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ZAWBA/ZAWBB
DIS M/B Schematics Document

AMD Beema SOC with DDR3L

AMD Jet LE

2014-03-03

LA-B291P

REV：1.0

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Title	Cover Page		
Size C	Document Number LA-B291P		Rev 1.0
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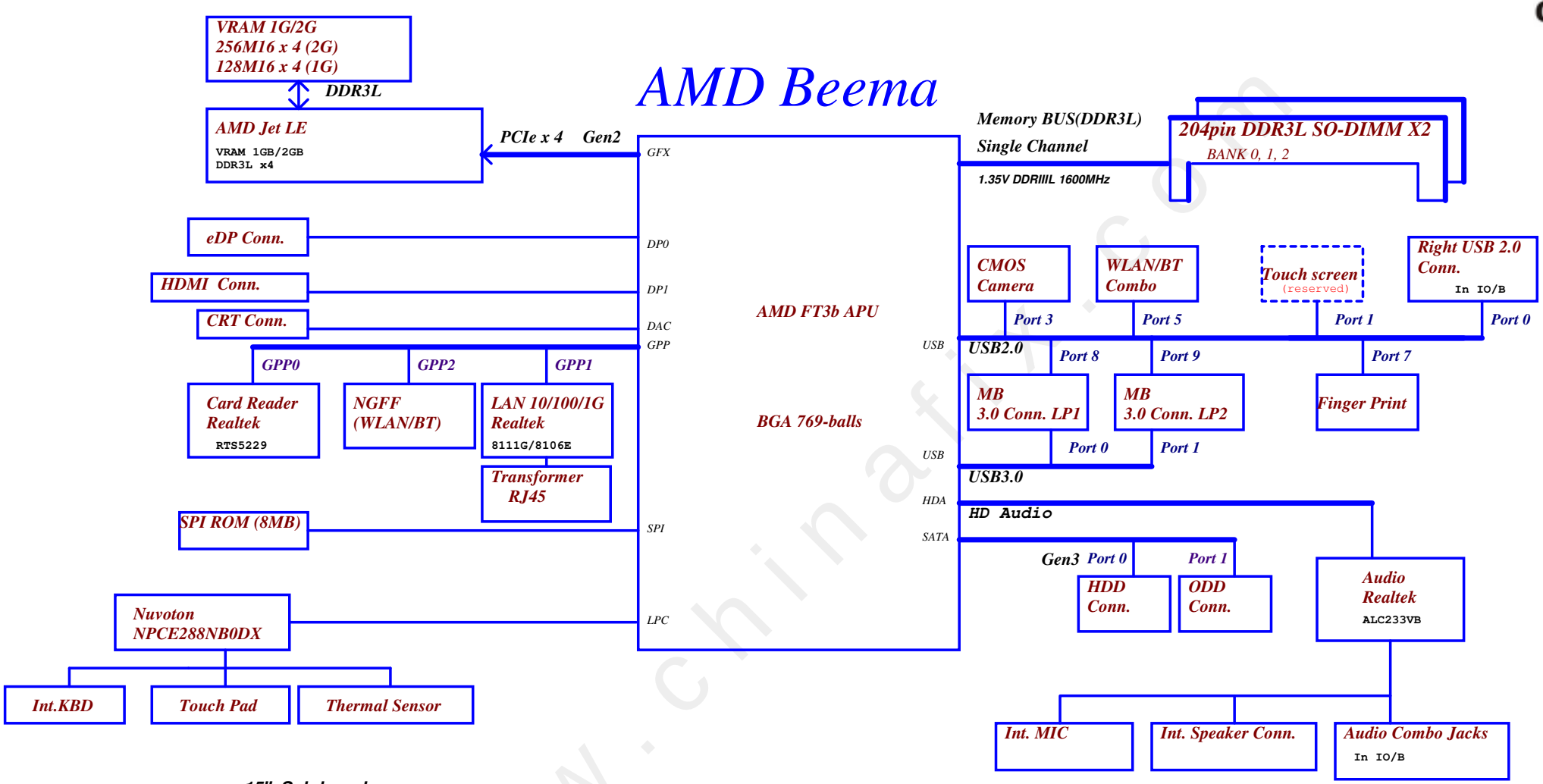

