

Compal Confidential

ZIWB2/ZIWB3/ZIWE1 DIS M/B Schematics Document

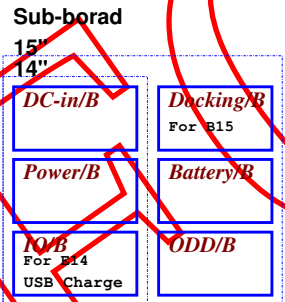
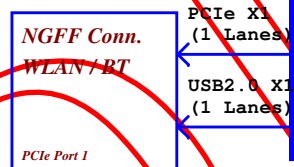
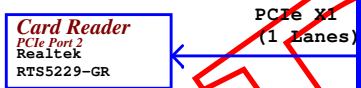
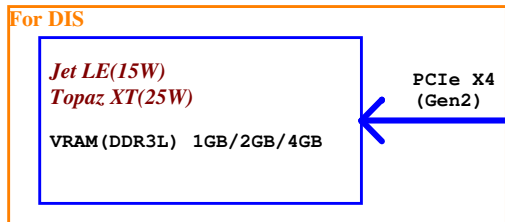
Intel Boardwell U Processor with DDR3L
AMD Topaz XT / Jet LE

2014-02-10

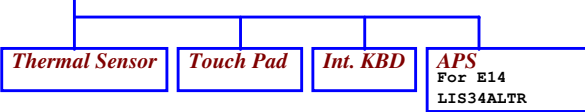
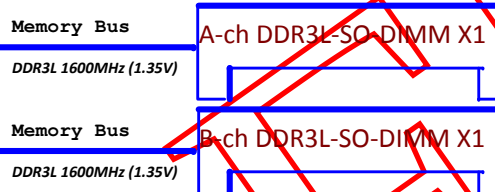
LA-B091P

REV : 1.0

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2011/06/24	Deciphered Date	2012/07/12	Title Cover Page		
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 LA-B091P	Rev 1.0
Date: Wednesday, February 12, 2014				Sheet	1	of 55



Intel Broadwell U
15W
1168pin BGA



Voltage Rails

power plane				
State	+B	+5VALW	+1.5V	+5VS +3VS +1.5VS +V1_05S_VCCP +VCC_CORE +VGA_CORE +VCC_GFXCORE_AXG +1.8VS +0.75VS +1.05VS
S0	O	O	O	O
S3	O	O	O	X
S5 S4/AC	O	O	X	X
S5 S4/ Battery only	O	X	X	X
S5 S4/AC & Battery don't exist	X	X	X	X

USB Port Table

	USB 2.0 Port	3 External USB Port
EHCI1	UHCI0	0 USB Port (Left Side) USB3.0
		1 USB Port (Left Side) USB3.0
	UHCI1	2 Touch Screen
		3 Camera
	UHCI2	4
		5
EHCI2	UHCI3	6
		7
	UHCI4	8
		9 USB Port (Right Side USB-BD)
	UHCI5	10 Mini Card(WLAN)
		11 Card Reader
	UHCI6	12
		13

BOM Structure Table

Item	BOM Structure
ZIWB2 (14")	B14@
ZIWB3 (15")	B15@
ZIWE1 (14")	B14@
CPU_SA00006SM20	33_42000@
CPU_SA00007AM00	QFS1@
CPU_SA00006SU30	i3_4100U@
CPU_SA000072010	i3_4000U@
CPU_SA00006SY20	i3_4010U@
LAN 10/100 Transformer	100@
LAN GIGB Transformer	GIGA@
LAN Switch mode	SWITCH@
LAN RTL8106E-CG	8106ELDO@
LAN RTL8111GS-CG	8111GLDO@
LAN RTL8106EUS-CG	8106ESW@
LAN RTL8111EUS-CG	8111GSW@
Audio 203	233@
Audio 233VB	233VB@
For B15	Docking@
For B14, E14	NoDocking@
For Deep Sleep	DS3@
For No Deep Sleep	NoDS3@
WLAN Support ISCT	ISCT@
WLAN No Support ISCT	NoISCT@
For Intel ZERO ODD	ZODD@
For No Intel ZERO ODD	NoZODD@
For Green CLK	GCLK@
For No Green CLK	NoGCLK@
For No Green CLK	NoGCLKDIS@
Green CLK IC For DIS	GCLKDIS@
Green CLK IC For UMA	GCLKUMA@
GPU support Dual Rank	DR@
GPU Jet LE	JET@
GPU Topaz XT	TOPAZ@
For DIS	PX@
For UMA	UMA@
Camera	COMS@
APS (G-sensor)	GS@
Touch Screen	TS@
HDMI	HDMI@
USB 2.0	USB2@
USB 3.0	USB3@
Full HD Panel (2 Lane)	FHD@
ENE EC 9012	9012@
HDMI Royalty	45@
Connector	ME@
VRAM indentify	X76@
Un-pop component for EMI	@EMI@
Un-pop component for ESD	@ESD@
DA600140000	PCB_14_DIS@
DA600141000	PCB_14_UMA@
DA600140100	PCB_15_DIS@
DA600141100	PCB_15_UMA@

EC SM Bus1 address

Device	Address	Device	Address
Smart Battery	0001 011x	Thermal Sensor	0100 1100

EC SM Bus2 address

PCH SM Bus address

Device	Address	Device	Address
DDR_IDIMM1	1010 000x A0h	Internal thermal sensor	0100 0001 41h
DDR_IDIMM2	1010 010x A4h		

AMD-GPU SM Bus address

SMBUS Control Table

	SOURCE	VGA	BATT	KB9012	SODIMM	WLAN	Thermal Sensor	PCH
SMB_EC_CK1	KB9012	X	+3VALW	X	X	X	X	X
SMB_EC_DA1	+3VALW							
SMB_EC_CK2	KB9012	X	X	X	X	X	+3VS	+3VALW
SMB_EC_DA2	+3VS	+3VGS						
PCH_SMBCLK	PCH	X	X	X	+3VS	+3VS	X	X
PCH_SMBDATA	+3VALW							
PCH_SMLCLK	PCH	X	X	X	X	X	X	X
PCH_SMLDATA	+3VALW							
SMLCLK	PCH	X	X	X	X	X	+3VS	X
SMLDATA	+3VALW	+3VGS						

STATE	SIGNAL	SLP_S1#	SLP_S2#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	HIGH	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1 (Power On Suspend)	LOW	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	LOW	HIGH	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	LOW	HIGH	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2011/06/24	Deciphered Date	2012/07/12	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
				Document Number
				LA-B091P
				Rev 1.0
				Date: Wednesday, February 12, 2014 Sheet 3 of 55

Topaz XT_VRAM_STRAP

		X76@				X76@	
		Vendor UV5, UV6, UV7, UV8	ID	PS_3[3]	PS_3[2]	PS_3[1]	R_pu RV21 RV24
2GBytes	TH2G@	Hynix 4096Mbits SA00006E800 256Mx16 H5TC4G63AFR-11C	0	0	0	0	NC 4.75K
1GBytes	TS1G@	Samsung 2048Mbits SA000068U40 128Mx16 K4W2G1646Q-BC1A	1	0	0	1	8.45K 2K
1GBytes	TM1G@	Micron 2048Mbits SA000067500 128Mx16 MT41J128M16JT-093G:K	2	0	1	0	4.53K 2K
1GBytes	TH1G@	Hynix 2048Mbits SA00006H400 128Mx16 H5TC2G63FFR-11C	3	0	1	1	6.98K 4.99K
2GBytes	TM2G@	Micron 4096Mbits SA000077K00 256Mx16 MT41J256M16HA-093G:E	4	1	0	0	4.53K 4.99K
2GBytes	TS2G@	Samsung 4096Mbits SA000076P00 256Mx16 K4W4G1646D-BC1A	5	1	0	1	3.24K 5.62K
1GBytes	TM1G2@	Micron 2048Mbits SA00005XB00 128Mx16 MT41K128M16JT-107G:K	6	1	1	0	3.4K 10K
2GBytes	TM2G2@	Micron 4096Mbits SA000065D00 256Mx16 MT41K256M16HA-107G:E	7	1	1	1	4.75K NC

ZZZ01

ZZZ02

ZZZ03

ZZZ04

TH2G@
2G HYNIX
X7653638L01

TS1G@
1G SAMSUNG
X7653638L03

TM1G@
1G MICRON
X7653638L02

TH1G@
1G HYNIX
X7653638L01

Jet LE_VRAM_STRAP

		X76@				X76@	
		Vendor UV5, UV6, UV7, UV8	ID	PS_3[3]	PS_3[2]	PS_3[1]	R_pu RV21 RV24
1GBytes	JH1G@	Hynix 2048Mbits SA00006H400 128Mx16 H5TC2G63FFR-11C	0	0	0	0	NC 4.75K
1GBytes	JM1G@	Micron 2048Mbits SA000067500 128Mx16 MT41J128M16JT-093G:K	1	0	0	1	8.45K 2K
1GBytes	JS1G@	Samsung 2048Mbits SA000068U40 128Mx16 K4W2G1646Q-BC1A	2	0	1	0	4.53K 2K
2GBytes	JH2G@	Hynix 4096Mbits SA00006E800 256Mx16 H5TC4G63AFR-11C	3	0	1	1	6.98K 4.99K
2GBytes	JS2G@	Samsung 4096Mbits SA000076P00 256Mx16 K4W4G1646D-BC1A	4	1	0	0	4.53K 4.99K
2GBytes	JM2G@	Micron 4096Mbits SA000077K00 256Mx16 MT41J256M16HA-093G:E	5	1	0	1	3.24K 5.62K
2GBytes	JH2G2@	Micron 4096Mbits SA000065D00 256Mx16 MT41K256M16HA-107G:E	6	1	1	0	3.4K 10K
1GBytes	JM1G2@	Micron 2048Mbits SA00005XB00 128Mx16 MT41K128M16JT-107G:K	7	1	1	1	4.75K NC

ZZZ09

ZZZ10

ZZZ11

ZZZ12

JH1G@
1G HYNIX
X7653638L07

JM1G@
1G MICRON
X7653638L09

JS1G@
1G SAMSUNG
X7653638L09

JH2G@
2G HYNIX
X7653638L04

Power-Up/Down Sequence

"Mars" has the following requirements with regards to power-supply sequencing to avoid damaging the ASIC:

- All the ASIC supplies must reach their respective nominal voltages within 20 ns of the start of the ramp-up sequence, though a shorter ramp-up duration is preferred. The maximum slew rate on all rails is 50 mV/μs.
- The external pull ups on the DDC/AUX signals (if applicable) should ramp up before or after both VDDC and VDD_CT have ramped up.
- VDDC and VDD_CT should not ramp up simultaneously. For example, VDDC should reach 90% before VDD_CT starts to ramp up (or vice versa).
- For power down, reversing the ramp-up sequence is recommended.

VDDR3(3.3VGS)

PCIE_VDDC(0.95VGSV)

VDDR1(1.5VGS)

VDDC/VDDC(1.12V)

VDD_CT(1.8V)

PERST#

REFCLK

Straps Reset

Straps Valid

Global ASIC Reset

T4+16clock

R_pu (Ω)	R_pd (Ω)	Bits [3:1]
NC	4750	000
8450	2000	001
4530	2000	010
6980	4990	011
4530	4990	100
3240	5620	101
3400	10000	110
4750	NC	111

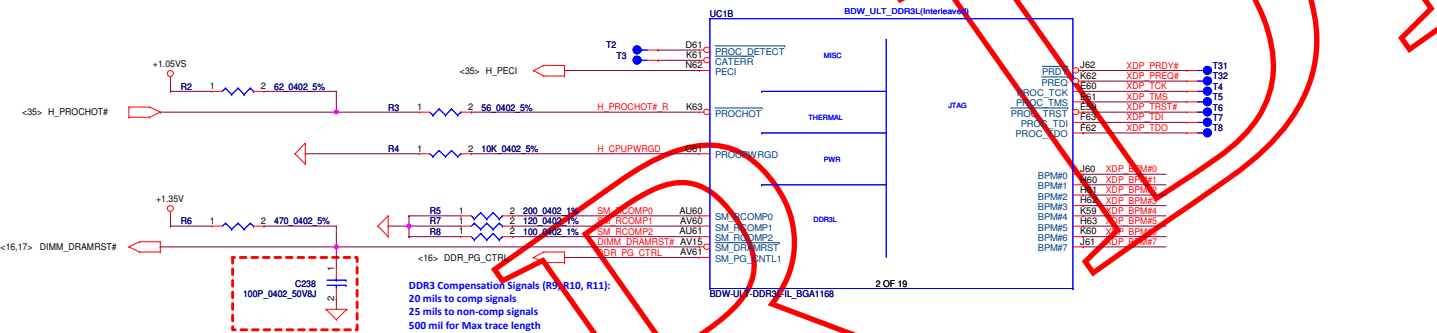
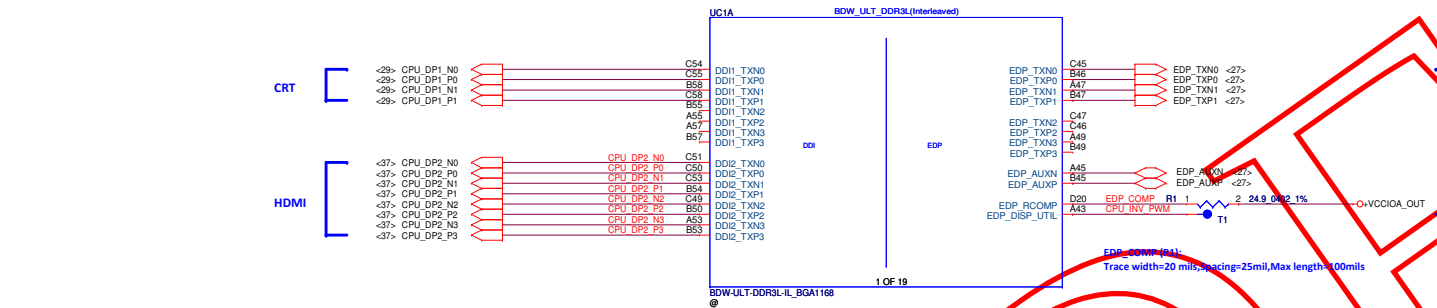
Note: 0402 1% resistors are required.

