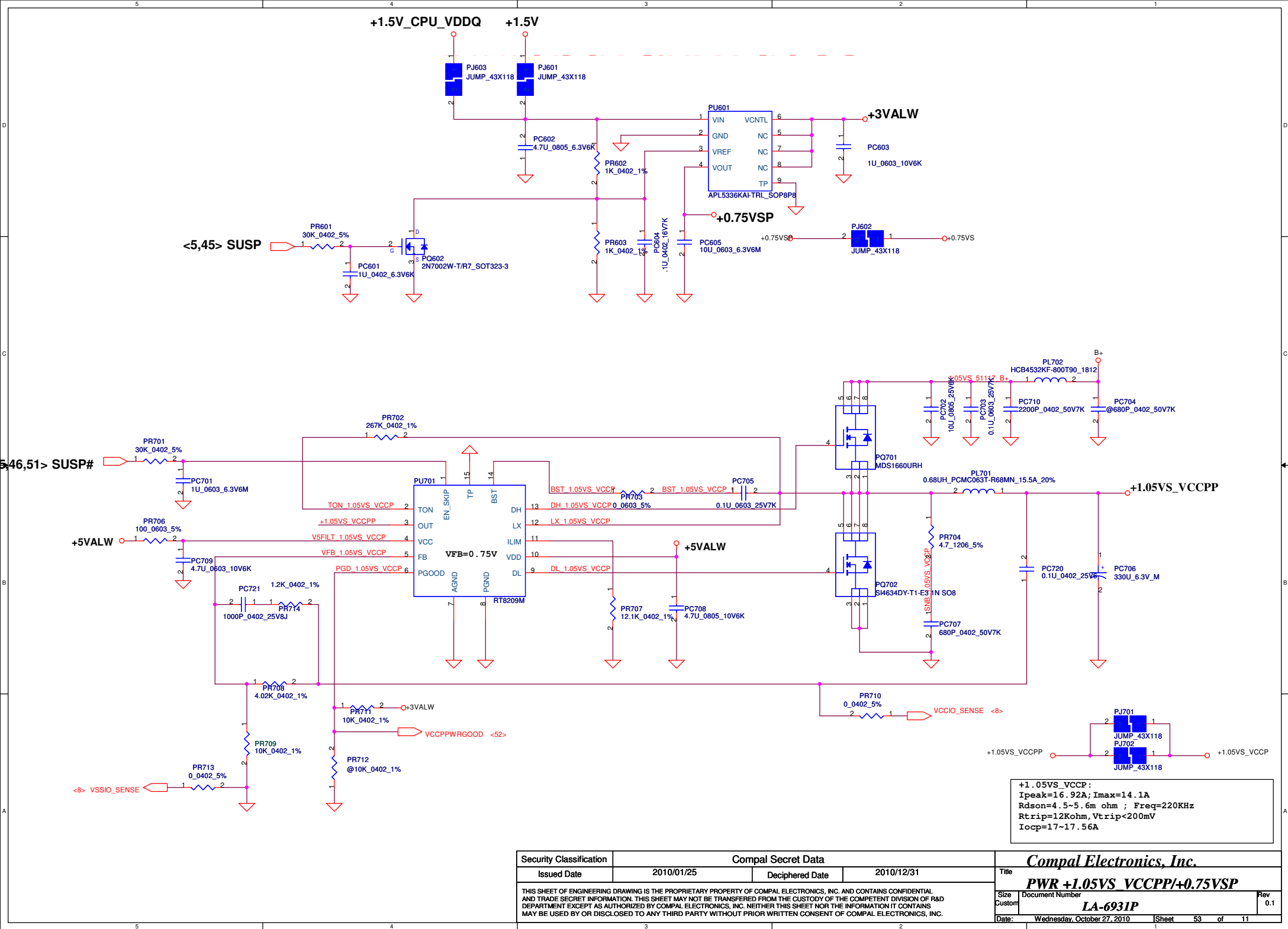
<15,40,45>

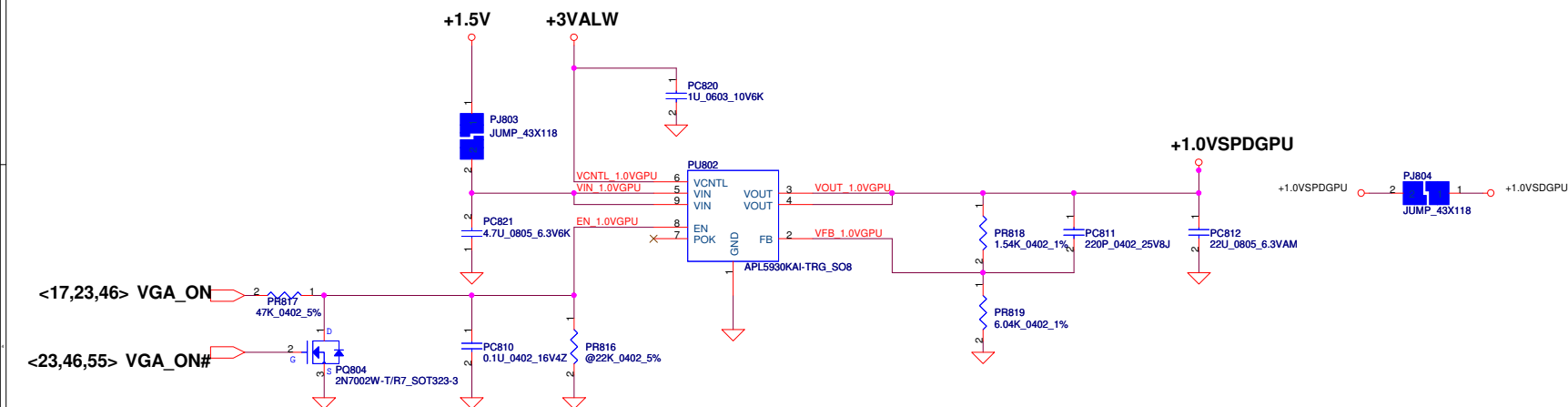
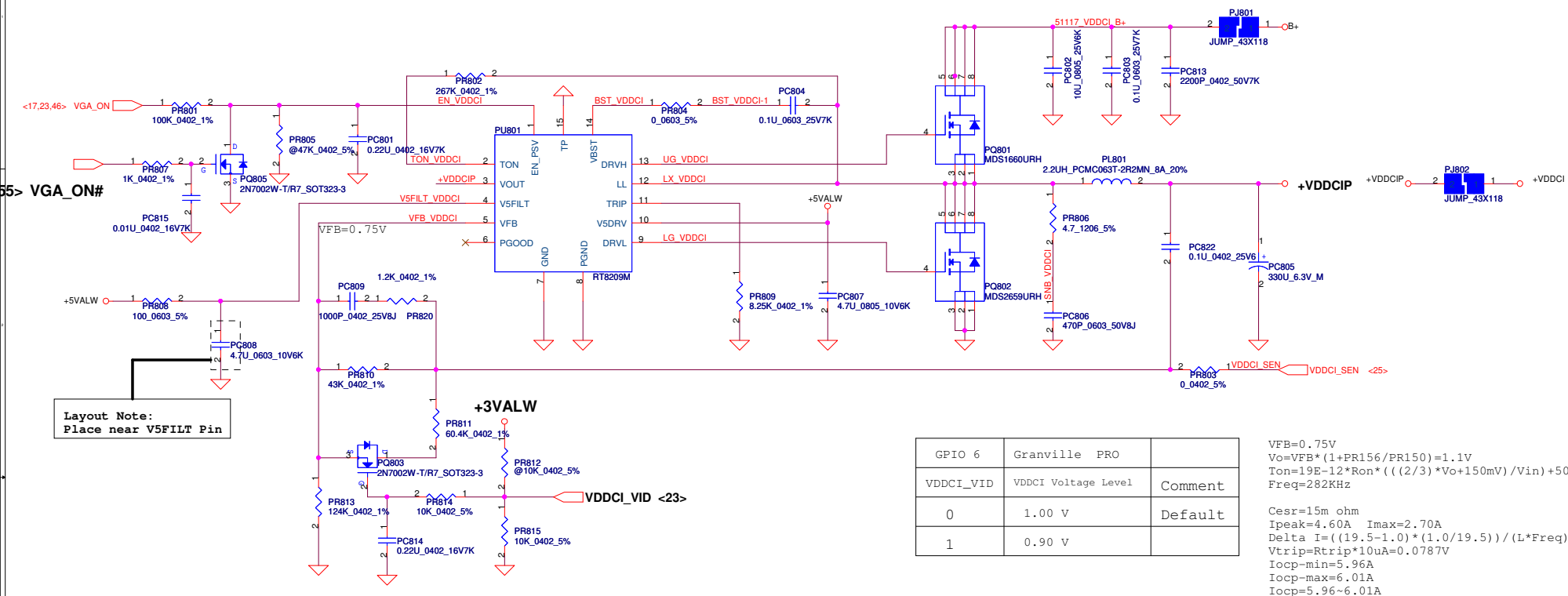
Security Classification		Compal Secret Data		<i>Compal Electronics, Inc.</i> PWR-CHARGER	
Issued Date	2010/01/25	Deciphered Date	2010/12/31	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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
				Custom	0.1
Date: Wednesday, October 27, 2010				Sheet	48 of 10