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Title	Block Diagram		
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Voltage Rails

Power Plane	Description	S0	S3	S5
VIN	Adapter power supply (19V)	ON	ON	ON
B+	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
+VGA_CORE	0.95-1.2V switched power rail	ON	OFF	OFF
+VDDCI	0.95-1.2V switched power rail	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	OFF
+3VS	3.3V 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
+0.95VALW	0.95V always on power rail	ON	OFF	OFF
+0.95VS	0.95V switched power rail	ON	OFF	OFF
+1.35V	1.35V power rail for APU and DDR	ON	ON	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+3VGS	3.3V switched power rail for VGA	ON	OFF	OFF
+1.8VGS	1.8V switched power rail for VGA	ON	OFF	OFF
+1.35VGS	1.35V switched power rail for VGA	ON	OFF	OFF
+0.95VGS	0.95V switched power rail for VGA	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
+0.675VS	0.675V switched power rail for DDR terminator	ON	OFF	OFF

BOARD ID Table

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

STATE \ SIGNAL	SLP_S3#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	HIGH	HIGH	ON	ON	ON	ON
S1(Power On Suspend)	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	ON	OFF	OFF	OFF

Board ID / SKU ID Table for AD channel

Vcc	3.3V +/- 5%
R1562	100K +/- 5%

Board ID	R1564	V_{AD_BID} min	V_{AD_BID} typ	V_{AD_BID} max
0	0	0 V	0 V	0 V
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V
2	18K +/- 5%	0.436 V	0.503 V	0.538 V
3	33K +/- 5%	0.712 V	0.819 V	0.875 V
4	56K +/- 5%	1.036 V	1.185 V	1.264 V
5	100K +/- 5%	1.453 V	1.650 V	1.759 V
6	200K +/- 5%	1.935 V	2.200 V	2.341 V
7	NC	2.500 V	3.300 V	3.300 V

USB OC MAPPING

OC#	USB Port	
0	USB20 port0	
1	USB20 port1,2,8,9	USB30 port0,1
2		
3		

BOM Structure Table

BOM Structure	BTO Item
45@	for HDMI Logo
14@	for 14" componect
15@	for 15" componect
B5@	15W 2.4GHz BGA APU
B4@	15W 1.8GHz BGA APU
B3@	15W 1.5GHz BGA APU
B2@	10W 1.5GHz BGA APU
B1@	10W 1.35GHz BGA APU
UMA@	UMA part
PX@	Common VGA circuit
JET@	Jet LE GPU
TOPAZ@	Topaz XT GPU
CMOS@	CMOS Camera part
HDMI@	HDMI part
8106ELDO@	Realtek RTL8106E with LDO mode
8106ESW@	Realtek RTL8106E with SWR mode
8111GLDO@	Realtek RTL8111G with LDO mode
8111GSW@	Realtek RTL8111G with SWR mode
TS@	Touch Screen
ZODD@	Zero Power ODD part
NOZODD@	Non-Zero Power ODD part
CHG@	USB Charger function
NOCHG@	Non-USB Charger function
FHD@	Full HD Panel
DR@	VRAM Dual Rank
SR@	VRAM Single Rank
USB2@	USB 2.0
USB3@	USB 3.0
233VB@	Realtek ALC233-VB Audio IC
ME@	ME part
EMIP@	EMI pop component
EMIU@	EMI Un pop component
ESDP@	ESD pop component
ESDU@	ESD Un pop component
GIGAEMIP@	EMI Un pop for LAN GIGA function
@	Unpop

SMBUS Control Table

	SOURCE	VGA	BATT	KB9012	SODIMM	WLAN WWAN	Thermal Sensor	FCH	APU	RTD2132
SMB_EC_CK1 SMB_EC_DA1	288N +3VALW	X	V +3VALW	X	X	X	X	X	X	X
APU_SCLK0 APU_SDATA0	APU +3VS	X	X	X	V +3VS	V +3VS	X	X	X	X
SMB_EC_CK2 SMB_EC_DA2	288N +3VS	V +3VS	X	X	X	X	V +3VS	X	V +3VS	X