DAZ
DA600140000
PCB 14I LA-B091P REV0 M/B DIS 3
PCB_14_DIS@

DAZ
DA600140100
PCB 14K LA-B091P REV0 M/B DIS 6
PCB_15_DIS@

DAZ
DA600141000
PCB 14I LA-B092P REV0 M/B UMA 3
PCB_14_UMA@

DAZ
DA600141100
PCB 14K LA-B092P REV0 M/B UMA 6
PCB_15_UMA@



UC1I
SA00007G320
Intel Z597U 1.4G 2M D0 2c:8GA CPU
95Y1U@

UC1I
SA00007G320
i5 C IC CL0806701569500 QFAN D0 1.7G BGA
3558U@

UC1I
SA00006SL70
i5 IC CL0806701477202 QeVD D0 1.8G BGA
17_4500U@

UC1I
SA00006SM80
i5 IC CL0806701477702 SR170 D0 1.6G C38!
15_4200U@

UC1I
SA00007AM00
i5 C IC CL080670164813 QF5Y D0 1.6G BGA
QF5Y@

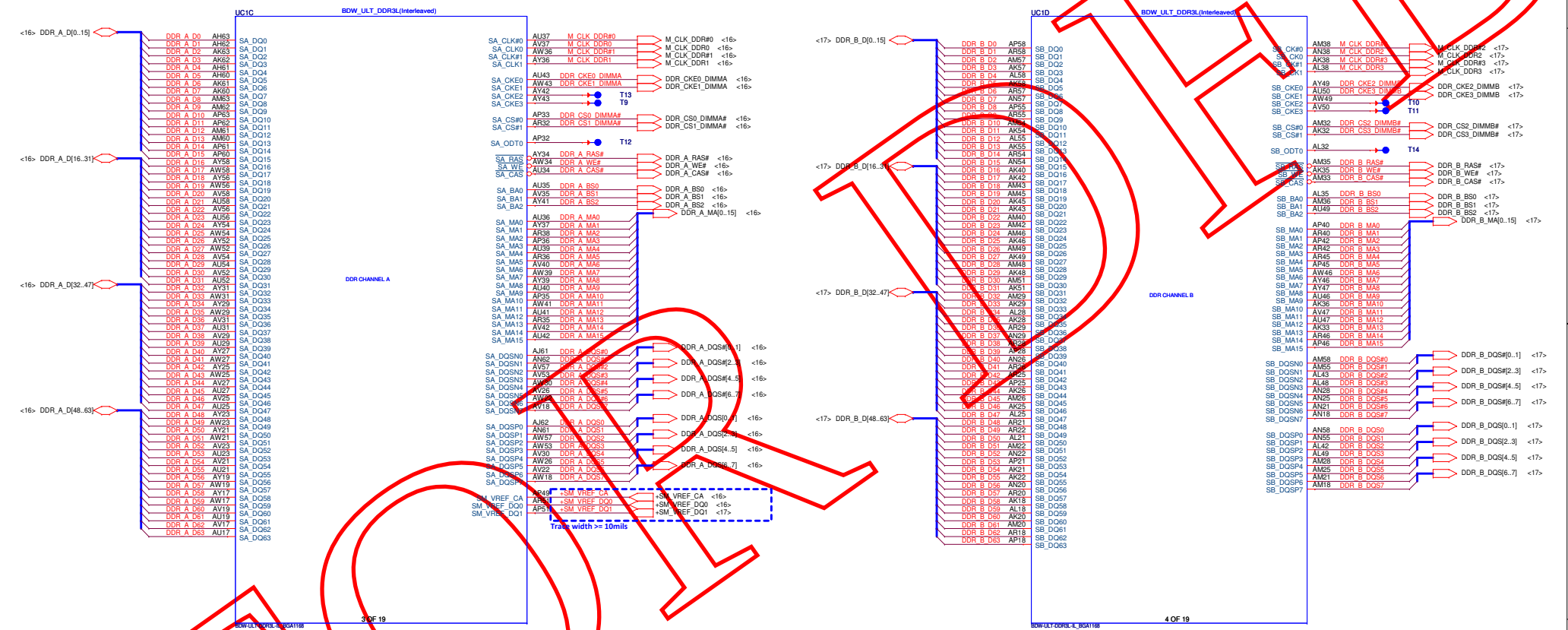
UC1I
SA00006SU50
i5 IC CL0806701476302 SR16P D0 1.8G C38!
8_4100U@

UC1I
SA00007D270
i5 IC CL0806701478404 QeAR D0 1.7G C38
8_4005U@

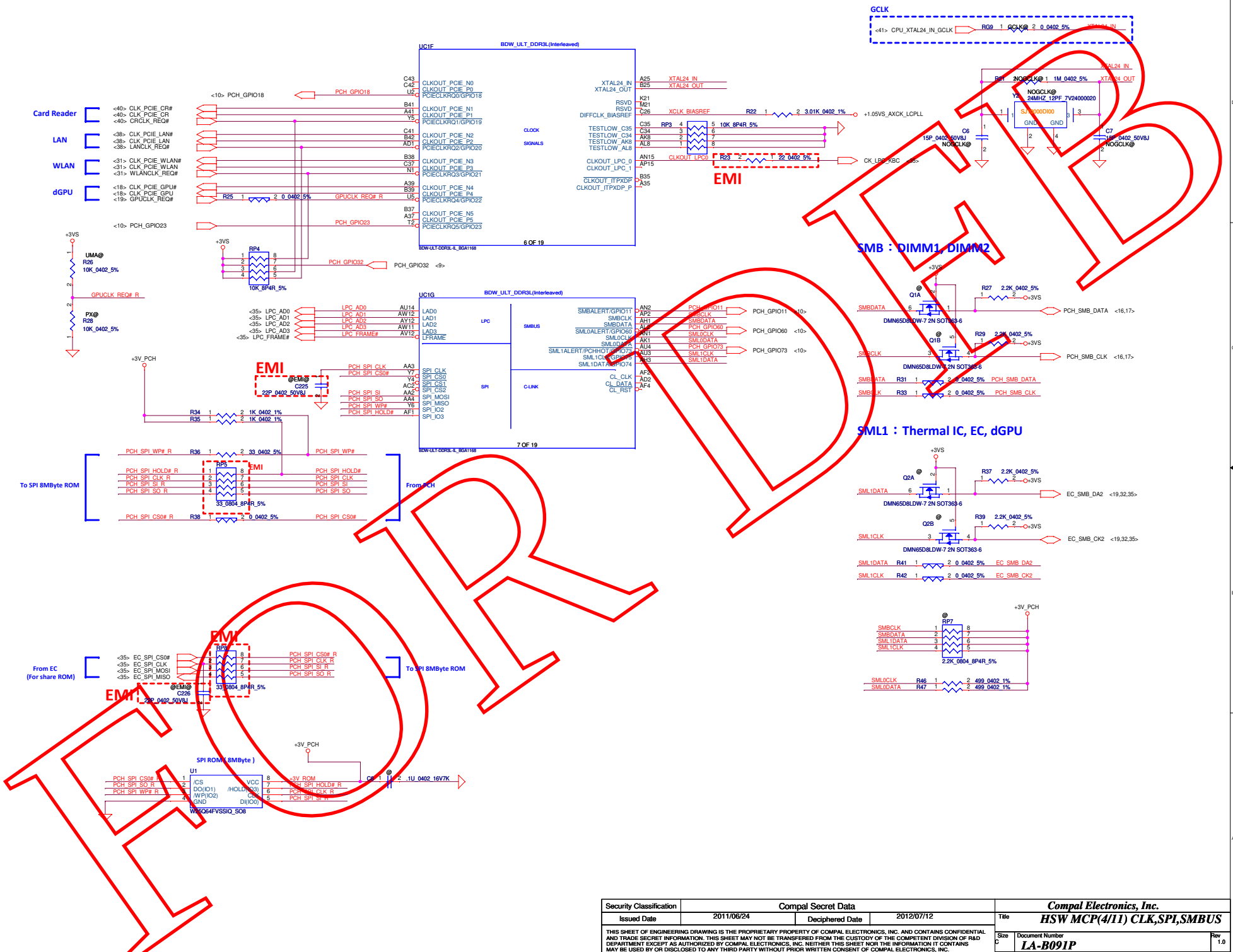
UC1I
SA00006SX80
i5 IC CL0806701478202 SR18Q D0 1.7G C38!
8_4005U@

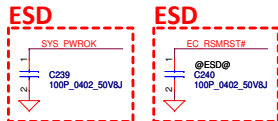
Security Classification		Compal Secret Data		Compal Electronics, Inc. HSW MCP(1/11) DDI,MSIC,XDP	
Issued Date	2011/06/24	Deciphered Date	2012/07/12	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. 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 C Document Number LA-B091P	Rev 1.0
				Date: Wednesday, February 12, 2014	Sheet 5 of 55

Interleaved Memory



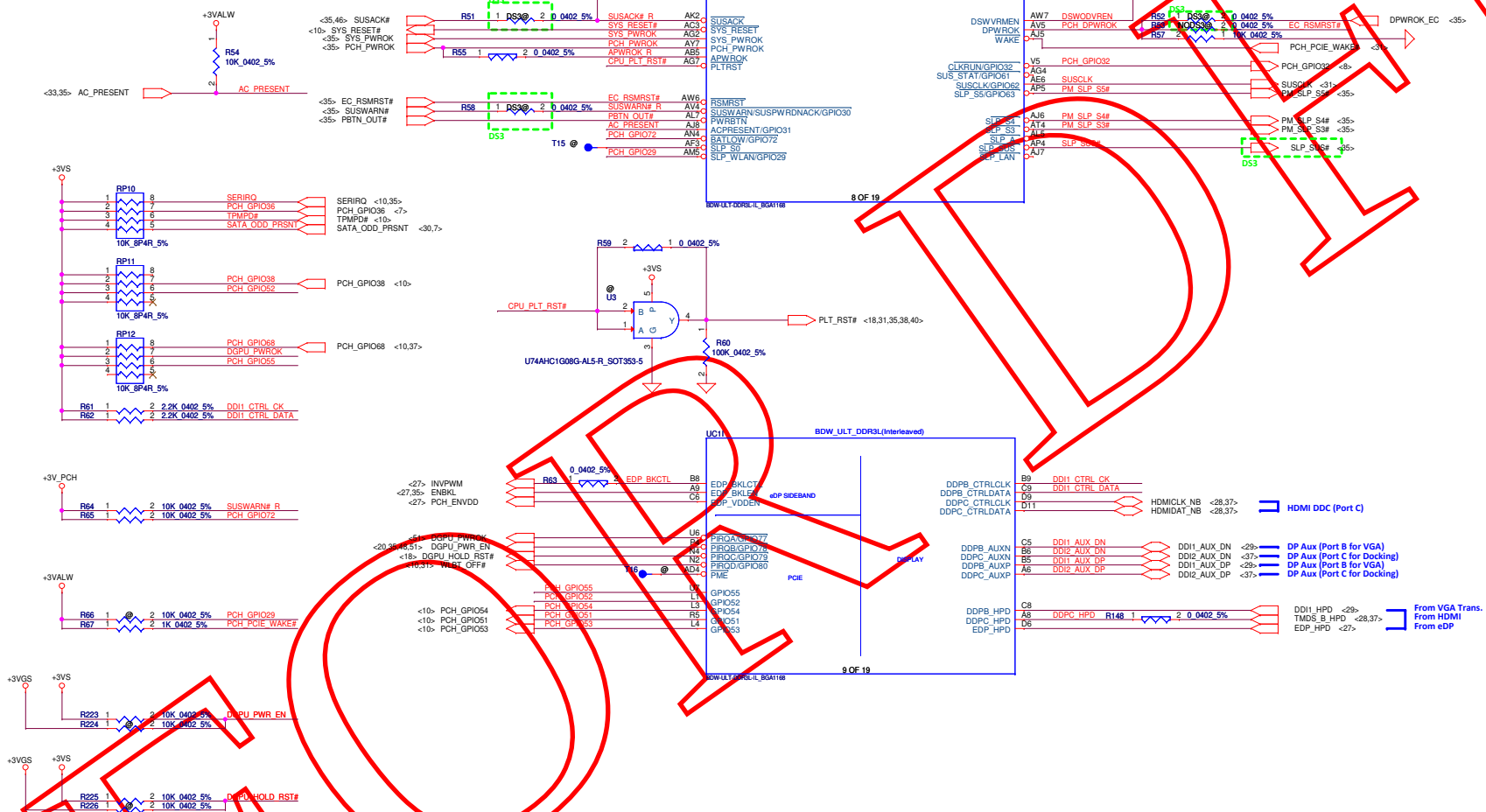
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date		Deciphered Date		Title	
2011/06/24		2012/07/12		HSW MCP(2/11) DDRIII	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS 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	
C	LA-B091P			1.0	
Date:	Wednesday, February 12, 2014		Sheet	6	of 55