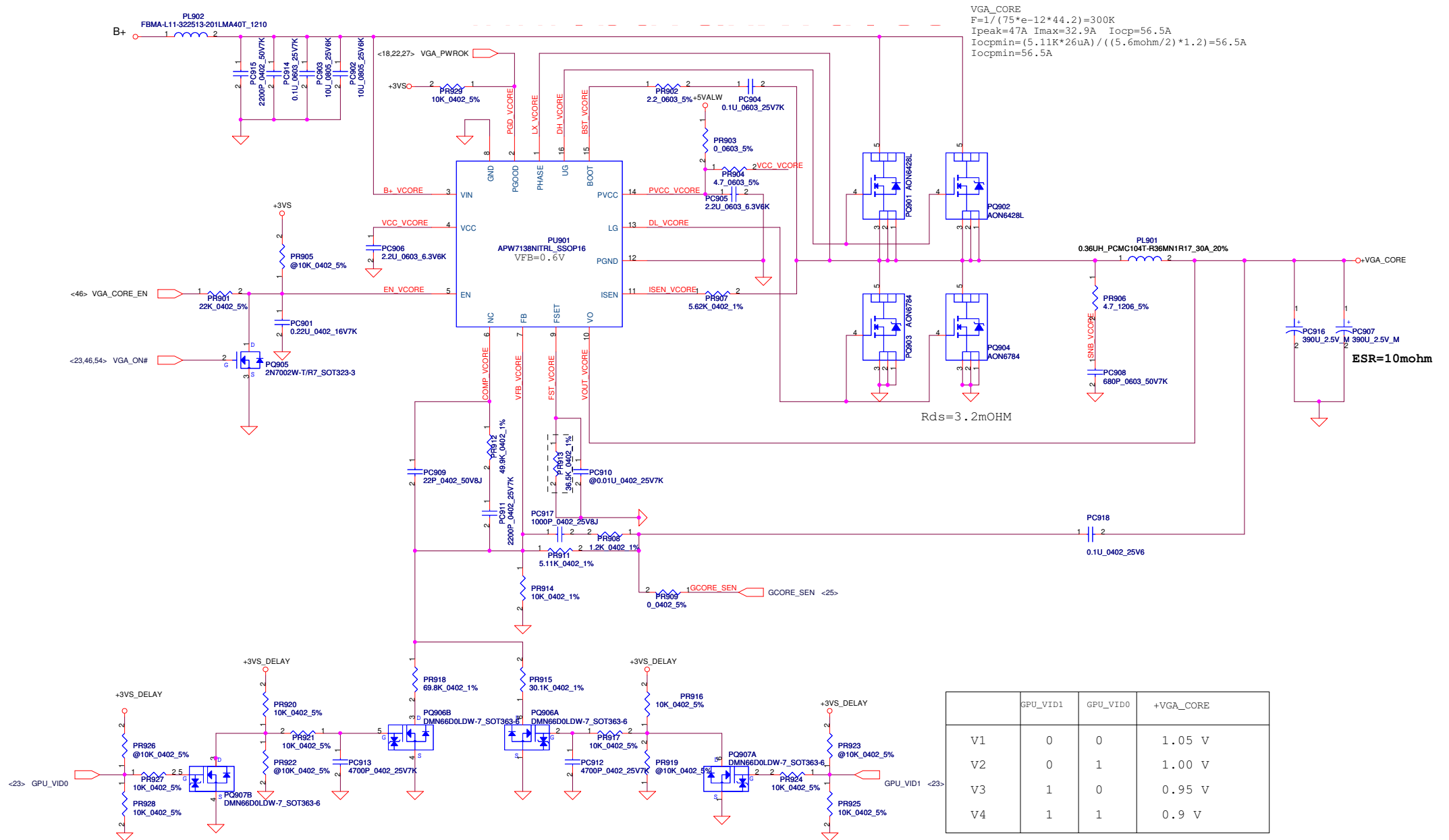


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2010/01/25	Deciphered Date	2010/12/31	Title	3VALWP/5VALWP
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY 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 Custom	Document Number LA-6931P
				Date	Wednesday, October 27, 2010
				Sheet	49 of 10
				Rev	0.1



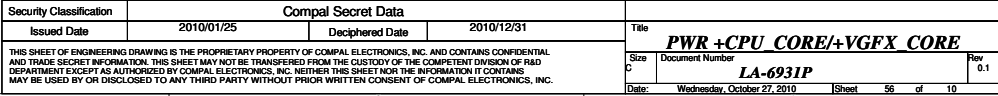






Security Classification		Compal Secret Data			Compal Electronics, Inc.				
Issued Date		2007/12/18		Deciphered Date		2010/08/01		Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT 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.								+VGA COREP	
								Size Custom	Document Number
Date:		Wednesday, October 27, 2010			Sheet		55	of	11