APU PCIE PORT LIST

Port	Device
0	Card Reader
1	LAN
2	WLAN
3	

EC SM Bus1 address

Device	Address	HEX
Smart Battery	0001 011X b	16H

EC SM Bus2 address

Device	Address	HEX
Thermal Sensor	1001 101X b	9AH
SB-TSI (APU)	1001 100X b	98H
VGA Internal Thermal	1000 001X b	82H

APU SM Bus address

Device	Address	HEX
DDR DIMM1	1010 000Xb	A0H
DDR DIMM2	1010 001Xb	A2H

USB Port Table

USB 2.0	USB 3.0		Port	3 External USB Port
			0	Touch Screen
			1	RIGHT USB
			2	
			3	Camera
			4	
			5	WLAN/BT Combo
			6	
			7	Finger Print
	XHCI	0	8	LEFT USB3.0
		1	9	LEFT USB3.0

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Jet LE VRAM STRAP

		X76@ Vendor UV5, UV6, UV7, UV8	ID	PS_3[3]	PS_3[2]	PS_3[1]	X76@ R_pu RV21	R_pd RV24
1GBytes	ZZZ09 JH1G@	Hynix 2048Mbits SA00006H400 128Mx16 H5TC2G63FFR-11C	0	0	0	0	NC	4.75K
1GBytes	ZZZ10 JM1G@	Micron 2048Mbits SA000067500 128Mx16 MT41J128M16JT-093G:K	1	0	0	1	8.45K	2K
1GBytes	ZZZ11 JS1G@	Samsung 2048Mbits SA000068U40 128Mx16 K4W2G1646Q-BC1A	2	0	1	0	4.53K	2K
2GBytes	ZZZ12 JH2G@	Hynix 4096Mbits SA00006E800 256Mx16 H5TC4G63AFR-11C	3	0	1	1	6.98K	4.99K
2GBytes	ZZZ13 JS2G@	Samsung 4096Mbits SA000076P00 256Mx16 K4W4G1646D-BC1A	4	1	0	0	4.53K	4.99K
2GBytes	ZZZ14 JM2G@	Micron 4096Mbits SA000077K00 256Mx16 MT41J256M16HA-093G:E	5	1	0	1	3.24K	5.62K
2GBytes	ZZZ08 JM2G2@	Micron 4096Mbits SA000065D00 256Mx16 MT41K256M16HA-107G:E	6	1	1	0	3.4K	10K
1GBytes	ZZZ16 JM1G2@	Micron 2048Mbits SA00005XB00 128Mx16 MT41K128M16JT-107G:K	7	1	1	1	4.75K	NC

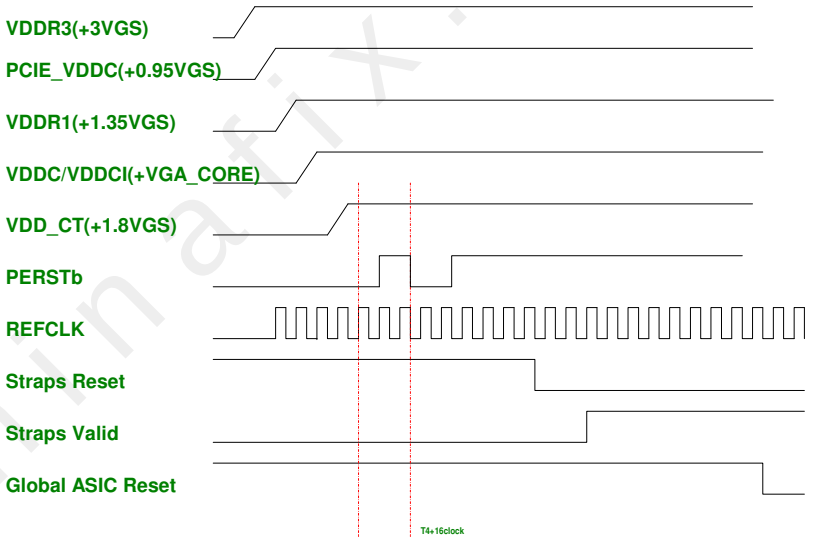
R_pu (Ω)	R_pd (Ω)	Bits [3:1]
NC	4750	000
8450	2000	001
4530	2000	010
6980	4990	011
4530	4990	100
3240	5620	101
3400	10000	110
4750	NC	111

Note: 0402 1% resistors are required.