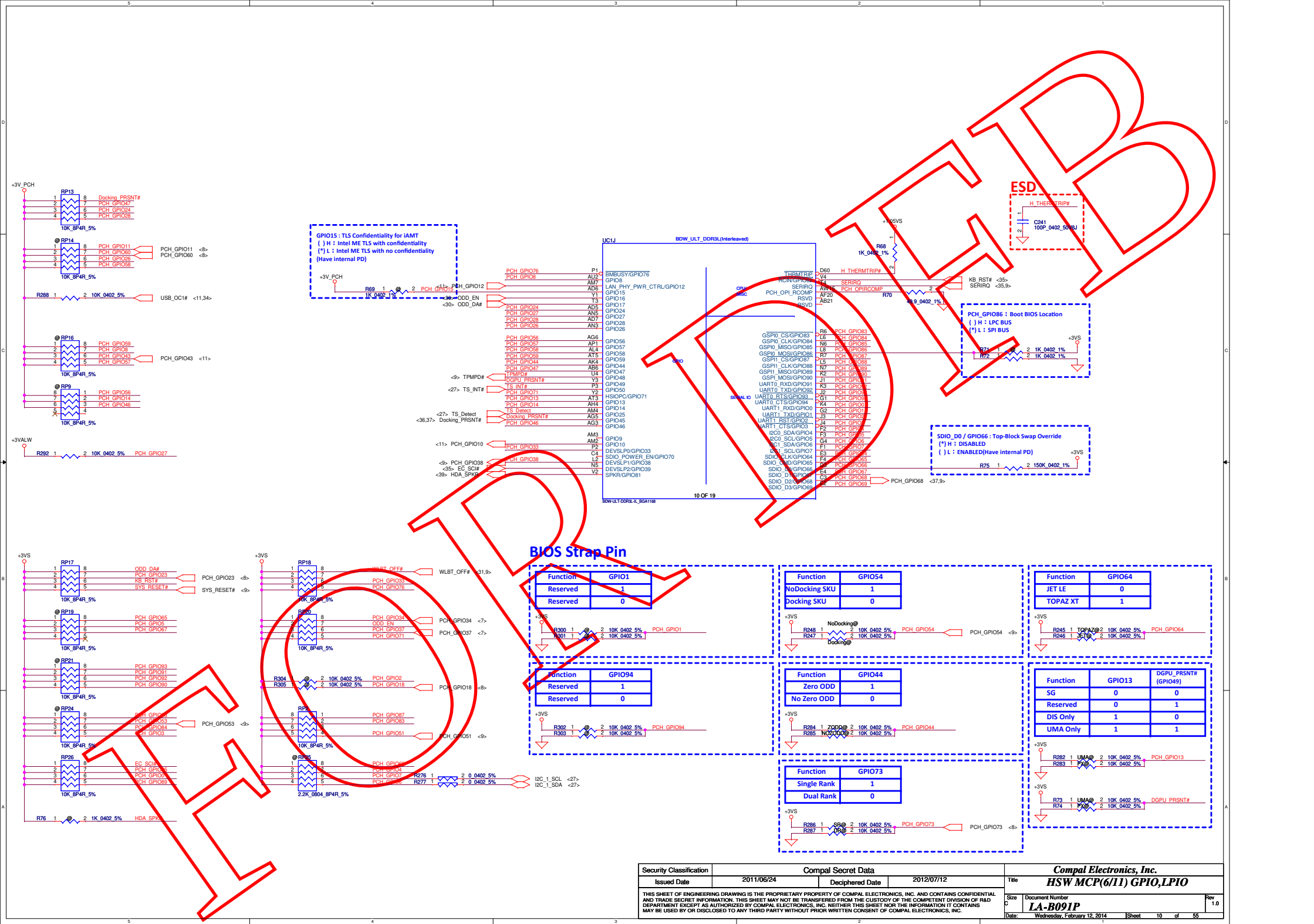


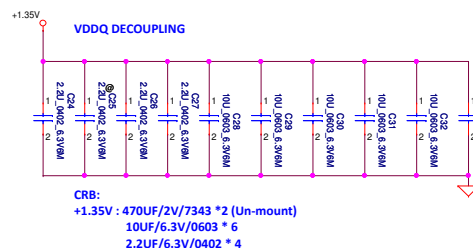
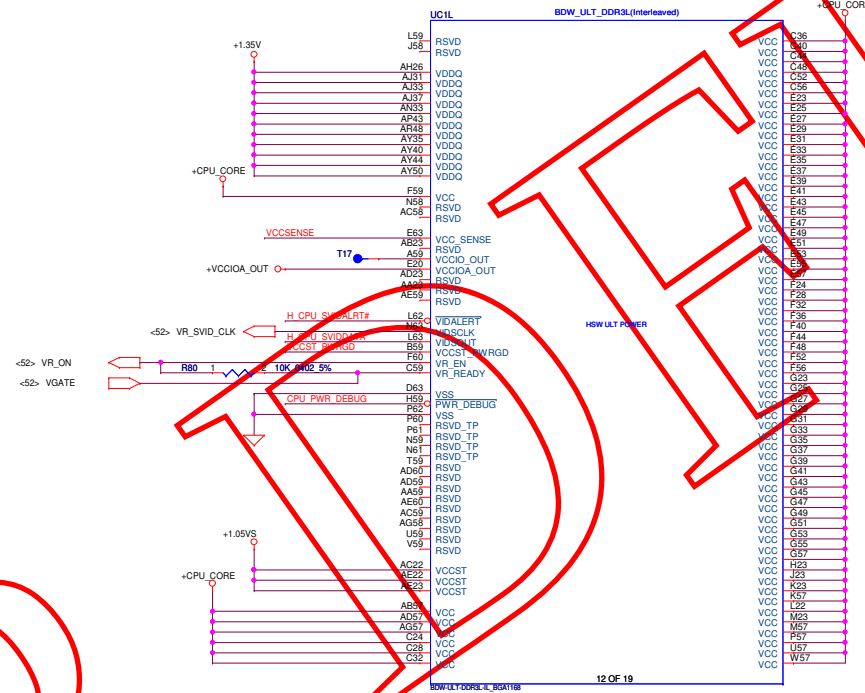
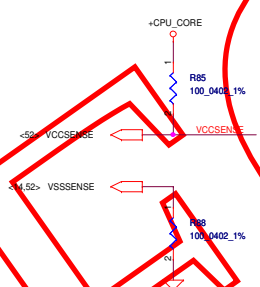
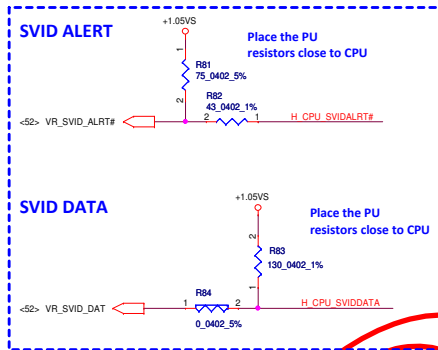
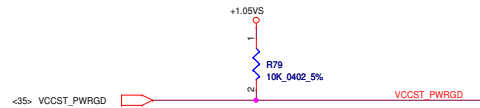


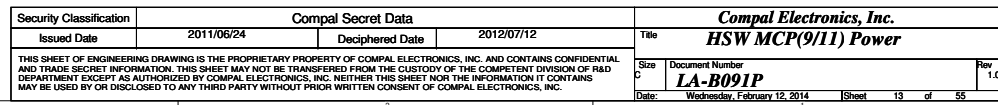
Note: SUSACK# and SUSWARN# can be tied together if EC does not want to involve in the handshake mechanism for the Deep Sleep state entry and exit
CAN be NC, if not support Deep Sx
SUSWARN# R R48 1 2 0 0402 5%

DSWDDVREN - On Die DSW VR Enable
(*) H : Enable(DEFAULT)
() L : Disable
R49 1 2 330K 0402 5%
R50 1 2 330K 0402 5%

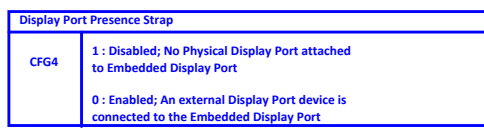
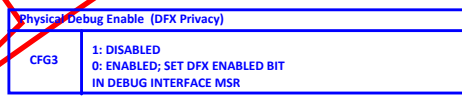
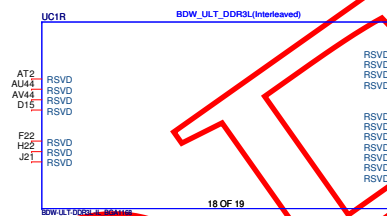


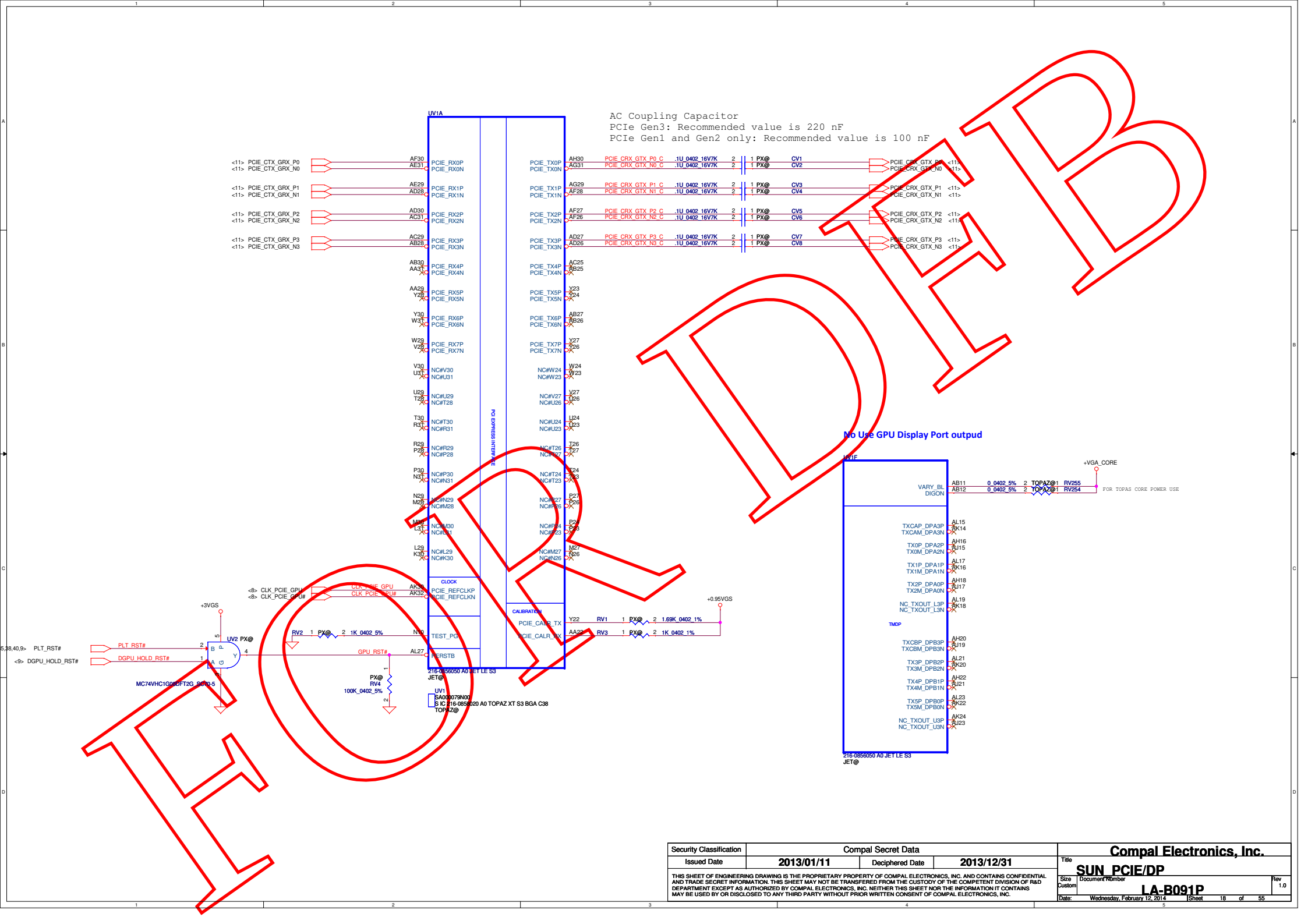








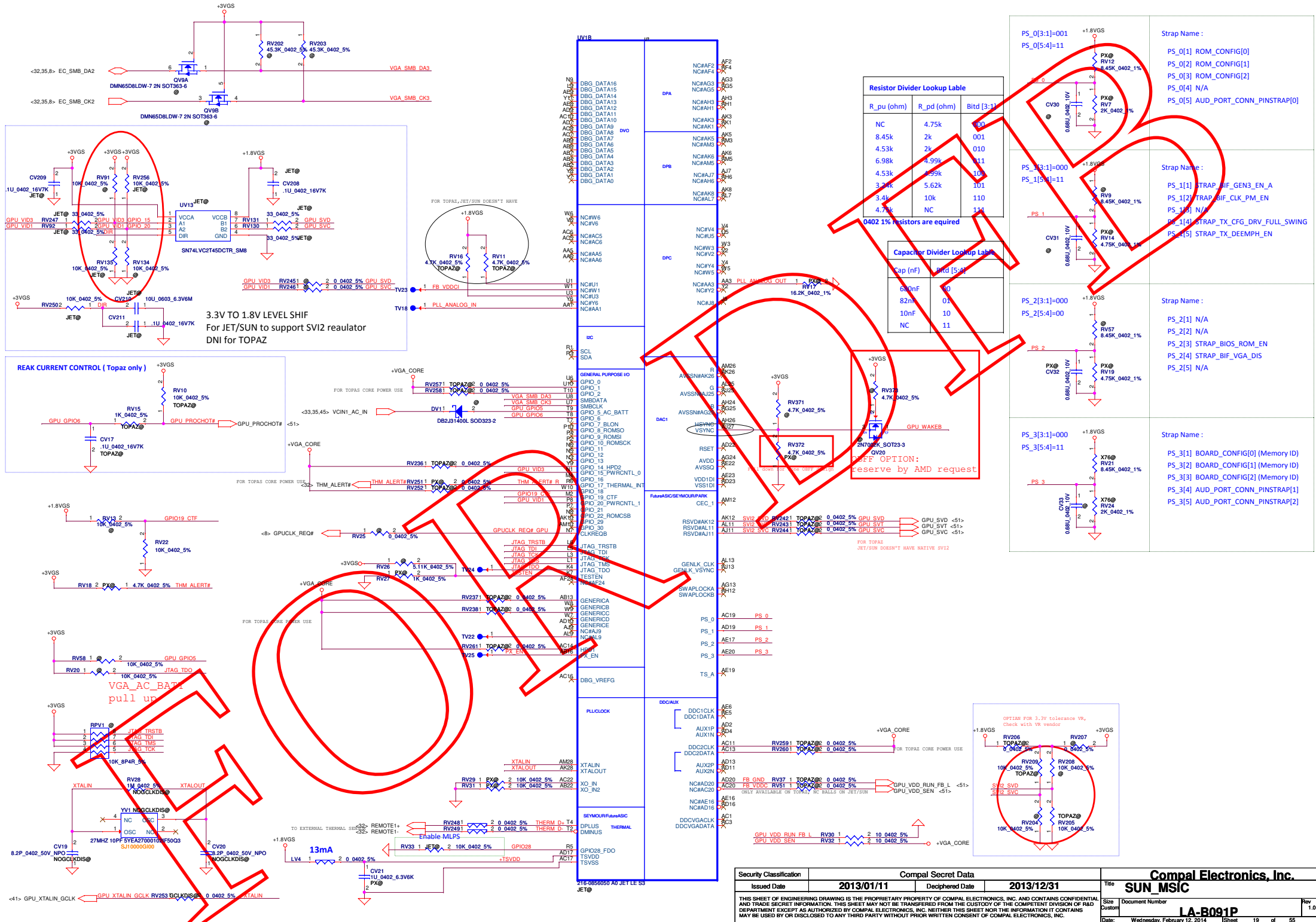




AC Coupling Capacitor
PCIe Gen3: Recommended value is 220 nF
PCIe Gen1 and Gen2 only: Recommended value is 100 nF

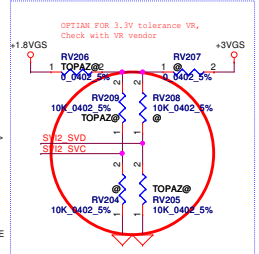
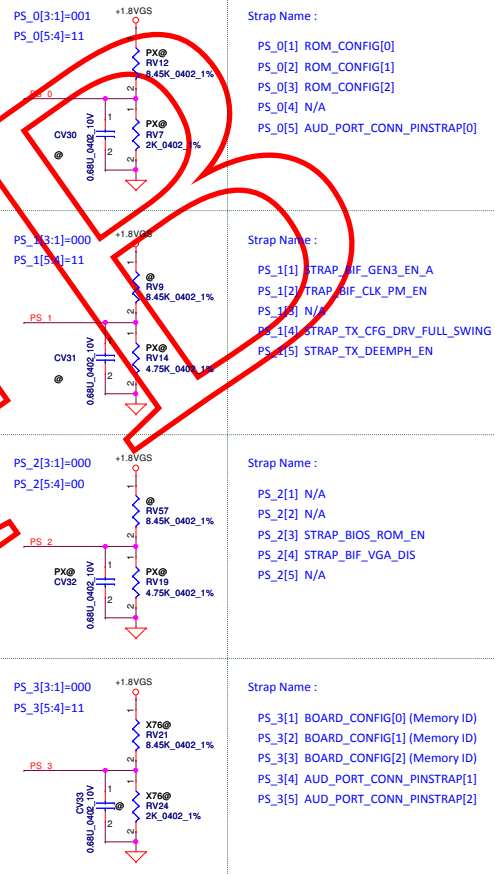
No Use GPU Display Port output

Security Classification		Compal Secret Data		Title	
Issued Date	2013/01/11	Deciphered Date	2013/12/31	SUN PCIe/DP	
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	Rev 1.0
Date: Wednesday, February 12, 2014				Sheet 18	of 55

