Compal Confidential

A4WAZ/A4WAR Schematics Document

AMD "Carrizo/Carrizo-L" Platform

AMD 12~25W APU With Excavator/Puma+ Core and 25W DGPU with Meso/Exo

LA-C351PR01 REV:1A

2015-02-26

Security Classification	Compal Secret Data		
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Title: COVER PAGE		
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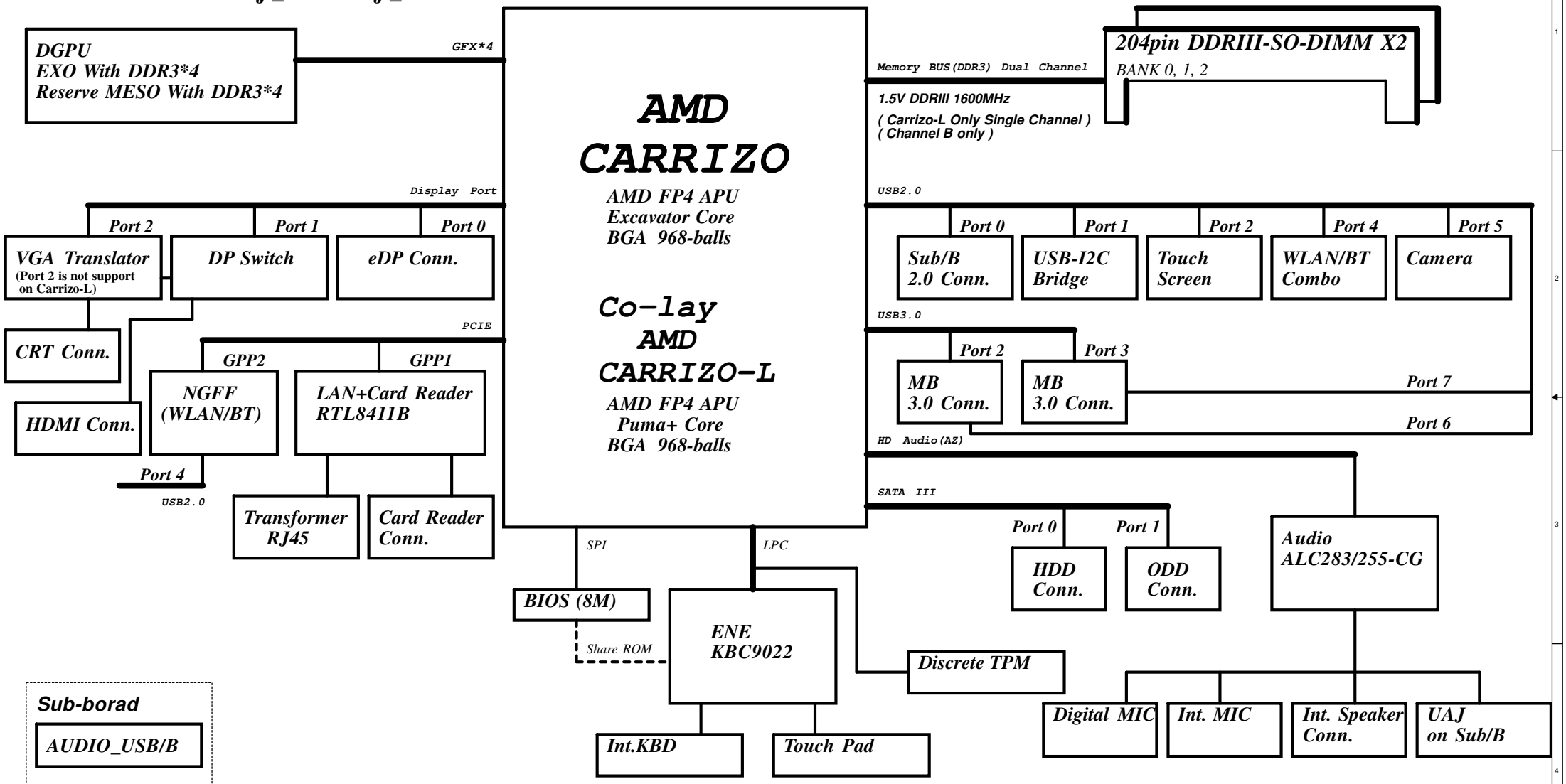
Model Name : Sanji_CZ / Sanji_CZL



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Title: BLOCK DIAGRAMS		
Size: B	Document Number: A4WAZ/A4WAR LA-C351P	Rev: 1A
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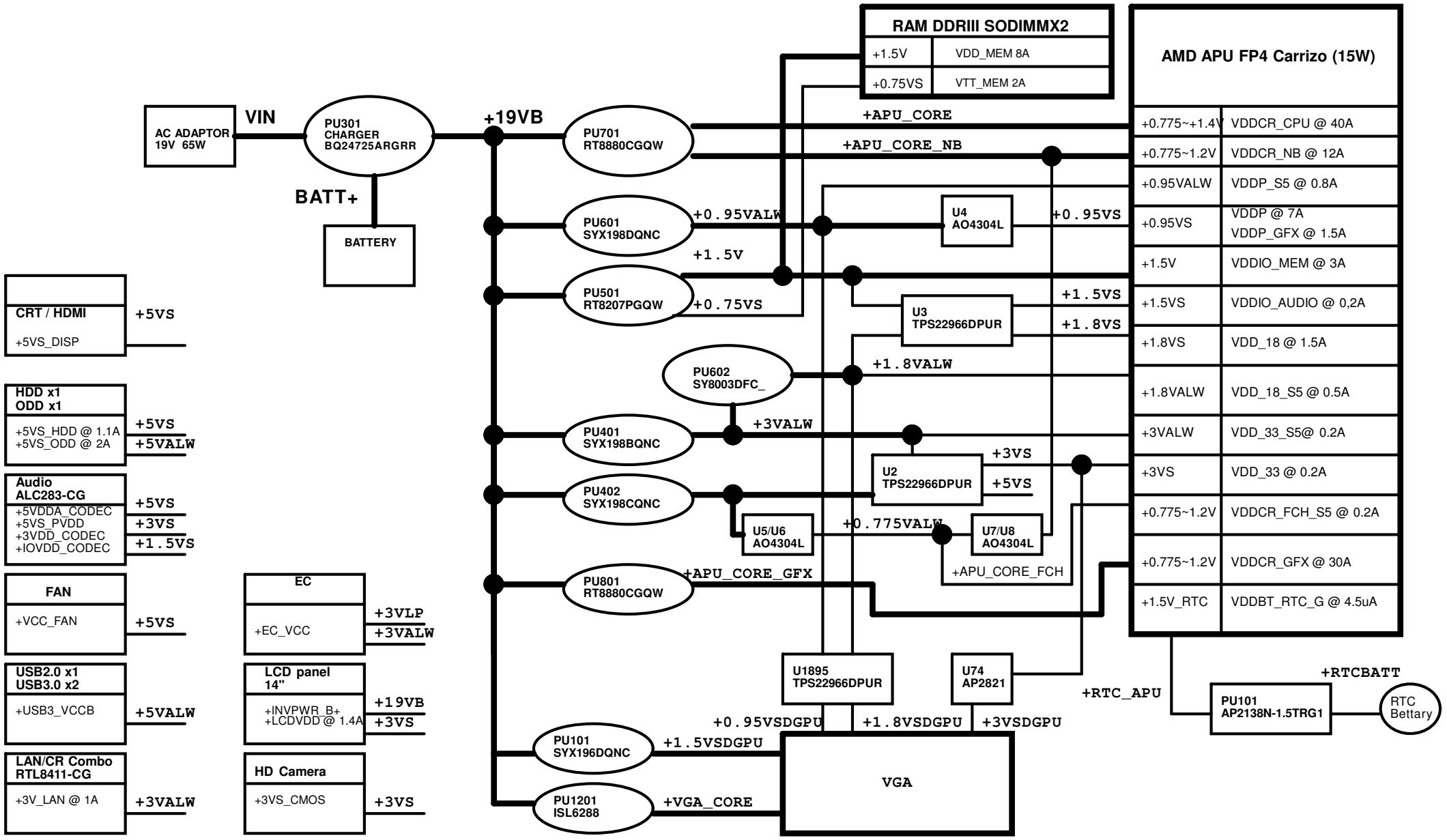

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Title: POWER MAP

Size	Document Number	Rev
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Voltage Rails

Power Plane	Description	S0	S3	S5
VIN	Adapter power supply (19V)	ON	ON	ON
+19VB	AC or battery power rail for power circuit.	ON	ON	ON
+APU_CORE	Core voltage for APU	ON	OFF	OFF
+APU_CORE_NB	Voltage for On-die VGA of APU	ON	OFF	OFF
+APU_CORE_GFX	Voltage for GFX	ON	OFF	OFF
+APU_CORE_FCH	Fusion Controller Hub Power Supply	ON	ON	ON
+0.95VALW	0.95V always on power rail	ON	ON	ON
+0.95VS	0.95V switched power rail	ON	OFF	OFF
+1.8VALW	1.8V always on power rail	ON	ON	ON
+1.8VS	1.8V switched power rail	ON	OFF	OFF
+1.5V	1.5V power rail for APU and DDR	ON	ON	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+0.75VS	0.75V switched power rail for DDR terminator	ON	OFF	OFF
+0.775VALW	0.775V always on power rail	ON	ON	ON
+3VALW	3.3V always on power rail	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
+RTC_APU	RTC power	ON	ON	ON
+3VSDGPU	VGA power	ON	OFF	OFF
+1.8VSDGPU	VGA power	ON	OFF	OFF
+1.5VSDGPU	VGA power	ON	OFF	OFF
+0.95VSDGPU	VGA power	ON	OFF	OFF
+VGA_CORE	VGA power	ON	OFF	OFF

Board ID / SKU ID Table for AD channel

Vcc	3.3V				
Ra	100K +/- 1%				
Board ID	Rb	V min	V typ	V max	EC AD
0	0		0.000V	0.300V	0x00 - 0x0B
1	12K +/- 1%	0.347V	0.354V	0.360V	0x0C - 0x1C
2	15K +/- 1%	0.423V	0.430V	0.438V	0x1D - 0x26
3	20K +/- 1%	0.541V	0.550V	0.559V	0x27 - 0x30
4	27K +/- 1%	0.691V	0.702V	0.713V	0x31 - 0x3B
5	33K +/- 1%	0.807V	0.819V	0.831V	0x3C - 0x46
6	43K +/- 1%	0.978V	0.992V	1.006V	0x47 - 0x54
7	56K +/- 1%	1.169V	1.185V	1.200V	0x55 - 0x64
8	75K +/- 1%	1.398V	1.414V	1.430V	0x65 - 0x76
9	100K +/- 1%	1.634V	1.650V	1.667V	0x77 - 0x87
10	130K +/- 1%	1.849V	1.865V	1.881V	0x88 - 0x96
11	160K +/- 1%	2.015V	2.031V	2.046V	0x97 - 0xA3
12	200K +/- 1%	2.185V	2.200V	2.215V	0xA4 - 0xAD
13	240K +/- 1%	2.316V	2.329V	2.343V	0xAE - 0xB7
14	270K +/- 1%	2.395V	2.408V	2.421V	0xB8 - 0xC0
15	330K +/- 1%	2.521V	2.533V	2.544V	0xC1 - 0xC9
16	430K +/- 1%	2.667V	2.677V	2.687V	0xCA - 0xD3
17	560K +/- 1%	2.791V	2.800V	2.808V	0xD4 - 0xDC
18	750K +/- 1%	2.905V	2.912V	2.919V	0xDD - 0xE6
19	NC	3.000V	3.300V		0xE7 - 0xFF

BOARD ID Table

Board ID	PCB Revision
0	CZ EVT
1	CZL EVT
2	CZ DVT
3	CZL DVT
4	CZ PVT
5	CZL PVT
6	CZ Pre-MP
7	CZL Pre-MP

SMBus List

EC SMBus Port1 (+3VALW)

Device	Address	HEX
Smart Battery	0001 011X b	16H

EC SMBus Port2 (+3VS)

Device	Address	HEX
SB-TSI (APU)	1001 100X b	98H
VGA Temp.		41H

APU SMBus Port0 (+3VS)

Device	Address	HEX
DDR DIMM1	1010 000Xb	A0H
DDR DIMM2	1010 001Xb	A2H
Mini Card (DNI)		

APU SMBus Port1(+3VALW)

Device	Address	HEX

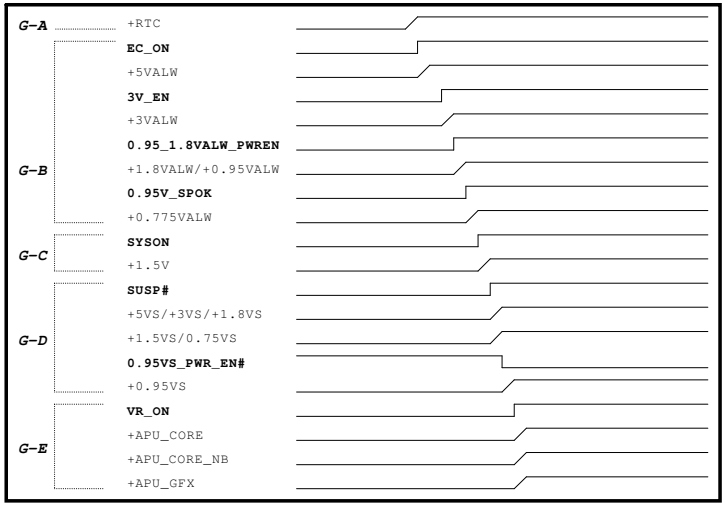
ZZZ

PCB
Part Number = DAZ1CC00100
PCB A4WAZ LA-C351P LS-C341P

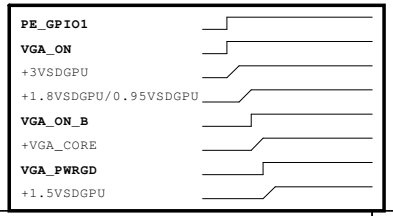
BOM Structure Table

BOM Structure	BTO Item
@	Unpop
@EMC@	EMI/ESD Unpop
EMC@	EMI/ESD pop
CZEMC@	Carrizo EMI/ESD pop
CZLEMC@	Carrizo-L EMI/ESD pop
255@	ALC255 Pop
283@	ALC283 Pop
9012@	KBC9012 Pop
9022@	KBC9022 Pop
CZ@	Carrizo Pop
CZL@	Carrizo-L Pop
EXO@	Exo Pop
MESO@	Meso Pop
CZUMA@	CZ UMA Pop
CZLUMA@	CZL UMA Pop
VGA@	DIS Pop
UMA@	UMA Pop
TPUSB@	USB to I2C Bridge Pop
ECI2C@	EC I2C Bridge Pop
TPM@	TPM Pop
BL@	Keyboard Backlight Pop
45@	HDMI Royalty
CONN@	ME Connector
JP@	Jump
RS@	R-Short
TP@	Test Point

POWER SEQUENCE



dGPU POWER SEQUENCE



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Title: NOTES LIST

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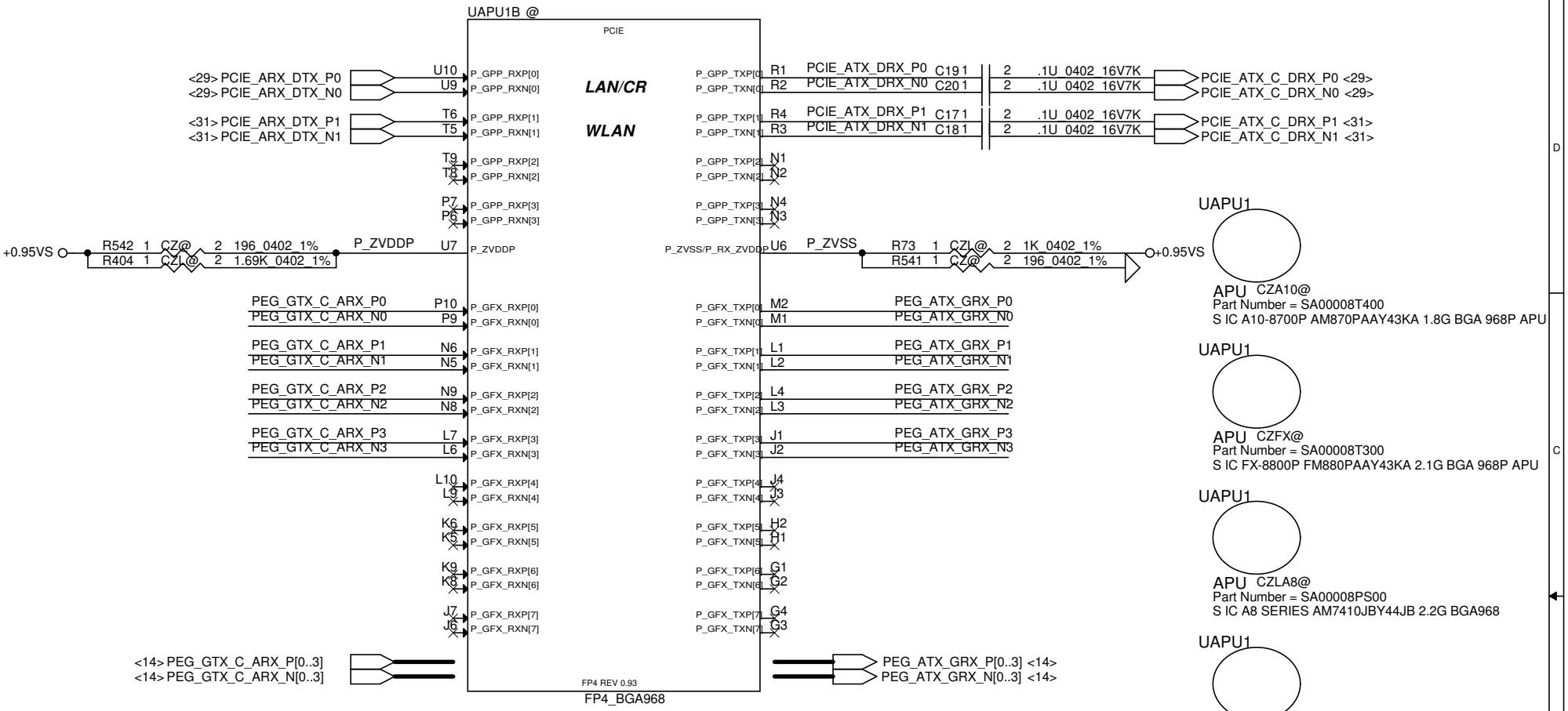

UAPU1
APU CZA10@
Part Number = SA00008T400
S IC A10-8700P AM870PAAY43KA 1.8G BGA 968P APU

UAPU1
APU CZFX@
Part Number = SA00008T300
S IC FX-8800P FM880PAAY43KA 2.1G BGA 968P APU

UAPU1
APU CZLA8@
Part Number = SA00008PS00
S IC A8 SERIES AM7410JBY44JB 2.2G BGA968

UAPU1
APU CZLA6@
Part Number = SA00008KX10
S IC CARRIZO-L AM7310JBY44JB 2G BGA 968P

Carrizo:
PCIe GPP: Four x1 Gen3
PCIe Discrete Graphics Port: PCI Gen3 x8

Carrizo-L:
PCIe GPP: Four x1 Gen2
PCIe Discrete Graphics Port: PCI Gen2 x4

UAPU1
APU CZLA4@
Part Number = SA00008J500
S IC CARRIZO-L AM7210JBY44JB 1.8G BGA968

UAPU1
APU CZLE2@
Part Number = SA00008KW10
S IC CARRIZO-L EM7110JBY44JB 1.8G 968P

UAPU1
APU CZLE1@
Part Number = SA00008KY10
S IC CARRIZO-L EM7010JCY23JB 1.5G BGA968

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Title: FP4 PCIE

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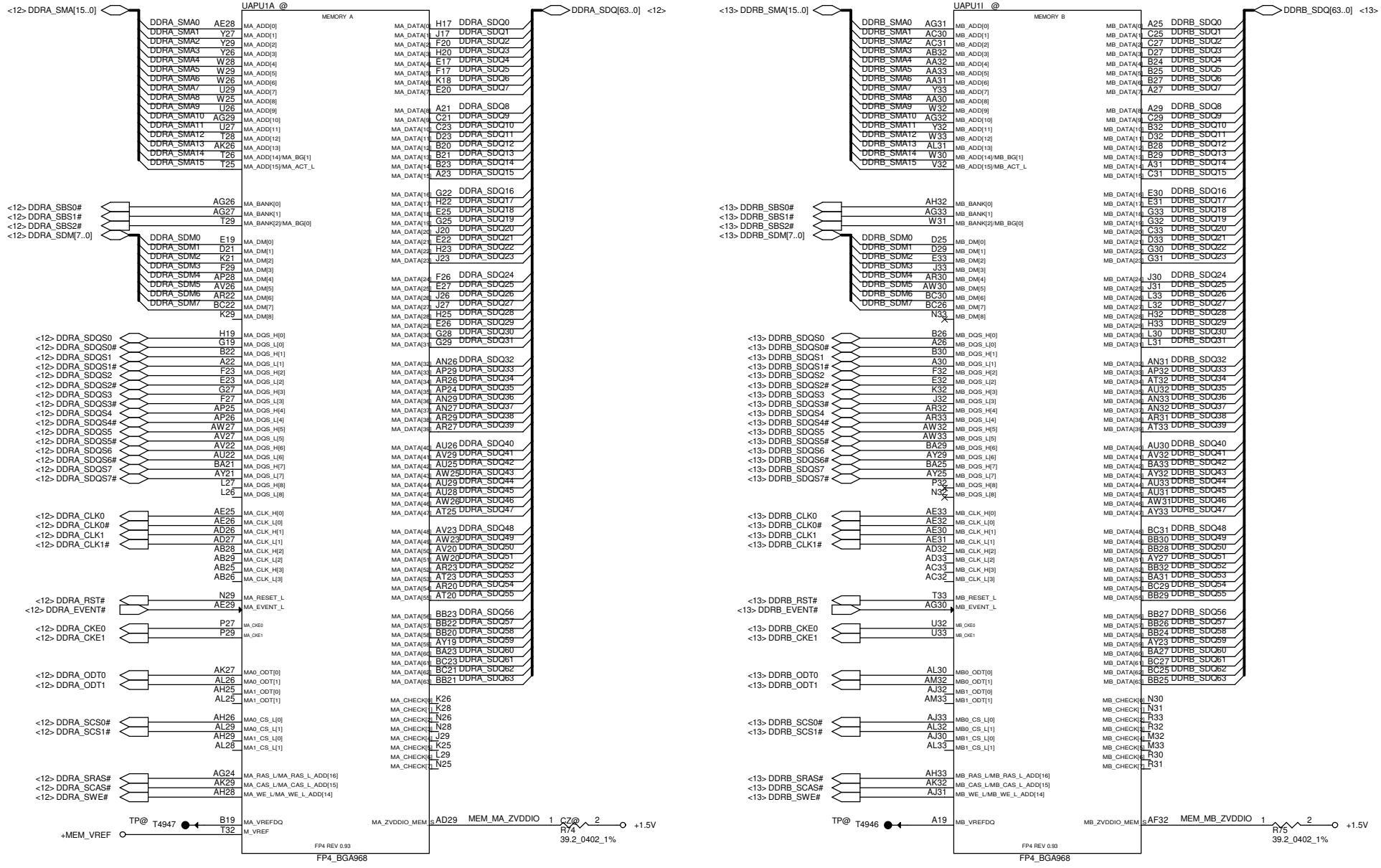

Carrizo:
DDR3 - Dual Channel
- Up to 2133
- Up to 2 DIMMs/Channel
- uDIMM and SO-DIMM/DRAM down
- 1.35V and 1.5V

Carrizo-L(CHANNEL B ONLY):
DDR3 - Single Channel
- Up to 1866
- Up to 2 DIMMs/Channel
- uDIMM and SO-DIMM/DRAM down
- 1.35V and 1.5V

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Title: FP4 MEMORY INTERFACE

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DP2 is not supported on Carrizo-L
DP2: DP to VGA Translator
DP1: DP Switch
DP0: eDP

For SIC, SID, ALERT_L, PROCHOT_L
Carrizo: Each are pulled up to VDD_18
Carrizo-L: Each are pulled up to VDD_33

Place resistor(0ohm) for SVT on VRM side

For DP_VARY_BL, DP_BLON, DP_DIGON
Carrizo: VDD_18 level at the APU
Carrizo-L: VDD_33 level at the APU

For DP_STEREOSYNC/TEST36 (HDMI Enable)
Carrizo: Pulled up to VDD_18
Carrizo-L: Pulled up to VDD_33

Close to APU

HDT+

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Title: FP4 DISP/MISC/HDT

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VGA_CLKREQ#
Reserved only

RSMRST#
1.8V /EC program open drain
SYS_PWRGD:
CZ->3.3V /EC program open drain
CZL->1.8V /EC program open drain

32.768KMHz CRYSTAL

UMA: HIGH
DIS: LOW

AND Gate, as before

CZ only

FP4_BGA968

	LPC_CLK0_EC	LPC_CLK1	LPC_FRAME#	MEM_VOLT_SEL/AGPIO3 <INT PU>		RTC_CLK <INT PU>	BLINK/AGPIO11 <INT PU>	SYS_RST# <INT PU>
				CZL	CZ			
H	BOOT FAIL TIMER ENABLED	CLKGEN ENABLE (DEFAULT)	SPI ROM (DEFAULT)	1.8V SPI ROM	ENHANCED RESET (DEFAULT)	COIN BATT ON BOARD (DEFAULT)	LDT_RST#/PG OUTPUT TO APU (DEFAULT)	NORMAL RESET MODE (DEFAULT)
L	BOOT FAIL TIMER DISABLED (DEFAULT)	CLKGEN DISABLED	LPC ROM	3.3V SPI ROM (Default)	TRADITION RESET	COIN BATT NOT ON BOARD	OUTPUT TO PADS	SHORT RST MODE