Power-Up/Down Sequence

"Jet" 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 20ms 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.
- It is recommended that the 3.3-V rail ramp up frist.
- It is recommended that the 0.95-V rail reach at least 90% of its nominal value no later than 2ms from the start of VDDC ramping up.
- The power rails that are shared with other components on the system should be gated for the dGPU so that when dGPU is powered down (for example AMD PowerXpressTM idle state), all the power rails are removed from the dGPU. The gate circuits must meet the slew rate requirement (such as ≦ 50mV/us)
- 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.



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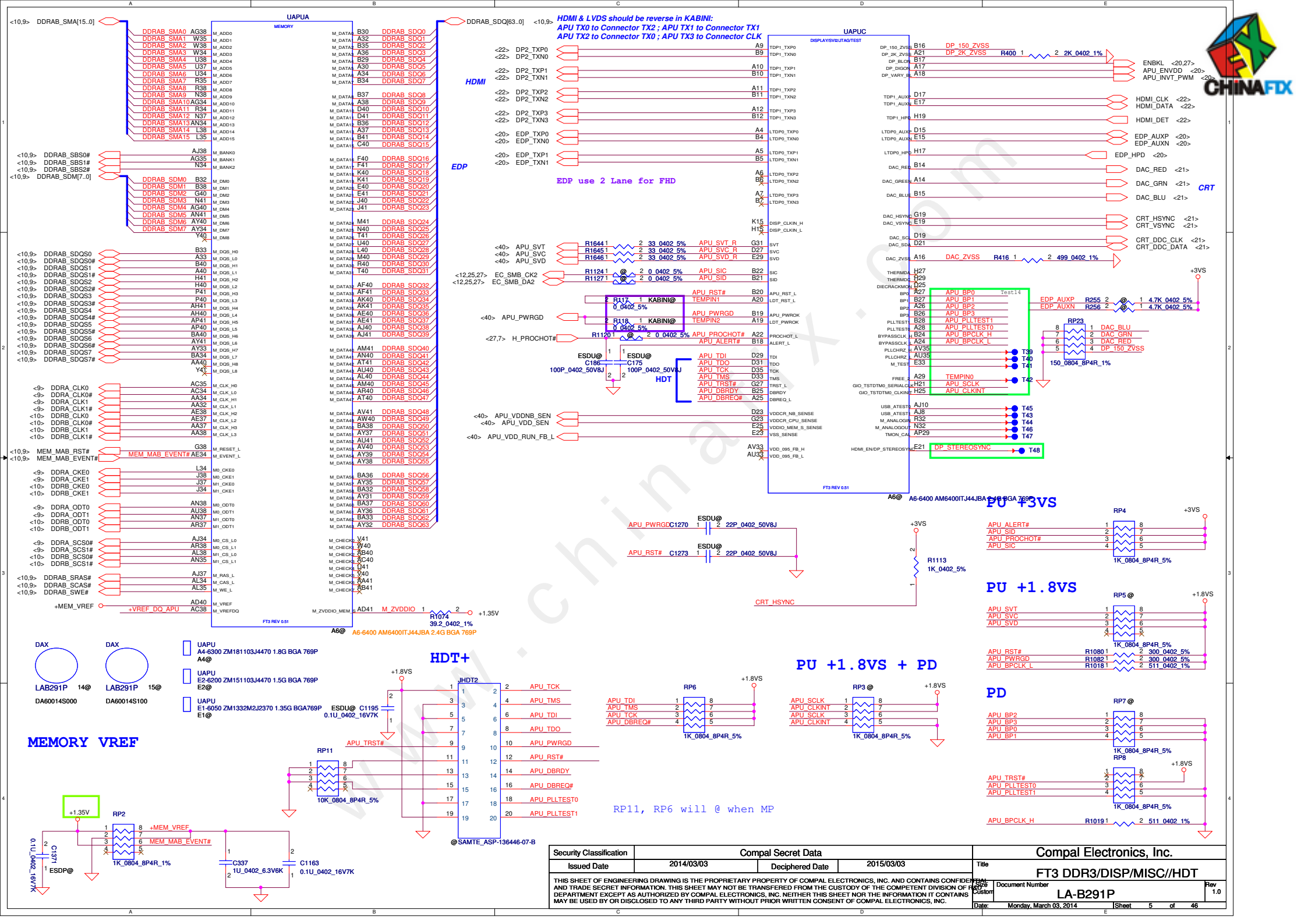