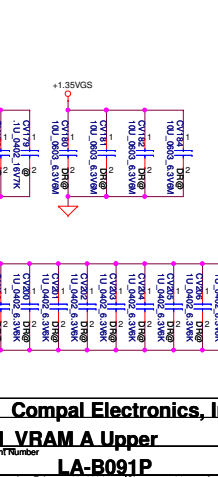
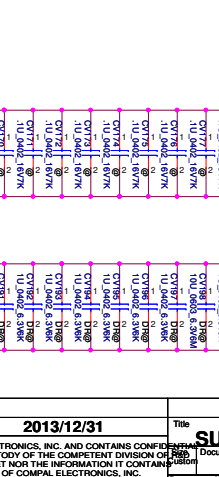
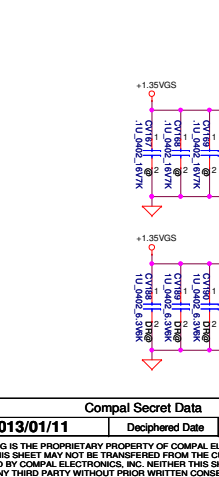
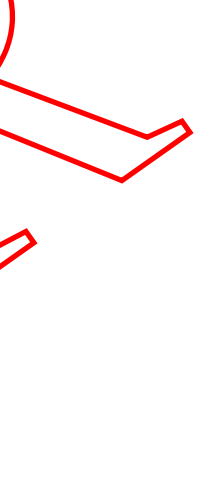
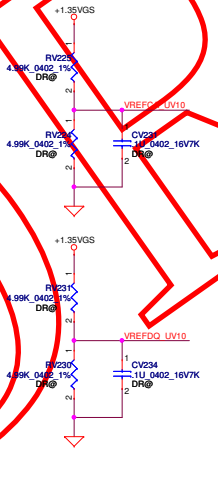
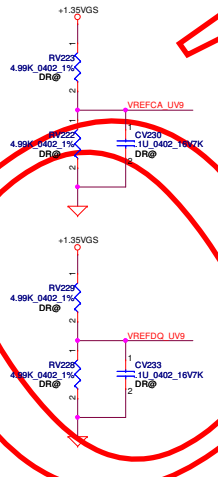
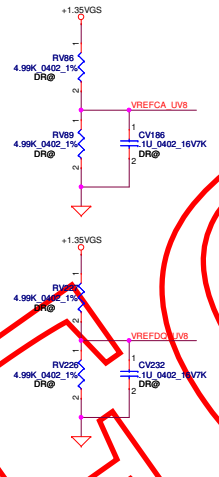
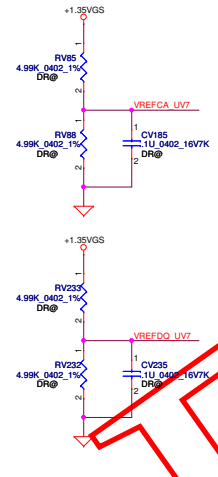
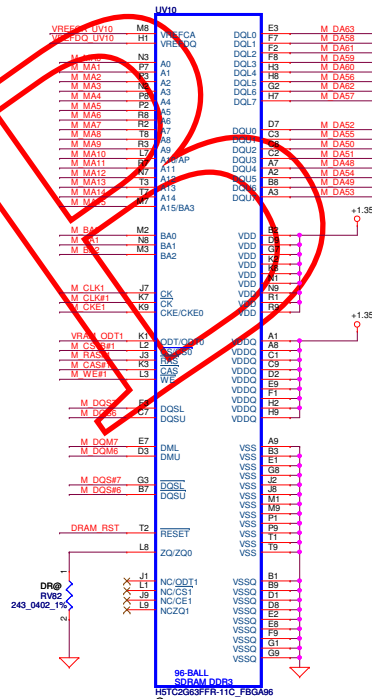
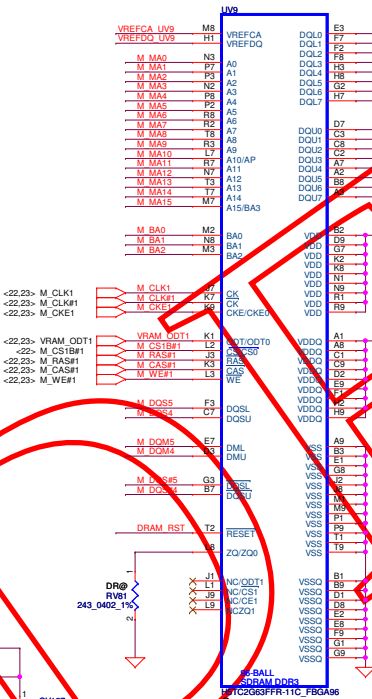
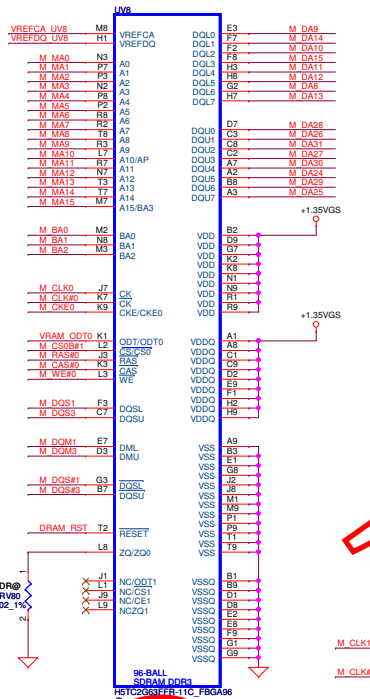
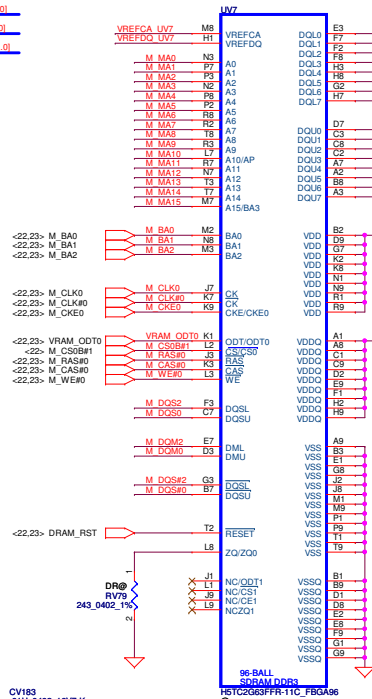


Resistor Divider Lookup Table		
R_pu (ohm)	R_pd (ohm)	Bitd [3:1]
NC	4.75k	000
8.45k	2k	001
4.53k	2k	010
6.98k	4.99k	011
4.53k	5.62k	100
3.4k	10k	101
3.4k	10k	110
4.7k	NC	111

Capacitor Divider Lookup Table	
Cap (nF)	Bitd [5:4]
680nF	00
82nF	01
10nF	10
NC	11



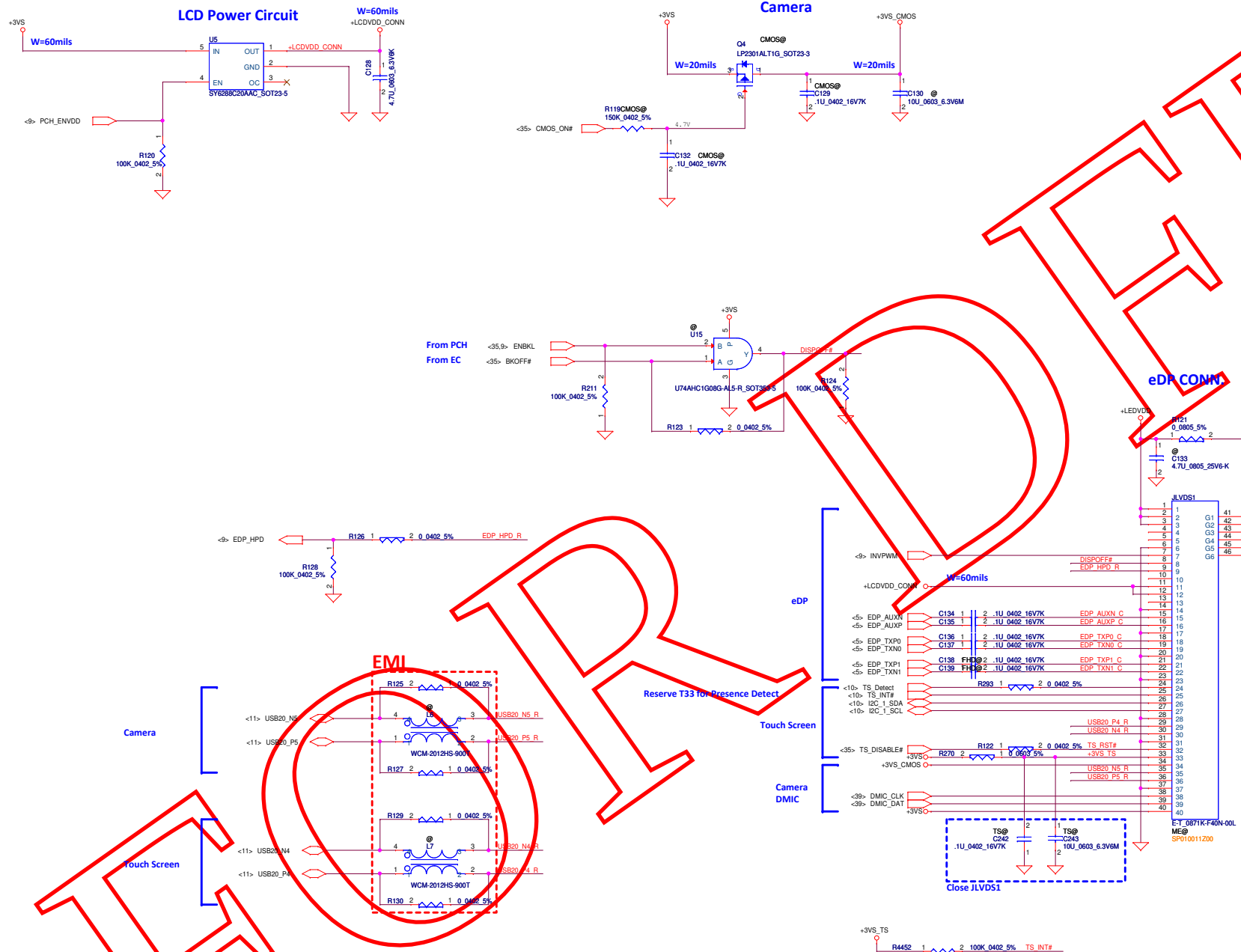
<22.23> M_DA[63..0] M_DA[63..0]
<22.23> M_MA[15..0] M_MA[15..0]
<22.23> M_DOM[7..0] M_DOM[7..0]
<22.23> M_DQS[7..0] M_DQS[7..0]
<22.23> M_DQS# [7..0] M_DQS# [7..0]

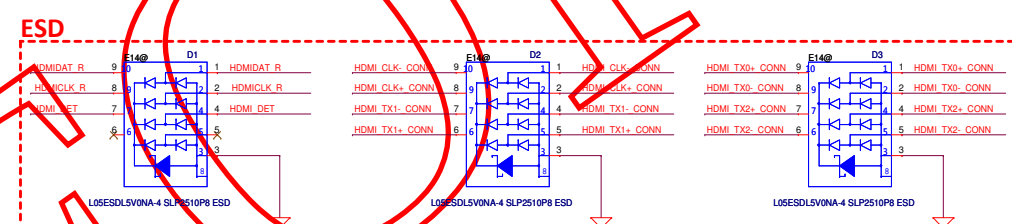
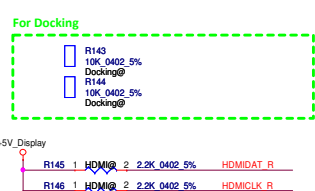
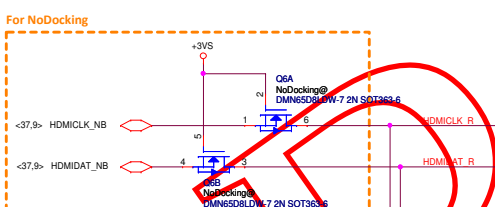
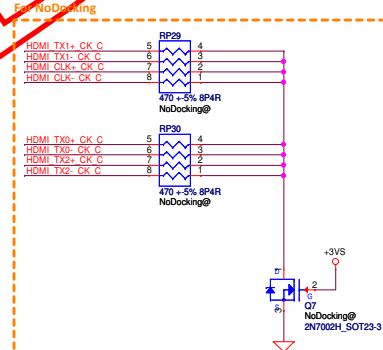
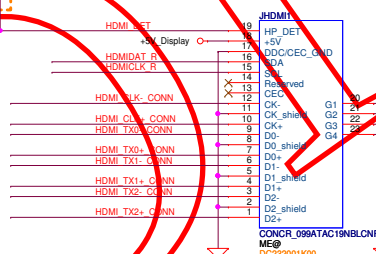
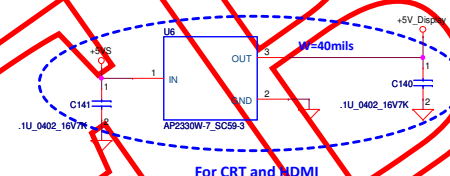
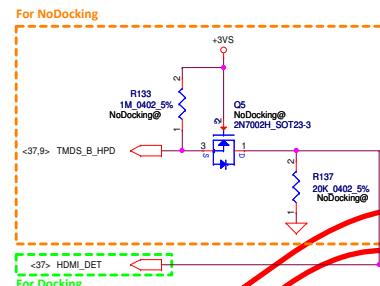
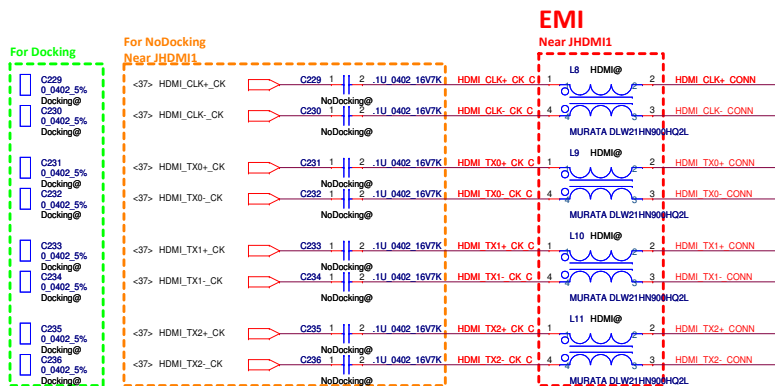


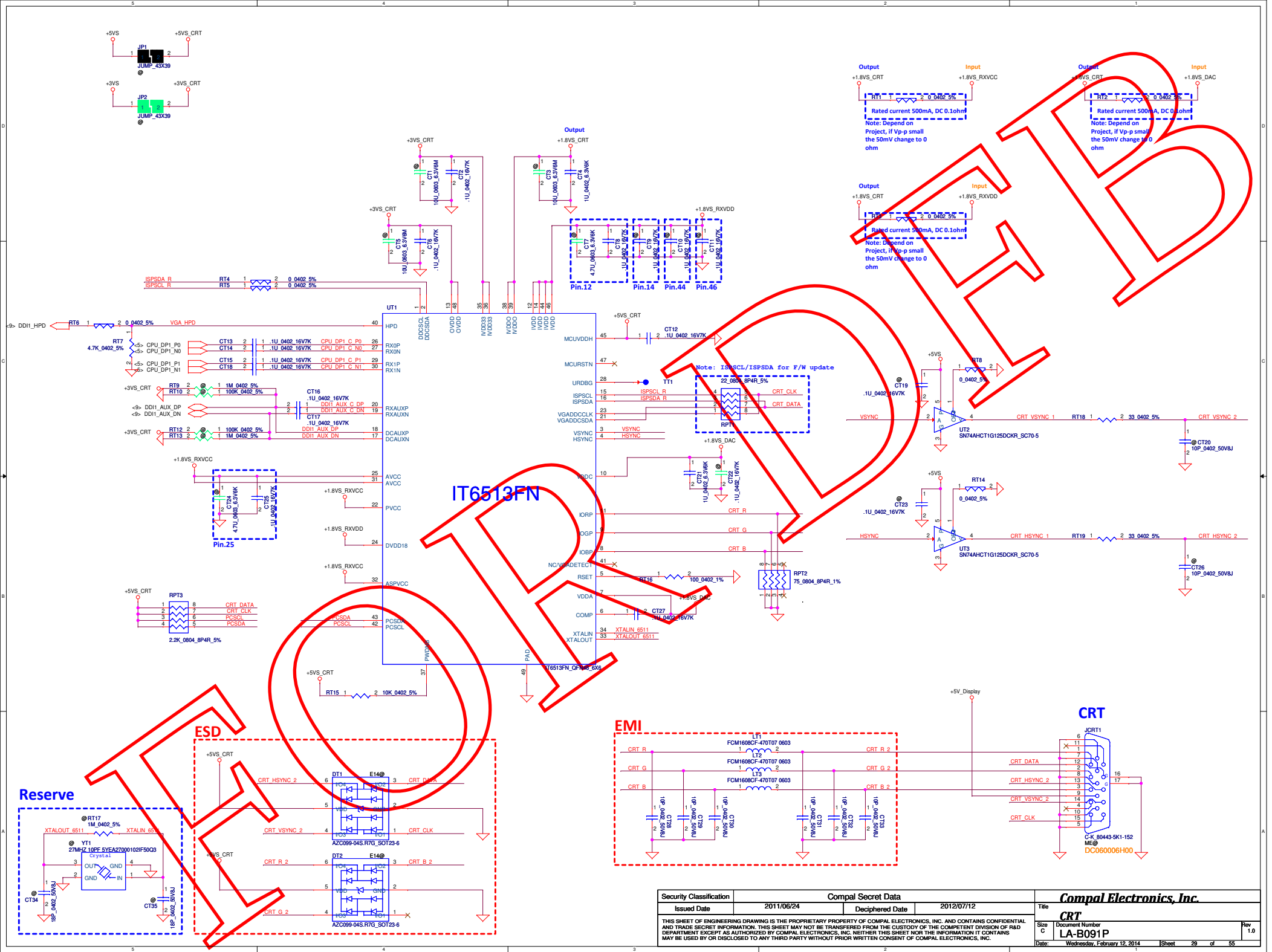
Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2013/01/11	Deciphered Date	2013/12/31	Title	SUN VRAM A Upper
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF COMPAL ELECTRONICS, INC. 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 1.0
Date	Wednesday, February 12, 2014	Sheet	24	of	55