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Title: FP4 GPIO/AZ/MISC/STRAPS

Size	Document Number	Rev
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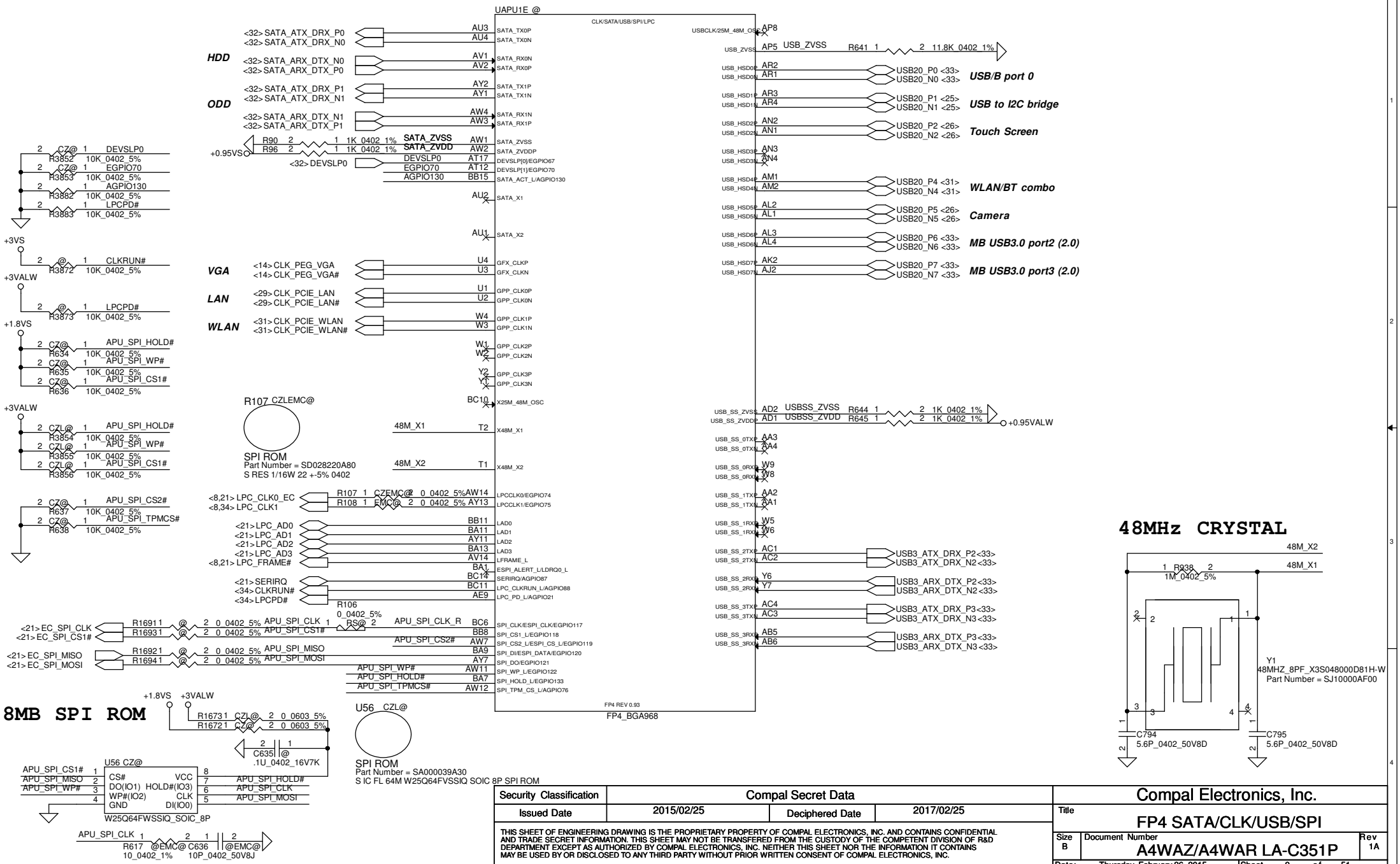

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Title: FP4 SATA/CLK/USB/SPI

Size	Document Number	Rev
B	A4WAZ/A4WAR LA-C351P	1A

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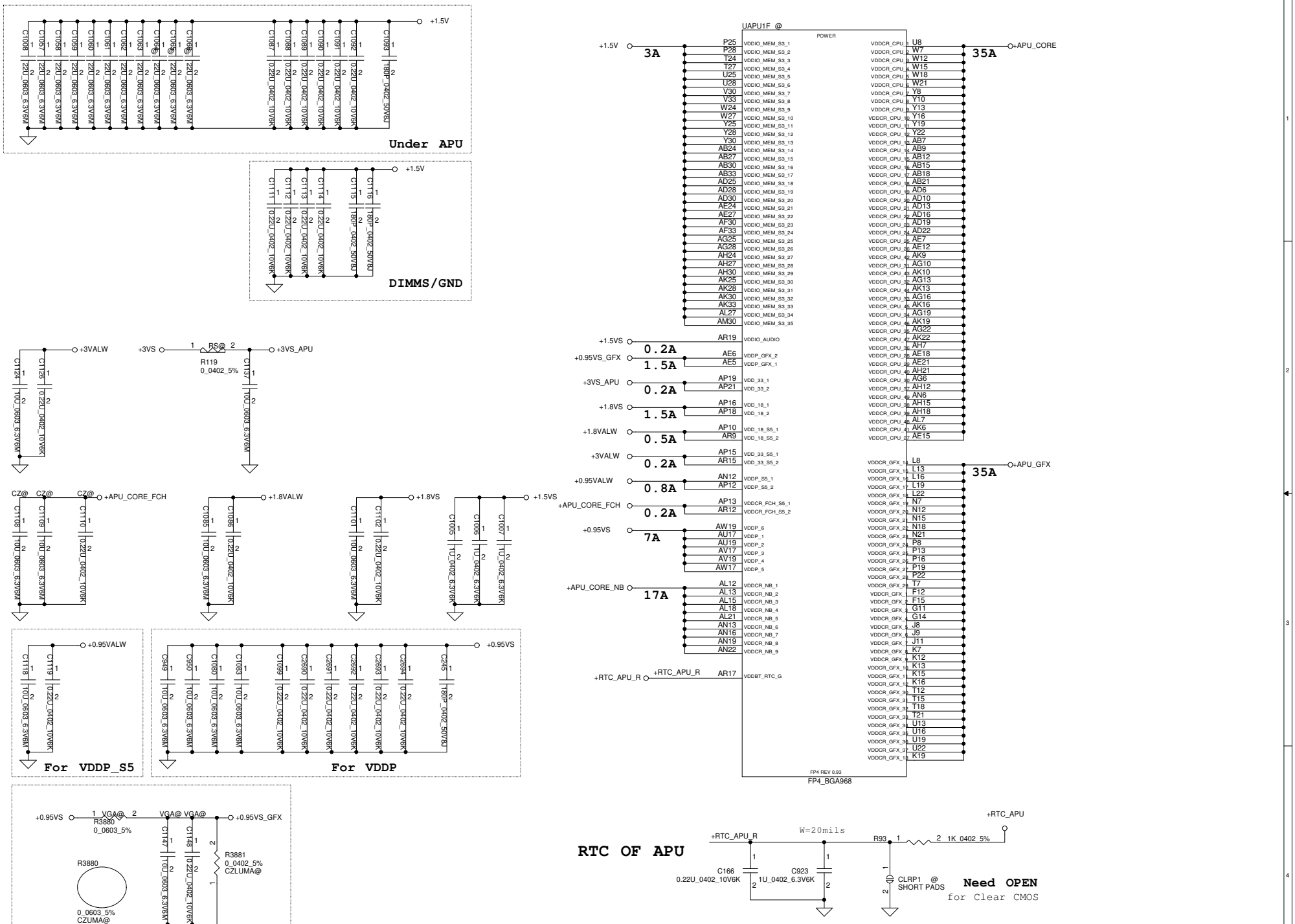

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Issued Date	2015/02/25	Deciphered Date	2017/02/25

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Title: FP4 PWR

Size	Document Number	Rev
Custom	A4WAZ/A4WAR LA-C351P	1A

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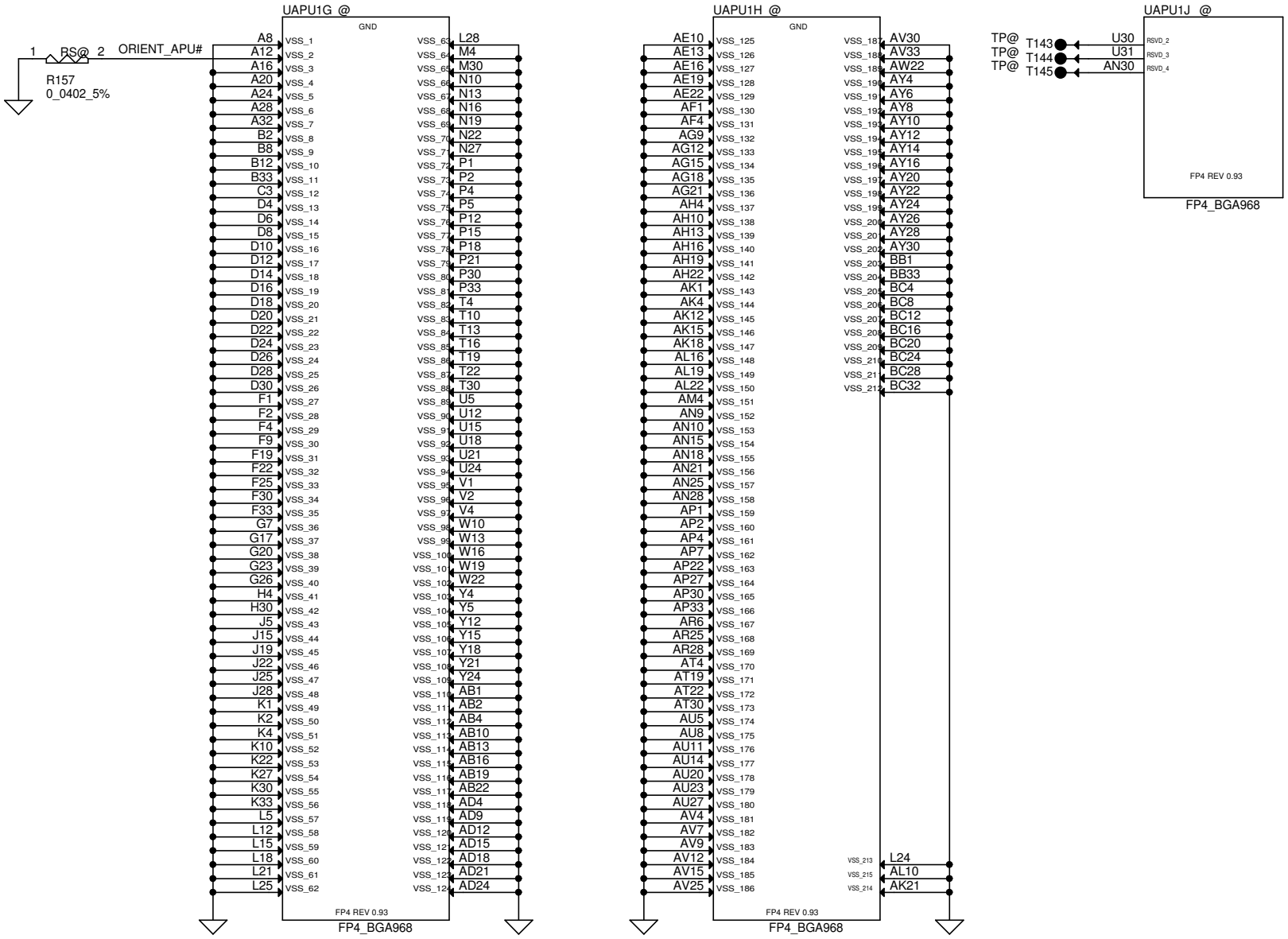

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Title: FP4 GND

Size	Document Number	Rev
Custom	A4WAZ/A4WAR LA-C351P	1A

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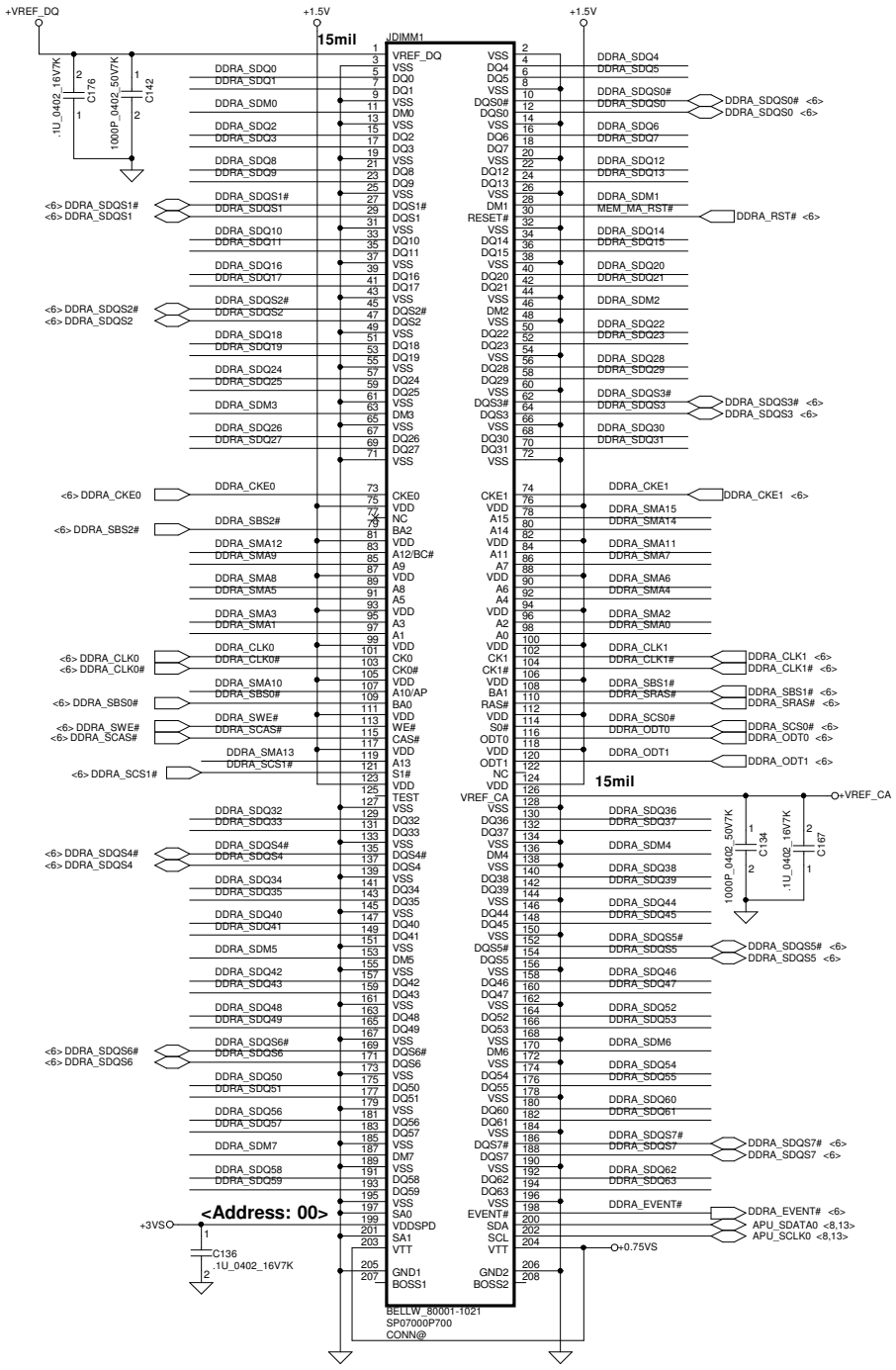
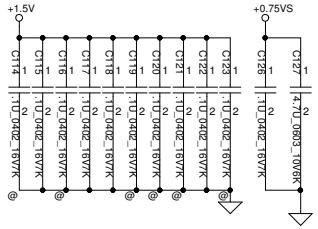


DDRA_SDQ[0..63] → DDRA_SDQ[0..63] <6>

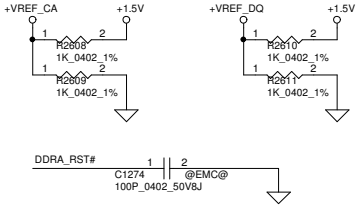
DDRA_SDM[0..7] → DDRA_SDM[0..7] <6>

DDRA_SMA[0..15] → DDRA_SMA[0..15] <6>

+1.5V/+0.75VS OF DIMM1



VREFCA for DIMM1,2



DIMM_A H:4mm RVS

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Title: DDR3 SODIMM-I Socket

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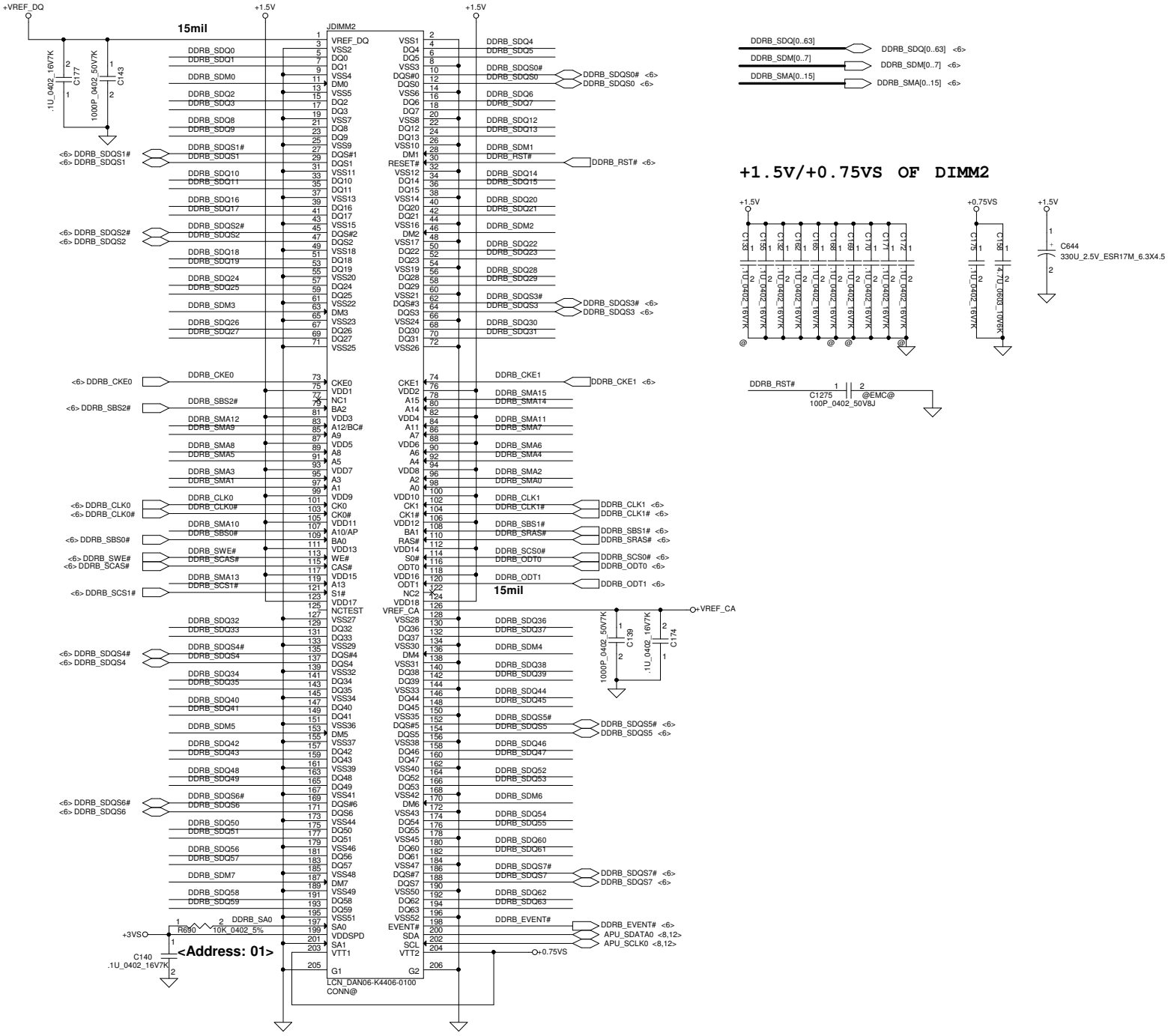

DIMM_B H:4mm STD

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Compal Electronics, Inc.

Title: DDR3 SODIMM-II Socket

Size	Document Number	Rev
Custom	A4WAZ/A4WAR LA-C351P	1A

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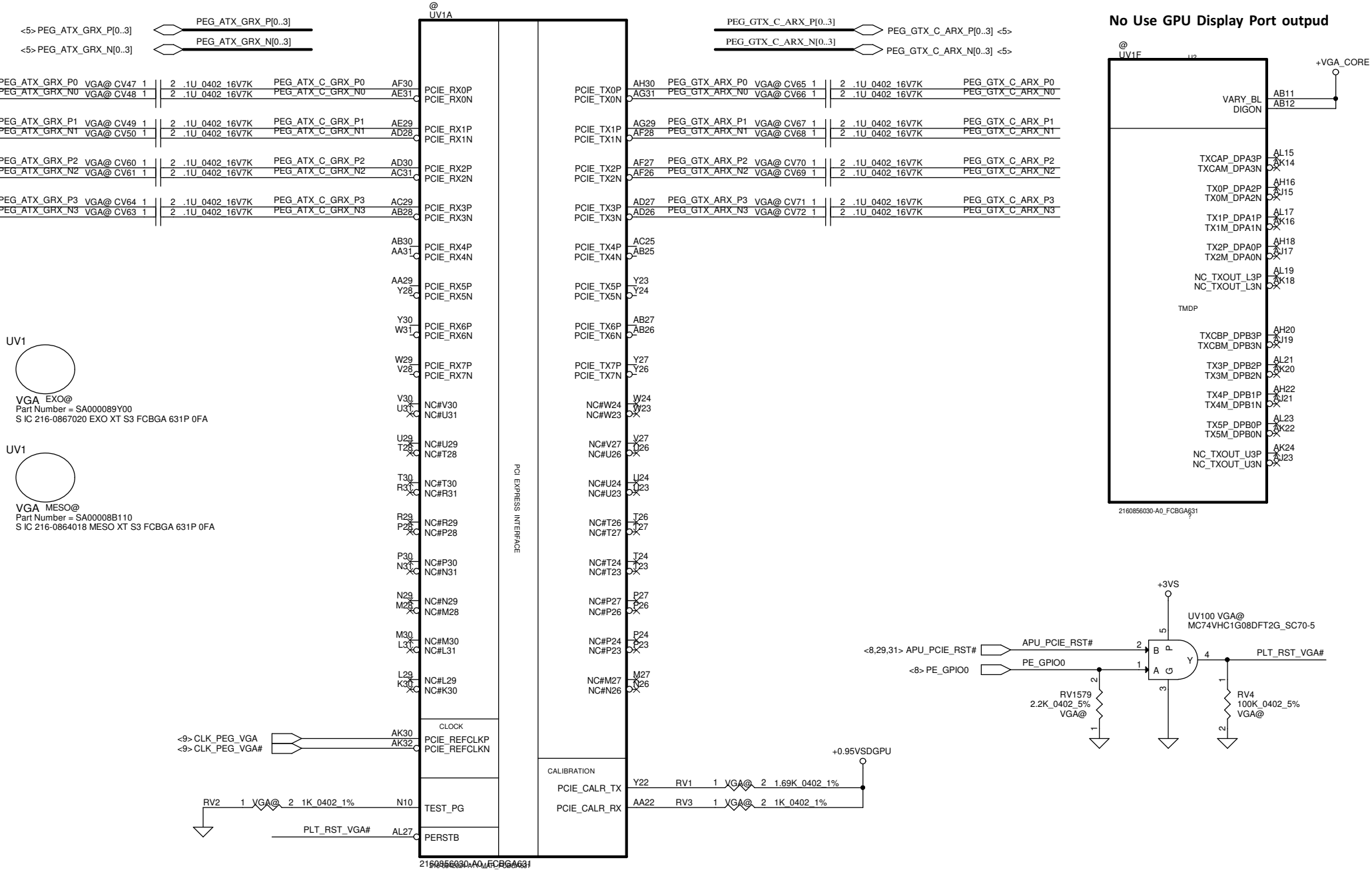

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Resistor Divider Lookup Lable		
R_pu (ohm)	R_pd (ohm)	Bitd [3:1]
NC	4.75k	000
8.45k	2k	001
4.53k	2k	010
6.98k	4.99k	011
4.53k	4.99k	100
3.24k	5.62k	101
3.4k	10k	110
4.75k	NC	111

0402 1% resistors are equired

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

PS_0[3:1]=001
PS_0[5:4]=11

Strap Name :
- PS_0[1] ROM_CONFIG[0]
- PS_0[2] ROM_CONFIG[1]
- PS_0[3] ROM_CONFIG[2]
- PS_0[4] N/A
- PS_0[5] AUD_PORT_CONN_PINSTRAP[0]