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Title	FT3 DDR3/DISP/MISC//HDT		
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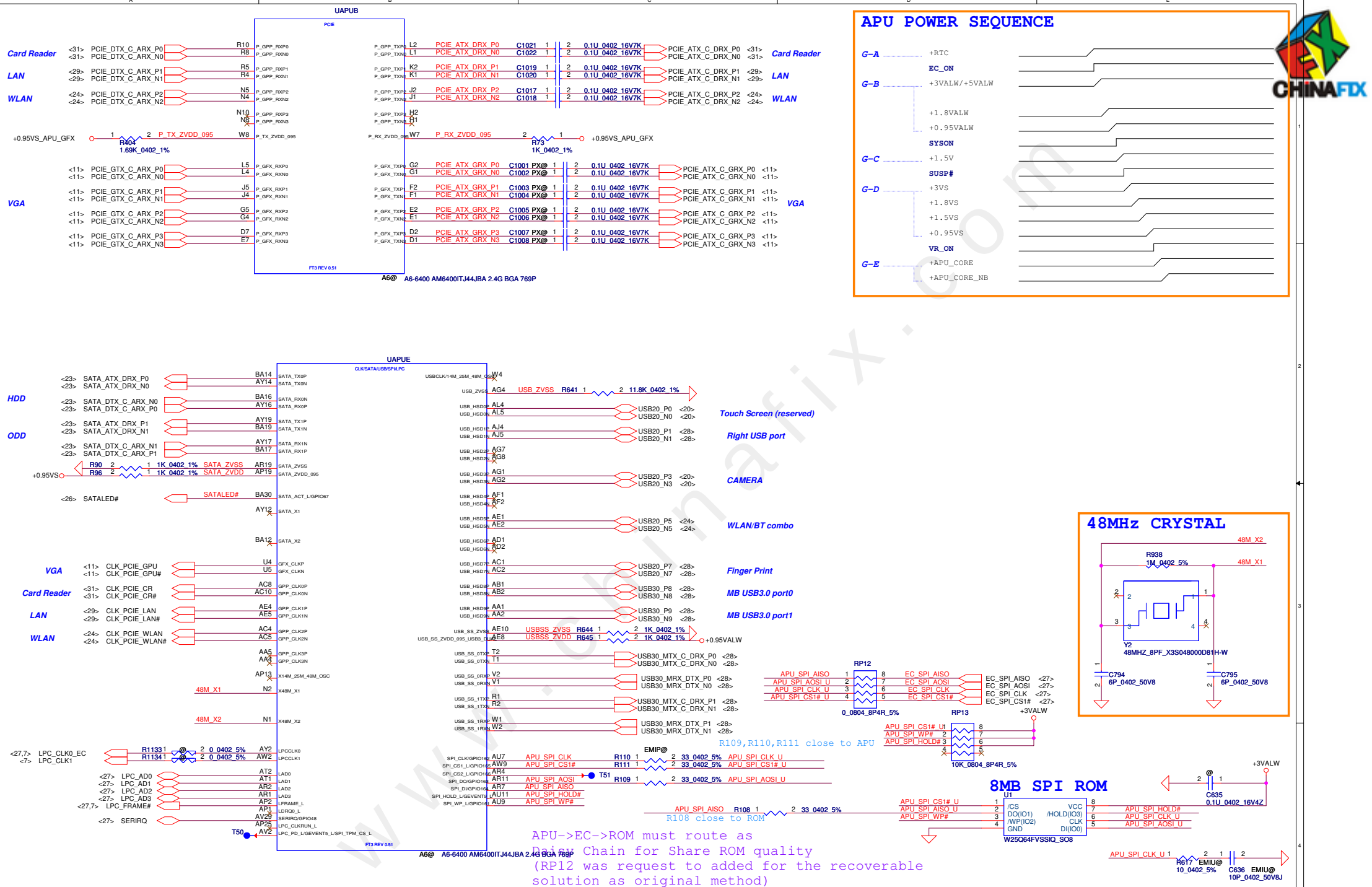