Security Classification		Compal Secret Data		Title	
Issued Date	2013/01/11	Deciphered Date	2013/12/31	SUN VRAM A Lower	
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-B091P
Date: Wednesday, February 12, 2014				Sheet	25 of 55

Security Classification		Compal Secret Data		Title	
Issued Date	2013/01/11	Deciphered Date	2013/12/31	SUN VRAM A Upper	
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-B091P
Date: Wednesday, February 12, 2014				Sheet	26 of 55

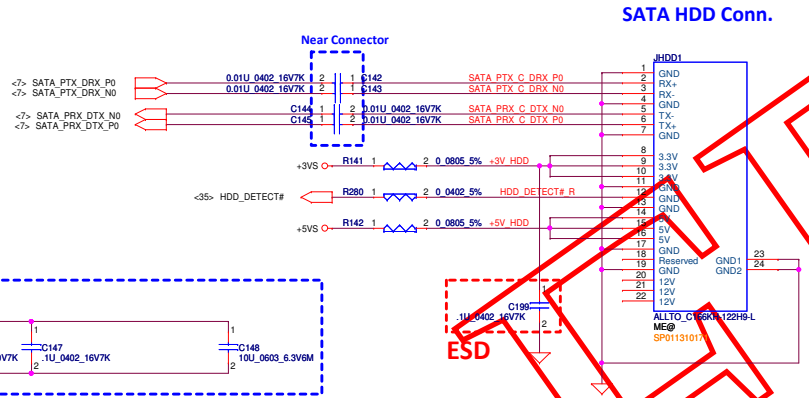






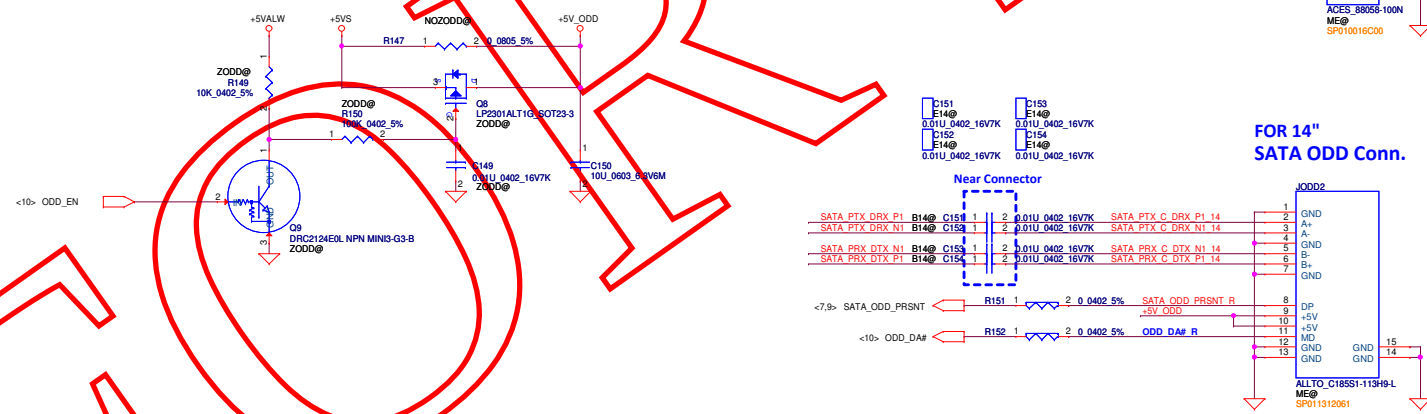
HDD

ODD

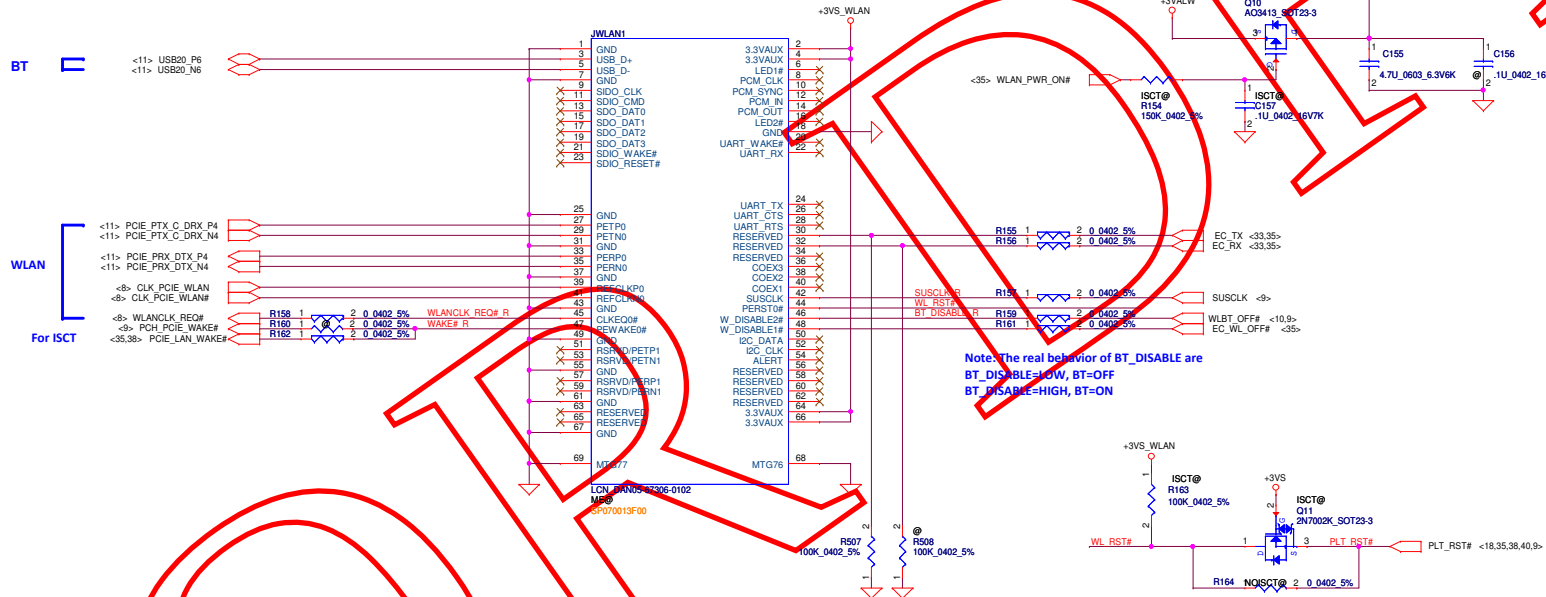


FOR 15"
SATA ODD FFC Conn.

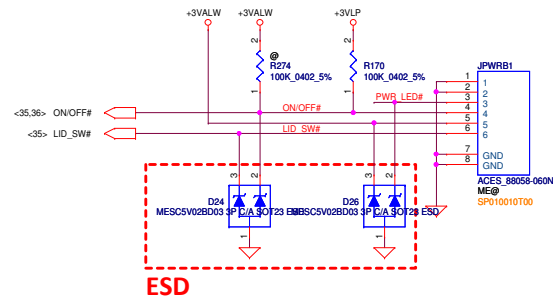
FOR 14"
SATA ODD Conn.



NGFF for WLAN / BT(Key E) Support ISCT(Intel Smart Connect Technology)

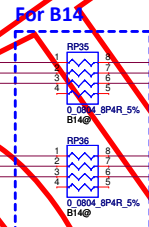


Security Classification	Compal Secret Data		Title	
Issued Date	2011/06/24	Deciphered Date	2012/07/12	Mini-Card/NEW Card/SIM
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				Rev 1.0
Date:	Wednesday, February 12, 2014	Sheet	31 of 55	LA-B091P

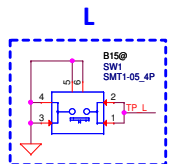


RP33
E14@
0_0804_8P4R_5%
B15@

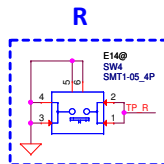
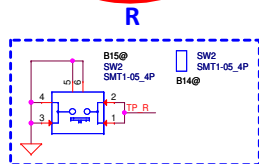
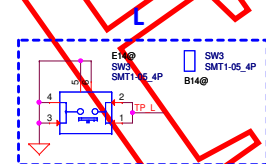
RP34
E14@
0_0804_8P4R_5%
B15@



1	1	VCC
2	2	CLK
3	3	DAT
4	4	GND
5	5	L
6	6	R



6	1	VCC	1	VCC
5	2	CLK	2	CLK
4	3	DAT	3	DAT
3	4	GND	4	L
2	5	L	5	R
1	6	R	6	GND

[illegible][illegible]

Battery (Amber)
(B14/B15/E14)

Battery (Green)
(B14/B15/E14)

HDD (Green)
(B14/B15/E14)

3VLP

R20 1 2 0.0402 5%

DC LED Power

<36> DC_LED

JULED1

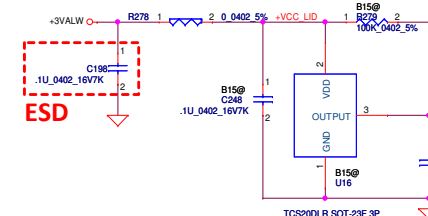
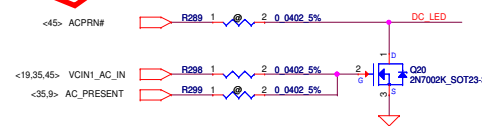
1 2 3 4 5

G1 G2

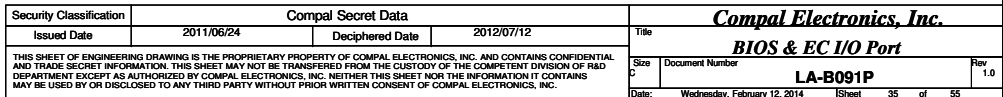
5V

JULED1

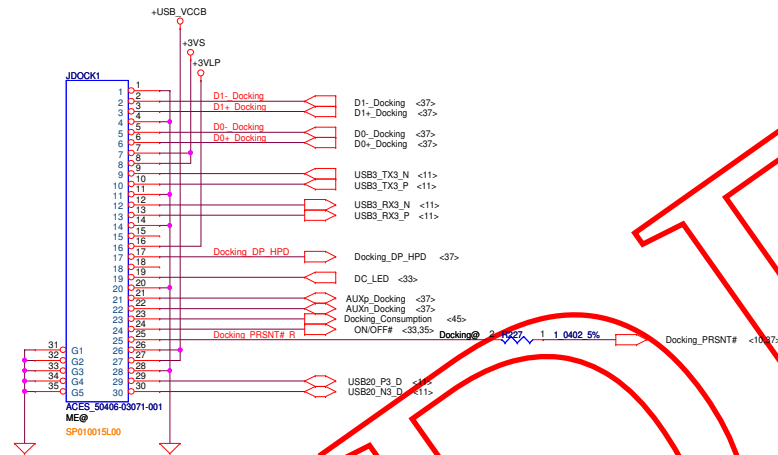
ME@ SP0100 L1100



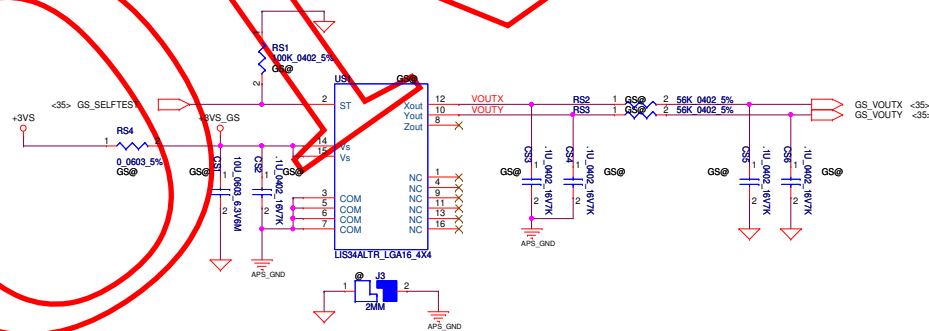
Security Classification	Compal Secret Data			Compal Electronics, Inc. ROM/KB/PWR/CR/LED/TP Conn.		
Issued Date	2011/06/24	Deciphered Date	2012/07/12	Title		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. 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
					LA-B091P	1.0
				Date	Friday, February 14, 2014	16:42



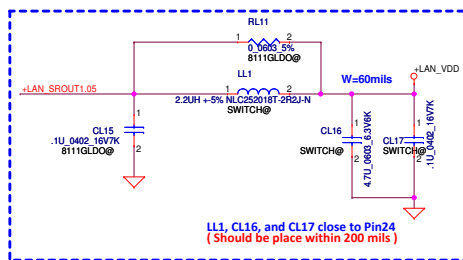
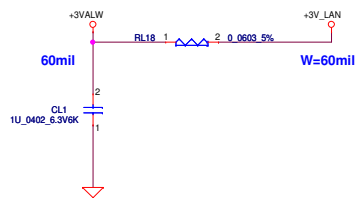
To Docking BD



APS (G-Sensor)



Security Classification	Compal Secret Data			Compal Electronics, Inc. Title Docking Size C Document Number LA-B091P Rev 1.0		
Issued Date	2011/06/24	Deciphered Date	2012/07/12	Date: Wednesday, February 12, 2014 Sheet 36 of 55		
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.						