PS_1[3:1]=000
PS_1[5:4]=11

Strap Name :
- PS_1[1] STRAP_BIF_GEN3_EN_A
- PS_1[2] TRAP_BIF_CLK_PM_EN
- PS_1[3] N/A
- PS_1[4] STRAP_TX_CFG_DRV_FULL_SWING
- PS_1[5] STRAP_TX_DEEMPH_EN

PS_2[3:1]=000
PS_2[5:4]=11

Strap Name :
- PS_2[1] N/A
- PS_2[2] N/A
- PS_2[3] STRAP_BIOS_ROM_EN
- PS_2[4] STRAP_BIF_VGA_DIS
- PS_2[5] N/A

PS_3[3:1]=000
PS_3[5:4]=11

Strap Name :
- PS_3[1] BOARD_CONFIG[0] (Memory ID)
- PS_3[2] BOARD_CONFIG[1] (Memory ID)
- PS_3[3] BOARD_CONFIG[2] (Memory ID)
- PS_3[4] AUD_PORT_CONN_PINSTRAP[1]
- PS_3[5] AUD_PORT_CONN_PINSTRAP[2]

3.3V TO 1.8V LEVEL SHIF
For Exo to support SVI2 reaulator
DNI for Meso

MESO SVI2

Memory ID	P/N	Vendor	Configuration	Size
000	SA00006E8B0	HYNIX	H5TC4G63CFR-11C	*4 2GB
001	SA000076P20	SAMSUNG	K4W4G1646D-BC1A	*4 2GB
010	SA00008DN10	HYNIX	H5TC4G63CFR-N0C	*4 2GB
011	SA00006E840	HYNIX	H5TC4G63AFR-11C	*4 2GB
100				
101				

Enable MLPS

Peak Current Control (PCC) CKT
Reversed

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Title: Meso_MISC

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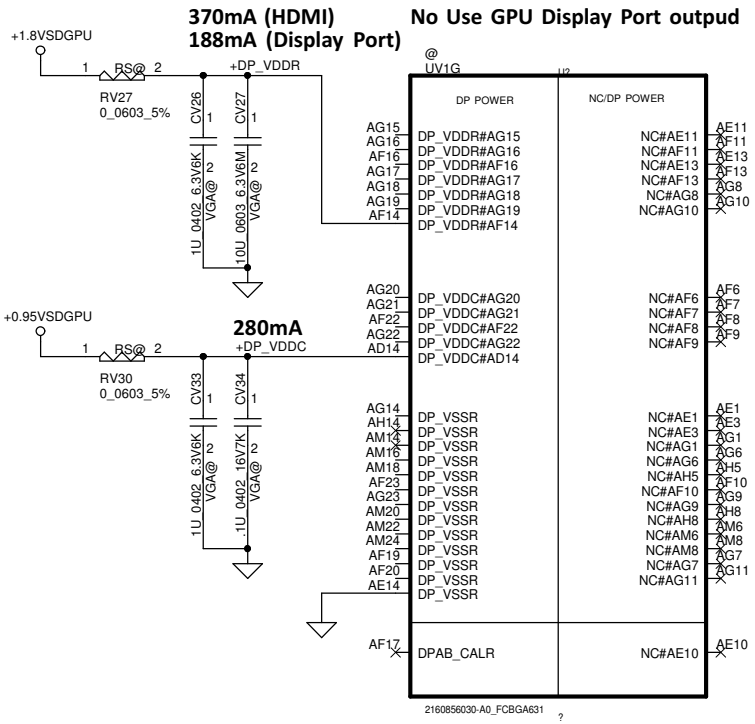

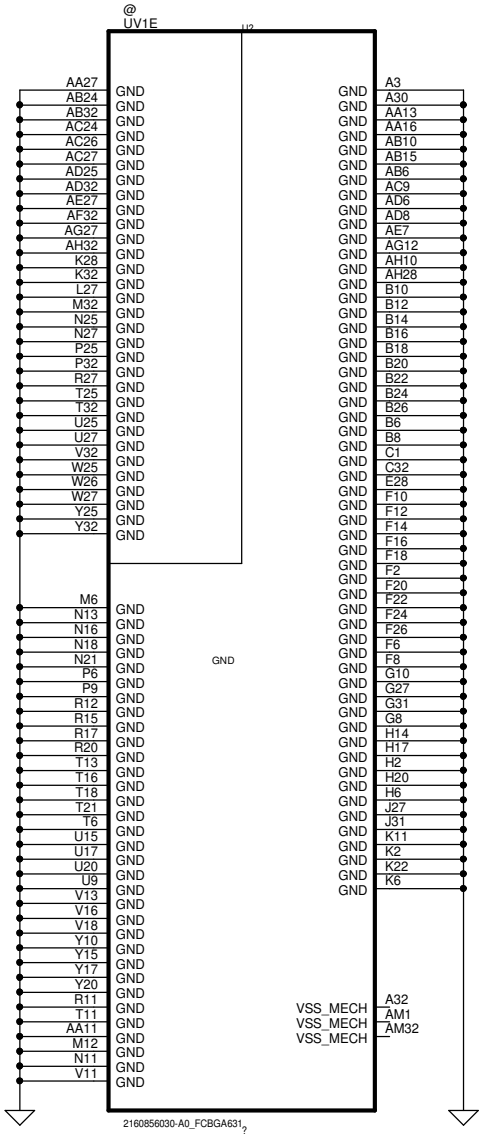

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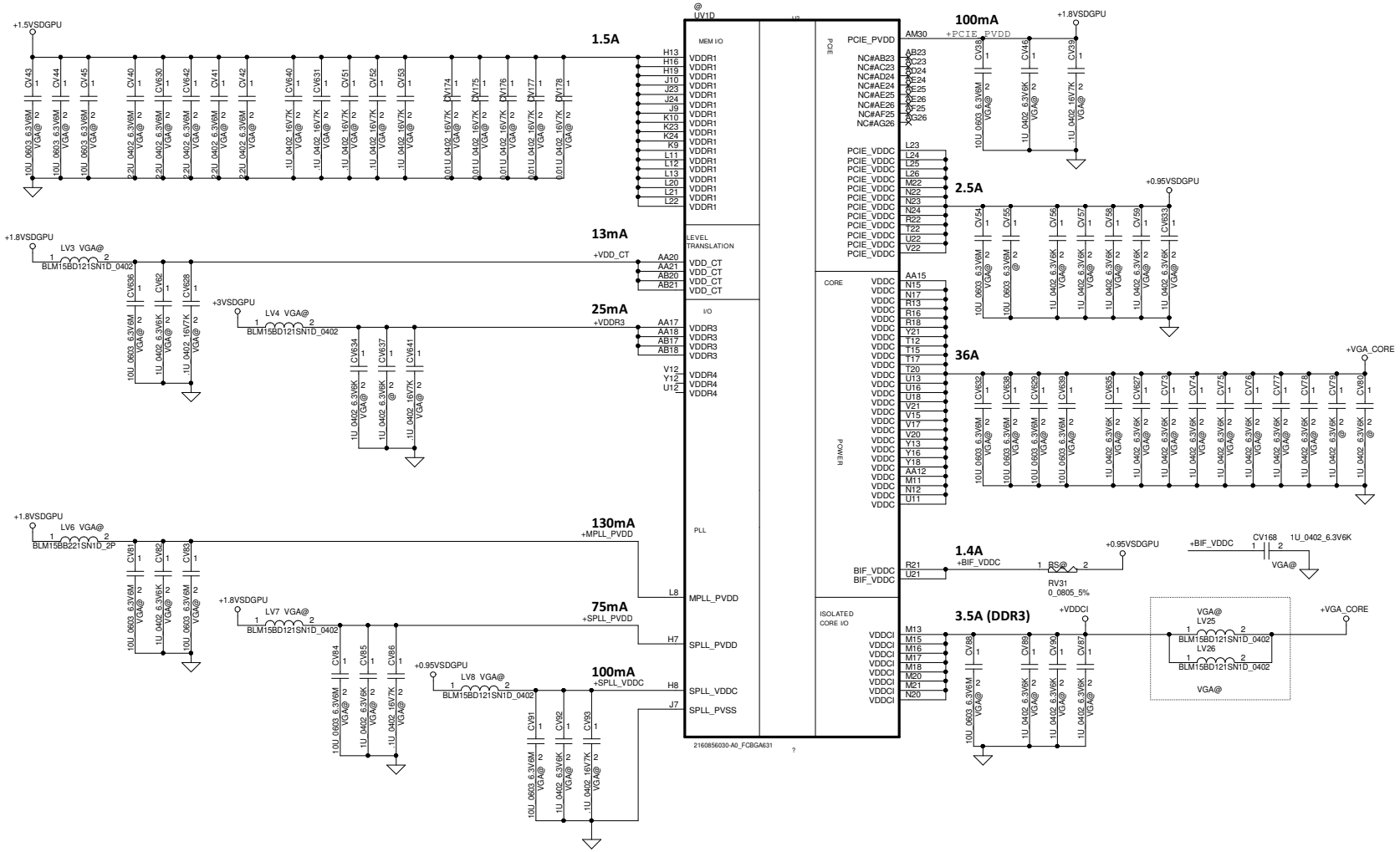
+VGA_CORE		10uF	1uF	0.1uF
VDDC	TBD	5 (1@)	10 (2@)	0
VDDCI	3.5A	1	3	0

+0.95VSDGPU		10uF	1uF	0.1uF
PCIE_VDDC	2.5A	2 (1@)	5 (1@)	0
BIF_VDDC	1.4A	0	1	0
SPLL_VDDC	100mA	1	1	1

+1.5VSDGPU	10uF	2.2uF	0.1uF	0.01uF
VDDR1 1.5A	3	5	5	5

+1.8VSDGPU		10uF	1uF	0.1uF
PCIE_PVDD	100mA	1	1	1
MPLL_PVDD	130mA	1	1	1
SPLL_PVDD	75mA	1	1	1
VDDR4	(300mA)	0	0	0
VDD_CT	13mA	1	1	1
+TSVDD	13mA	1	1	1
+DP_VDDR		0	0	0
+DP_VDDC		0	0	0

+3VGS		10uF	1uF	0.1uF
VDDR3	25mA	0	2 (1@)	1



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Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.		
Title: Meso_PWR		
Size: Custom	Document Number: A4WAZ/A4WAR LA-C351P	Rev: 1A
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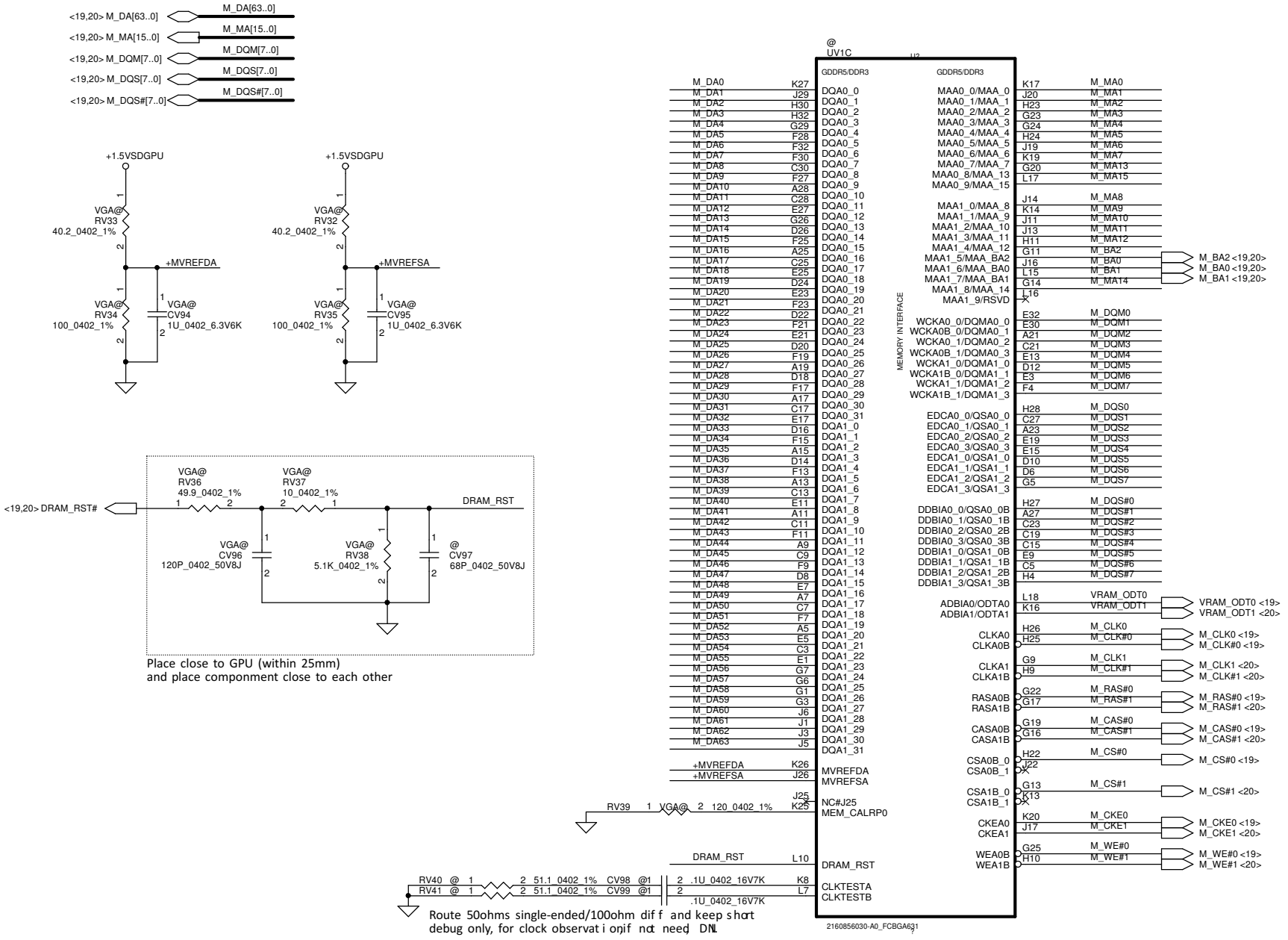

Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.	
Title	Meso_MEM
Size: Custom	Document Number: A4WAZ/A4WAR LA-C351P
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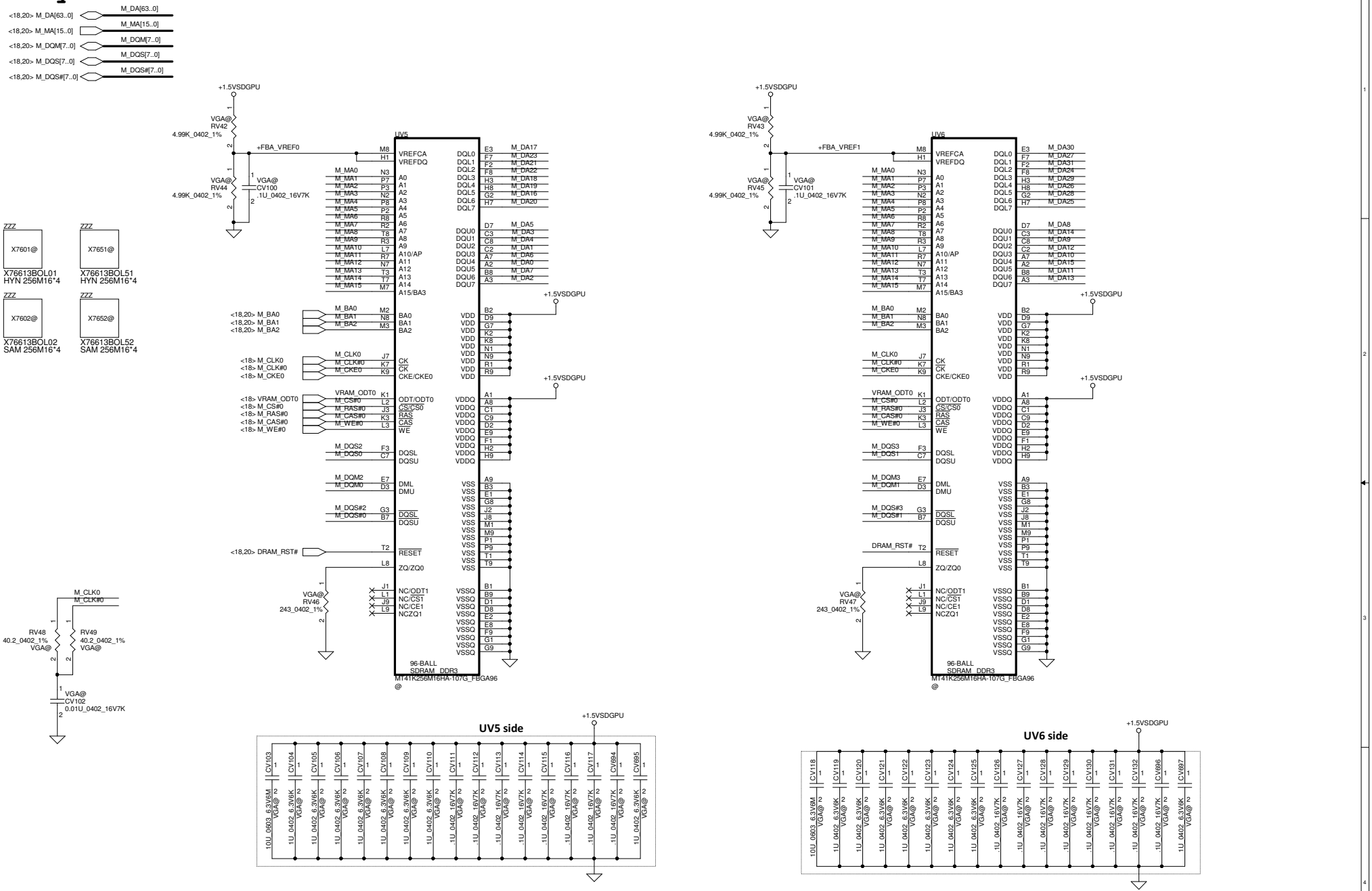
Memory Partition A - Lower 32 bits



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: VRAM_DDR3_Lower

Size: Custom | Document Number: A4WAZ/A4WAR LA-C351P | Rev: 1A

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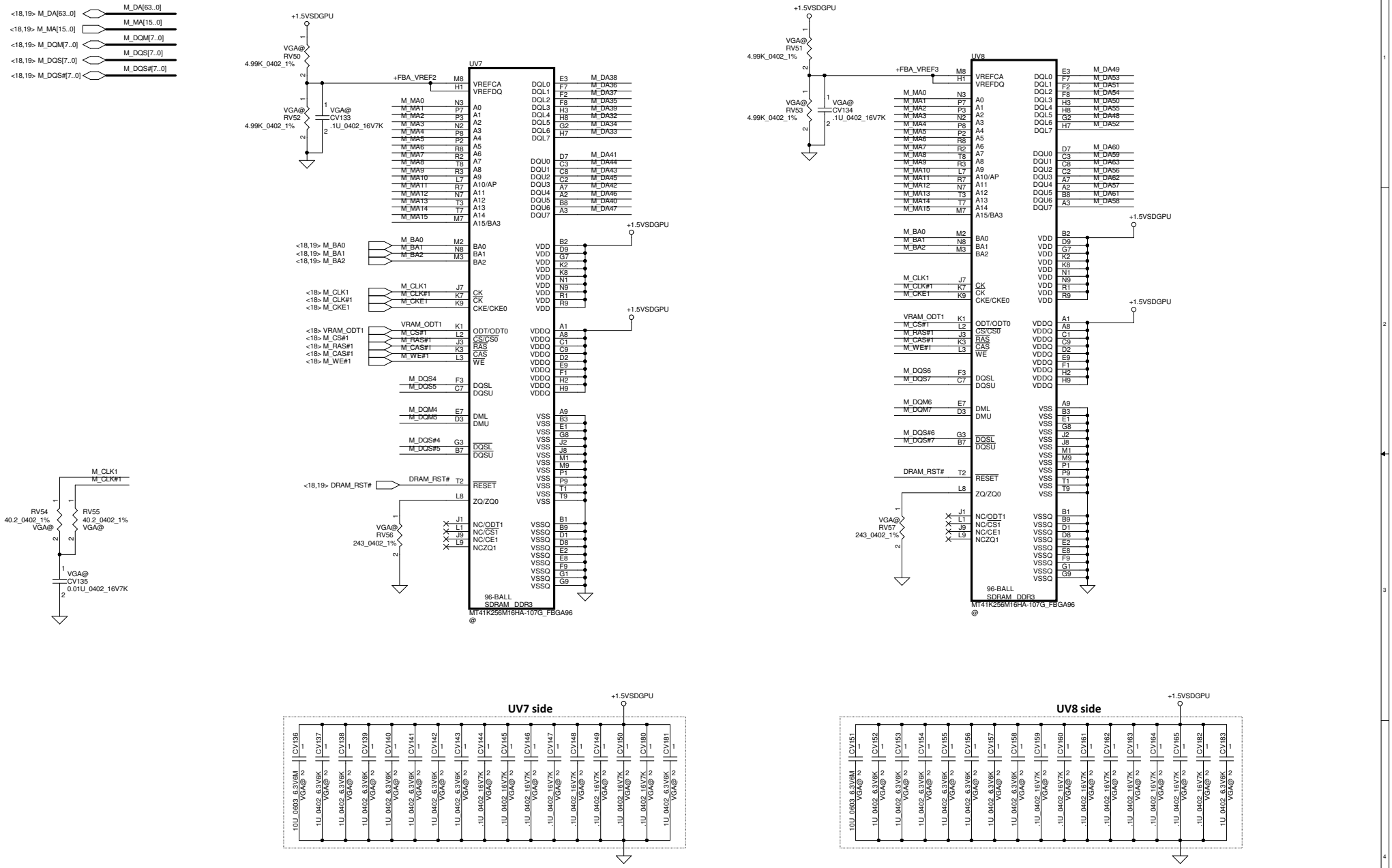
Memory Partition A - Upper 32 bits



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: VRAM_DDR3_Upper

Size	Document Number	Rev
Custom	A4WAZ/A4WAR LA-C351P	1A

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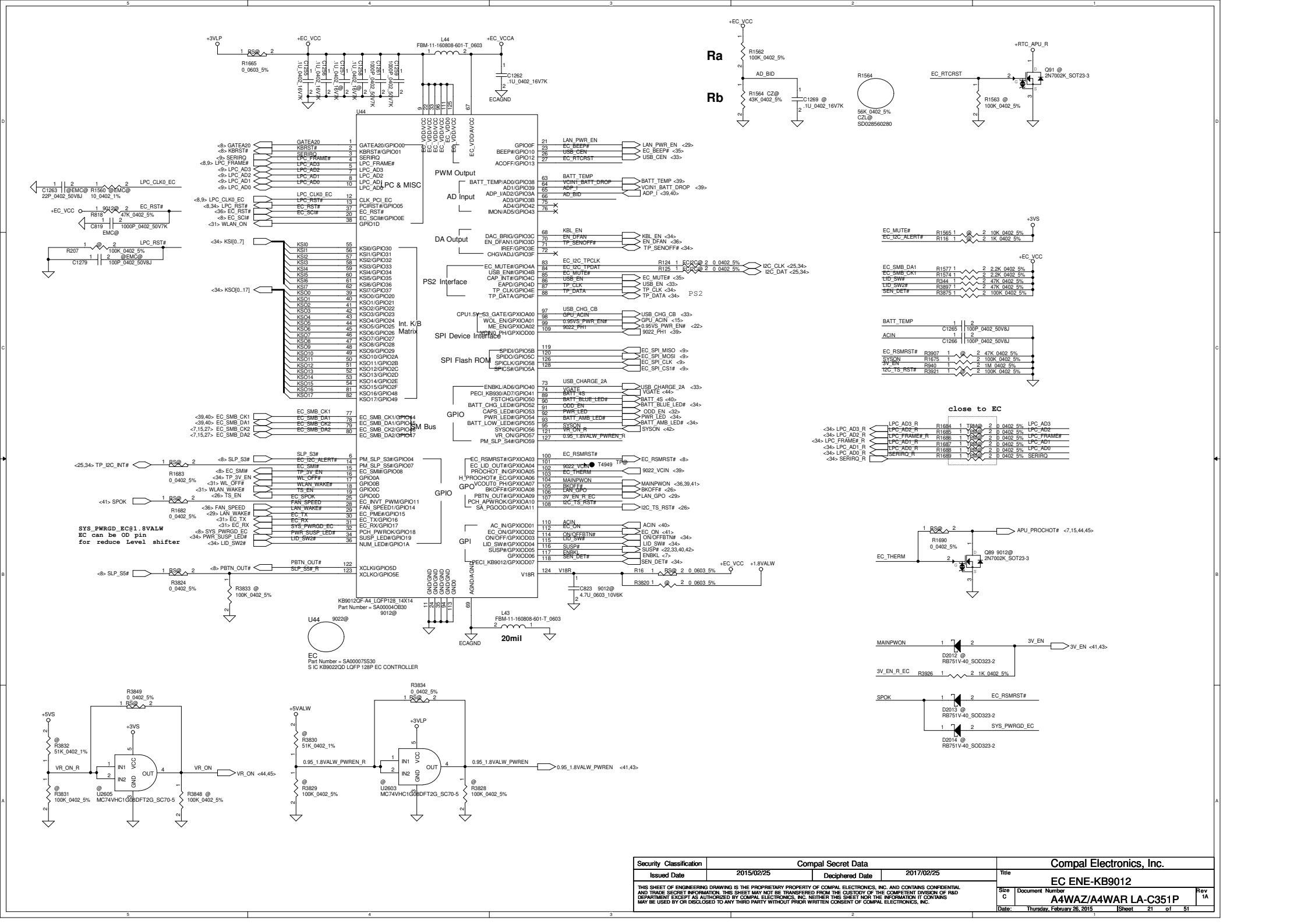

Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

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Compal Electronics, Inc.