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Title: FT3 PCIE/SATA/CLK/USB/SPI

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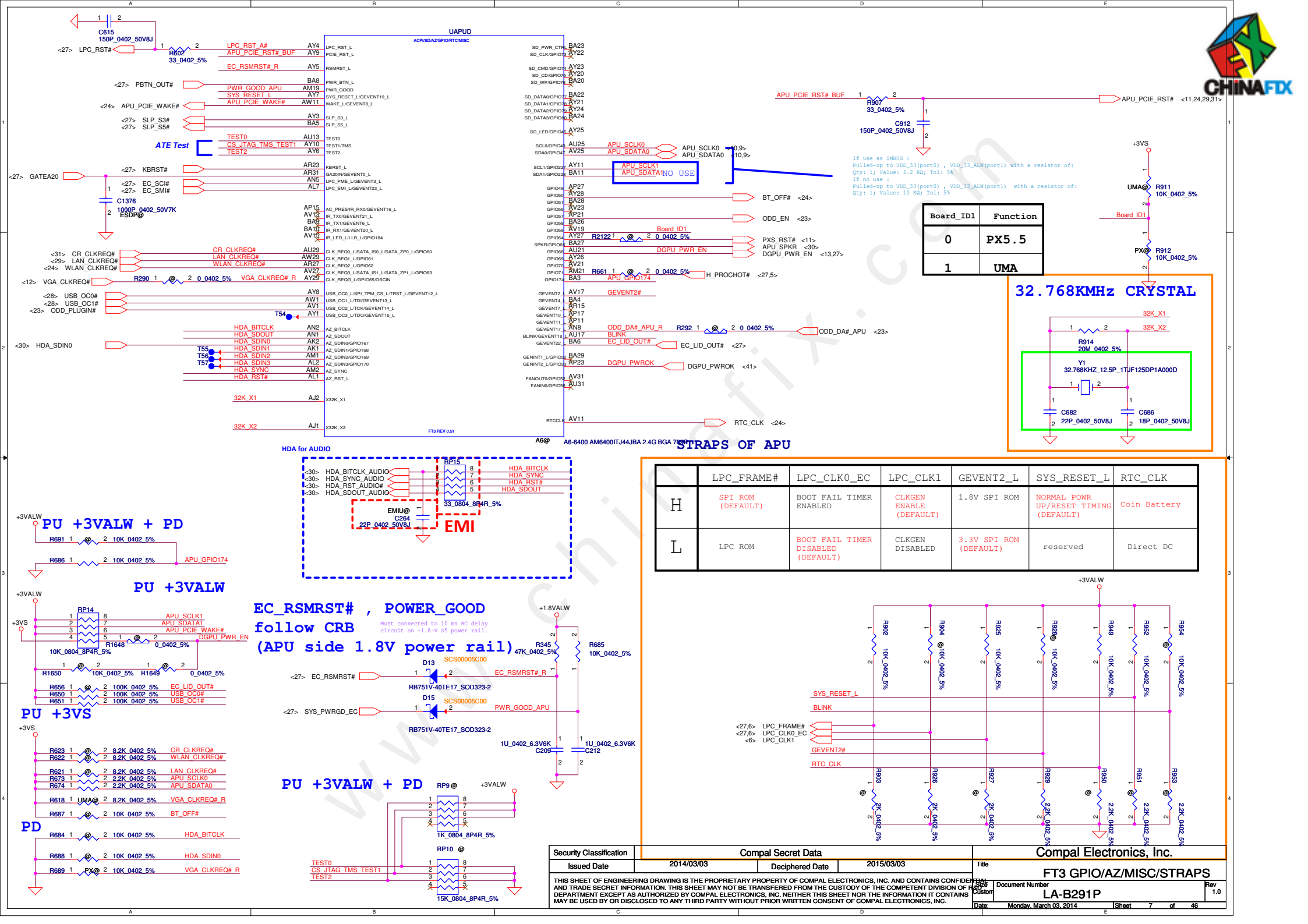