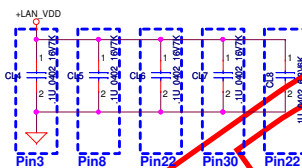
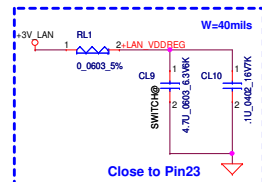
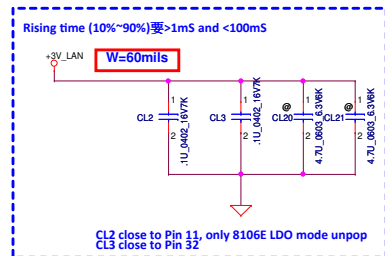


SA00005V700

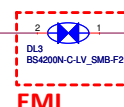
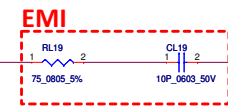
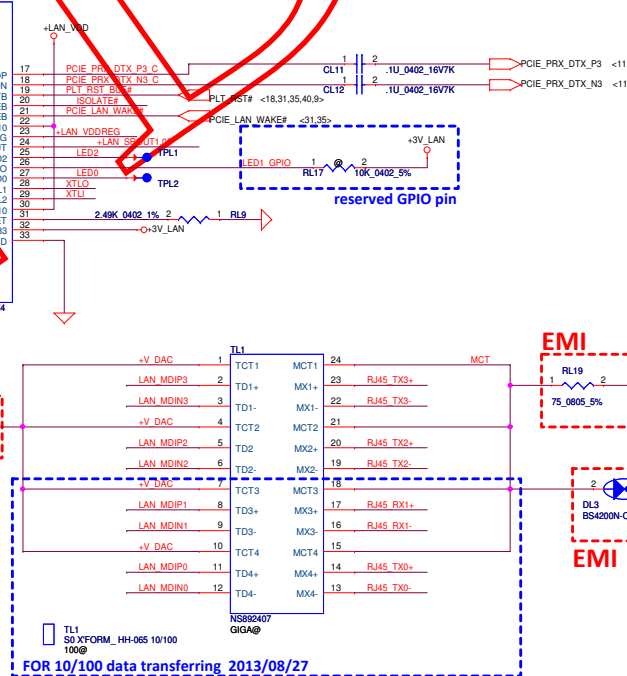
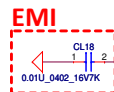
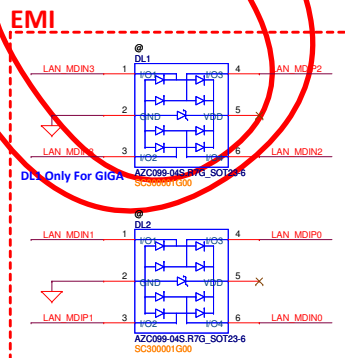
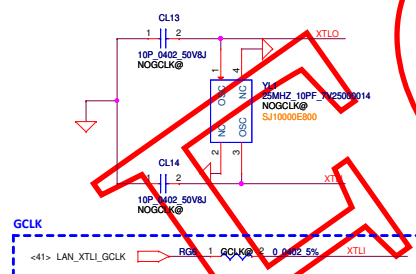
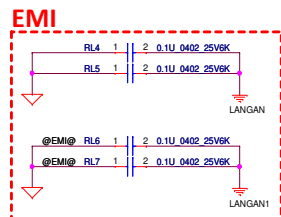
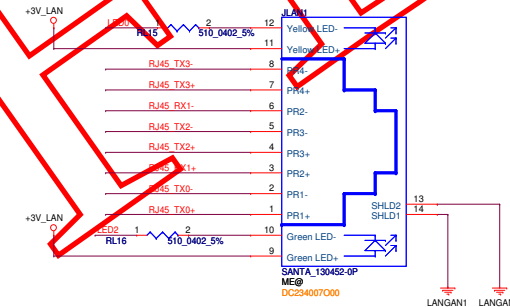
SA000005Y00

	1.0 V source	LL1	CL16, CL17	CL9, CL10	RL11	CL15
RTL8111G	LDO	X	X	X	O	O
RTL8111G	External	X	X	X	X	O
RTL8111GS/ RTL8111GUS/ RTL8106EUS	SWR	O	O	O	X	X
RTL8106E	LDO	X	X	X	X	X

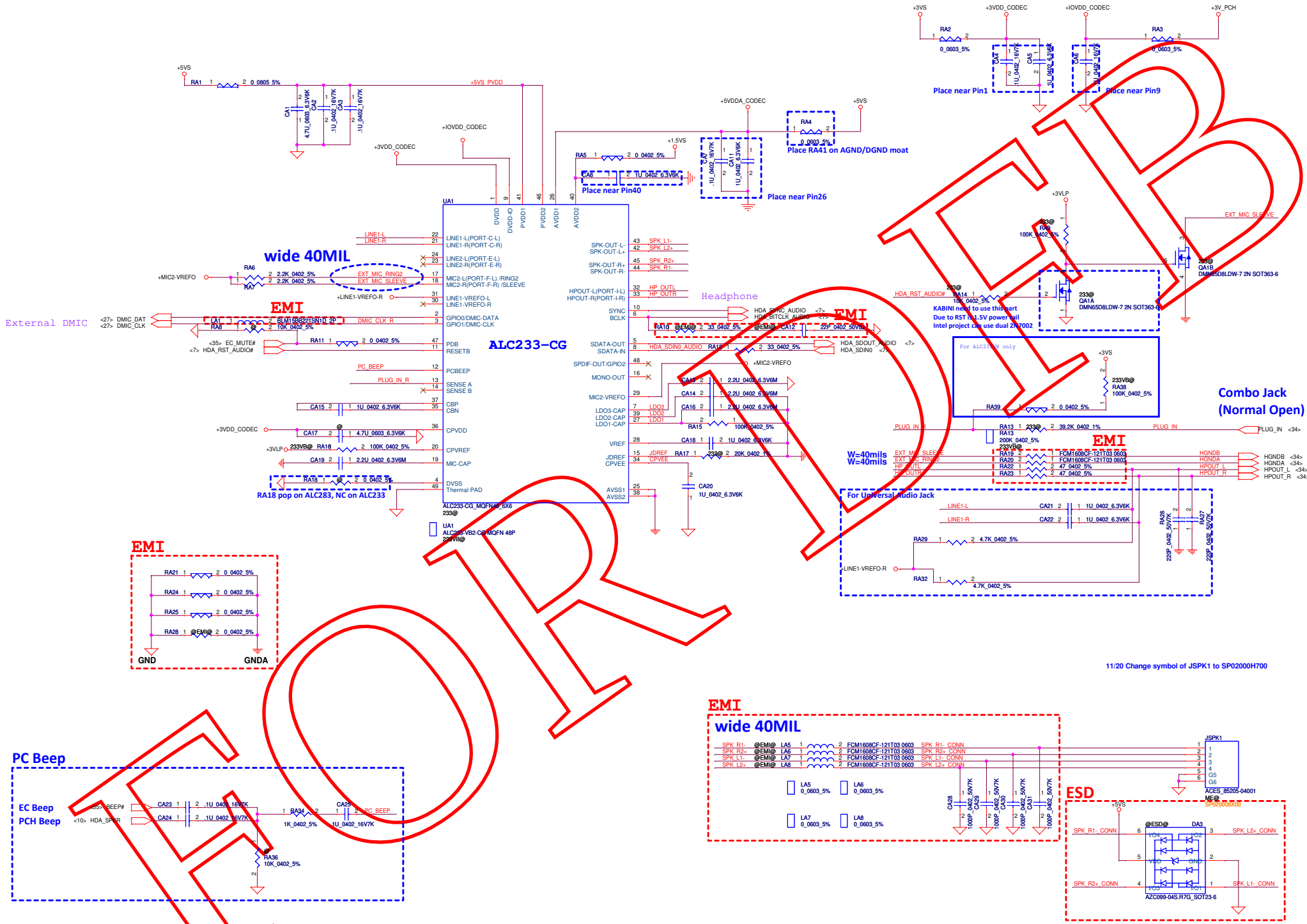
Please refer to the table above when using different 1.0V supply source.
For RTL8111GS, RTL8111GUS, RTL8106E and RTL8106EUS, External 1.0V Supply Is Not Permitted.



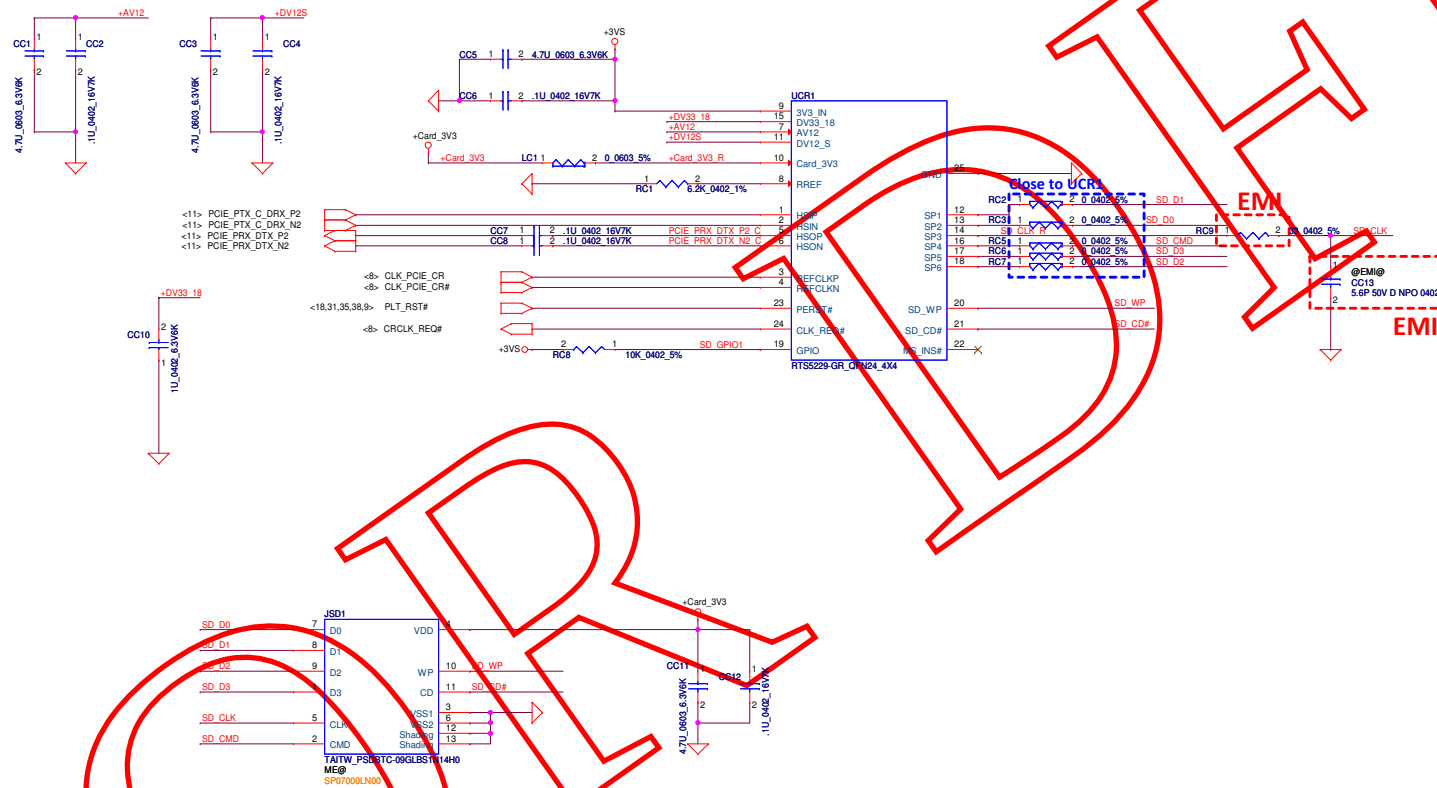
RJ-45 CONN.



Security Classification	Compal Secret Data	Compal Electronics, Inc.
Issued Date	2011/06/24	Deciphered Date
2012/07/12		
Size	Document Number	Rev
C	LA-B091P	1.0
Date	Wednesday, February 12, 2014	Sheet 38 of 55

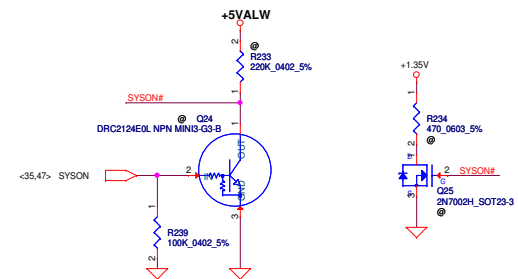
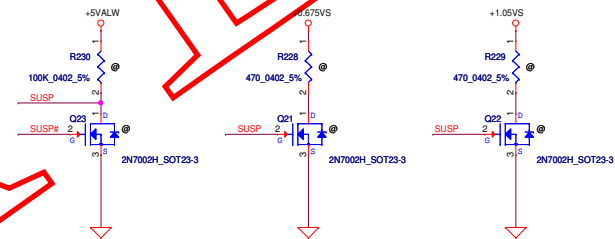
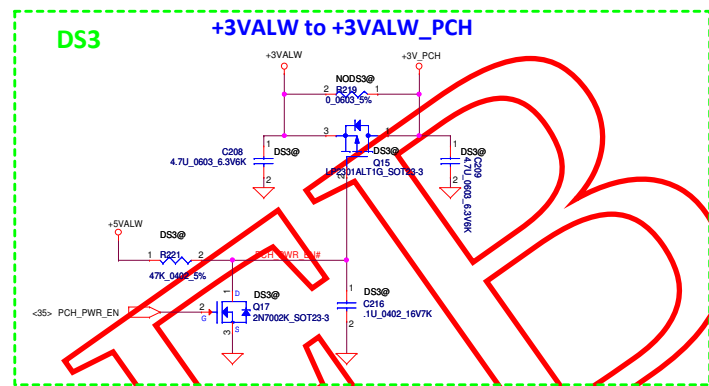
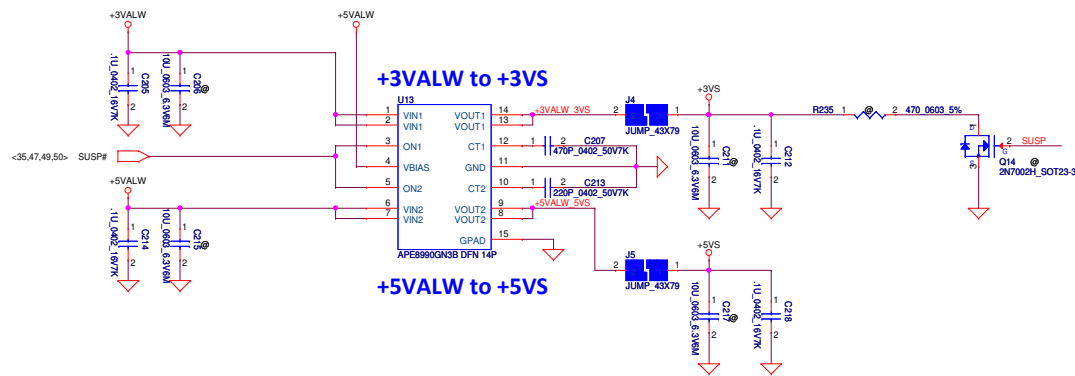


Security Classification		Compal Secret Data		Compal Electronics, Inc.			
Issued Date		2011/06/24	Deciphered Date	2012/07/12	Title		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.					HD Audio Codec ALC3225		
					Size	Document Number	Rev
					C	LA-B091P	1.0
					Date:	Wednesday, February 12, 2014	Sheet

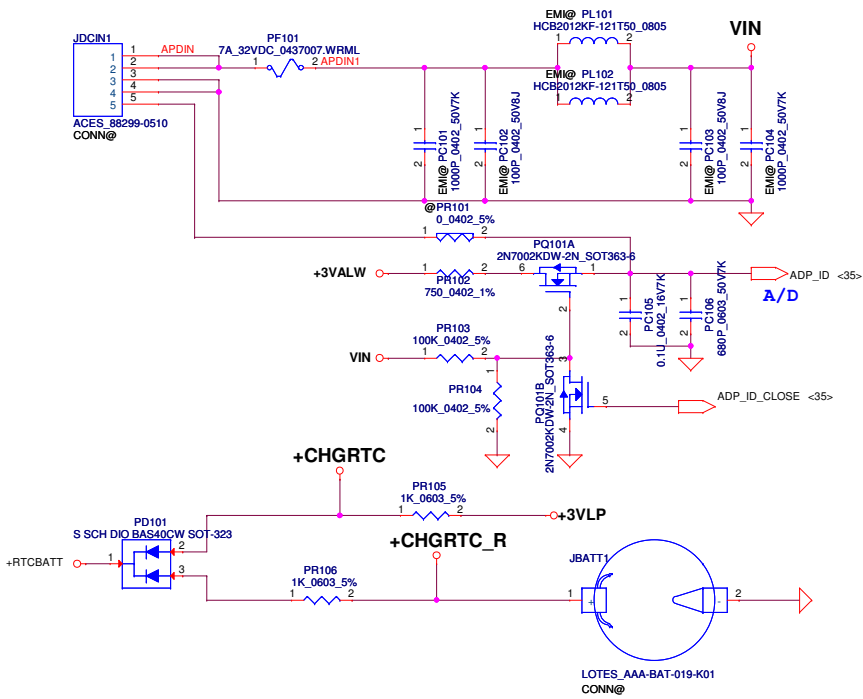


Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2011/06/24	Deciphered Date	2012/07/12	Title	P24-CardRead/RTS5229
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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.					Rev 1.0
Size	Document Number	Date			Sheet
C	LA-B091P	Wednesday, February 12, 2014			40 of 55