Title: EC ENE-KB9012

Size	Document Number	Rev
C	A4WAZ/A4WAR LA-C351P	1A

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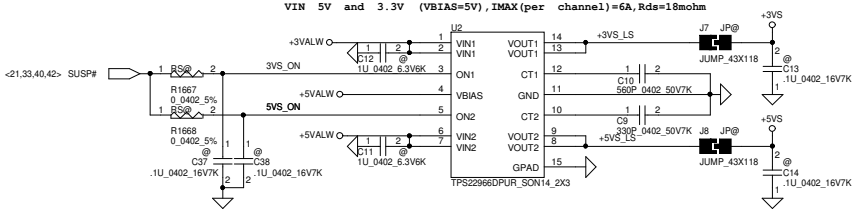
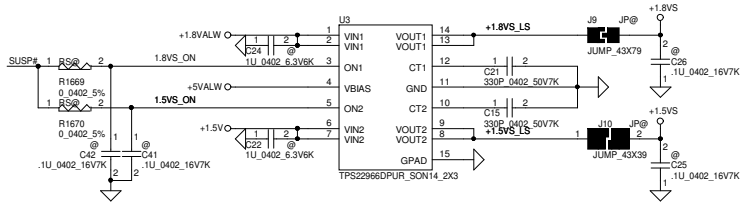
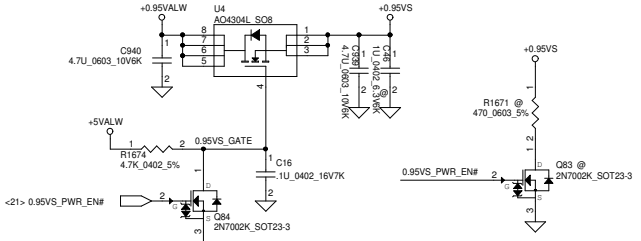
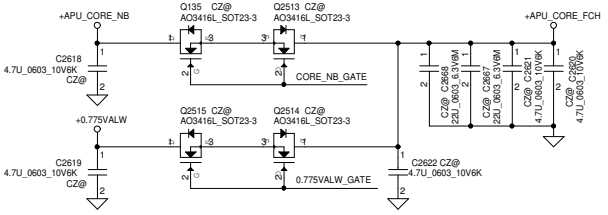
VIN 5V and 3.3V (VBIAS=5V),IMAX(per channel)=6A,Rds=18mohm

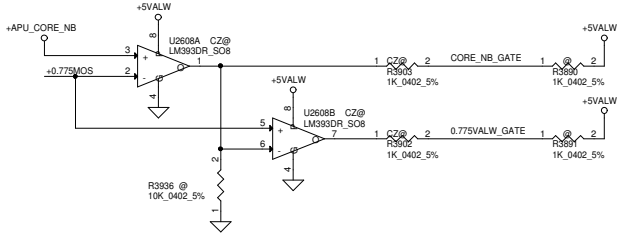


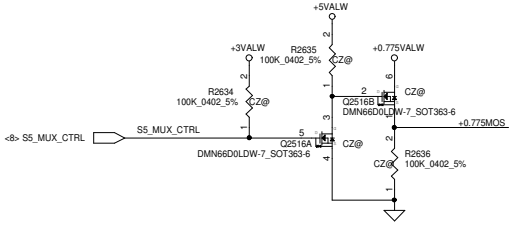
VIN 1.8V and 1.5V (VBIAS=5V),IMAX(per channel)=6A,Rds=18mohm

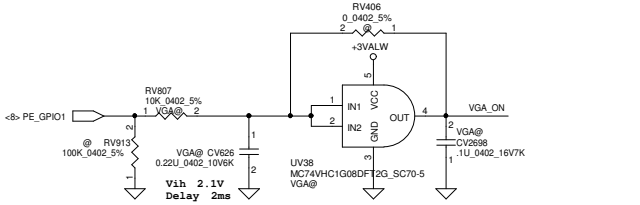


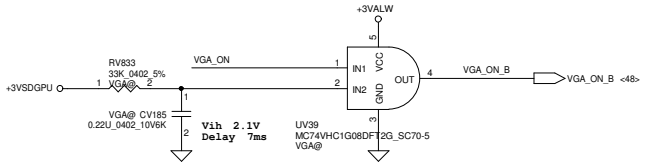




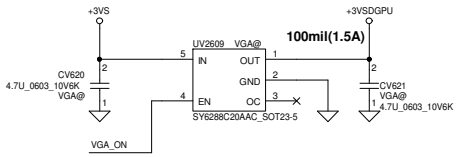






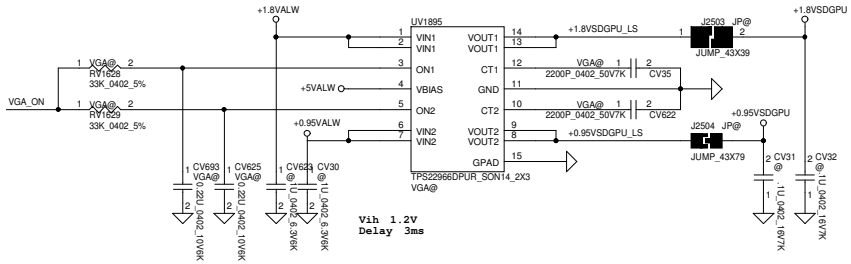


+3VS TO +3VSDGPU



+1.8VALW TO +1.8VSDGPU
+0.95VALW TO +0.95VSDGPU
Load switch

VIN 1.8V and 0.95V (VBIAS=5V),IMAX(per channel)=6A,Rds=18mohm



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: P22-DC INTERFACE

Size	Document Number	Rev
Custom	A4WAZ/A4WAR LA-C351P	1A

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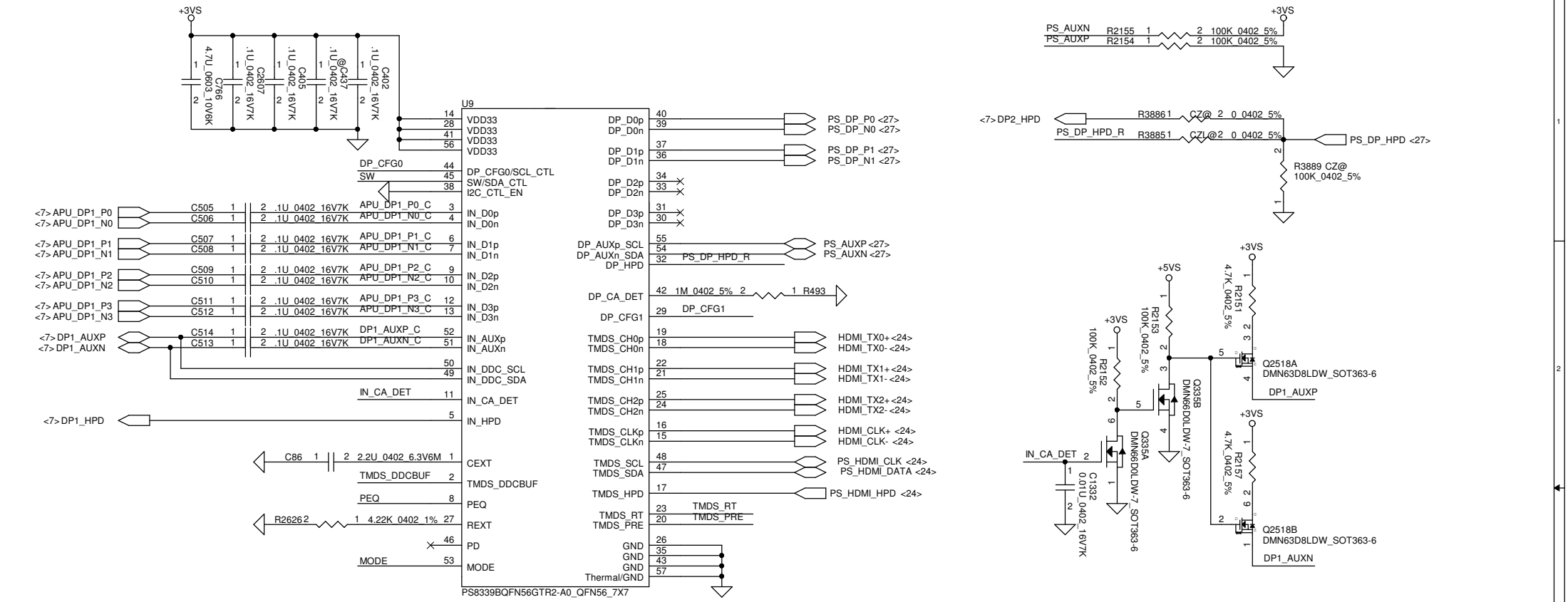


```
TMDS_DDCBUF = L: DDC pass through without pull up
            = H: DDC active buffer with 2.36Kohm pull up resistor *
            = M: DDC pass through with 40Kohm pull up resistor
```

```
PEQ = L: default, LEQ, compensate channel loss up to 12dB @ HBR2 *
    = H: HEQ, compensate channel loss up to 15dB @ HBR2
    = M: LLEQ, compensate channel loss up to 5dB @ HBR2
```

```
MODE = L: Control Switching Mode, HDMI ID disable
     = H: Automatic Switching Mode, HDMI ID disable
     = M: Automatic Switching Mode, HDMI ID enable *
```

```
DP_CFG1 = L: default, auto test disable & input offset cancellation enable *
        = H: auto test enable & input offset cancellation enable
        = M: auto test disable & input offset cancellation disable
```

```
TMDS_RT = L: Standard open drain driver *
        = H: Open drain driver with termination resistors
```

```
TMDS_PRE = L: no pre-emphasis
         = H: 1.5dB pre-emphasis *
         = M: 3.0dB pre-emphasis
```

```
DP_CFG0 = L: default, automatic EQ enable & AUX interception enable *
        = H: automatic EQ disable & AUX interception enable
        = M: automatic EQ disable & AUX interception disable, no pre-emphasis, 800mVpp swing
```

```
SW = L: DP port has higher priority when both ports are plugged
   = H: TMDS port has higher priority when both ports are plugged *
```

Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: DP SW PS8339

Size: B | Document Number: A4WAZ/A4WAR LA-C351P | Rev: 1A

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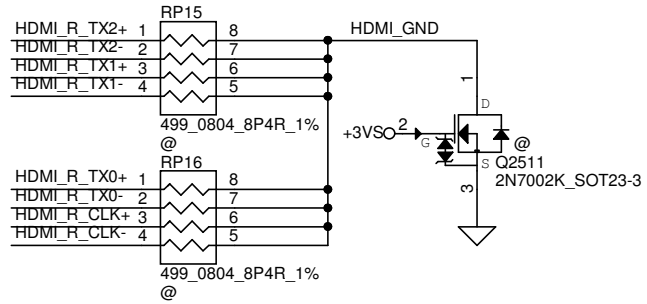

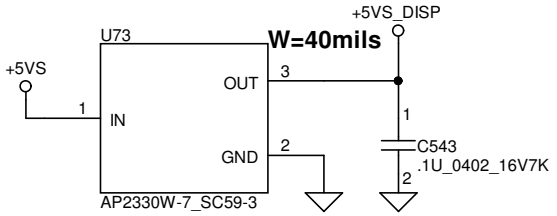

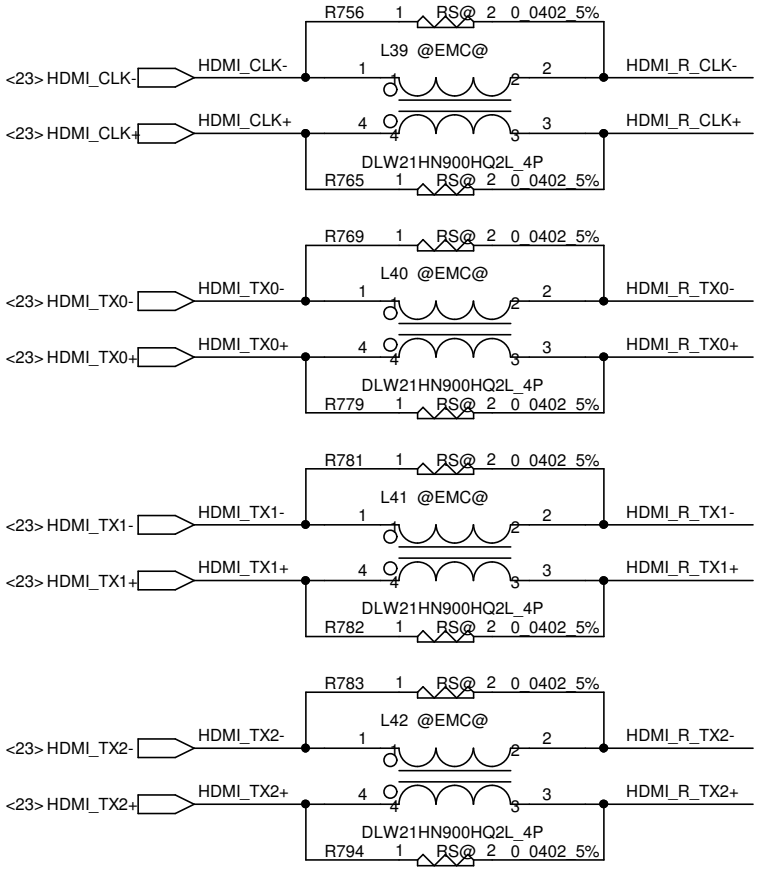

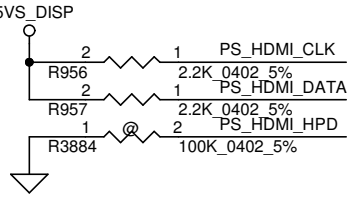

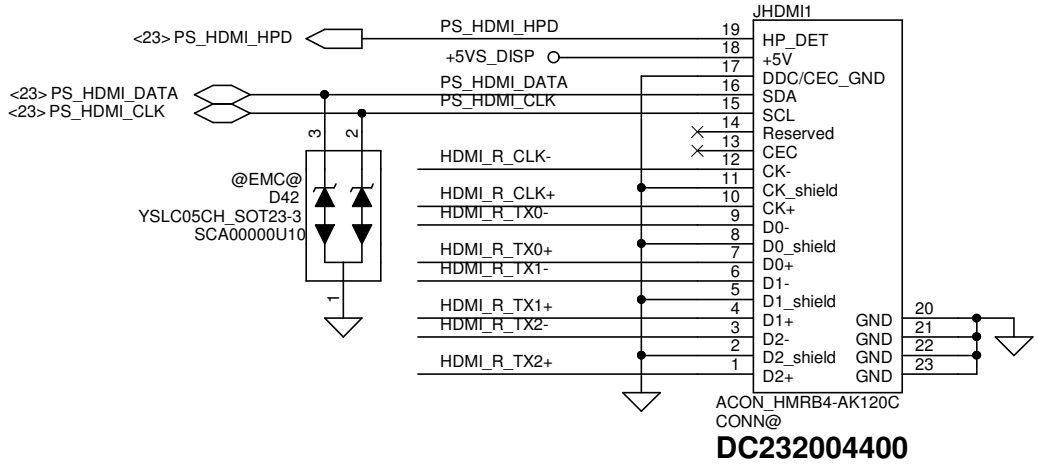

Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: HDMI CONN

Size	Document Number	Rev
Custom	A4WAZ/A4WAR LA-C351P	1A

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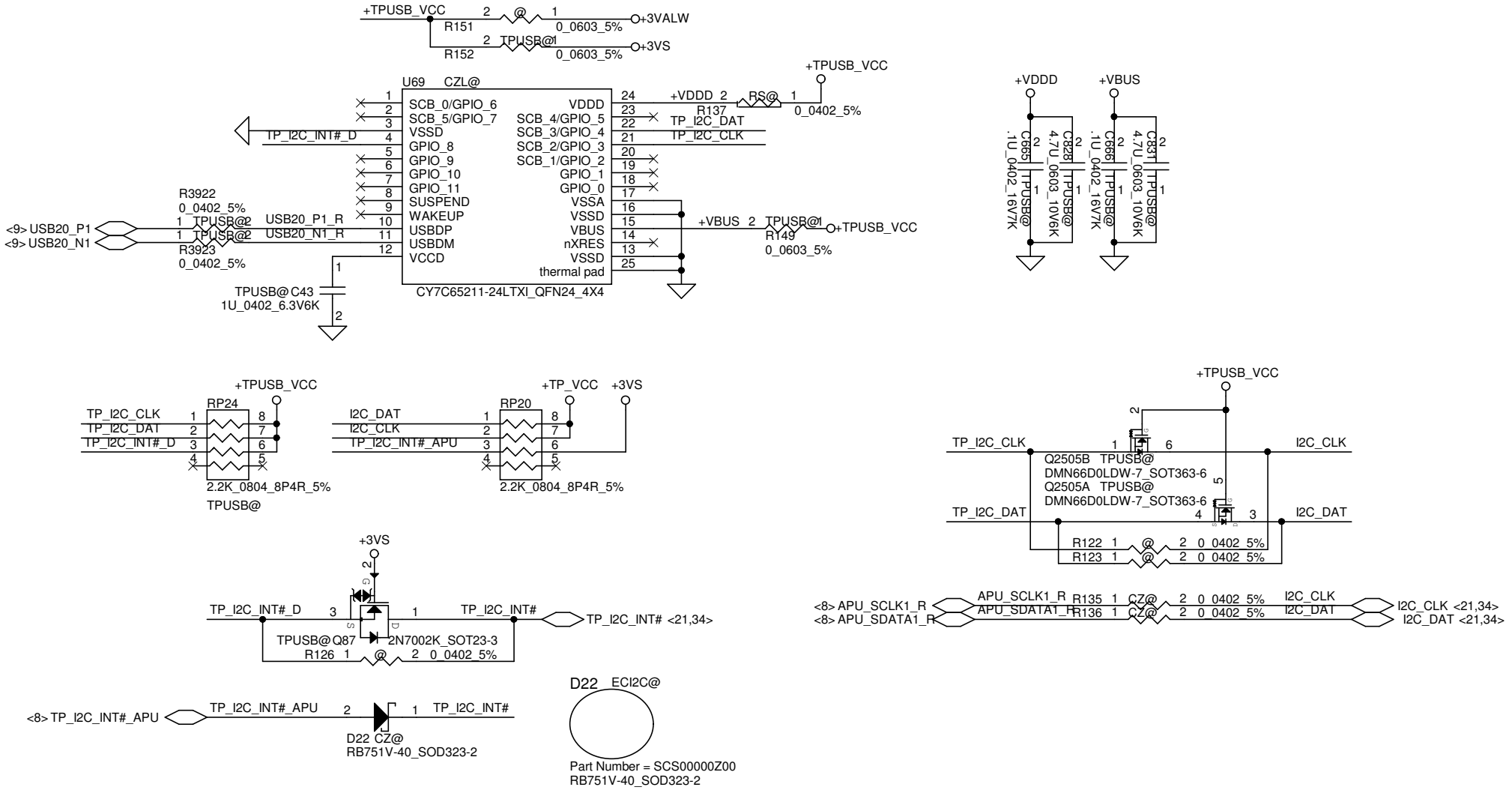

Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: USB-I2C CY7C65211

Size	Document Number	Rev
Custom	A4WAZ/A4WAR LA-C351P	1A

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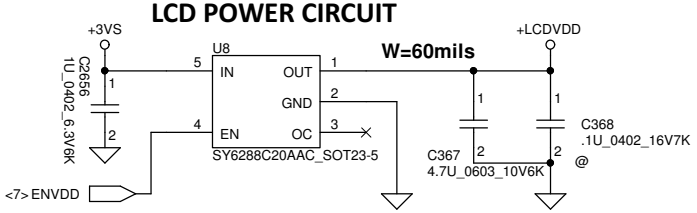
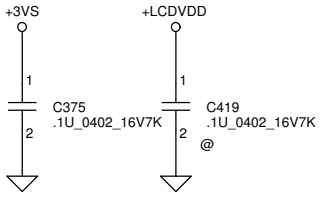
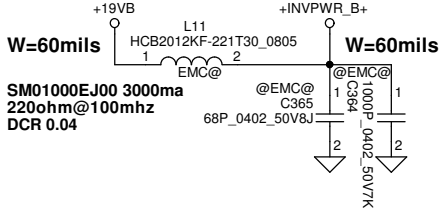
LCD POWER CIRCUIT

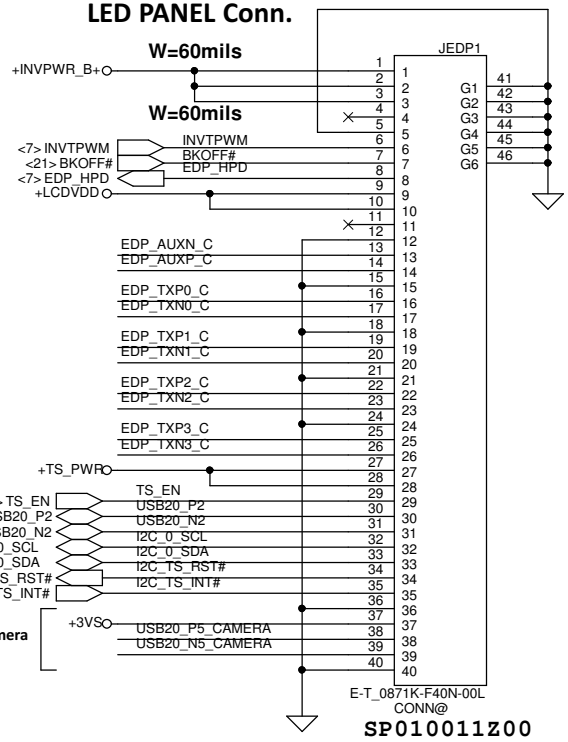


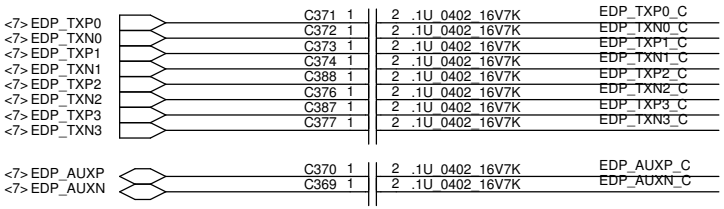
Place closed to JEDP1

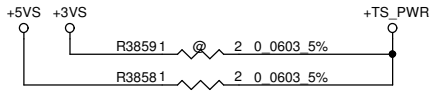


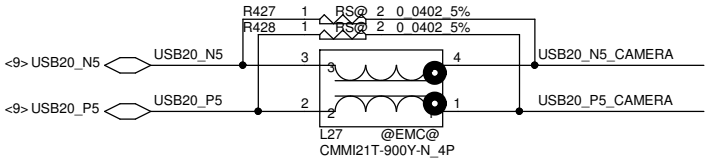


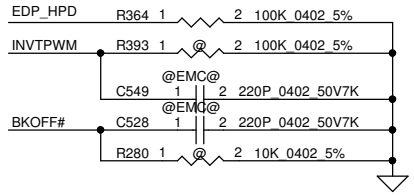
LED PANEL Conn.











Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: eDP/Camera/Touch Screen

Size: Custom | Document Number: A4WAZ/A4WAR LA-C351P | Rev: 1A

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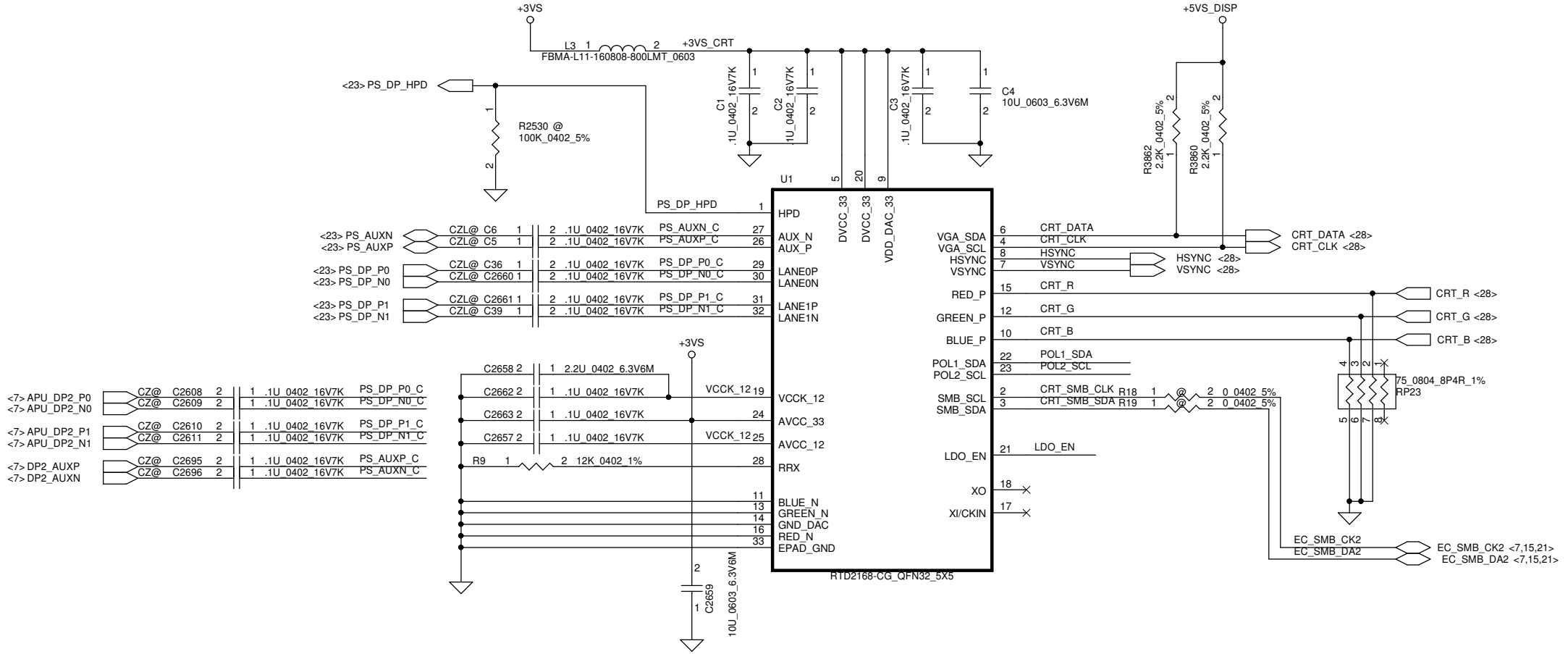
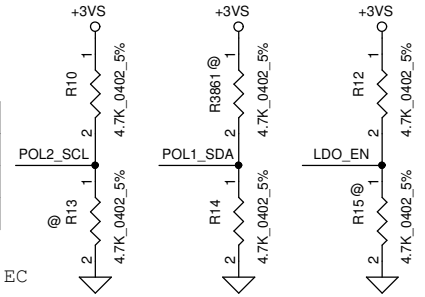


		POL_SDA	
		0	1
POL_SCL	0	X	EP
	1	*ROM	EEPROM

ROM: Internal ROM
EP: Programmed external EC
EEPROM: External ROM



LDO_EN:
*1: Internal 1.2V
0: External 1.2V

Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: DP-VGA RTD2168

Size: Custom | Document Number: A4WAZ/A4WAR LA-C351P | Rev: 1A

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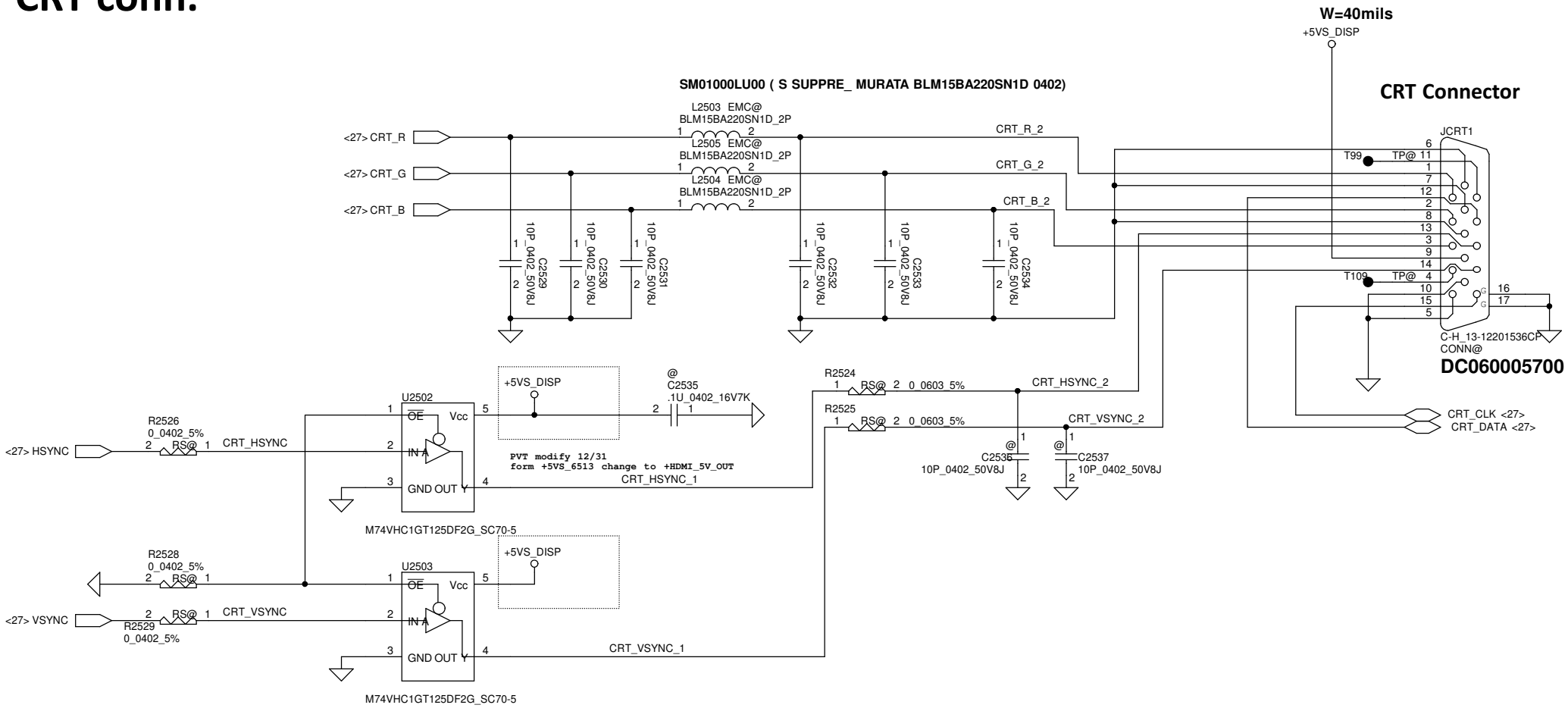
CRT conn.



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: CRT CONN

Size: Custom | Document Number: A4WAZ/A4WAR LA-C351P | Rev: 1A

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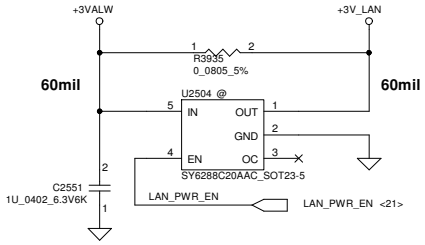
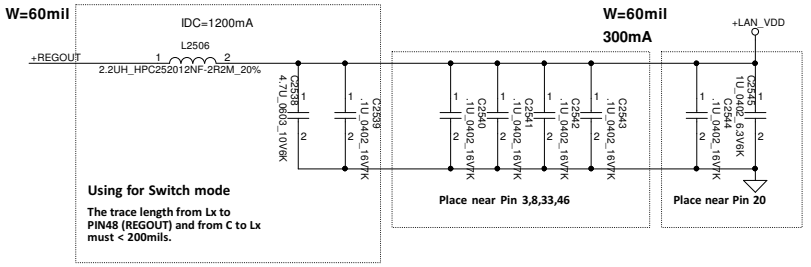
LAN-RTL8411B

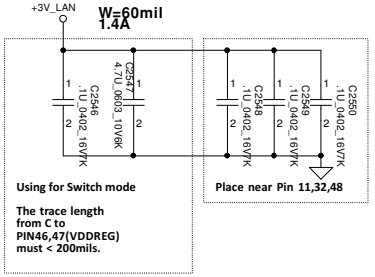


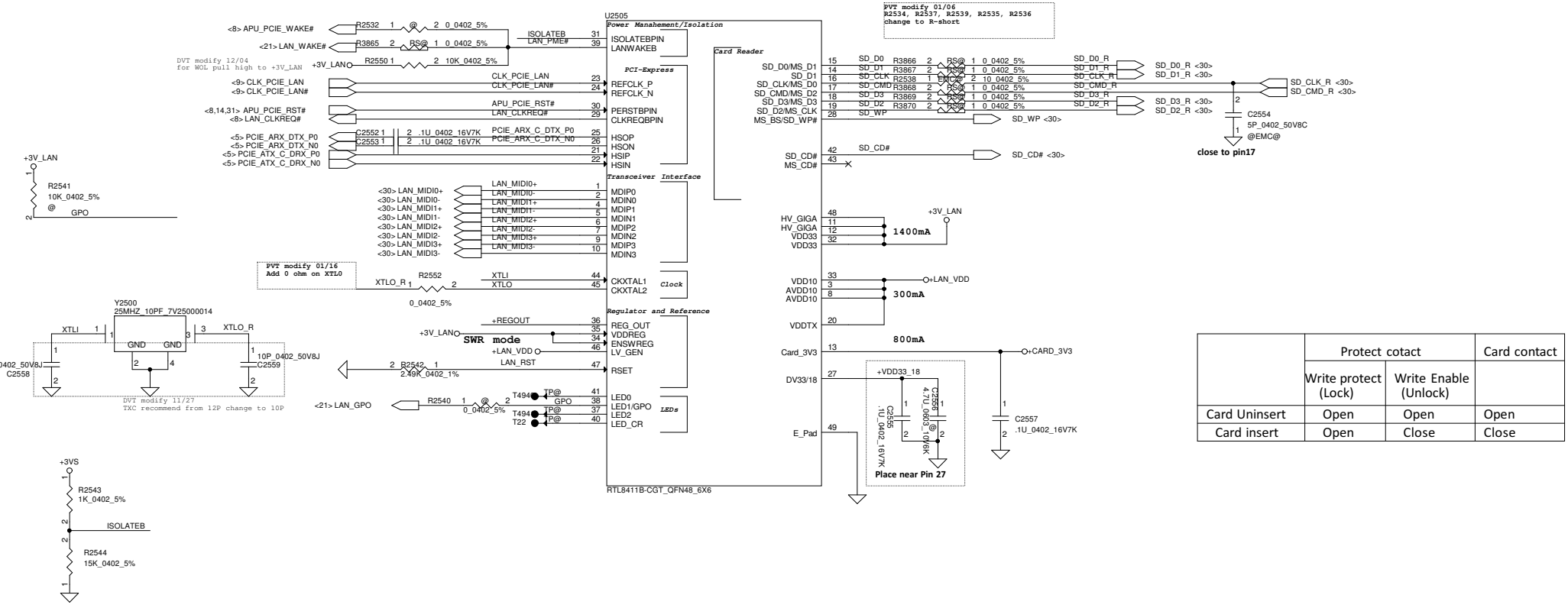
From EC

High act i ve
EN threshold voltage min:1.2V typ:1.6V max:2.0V
Current limit threshold 1.5~2.8A

+3V_LAN Rising t i me must >0 5 ms and <100 ms







	Protect cotact		Card contact
	Write protect (Lock)	Write Enable (Unlock)	
Card Uninsert	Open	Open	Open
Card insert	Open	Close	Close

Compal Electronics, Inc.

Title: LAN RTL8411-CG

Size	Document Number	Rev
Custom	A4WAZ/A4WAR LA-C351P	1A

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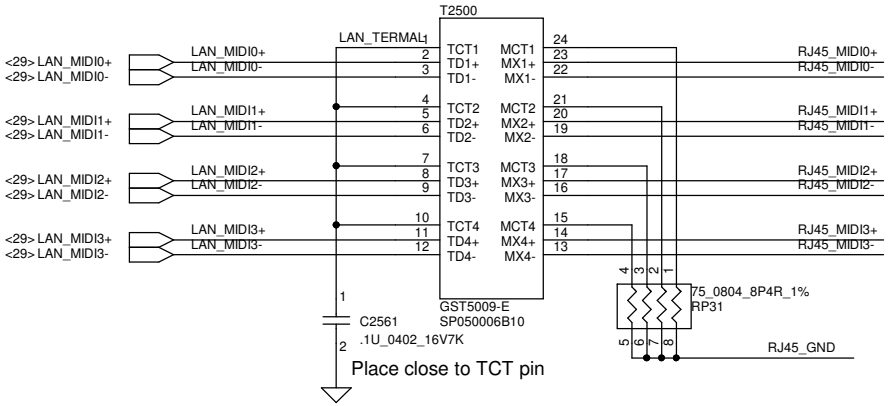
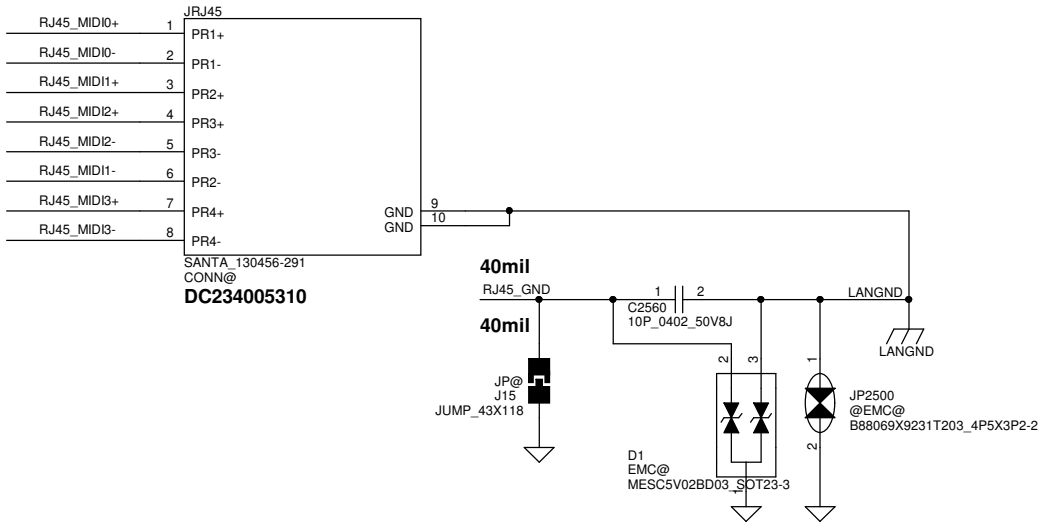
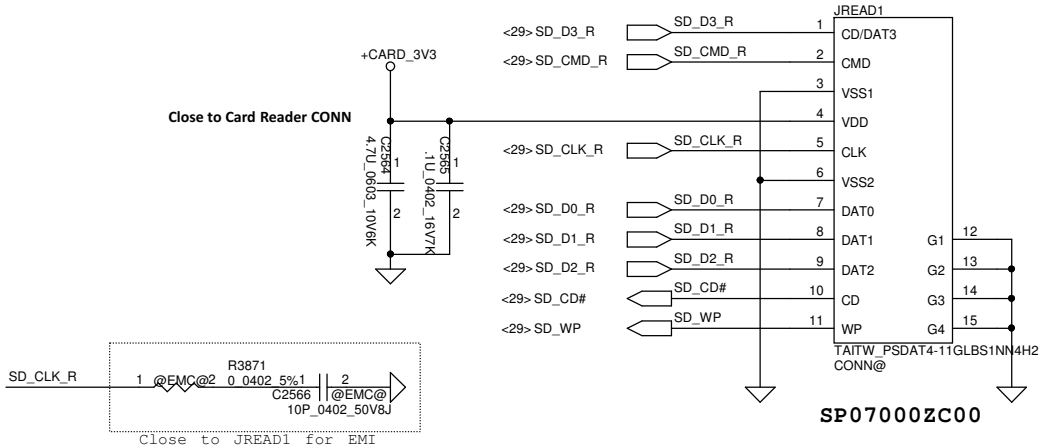
LAN Connector





Card Reader Connector



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: LAN RJ45/CR SD Connector

Size	Document Number	Rev
Custom	A4WAZ/A4WAR LA-C351P	1A

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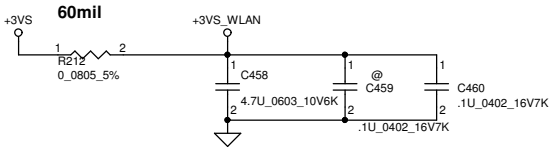
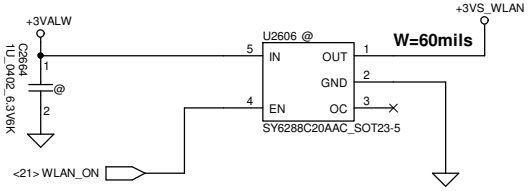
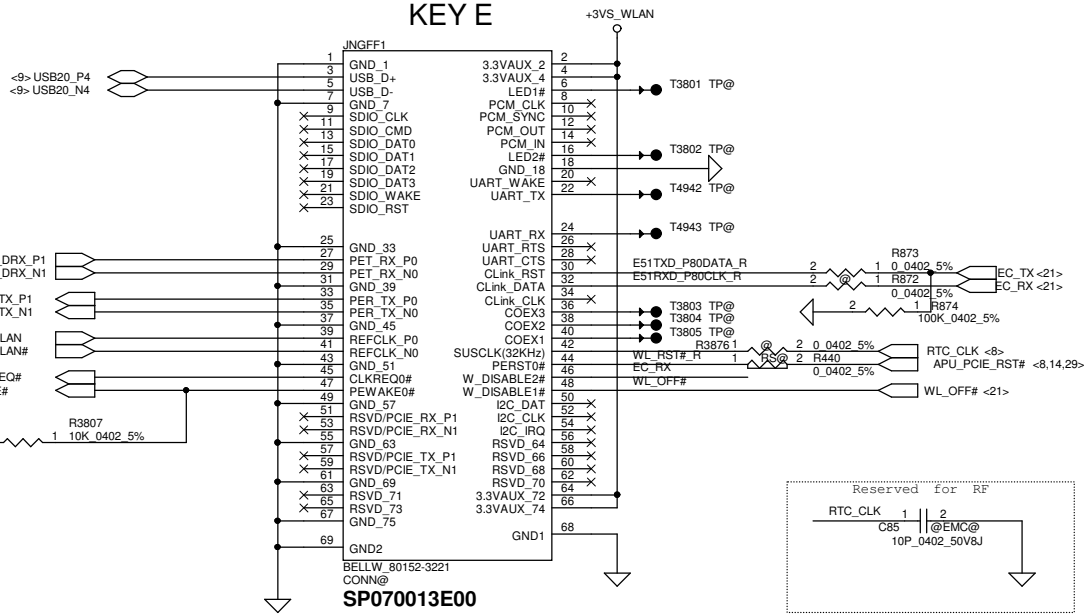
Wireless LAN

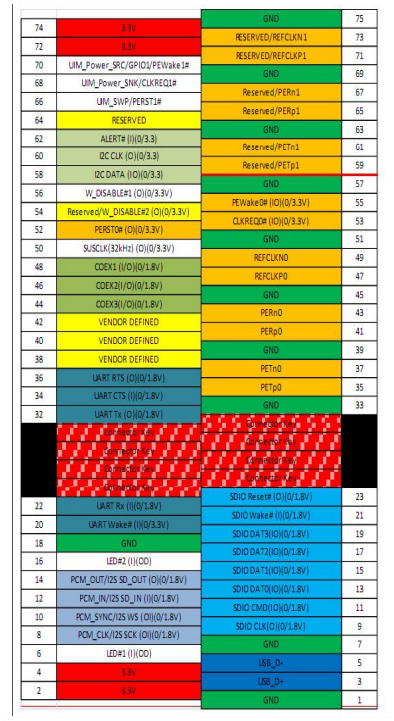




KEY E



NGFF WL+BT (KEY E)



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.			
Title	M.2 Key E (WLAN)		
Size: Custom	Document Number: A4WAZ/A4WAR LA-C351P		Rev: 1A
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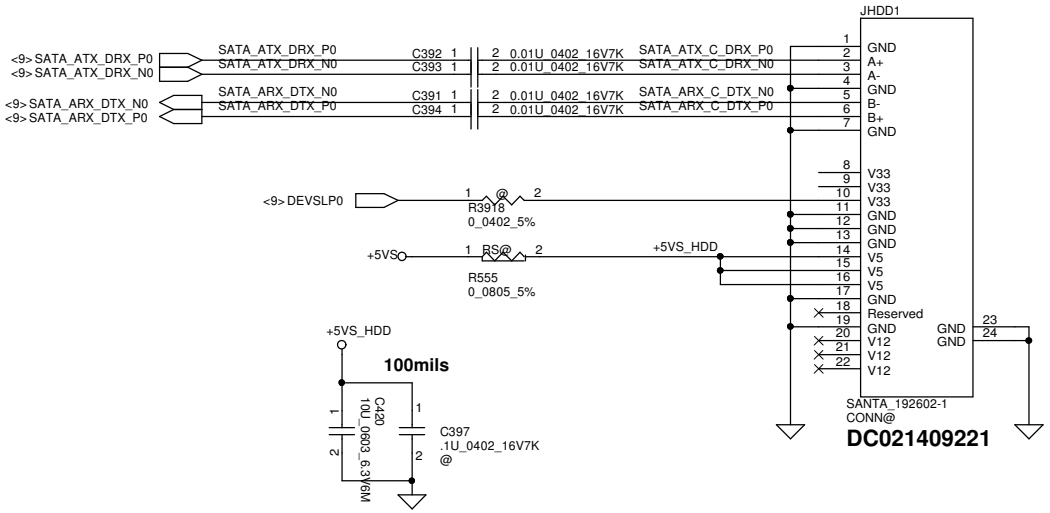
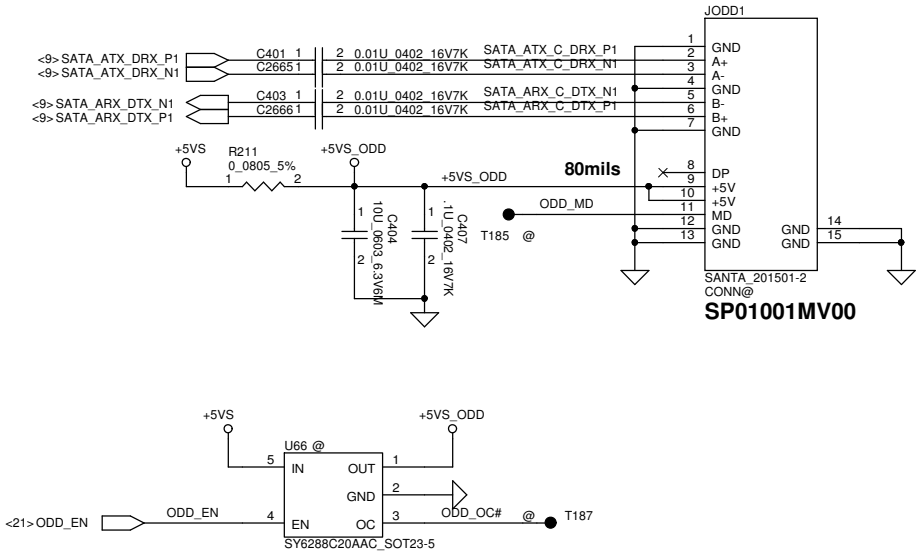
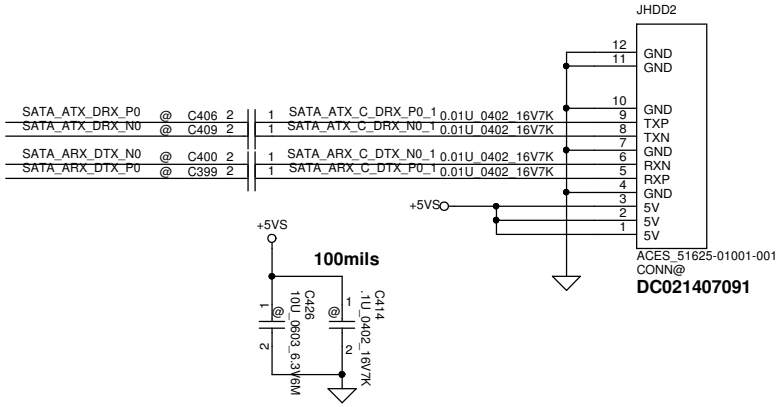
SATA HDD Conn.



SATA ODD Conn.



SATA HDD Conn.