Parallel and tune length



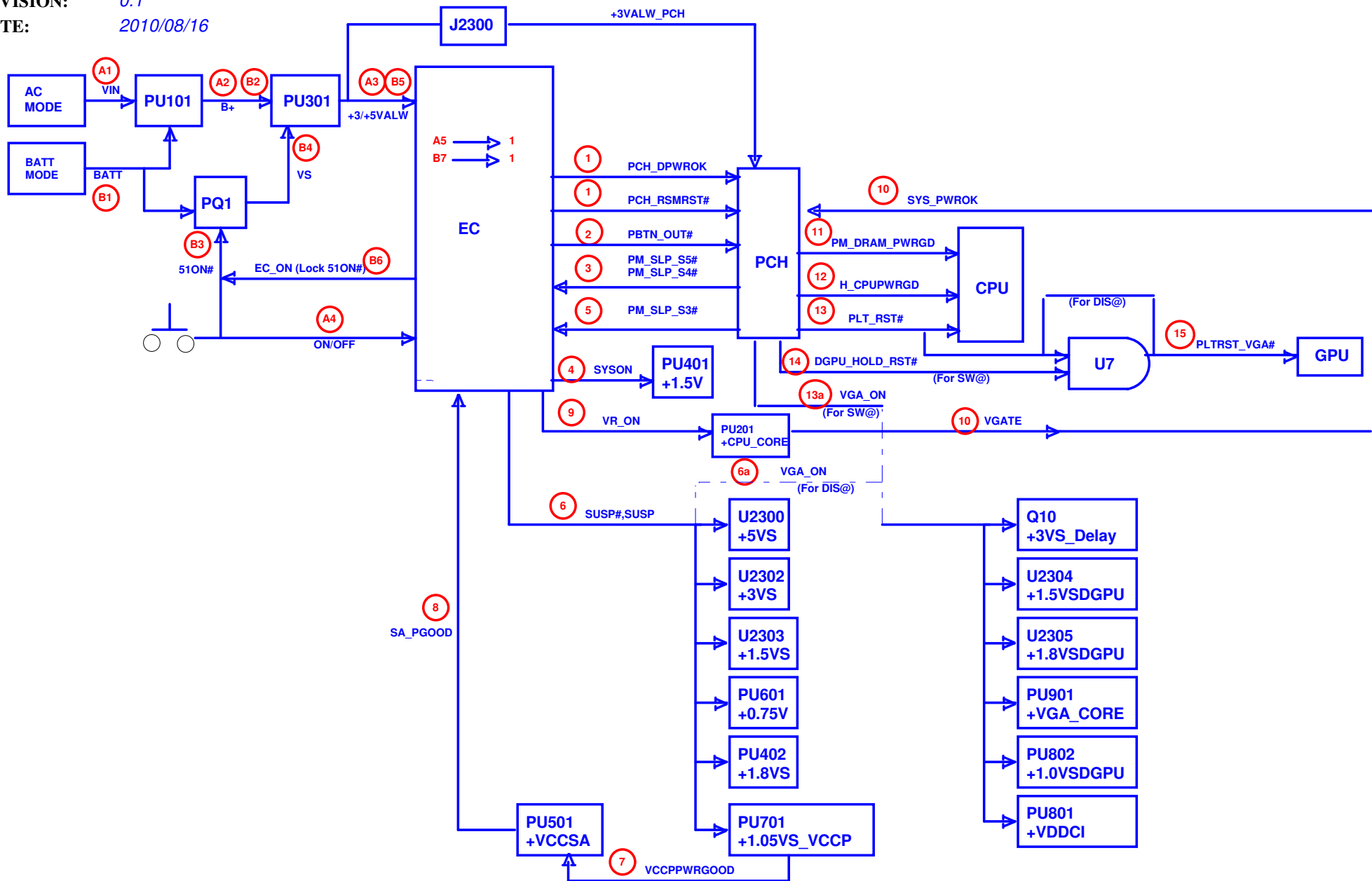
COMPAL CONFIDENTIAL

MODEL NAME: P5LM0 Power Sequence Block Diagram

PCB NAME: LA-6931P

REVISION: 0.1

DATE: 2010/08/16



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/08/25	Deciphered Date	2010/08/25	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 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
				Custom	LA-6931P
				Date	Wednesday, October 27, 2010
				Sheet	57 of 58
				Rev	1.0

Version Change List (P. I. R. List) for HW Circuit

[illegible]