	LPC_FRAME#	LPC_CLK0_EC	LPC_CLK1	GEVENT2_L	SYS_RESET_L	RTC_CLK
H	SPI ROM (DEFAULT)	BOOT FAIL TIMER ENABLED	CLKGEN ENABLE (DEFAULT)	1.8V SPI ROM	NORMAL POWR UP/RESET TIMING (DEFAULT)	Coin Battery
L	LPC ROM	BOOT FAIL TIMER DISABLED (DEFAULT)	CLKGEN DISABLED	3.3V SPI ROM (DEFAULT)	reserved	Direct DC

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CORE POWER OF APU

+APU_CORE

VDDCR_CPU

C1179 C1180 C1181 C1182 C1183 C1184 C1186 C1187 C1188 C1189 C1190

1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 180P_0402_50V8J

@

RTC OF APU

VDDBT_RTC_G

VDDBT_RTC_G

+RTCBATT

+RTCBATT_R W=20mils R93 1 2 10K_0402_5%

C1365 0.22U_0402_10V6K

CLRP1 @ SHORT PADS Need OPEN

for Clear CMOS

+RTCBATT需過LDO轉1.5V, 20130930 added

+RTCBATT

U102 Vout Vin GND AP2138N-1.5TRG1_SOT23-3

C811 0.1U_0603_25V7K

+RTCBATT_3V

C810 680P_0603_50VK

Need use+3.3V transfer to +1.5V LDO to APU side for Beema

INTEGRATED GPU POWER OF APU

+APU_CORE_NB

VDDCR_NB

C1200 C1201 C1202 C1192 C1191 C1193 C1194 C1197

1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 180P_0402_50V8J

+3VALW/+3VS OF APU

+3VS

C1249 C1257 C1252 C1253

1U_0402_6.3V6K 180P_0402_50V8J 1U_0402_6.3V6K 1U_0402_6.3V6K

VDD_33 VDD_33_ALW

+3VALW

+3VALW_APU 2 @ 1 R582 0_0603_5%

VDDIO_AZ_ALW

(Could be S0 or S5 power rail)

+1.35V

VDDIO_MEM_S

PLANE SPLIT

C924 C925 C949 C923 C926 C927 C928 C929 C931 C930 C932 C1211 C1210 C1208 C1207 C1230 C1231 C1258 C1259 C1372 C1373

10U_0603_6.3V6M 10U_0603_6.3V6M 10U_0603_6.3V6M 0.1U_0402_16V7K 0.1U_0402_16V7K 0.1U_0402_16V7K 0.1U_0402_16V7K 0.1U_0402_16V7K 0.1U_0402_16V7K 0.1U_0402_16V7K 0.1U_0402_16V7K 180P_0402_50V8J 180P_0402_50V8J 180P_0402_50V8J 180P_0402_50V8J 180P_0402_50V8J 180P_0402_50V8J 180P_0402_50V8J 180P_0402_50V8J 0.1U_0402_16V7K ESDP 0.1U_0402_16V7K ESDP

+1.5VS

C1161 C1255 C1254 C1255 C1256

4.7U_0603_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 180P_0402_50V8J

+0.95VALW/+0.95VS OF APU

VDD_095_GFX

+0.95VS

VDD_095

L22 FBMA-L11-201209-121LMA50T_0805

+0.95VS_APU_GFX

C935 C934 C1198 C1199 C1205 C1204 C1206 C1250 C1213 C936 C1203

10U_0603_6.3V6M 10U_0603_6.3V6M 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 180P_0402_50V8J 10U_0603_6.3V6M 1U_0402_6.3V6K

+0.95VALW

C937 C938 C1216 C1214 C1221 C1218

10U_0603_6.3V6M 10U_0603_6.3V6M 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 180P_0402_50V8J

VDD_095_USB3_DUAL

+0.95VALW

C1220 C1217 C1219 C1222

1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K

VDD_095_ALW

+1.8VALW/+1.8VS OF APU

VDD_18

+1.8VS

C933 C1236 C1237 C1238 C1239 C1240 C1241 C1233

10U_0603_6.3V6M 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 180P_0402_50V8J

+1.8VALW

C1160

4.7U_0603_6.3V6K

C1244 C1250 C1246 C1248 C1245

1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 1U_0402_6.3V6K 180P_0402_50V8J