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2011/06/24	Deciphered Date	2012/07/12	Title	GCLK
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size	Document Number
				Date	Wednesday, February 12, 2014
				Sheet	41 of 55
				Rev	1.0



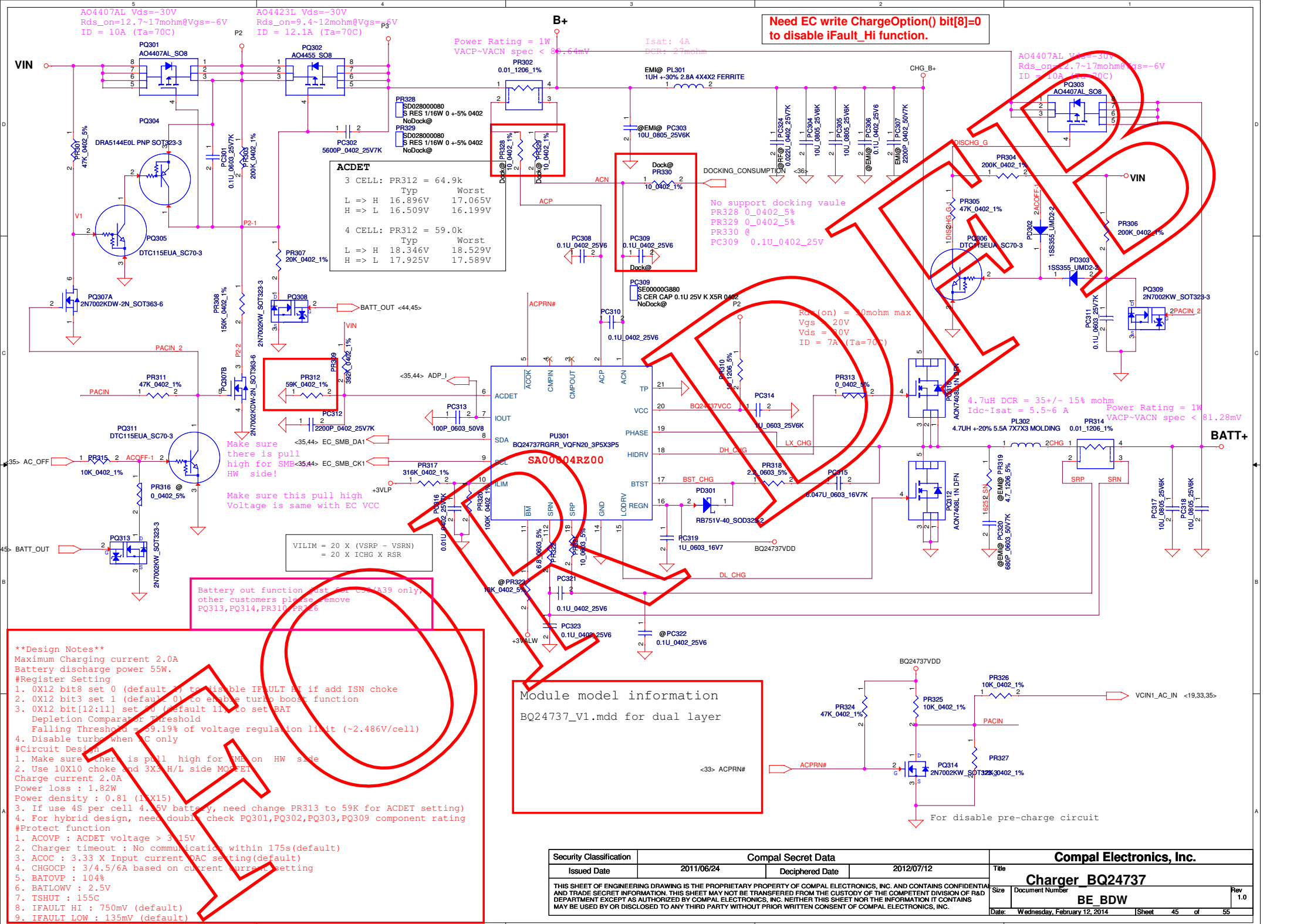
Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2011/06/24	Deciphered Date	2012/07/12	Title
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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 Interface
Size	C	Document Number	LA-B091P	Rev
Date:	Wednesday, February 12, 2014	Sheet	42	of 55



ADP_ID	AC Adapter	90W	65W
R(K ohm)	open	10	
ADP_ID(V)	3.3	1.65	
Detection voltage	>2.64	1.32~1.98	

RTC Battery

Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2011/06/24	Deciphered Date	2012/07/12	Title	PWR 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 P&E 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	BE BDW
				Date	Wednesday, February 12, 2014
				Sheet	43 of 55
				Rev	1.0



SY8208B_V2.mdd

Change 3V5V_EN to 3VALW_EN

TDC=6A

TDC=6A

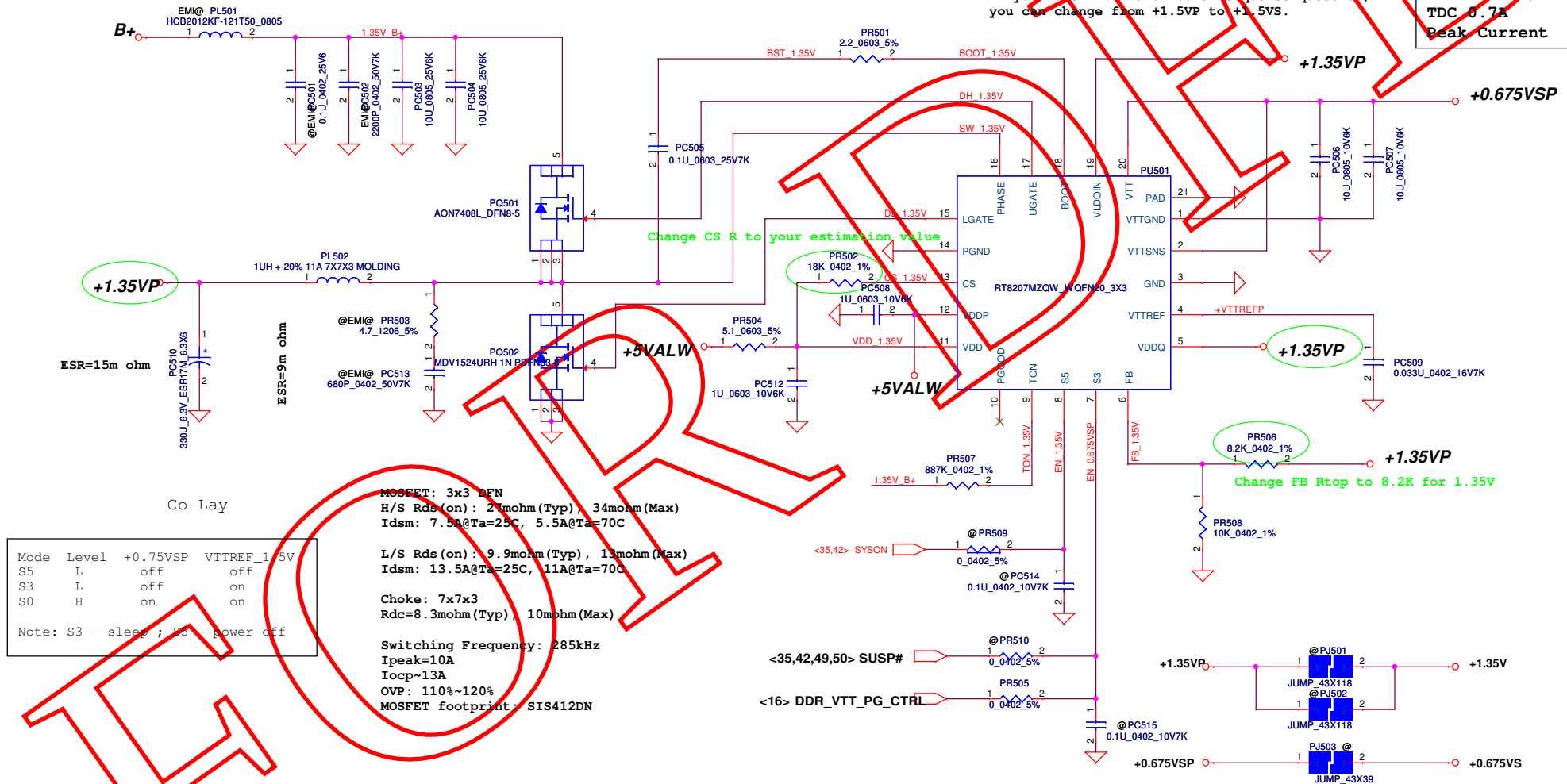
SY8208C_V2.mdd

Security Classification	Compal Secret Data			<i>Compal Electronics, Inc.</i> +3VALW/+5VALW		
Issued Date	2011/06/24	Deciphered Date	2012/07/12	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 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	BE BDW	Rev 1.0
				Customer		
				Date:	Wednesday, February 12, 2014	Sheet 46 of 55

RT8207M_V1.mdd	For Single layer
RT8207M_V2.mdd	For Dual layer

Pin19 need pull separate from +1.5VP.
If you have +1.5V and +0.75V sequence question,
you can change from +1.5VP to +1.5VS.

~~0.75Volt +/- 5%~~
~~TDC 0.7A~~
~~Peak Current 1A~~



```
Mode  Level  +0.75VSP  VTTREF_1/5V
S5    L      off      off
S3    L      off      on
S0    H      on       on

Note: S3 - sleep ; S5 - power off
```

~~MOSFET: 3x3 DFN
H/S Rds(on) : 27mohm(Typ), 34mohm(Max)
Idsm: 7.5A@Ta=25C, 5.5A@Ta=70C~~

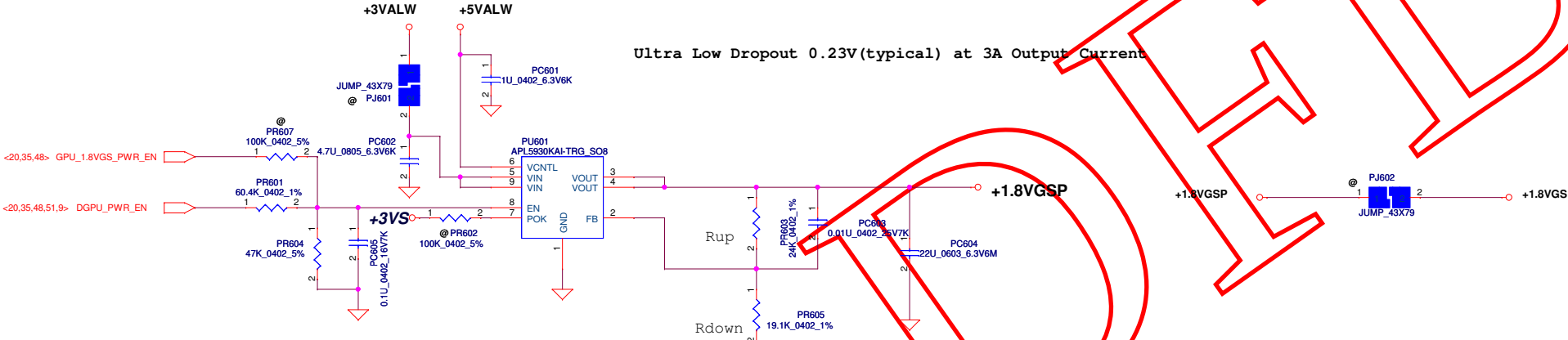
~~L/S Rds (on) : 9.9mohm (Typ) , 13mohm (Max)~~
~~Idsm: 13.5A@Ta=25C, 11A@Ta=70C~~

Choke: 7x7x3
Rdc=8.3mohm (Typ) , 10mohm (Max)

Switching Frequency: 285kHz
Ipeak=10A
Iocp~13A
OVP: 110%~120%
MOSFET footprint: SIS412DN

Security Classification	Compal Secret Data			<i>Compal Electronics, Inc.</i>		
Issued Date	2011/06/24	Deciphered Date	2012/07/12	RT8207M		
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
				Custom	BE BDW	1.0
				Date:	Wednesday, February 12, 2014	Sheet 47 of 55

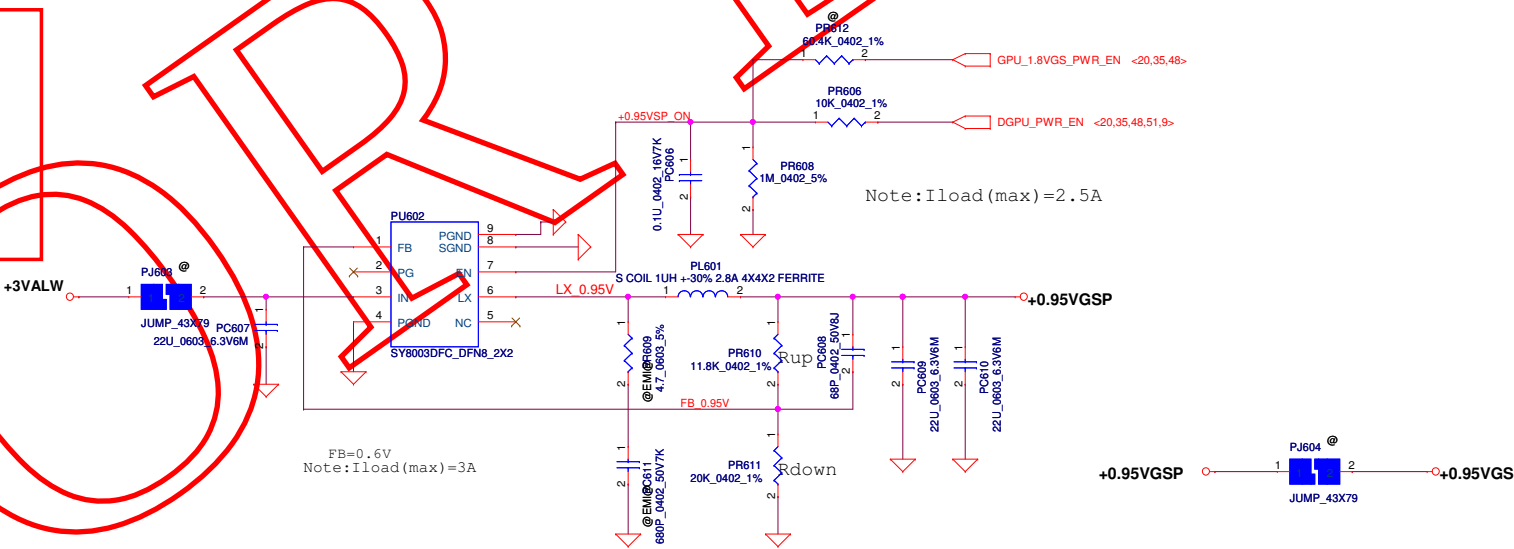
Module model information
APL5930_V1.mdd



Ultra Low Dropout 0.23V(typical) at 3A Output Current

$$V_{out} = 0.8V * (1 + R_{up}/R_{down})$$

Module model information
SY8003_V1.mdd



Note: Iload(max) = 2.5A

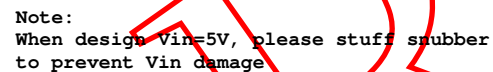
FB=0.6V
Note: Iload(max) = 3A

Note:
When design Vin=5V, please stuff snubber
to prevent Vin damage

$$V_{out} = 0.6V * (1 + R_{up}/R_{down})$$

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2011/06/24	Deciphered Date	2012/07/12	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
				BE_BDW	
				Date:	Wednesday, February 12, 2014
				Sheet	48 of 55