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: HDD/ODD/FAN

Size: Custom | Document Number: A4WAZ/A4WAR LA-C351P | Rev: 1A

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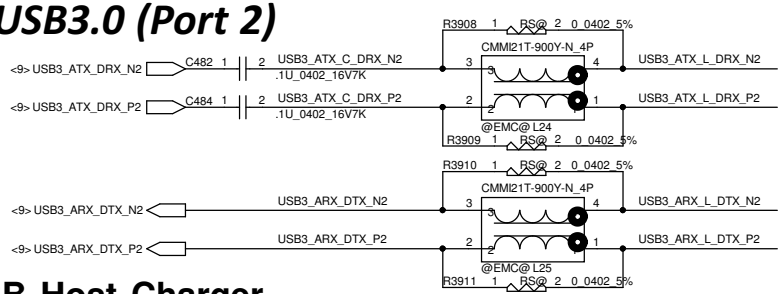
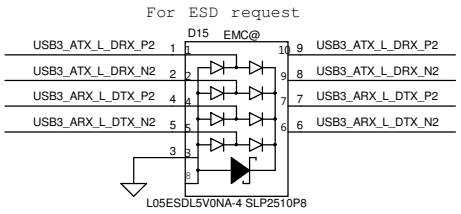
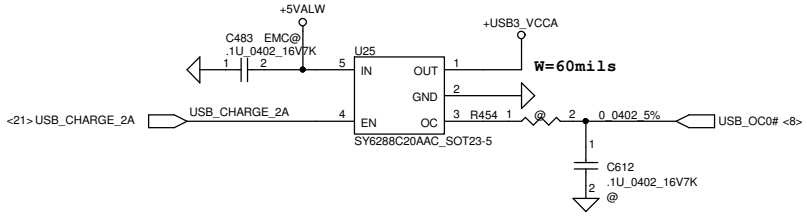
USB3.0 (Port 2)



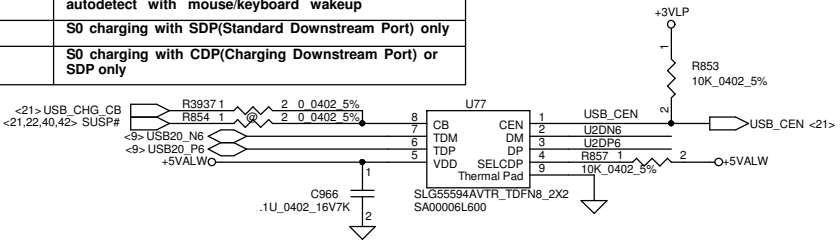
For ESD request

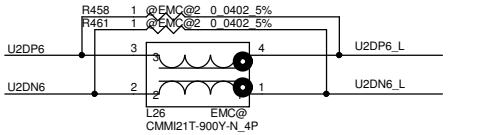


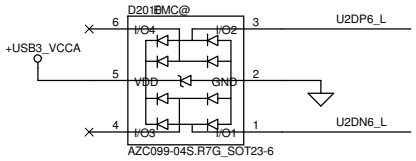


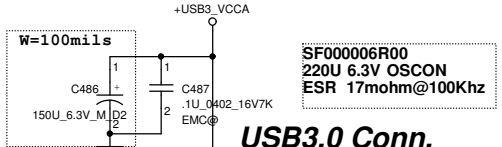
USB Host Charger

CB	SELCDP	
0	X	DCP(Dedicated Charging Port) autodetect with mouse/keyboard wakeup
1	0	S0 charging with SDP(Standard Downstream Port) only
1	1	S0 charging with CDP(Charging Downstream Port) or SDP only

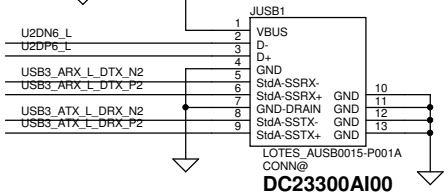






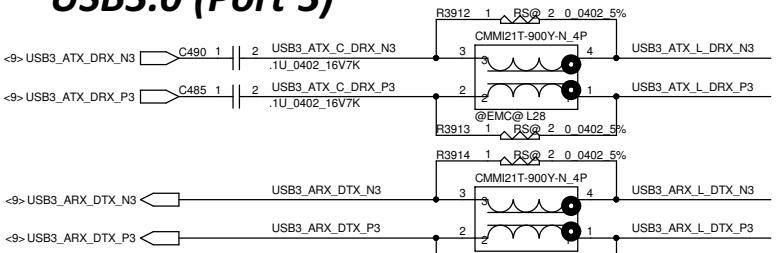


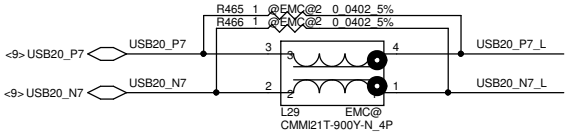
USB3.0 Conn.



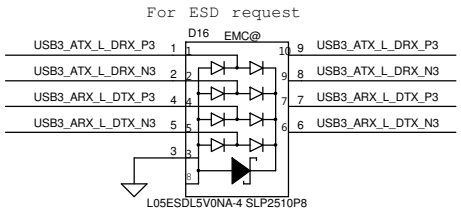
DC23300AI00

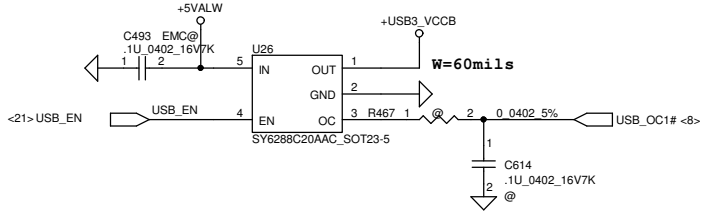
USB3.0 (Port 3)

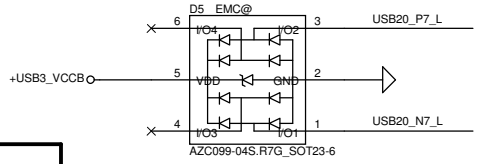


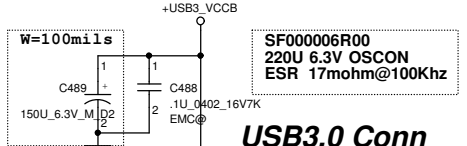


For ESD request

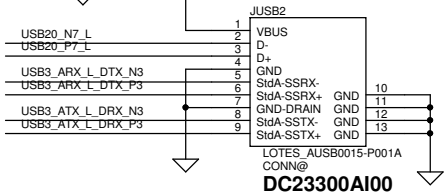






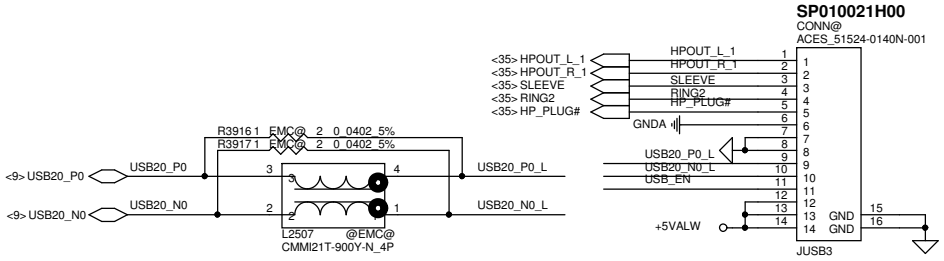


USB3.0 Conn



DC23300AI00

USB/B (USB Port 3, + AUDIO)



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: USB2.0/USB3.0

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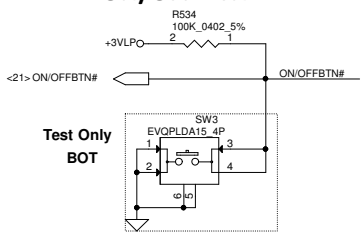
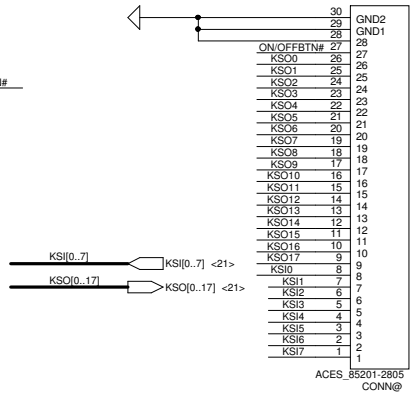
ON/OFF BTN

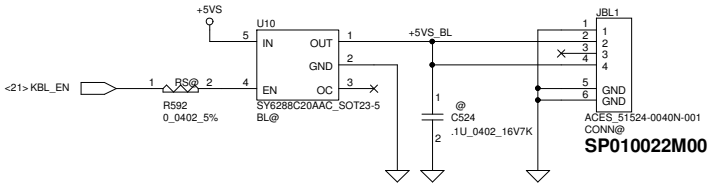


KB Conn.



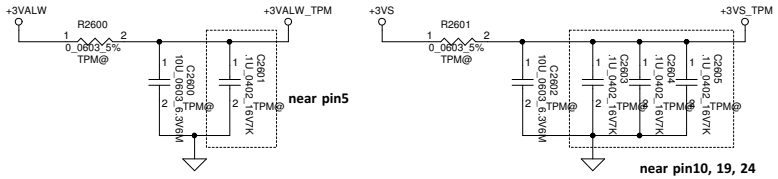
SP01000GO00

KB BackLight Conn. Reserve

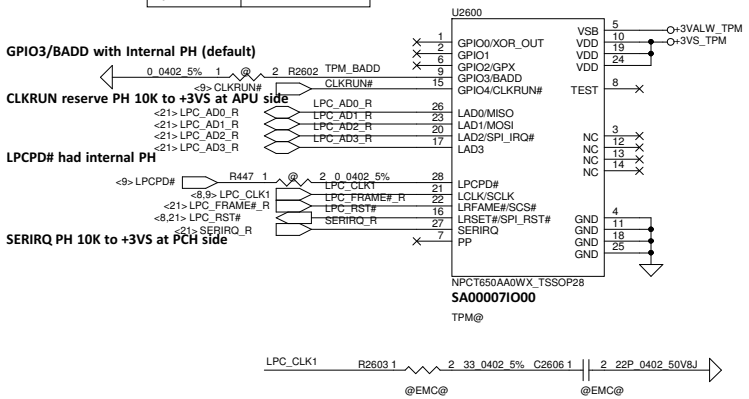


SP010022M00

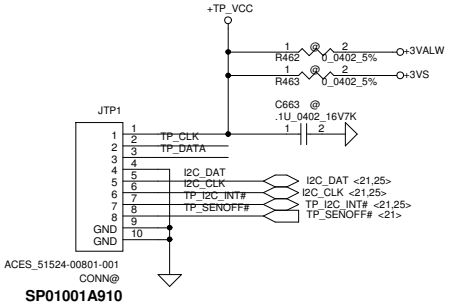
TPM Board for 2015



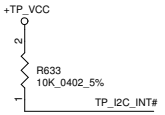
BADD	SELECTION
0	EEh - EFh
* 1	7Eh - 7Fh

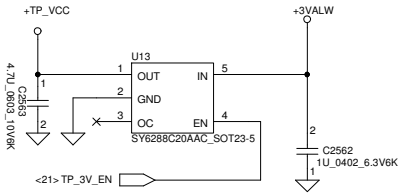


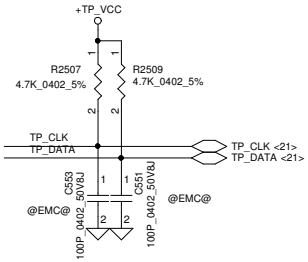
TP/B Conn.



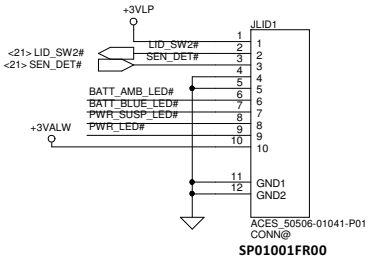
SP01001A910







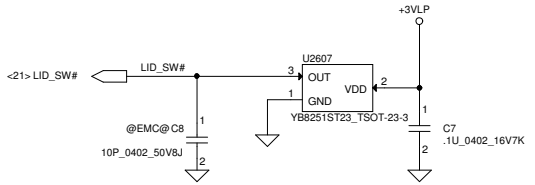
Lid Switch 2 (reserve for 15")



SP01001FR00

Lid Switch

(Hall Effect Switch)



Dual Amber+Blue

LTST-S115TBKF-CA (SC50000C500)

Vf @ 5 mA :

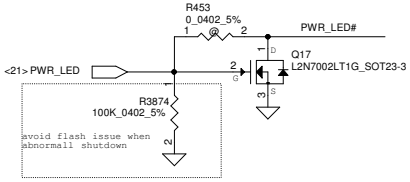
UD5: 1.7 ~ 2.3V
(3.3-1.7)/300=5.71 mA
(3.3-2.3)/300=3.57 mA
R min: 100 ohm
R max 700 ohm

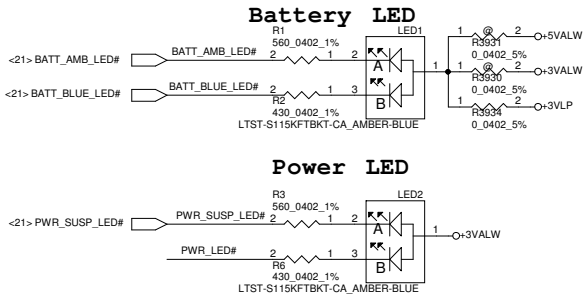
CB5: 2.65~3.05V
(3.3-2.65)/50=13.00 mA
(3.3-3.05)/100=5.0 mA
R min: 50 ohm
R max:475 ohm

LED

100 1% :SD034100080
150 1% :SD034150080
301 1% :SD034301080
680 1% :SD034680080

120 5% :SD028120080
560 5% :SD028560080
200 5% :SD028200080





Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: KB/TP/TPM Connector/LED

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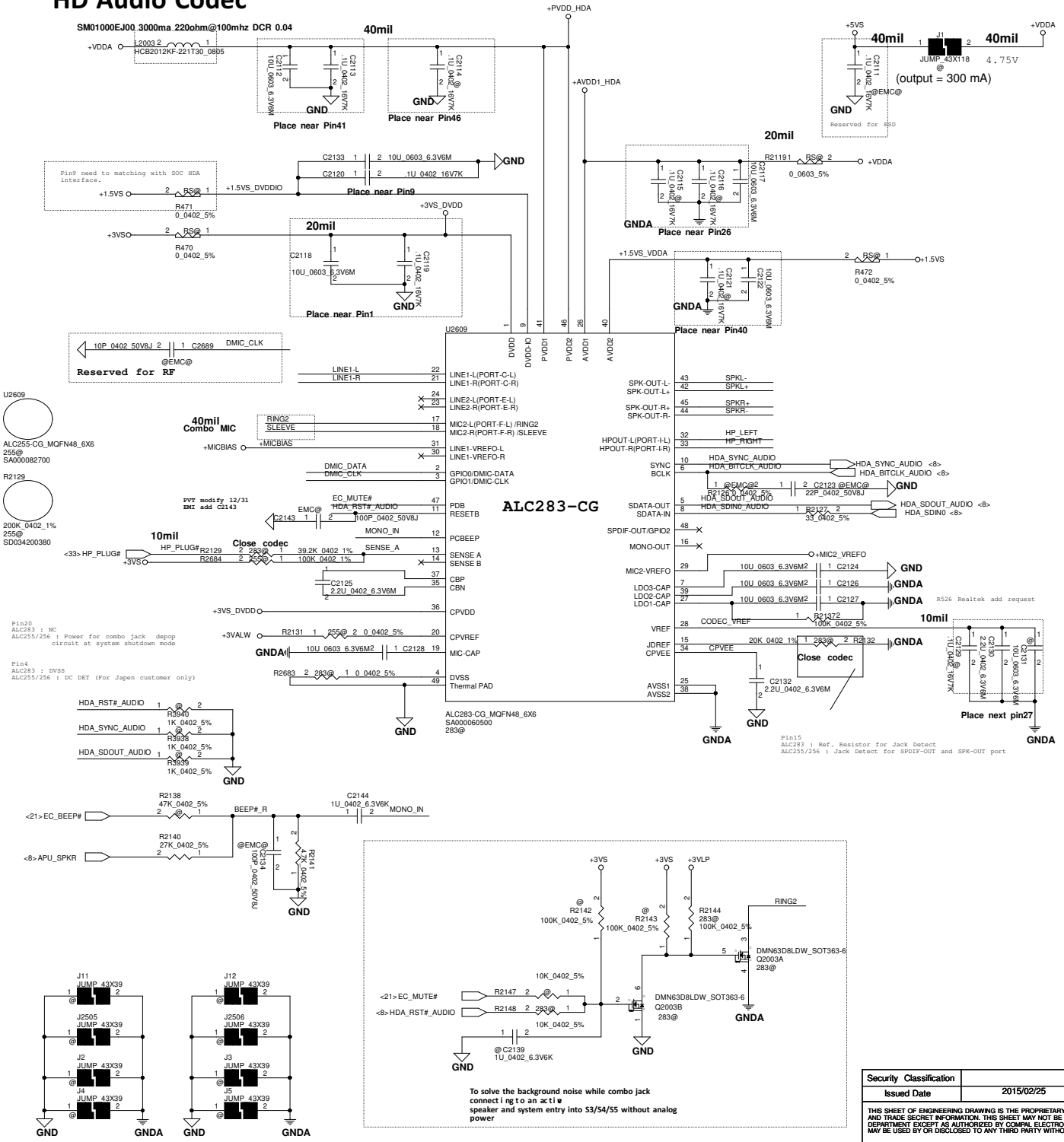
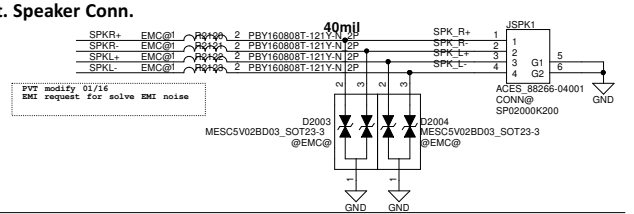
HD Audio Codec

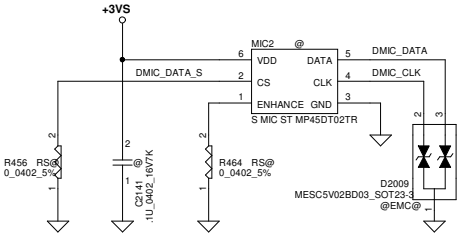


Int. Speaker Conn.

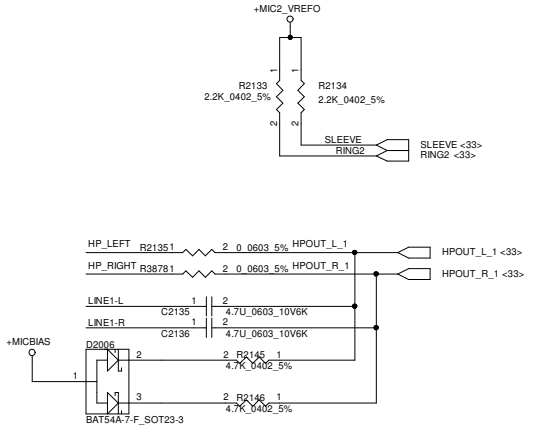


Digital MIC Dual-MIC

MIC BOM upload by Audio Team



Headphone Out



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: HD Audio Codec ALC283/255

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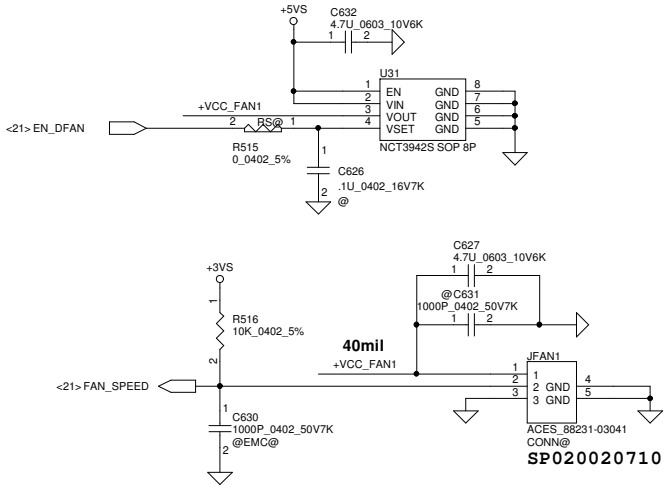
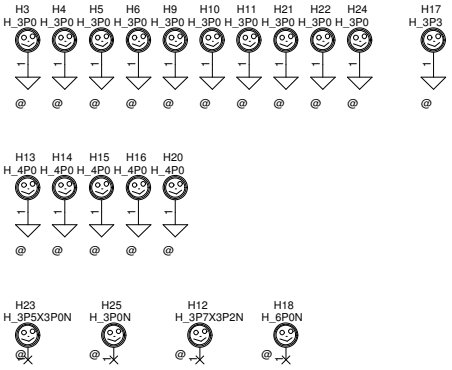
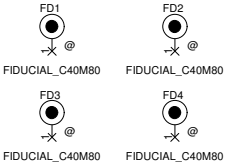
FAN1 Conn

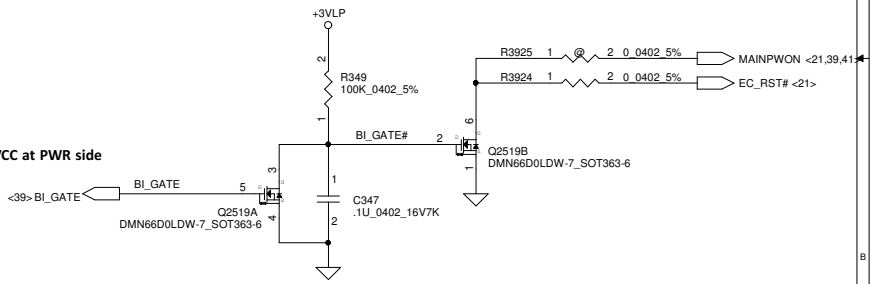


Screw Hole

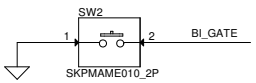




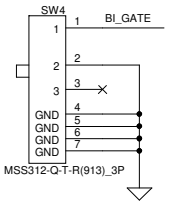
Reset Circuit



Reset But t on



Debug SW



1-2 : BATT Of f
2-3 : BATT ON

Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: FAN/BATT RESET_DEGUB SW

Size	Document Number	Rev
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0.1
1. Change R3880 to 0603 0ohm
2. Change R346 to 22Kohm
3. Unpop RV163,RV81,RV82,RV83
4. Unpop R1691,R1692,R1693,R1694

0.2
1. Pop RV160,RV161 for Exo
2. Pop C543 for HDMI DDC electrical test
3. Pop R81;change R2626 to 4.22K for HDMI EA
4. Add CV2698 at VGA_ON
5. JUSB3 pin reverse
6. C794,C795 change to 5.6P;C682 change to 22P
7. Unpop CV11
8. Pop R1562;R1564 15K for CZ, 20K for CZL
9. Remove MIC1,D58,R460
10. Combine power
11. Add R3922,R3923
12. Change SW4 footprint
13. Change R1,R3 to 470ohm
14. Change L2506 to SH00000RT00
15. Combine power
16. Add R3924,R3926;reserve R3925,D2012,D2013,D2014
17. Change L2503,L2504,L2505 to SM01000LU00
18. Combine power
19. Reserve R3927
20. Combine power
21. Add R3928,R3929,R3931; reserve R3930
22. Change R3890,R3891 to 10K
23. Change R349 to 100K
24. Change R2 to 562ohm
25. Unpop R3922,R3923,Q2505,Q87

1.0
1. Unpop R3931, add R3934
2. Change R1,R3 to 560ohm; R2,R6 to 430ohm
3. Change H17 to H_3P3
4. Unpop U2606; pop R212
5. Add R3935, unpop U2504
6. RP26 1K for CZL; 2.2K for CZ
7. Reserve R3936
8. Pop R211; unpop U66
9. Unpop R682,R694,R704,R705,R706,R707,R708
10. Change R1690,RV1630,RV1631,RV27,RV30,RV31,R119,R157,R456,R464,R470,R471,R472,R854,R1682,R3824,R3834,R3849,R16,R3902,R3903 to R-Short
11. Change R2140 to 27K
12. Combine power
13. Change R106,R756,R765,R769,R779,R781,R782,R783,R794,R3908,R3909,R3910,R3911,R3912,R3913,R3914,R3915,R427,R428 to R-Short
14. R107 22ohm for CZL; 0ohm for CZ
15. Change C2647,C2648 to 6.8p
16. Change C644 to 330u
17. Change R854 to 0ohm unpop; add R3937
18. Combine power
19. R1564 27k for CZ; 33k for CZL
20. Add R3932 for dGPU, reserve R3933,U2612
21. Combine power
22. Pop U69 use memo control
23. Change L26, L69 to SM070002J00
24. Change R3903,R3902 to 0ohm pop
25. Change U2608 to SA000088800; R3902,R3903 to 1Kohm; unpop R3890,R3891
26. Change U2608 to SA003930080; R3902,R3903 to 0ohm; R3890,R3891 to 1Kohm pop
27. Change U2608 to SA000088800; R3902,R3903 to 1Kohm; unpop R3890,R3891

1A
1. Change R872 to 0ohm unpop; R873 to 0ohm pop
2. R1564 43k for CZ; 56k for CZL
3. Combine power
4. Reserve R3938,R3939
5. Reserve R3940

Compal Electronics, Inc.

Title: HW-PIR

Size	Document Number	Rev
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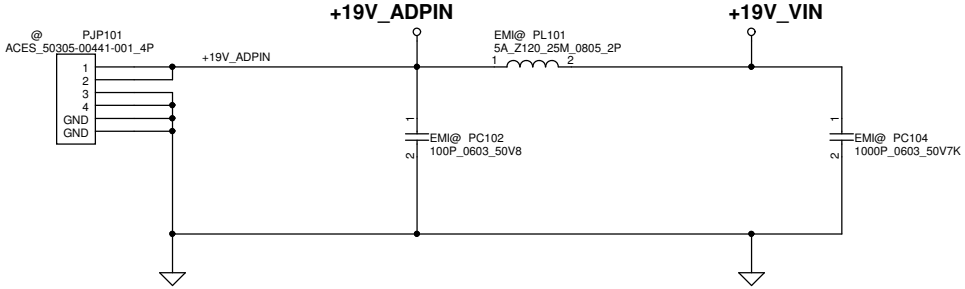
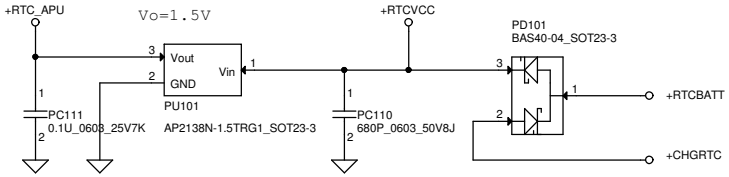
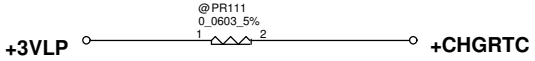
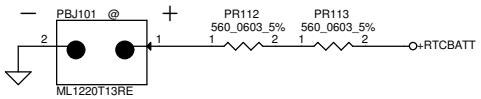






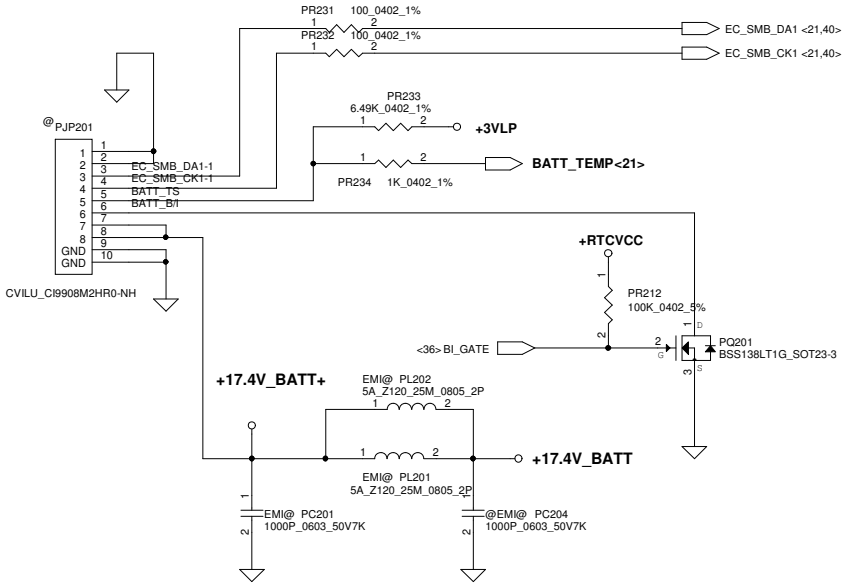


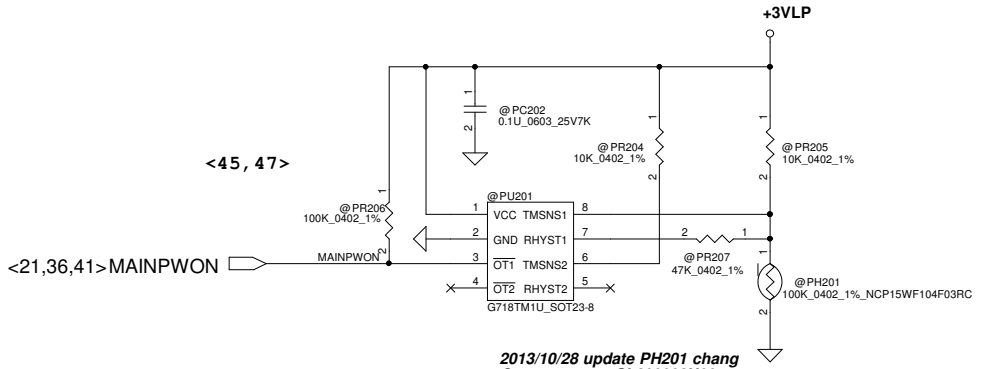
Compal Electronics, Inc.

Title: DCIN

Size	Document Number	Rev
Custom	A4WAZ/A4WAR LA-C351P	1A

Date: Thursday, February 26, 2015 | Sheet 38 of 51





2013/10/28 update PH201 chang
Common part SL200002H00

```
---Battery_pin  define---    ---Battery Con_pin define---
PIN1 GND                     PIN8 GND
PIN2 GND                     PIN7 GND
PIN3 SMD                     PIN6 SMD
PIN4 SMC                     PIN5 SMC
PIN5 TS                      PIN4 TS
PIN6 B/I                     PIN3 B/I
PIN7 Batt+                   PIN2 Batt+
PIN8 Batt+                   PIN1 Batt+
```

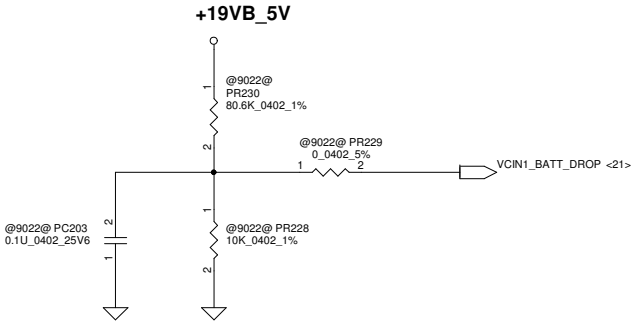
For KB9022 OTP	Active	Recovery
VCIN0_PH(V)	92C, 1V	56C, 2.V
PH202(ohm)	7.3K	26.11K

For KB9012 sense 20mΩ	Active	Recovery
45W	48.15W, 0.73V	38.7W,0.59V
65W	69.55W, 0.73V	55.9W,0.59V

PH202 under CPU botten side :
CPU thermal protection at 92 degree C (shutdown)
Recovery at 56 degree C

2013/10/02
Add for ENE9022 Battery Voltage drop detection.
Connect to ENE9022 pin64 AD1.

Reserve for 2-cell design

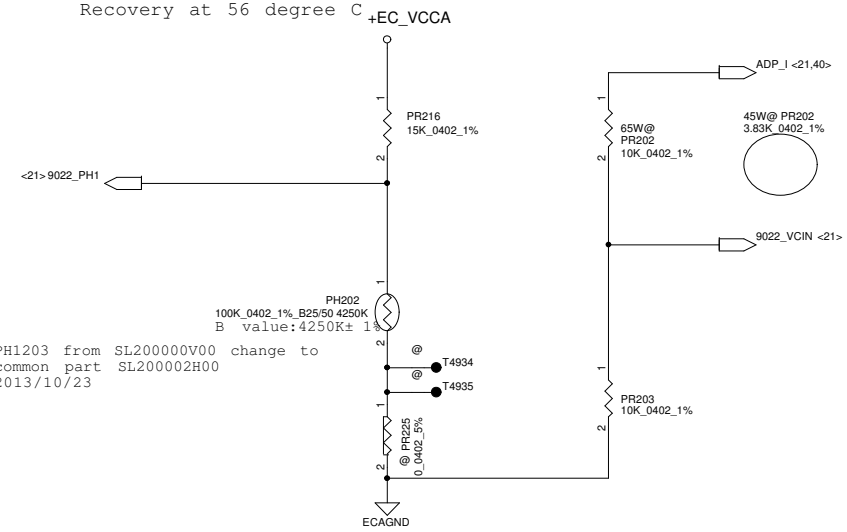


For 45W adapter==>action 48.15W , Recovery 38.7W
48.15W:
Iada= 0~2.253A (48.15W/19V=2.534A)
ADP_I=20*Iada*Rsense
ADP_I=20*2.534*0.02=1.01
38.7W:
Iada= 0~2.036A (38.7W/19V=2.036A)
ADP_I=20*Iada*Rsense
ADP_I=20*2.036*0.02=0.814

CP=45W*0.85=38.25W

For 65W adapter==>action 69.55W , Recovery 55.9W
69.55W:
Iada= 0~3.661A (69.55W/19V=3.661A)
ADP_I=20*Iada*Rsense
ADP_I=20*3.661*0.02=1.464
55.9W:
Iada= 0~2.942A (55.9W/19V=2.942A)
ADP_I=20*Iada*Rsense
ADP_I=20*2.942*0.02=1.177

CP=65W*0.85=55.25W



PH1203 from SL200000V00 change to common part SL200002H00 2013/10/23

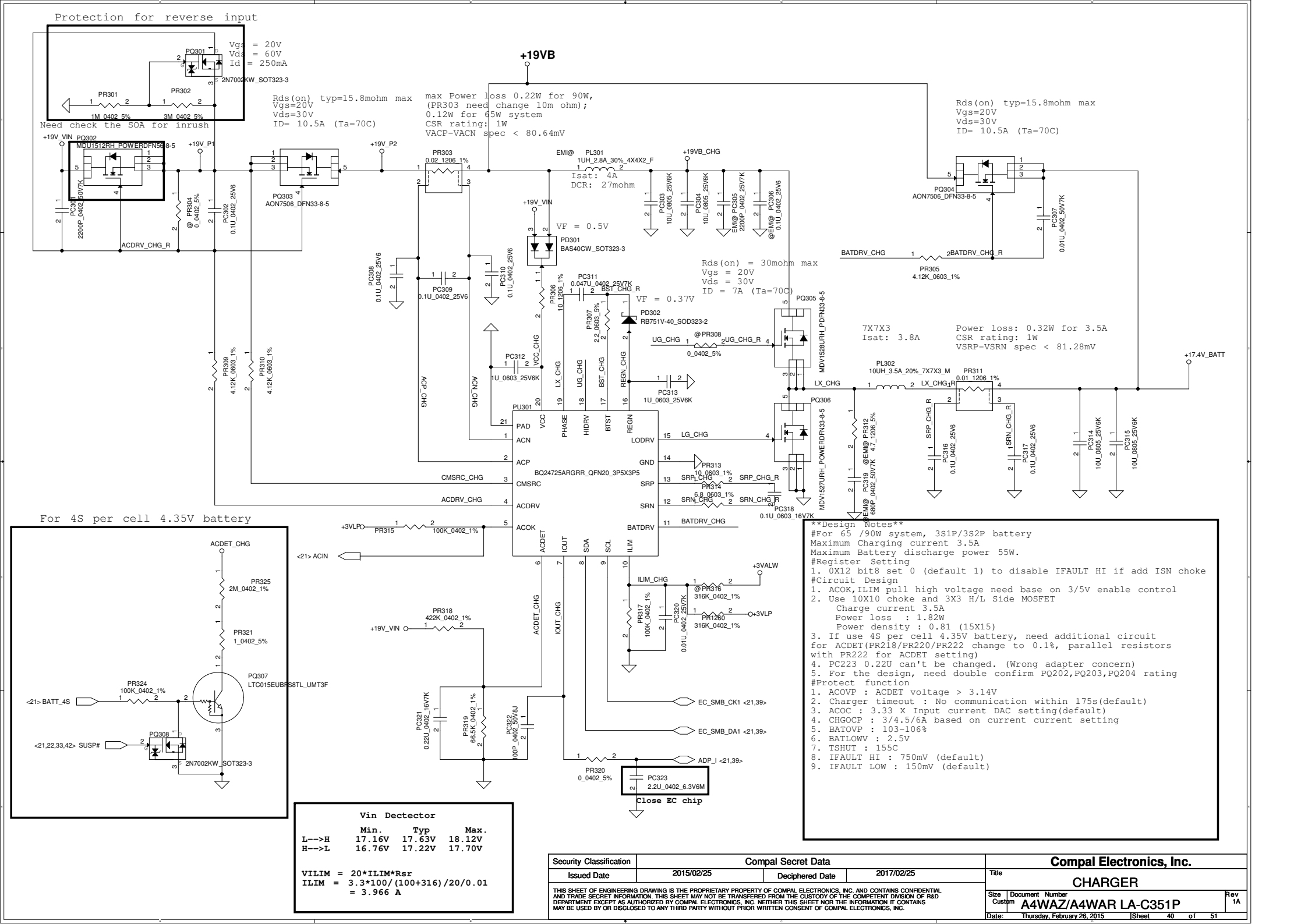
Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: BATTERY CONN / OTP

Size: Custom | Document Number: A4WAZ/A4WAR LA-C351P | Rev: 1A

Date: Thursday, February 26, 2015 | Sheet 39 of 51



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: CHARGER

Size: Custom | Document Number: A4WAZ/A4WAR LA-C351P | Rev: 1A

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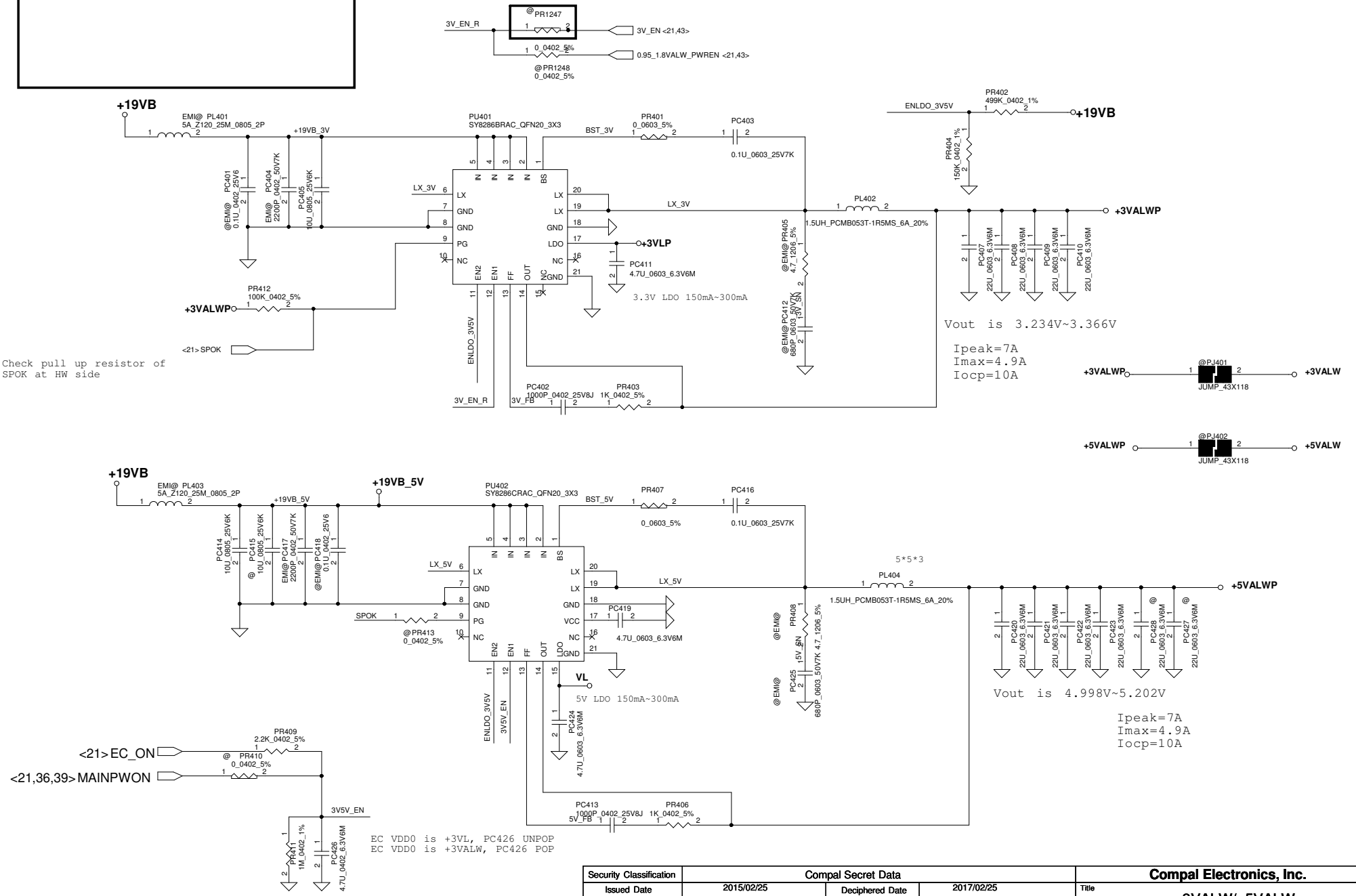
Module model information

SY8208B_V2.mdd
SY8208C_V2.mdd



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: +3VALW/+5VALW

Size	Document Number	Rev
Custom	A4WAZ/A4WAR LA-C351P	1A

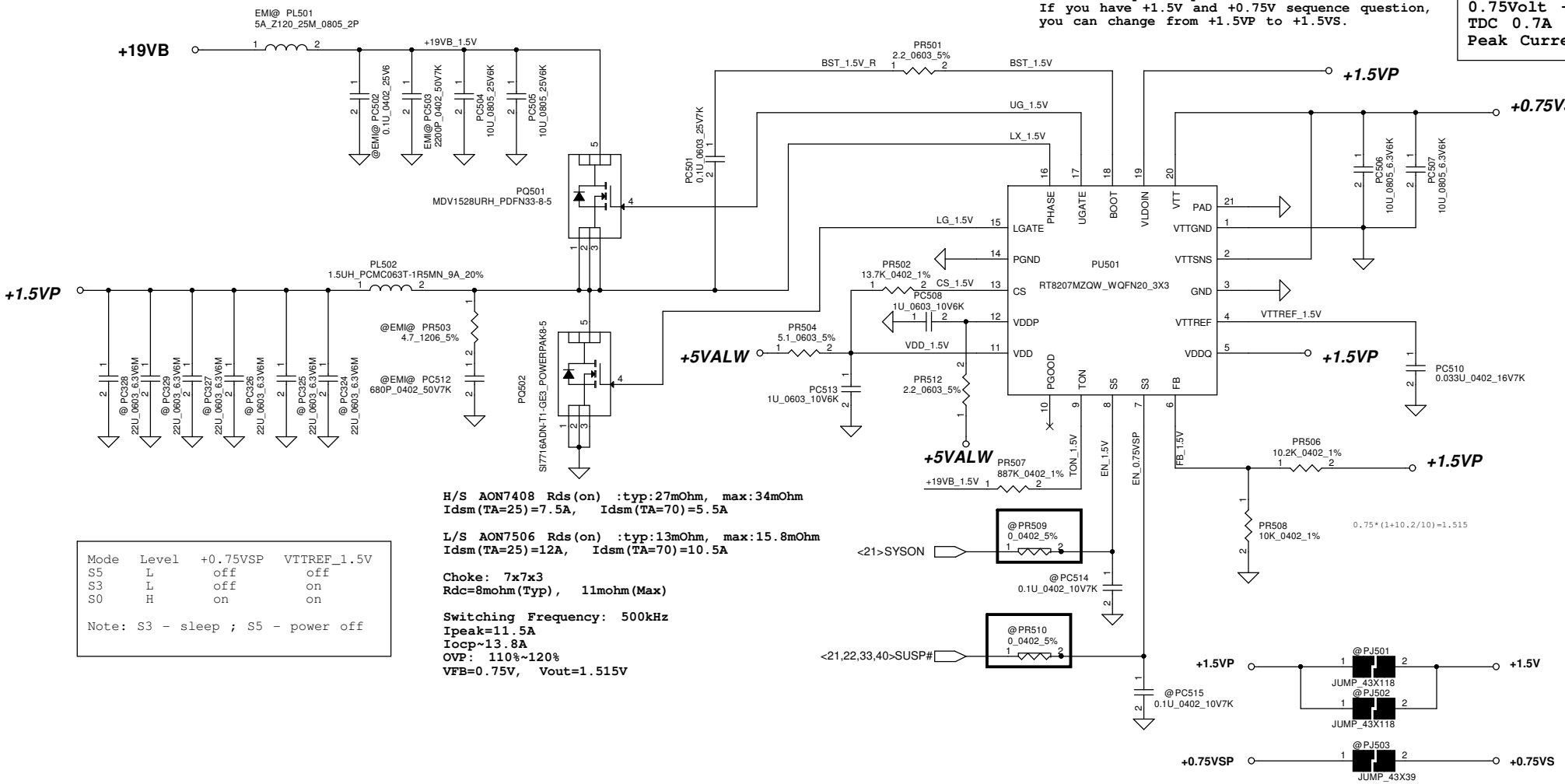
Date: Thursday, February 26, 2015 | Sheet 41 of 51

Module model information

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



H/S AON7408 Rds(on) :typ:27mOhm, max:34mOhm
Idsm(TA=25)=7.5A, Idsm(TA=70)=5.5A

L/S AON7506 Rds(on) :typ:13mOhm, max:15.8mOhm
Idsm(TA=25)=12A, Idsm(TA=70)=10.5A

Choke: 7x7x3
Rdc=8mohm(Typ), 11mohm(Max)

Switching Frequency: 500kHz
Ipeak=11.5A
Iocp~13.8A
OVP: 110%~120%
VFB=0.75V, Vout=1.515V

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

Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

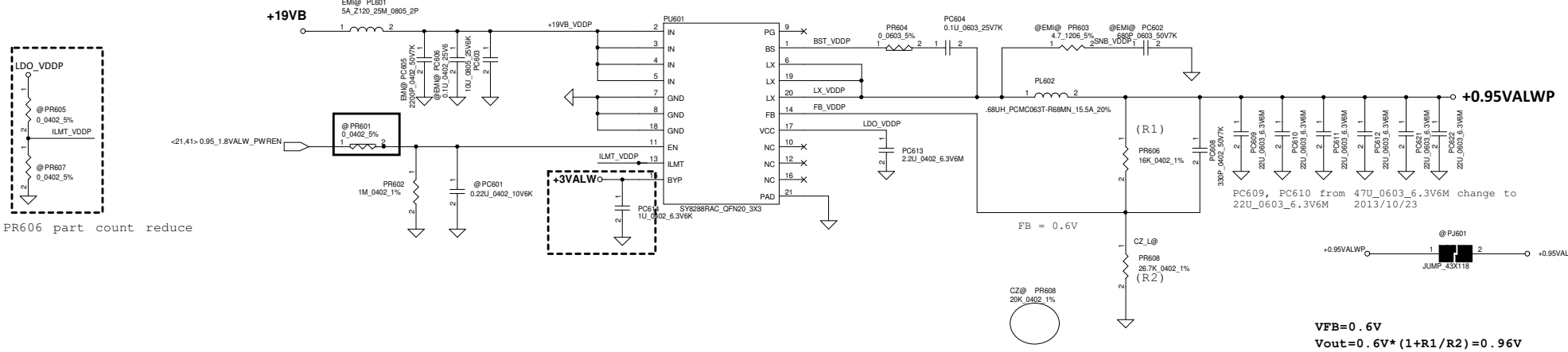
Title: +1.5VP/+0.75VSP

Size: Custom | Document Number: A4WAZ/A4WAR LA-C351P | Rev: 1A

Date: Thursday, February 26, 2015 | Sheet 42 of 51

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

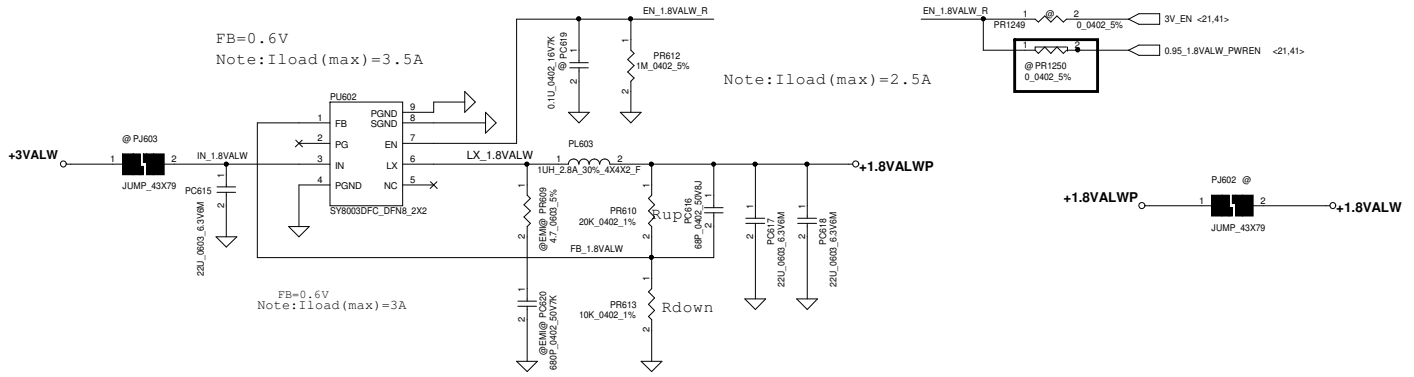
Module model information
SY8208D_V1.mdd



PR606 part count reduce

PC609, PC610 from 47U_0603_6.3V6M change to 22U_0603_6.3V6M 2013/10/23

VFB=0.6V
Vout=0.6V*(1+R1/R2)=0.96V

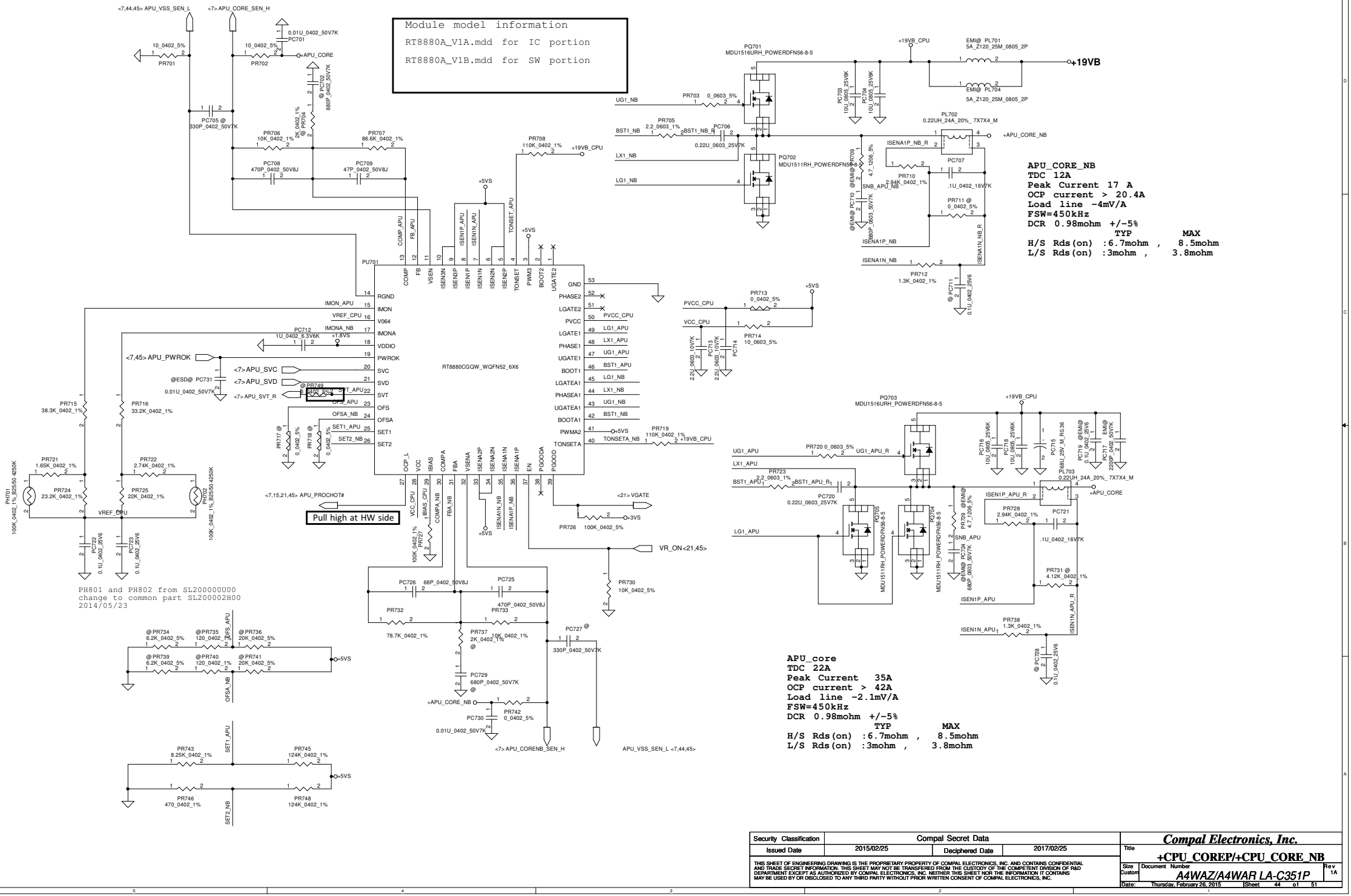


Note:
When design Vin=5V, please stuff snubber to prevent Vin damage

Vout=0.6V* (1+Rup/Rdown)

Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.	
Title	+1.05VALW/+1.8VALW
Size C	Document Number A4WAZ/A4WAR LA-C351P
Rev 1A	
Date: Thursday, February 26, 2015	Sheet 43 of 51



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.			
Title	+CPU_COREP/+CPU_CORE_NB		
Size Custom	Document Number A4WAZ/A4WAR LA-C351P		Rev 1A
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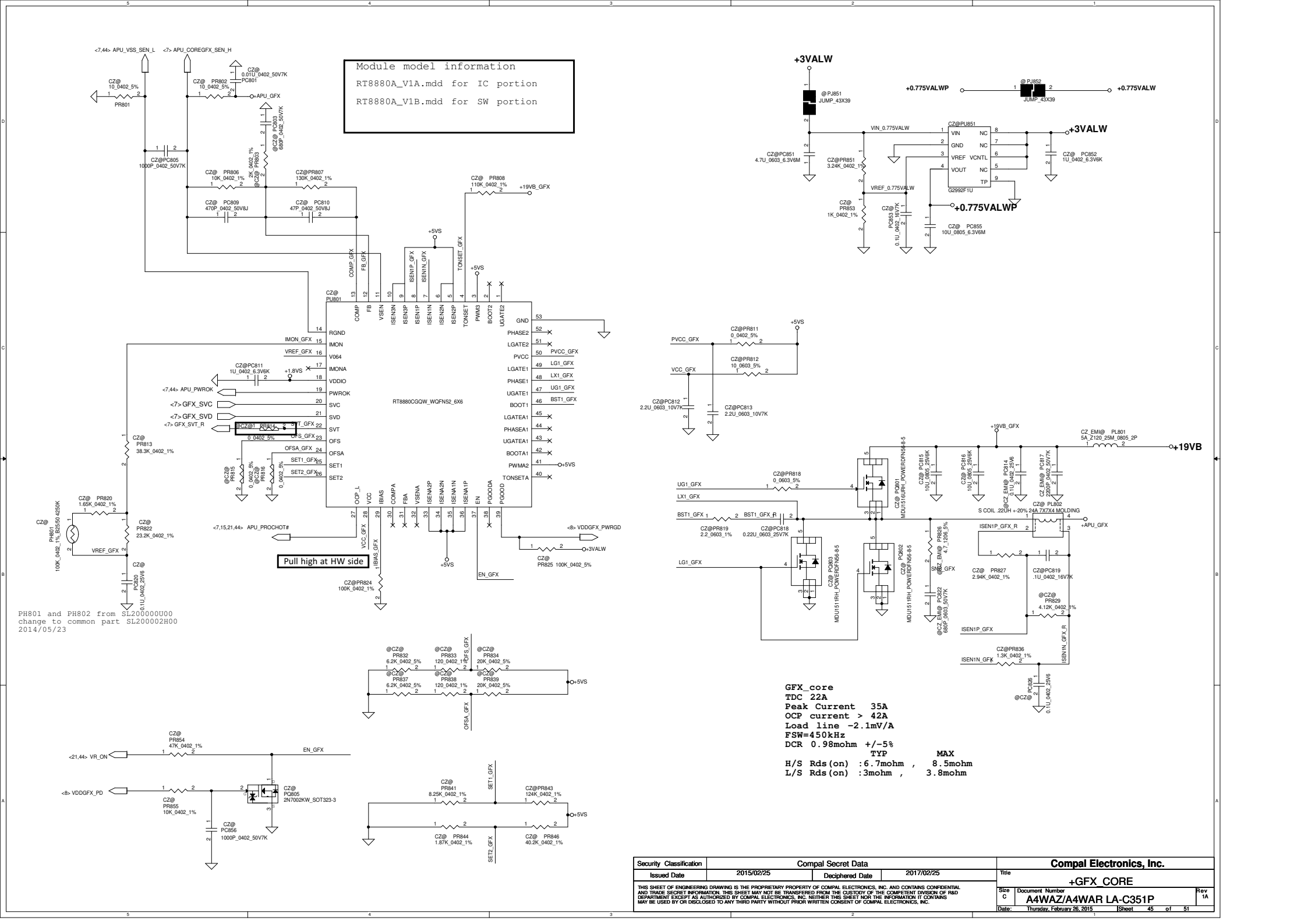
Module model information
RT8880A_V1A.mdd for IC portion
RT8880A_V1B.mdd for SW portion
RT8880CGQW_WQFN52_6X6
Pull high at HW side
PH801 and PH802 from SL200000U00
change to common part SL200002H00
2014/05/23
GFX_core
TDC 22A
Peak Current 35A
OCP current > 42A
Load line -2.1mV/A
FSW=450kHz
DCR 0.98mohm +/-5%
TYP MAX
H/S Rds(on) :6.7mohm , 8.5mohm
L/S Rds(on) :3mohm , 3.8mohm
Security Classification
Compal Secret Data
Issued Date
2015/02/25
Deciphered Date
2017/02/25
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Compal Electronics, Inc.
Title
+GFX_CORE
Size C
Document Number
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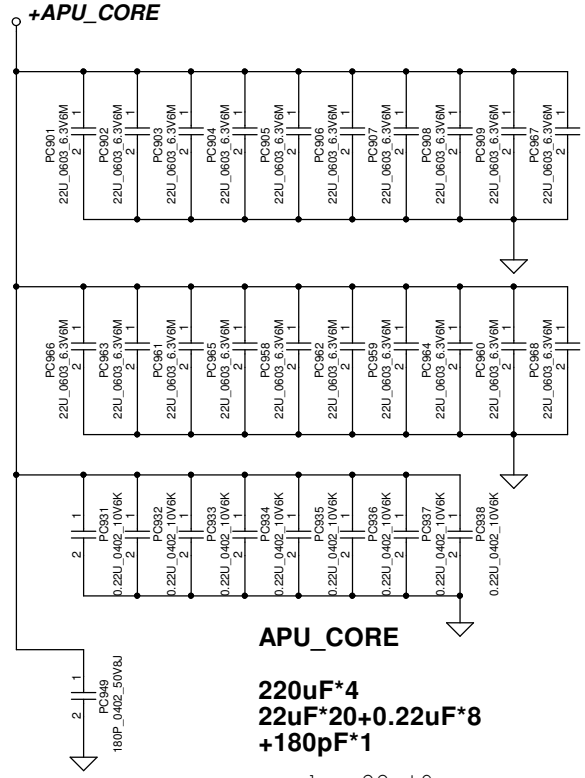
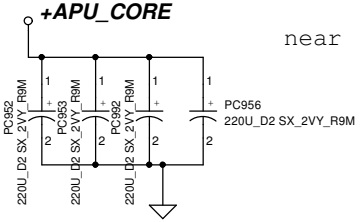
+APU_CORE



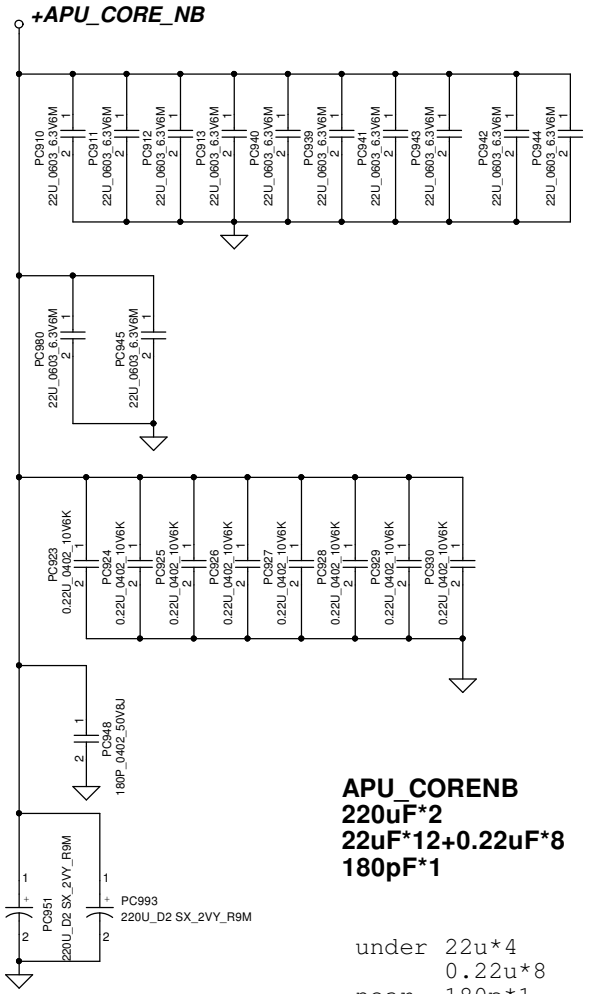
APU_CORE

220uF*4
22uF*20+0.22uF*8
+180pF*1

```
under 22u*9
      0.22u*8
near  180p*1
```



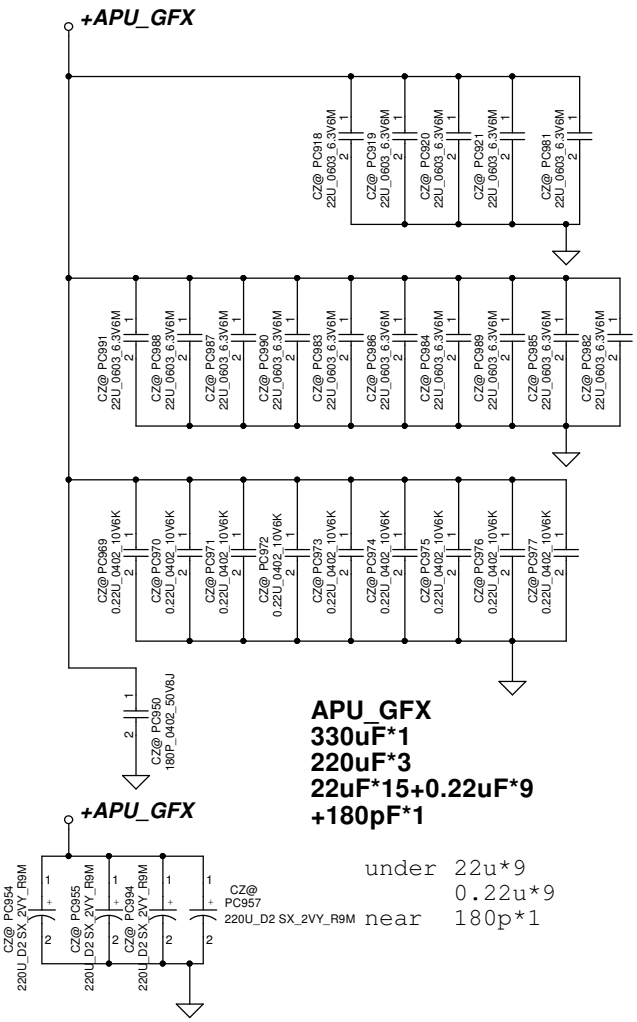
+APU_CORE_NB



APU_CORENB
220uF*2
22uF*12+0.22uF*8
180pF*1

```
under 22u*4
      0.22u*8
near  180p*1
```

+APU_GFX



APU_GFX
330uF*1
220uF*3
22uF*15+0.22uF*9
+180pF*1

```
under 22u*9
      0.22u*9
near  180p*1
```


Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: +APU_CORE Cap

Size	Document Number	Rev
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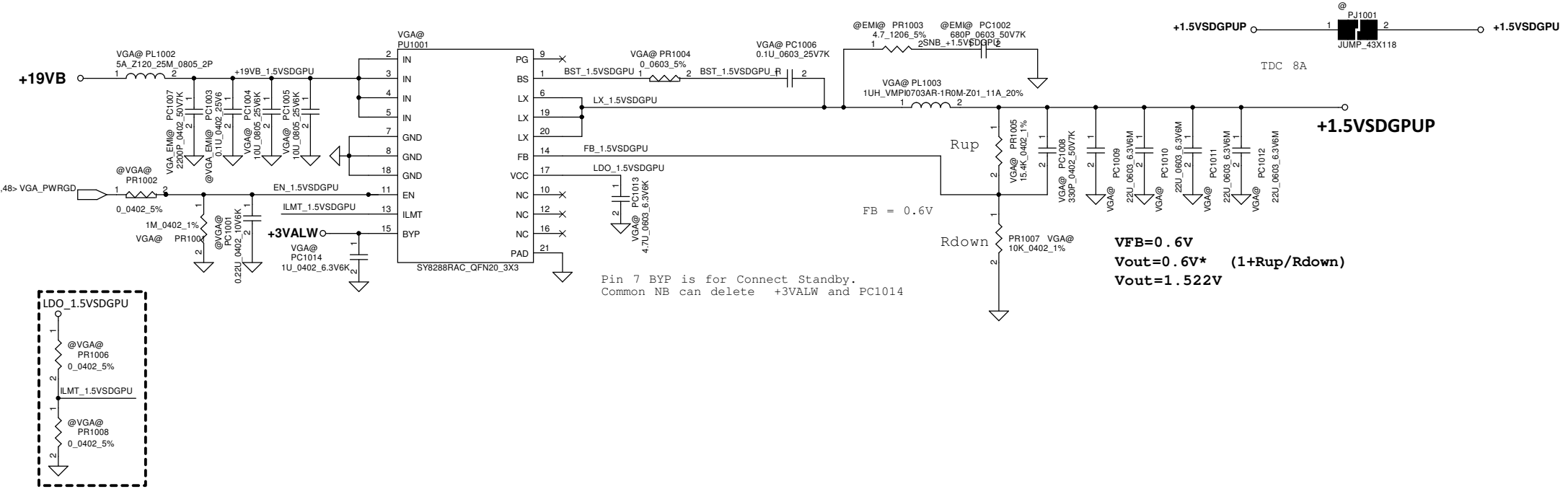
Module model information

SY8208D_V1.mdd

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

The current limit is set to 8A, 12A or 16A when this pin is pull low, floating or pull high



Pin 7 BYP is for Connect Standby.
Common NB can delete +3VALW and PC1014

VFB=0.6V
Vout=0.6V* (1+Rup/Rdown)
Vout=1.522V

Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: 1.5VSDGPUP/0.95VSDGPUP

Size	Document Number	Rev
A3	A4WAZ/A4WAR LA-C351P	1A

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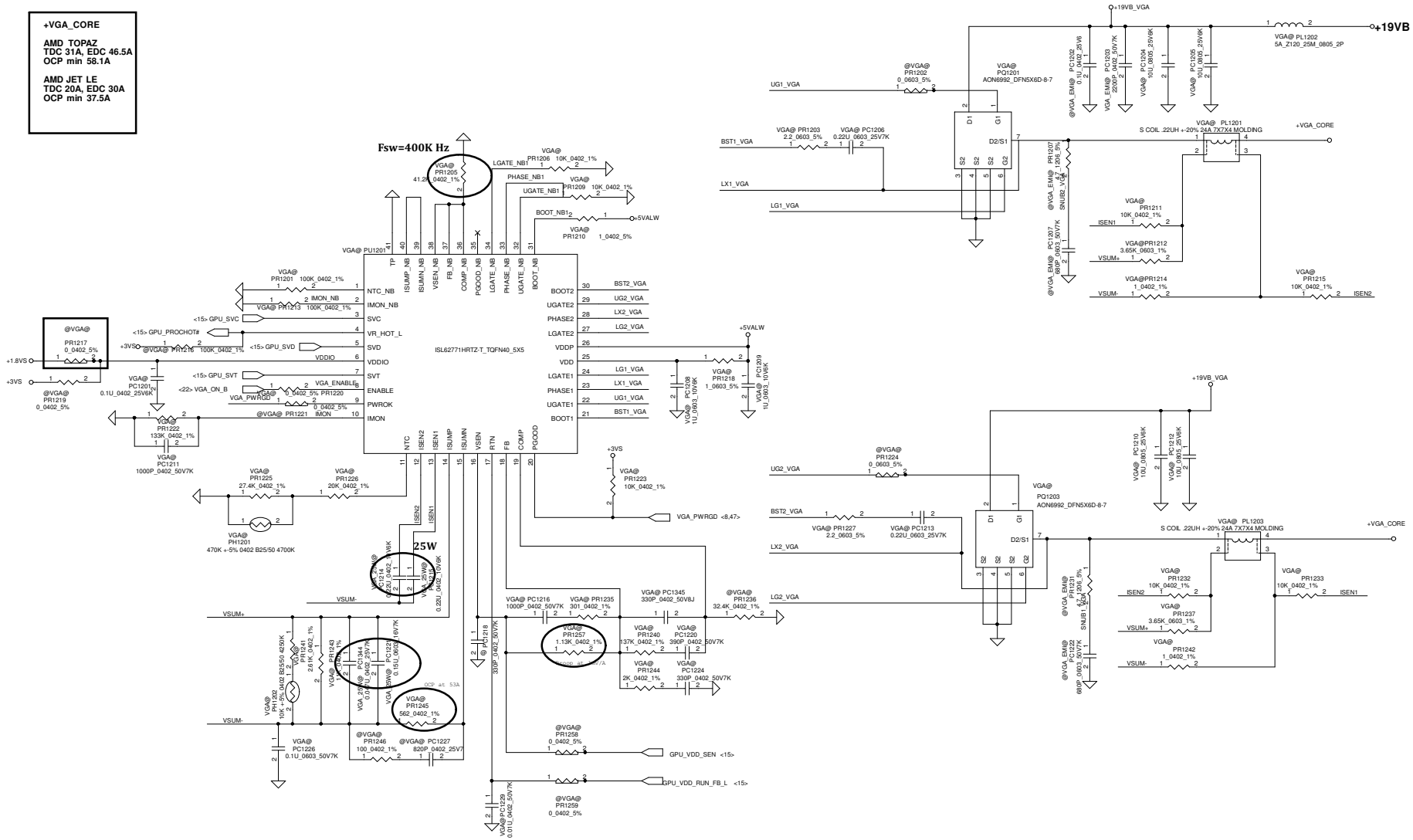
+VGA_CORE

AMD TOPAZ
TDC 31A, EDC 46.5A
OCP min 58.1A

AMD JET LE
TDC 20A, EDC 30A
OCP min 37.5A



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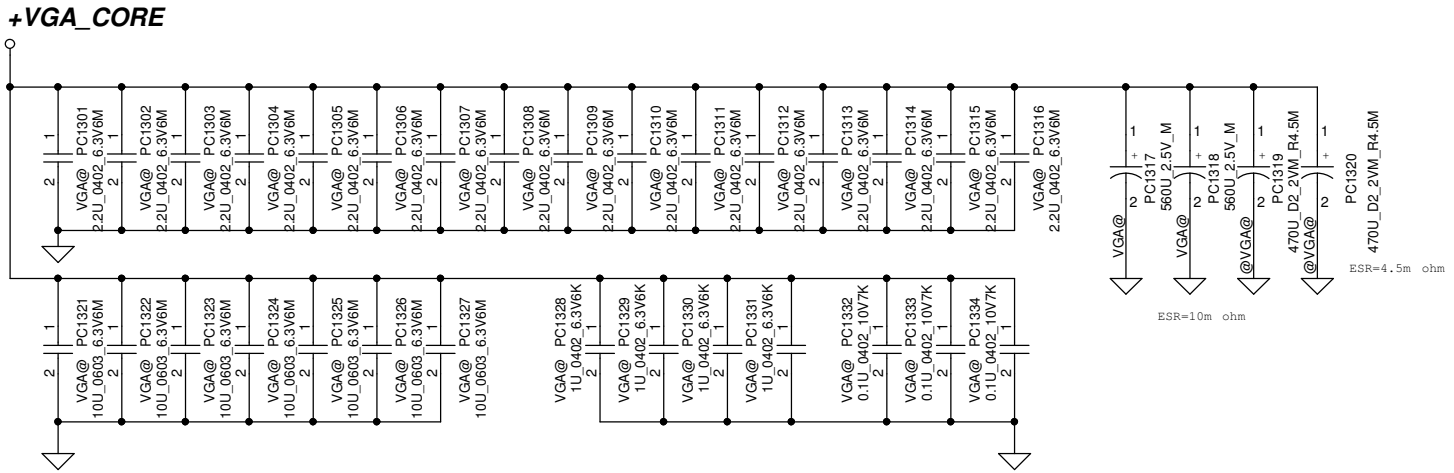
			Date: Thursday, February 26, 2015; Sheet 48 of 51



Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title: VGA_CORE CAP

Size	Document Number	Rev
Custom	A4WAZ/A4WAR LA-C351P	1A

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Version change list (P.I.R. List)

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
01				P39	PC204 change to non-pop		
02	for pop list			P45	PR811 change to pop		EVT
03				P46	PC956 change to 220U CZ@ PC957 change to 220U		
04				P48	PQ1201 and PQ1203 AON6970 change to AON6992		EVT
05		change 3V/5V/0.95V/1.5VDGPU IC			PU401 change to SY8286BRAC_QFN20_3X3 PU402 change to SY8286CRAC_QFN20_3X3 PU601 and PU1001 change to SY8288RAC_QFN20_3X3		EVT EVT
06	add and delete pop list				PR316 change to no-pop PR1260 change to pop PR749 change to pop PL301 change to pop PR604 change to pop		 DVT
07	Change part list				PR216 Change 15k PQ201 Change to SB00000QO00 PR401 change to 0 ohm PC402 change to SE068102J80 PR407 change to 0 ohm PC413 changet to SE068102J80 PL101,PL201,PL202,PL401,PL403,PL501,PL601, PL701,PL704,PL801,PL1002,PL1202 change to common part PL402 ,PL404,PL502 change to common part PR606 change to 16K PR608 change to 26.7K PL1003 change to common part delt PR614 and PR852 PU851 change to SA00000VE80 det PR1255 det PC607		 DVT DVT
08					1. PR321 change to 1 ohm 2. PR1247,PR509,PR510,PR601,PR1250,PR749,PR814, PR1217 change to R-short 3. PC328,PC329,PC327,PC326,PC325,PC324 change to un-pop 4. PU501 change to RT8207M 5. PR507 change to 887k 6. PR722 change to 2.74k 7. PR748 change to 36k 8. PR746 change to 3.3k 9. PR707 change to 86.6k 10. PC709 change to 47p 11. PC810 change to 47p 12. PC805 change to 1000p 13. PR807 change to 130k 14. PR846 change to 40.2k 15. PR844 change to 1.87k 16. PQ701, PQ703 ,PQ801 change to SB00000S800 17. PQ702,PQ704,PQ705,PQ802,PQ803 change to SB00000SD00 18. PQ306 change to SB00000V100 19. PQ305, PQ501 change to SB00000S500 20. PQ502 change to SB00000GW00 21. PQ1201 change to SB000017L00 22. PR748 SD034124380 23. PR746 SD034470080 24. PC323 change to pop		PVT

Compal Electronics, Inc.
Title: PWR_PIR1
Size: Custom | Document Number: A4WAZ/A4WAR LA-C351P | Rev: 1A
Date: Thursday, February 26, 2015 | Sheet 50 of 51

Version change list (P.I.R. List)

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
01					PR320 change to 0 ohm PR401,PR407,PR604,PR713,PR1004 change to R-short		PR-MP
03							
04							
05							
06							
07							
08							

Security Classification	Compal Secret Data		
Issued Date	2015/02/25	Deciphered Date	2017/02/25

Compal Electronics, Inc.

Title	PWR_PIR1	
Size: Custom	Document Number: A4WAZ/A4WAR LA-C351P	Rev: 1A
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