SY8003_V1.mdd



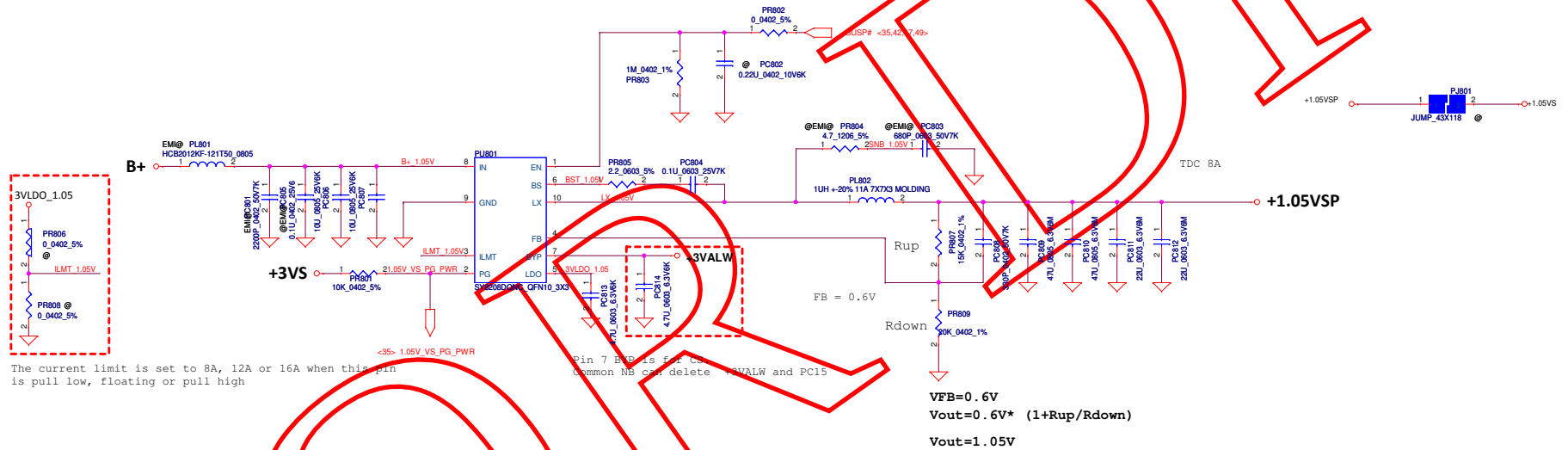
$$V_{out} = 0.6V * (1 + R_{up}/R_{down})$$

Security Classification		Compal Secret Data				Compal Electronics, Inc.						
Issued Date		2011/06/24		Deciphered Date		2012/07/12		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.								+1.5VS				
								Size	Document Number	BE_BDW		Rev
								Custom			1.0	
Date:								Wednesday, February 12, 2014	Sheet	49 of 55		

Module model information

SY8208D_V1.mdd

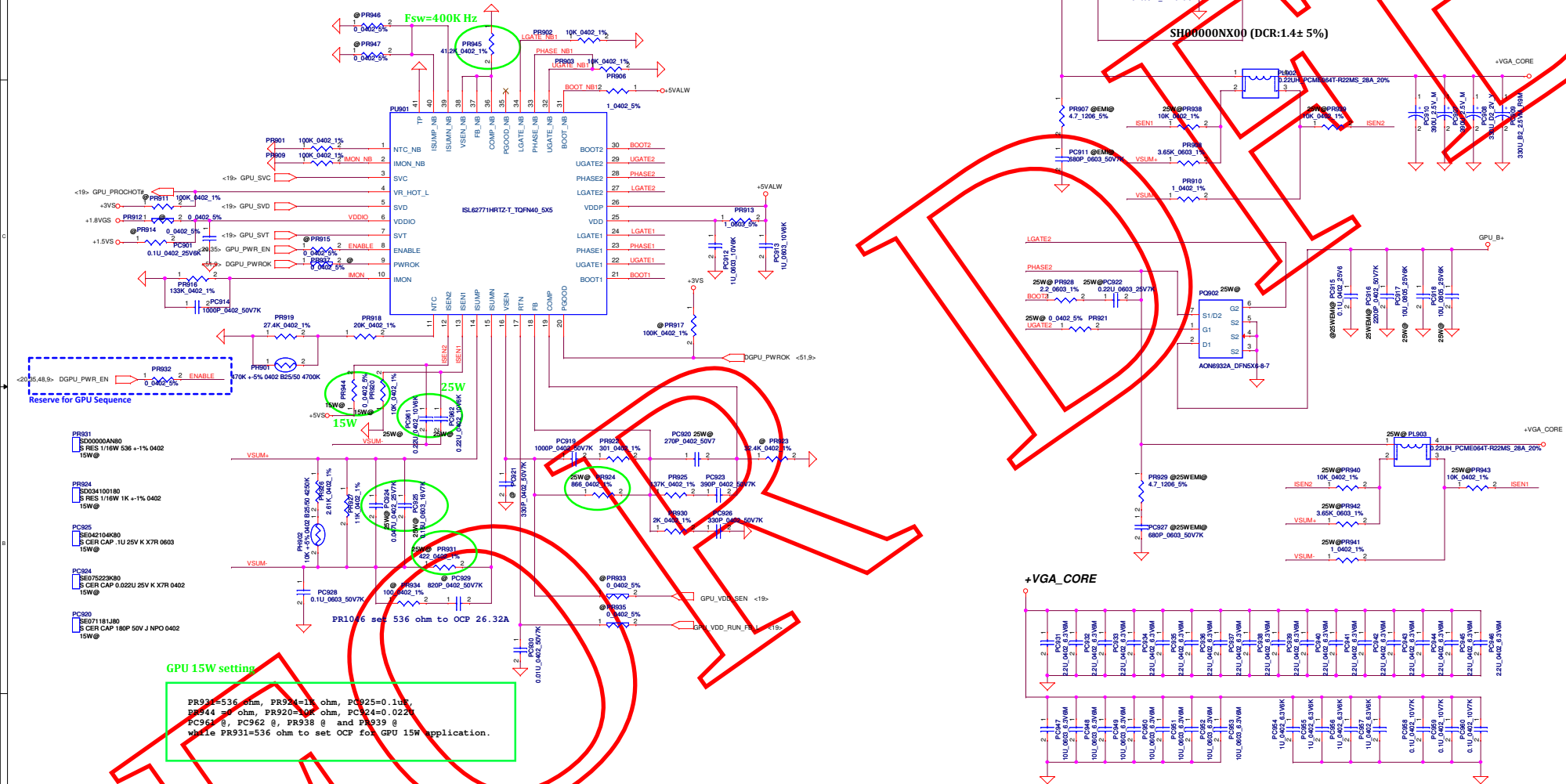
EN pin don't floating
If have pull down resistor at HW side, pls delete PR2



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2011/06/24	Deciphered Date	2012/07/12	Title	+1.05VS
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	BE_BDW
				Size	1.0
				Date	Wednesday, February 12, 2014
				Sheet	50 of 55

Module model information
ISL62771_V1A.mdd for IC portion
ISL62771_V1B.mdd for SW portion

+VGA_CORE
AMD TOPAZ
TDC 31A, EDC 46.5A
OCP min 58.1A
AMD JET LE
TDC 20A, EDC 30A
OCP min 37.5A



Module model information:
ISL95813 (for 15W & 28W CPU)

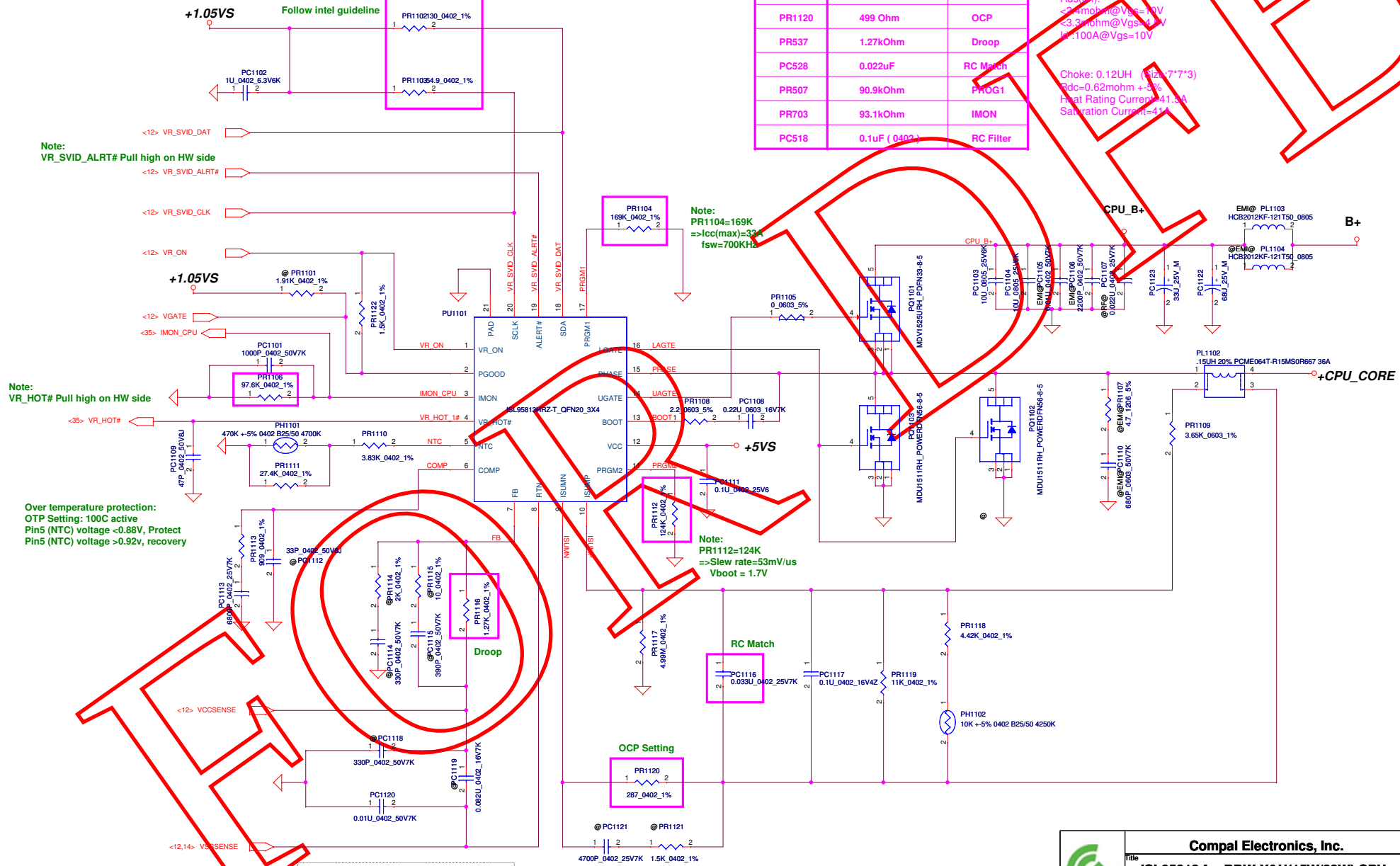
Base on BDW PDDG Rev_0_73

Location	15W	Note
	TDC 14A MAX 32A OCP 39A Loadline=-2.0mV/A	
PR1120	499 Ohm	OCP
PR537	1.27kOhm	Droop
PC528	0.022uF	RC Match
PR507	90.9kOhm	PROG1
PR703	93.1kOhm	IMON
PC518	0.1uF (0402)	RC Filter

H-side MOS: MDV1525URH
Rds(on):
<10.1mohm@Vgs=10V
<14.0mohm@Vgs=4.5V
Id:24A@Vgs=10V

L-side MOS: MDU1511RH
Rds(on):
<2.1mohm@Vgs=10V
<3.3mohm@Vgs=4.5V
Id:100A@Vgs=10V

Choke: 0.12uH (512*7*7*3)
Rdc=0.62mohm +3%
Heat Rating Current:41.5A
Saturation Current=41A



Note:
VR_SVID_ALRT# Pull high on HW side
<12> VR_SVID_ALRT#
<12> VR_SVID_CLK
<12> VR_ON

Note:
VR_HOT# Pull high on HW side
<35> VR_HOT#

Over temperature protection:
OTP Setting: 100C active
Pin5 (NTC) voltage <0.88V, Protect
Pin5 (NTC) voltage >0.92v, recovery

Note:
PR1104=169K
=>Icc(max)=33A
fsw=700KHz

Note:
PR1112=124K
=>Slew rate=53mV/us
Vboot = 1.7V

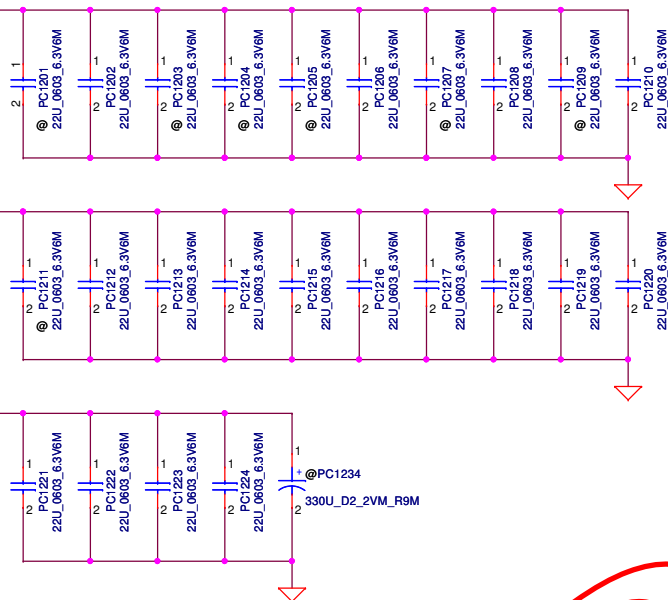
RC Match

OCP Setting

Local sense put on HW site

+CPU_CORE

24 X 22u/0603



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2011/06/24	Deciphered Date	2012/07/12	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 Custom	Document Number BE BDW Rev 1.0
Date: Wednesday, February 12, 2014		Sheet 53 of 55			

Item	Reason for change	PG#	Modify List	Date	Phase
1					
2					
3					
4					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

Security Classification		Compal Secret Data		Compal Electronics, Inc.			
Issued Date	2011/06/24	Deciphered Date	2012/07/12	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
				Custom		BE BDW	1.0
				Date:		Wednesday, February 12, 2014	

ZIWB2/ZIWB3/ZIWE1 HW PIR List

Item	Page	MODIFICATION LIST	PURPOSE	
1	P. 36	Modify DP_SEL schematic	Because the first design is wrong.	EVT TO DVT
2	P. 34	Delete D28	It already reserve in sub BD	
3	P. 36	Modify HPD schematic	Because the first design is wrong.	
4	P. 36	Modify DP AUX schematic	Cap already reserve in sub BD	
5	P. 20	Reserve +1.05VS to +0.95VGS	AMD's suggestion	
6	P. 33	Add D26 for ESD		
7	P. 42	Add RV198, RV199	AMD's suggestion	
8	P. 22-24	Add GPU Termination Resistance	AMD's suggestion	
1	P. 35	change U11.111 power rail to +3VLP	It only use +3VLP	DVT TO PVT
2	P. 33	un-pop R294, pop R295.	B series's LED need to follow E series	
3	P. 10	Add R247, R248	For BIOS Stap Pin	
4	P. 20	Add RV60, delete RV36	for GPU Sequence	
5	P. 20	Add RV61, delete RV240	for GPU Sequence	
6	P. 37	Change DP Switch IC solution	For HDMI audio issue	
7	P. 35	Add C197 for ESD		
8	P. 33	Add C198 for ESD		
9	P. 30	Add C199 for ESD		
1	P. 33	Reserve R298, R299 for DC-in LED control	To avoid LED shimmer	PVT TO PRE-MP
2	P. 38	Change DL1 and DL2 footprint for ESD		