VDD_18_ALW

R131 KABINI@

TEMPINRETUNE 1 2 0_0402_5%

UAPUF

POWER

+1.35V

VDDIO_MEM_S_1 J35
VDDIO_MEM_S_2 L32
VDDIO_MEM_S_3 L37
VDDIO_MEM_S_4 N35
VDDIO_MEM_S_5 R31
VDDIO_MEM_S_6 R37
VDDIO_MEM_S_7 U32
VDDIO_MEM_S_8 U35
VDDIO_MEM_S_9 W31
VDDIO_MEM_S_10 W32
VDDIO_MEM_S_11 W37
VDDIO_MEM_S_12 AA31
VDDIO_MEM_S_13 AA35
VDDIO_MEM_S_14 AC32
VDDIO_MEM_S_15 AC37
VDDIO_MEM_S_16 AE31
VDDIO_MEM_S_17 AE35
VDDIO_MEM_S_18 AG32
VDDIO_MEM_S_19 AG37
VDDIO_MEM_S_20 AJ35
VDDIO_MEM_S_21 AL32
VDDIO_MEM_S_22 AL37
VDDIO_MEM_S_23 AR35

VDDCR_CPU_1 L21
VDDCR_CPU_2 L23
VDDCR_CPU_3 L25
VDDCR_CPU_4 L27
VDDCR_CPU_5 L29
VDDCR_CPU_6 N21
VDDCR_CPU_7 N23
VDDCR_CPU_8 N27
VDDCR_CPU_9 R21
VDDCR_CPU_10 R23
VDDCR_CPU_11 R27
VDDCR_CPU_12 U21
VDDCR_CPU_13 U23
VDDCR_CPU_14 U27
VDDCR_CPU_15 W21
VDDCR_CPU_16 W23
VDDCR_CPU_17 W27
VDDCR_CPU_18 AA21
VDDCR_CPU_19 AA23
VDDCR_CPU_20 AA27
VDDCR_CPU_21 AC21
VDDCR_CPU_22 AC23
VDDCR_CPU_23 AC27
VDDCR_CPU_24 AE21
VDDCR_CPU_25 AE23
VDDCR_CPU_26 AE27

+APU_CORE

VDDCR_NB_1 L13
VDDCR_NB_2 L17
VDDCR_NB_3 N11
VDDCR_NB_4 N13
VDDCR_NB_5 N17
VDDCR_NB_6 R11
VDDCR_NB_7 R13
VDDCR_NB_8 R17
VDDCR_NB_9 U13
VDDCR_NB_10 U17
VDDCR_NB_11 W13
VDDCR_NB_12 W17
VDDCR_NB_13 AA13
VDDCR_NB_14 AA17
VDDCR_NB_15 AC13
VDDCR_NB_16 AC17
VDDCR_NB_17 AE15
VDDCR_NB_18 AE17
VDDCR_NB_19 AE19
VDDCR_NB_20 AG17
VDDCR_NB_21 AG21

+APU_CORE_NB

+1.5VS AL10 VDDIO_AZ_ALW_1 AL11 VDDIO_AZ_ALW_2

+1.8VALW B1 VDD_18_ALW_1 B2 VDD_18_ALW_2

VDD_18_1 A2
VDD_18_2 A3
VDD_18_3 B3
VDD_18_4 C3

+1.8VS

+3VALW_APU AL13 VDD_33_ALW_1 AM13 VDD_33_ALW_2

VDD_33_1 AM15
VDD_33_2 AM17

+3VS

+0.95VALW AR5 VDD_095_USB3_DUAL_1 AU4 VDD_095_USB3_DUAL_2 AV7 VDD_095_USB3_DUAL_3 AW5 VDD_095_USB3_DUAL_4

VDD_095_1 AG23
VDD_095_2 AG27
VDD_095_3 AJ21
VDD_095_4 AJ27
VDD_095_5 AL21
VDD_095_6 AL23
VDD_095_7 AL27
VDD_095_8 AM23
VDD_095_9 AM25

+0.95VS

+0.95VALW AE11 VDD_095_ALW_1 AE13 VDD_095_ALW_2 AJ11 VDD_095_ALW_3 AJ13 VDD_095_ALW_4

VDD_095_GFX_1 U10
VDD_095_GFX_2 W10
VDD_095_GFX_3 AA10

+0.95VS_APU_GFX

+RTCBATT_R AN4 VDDBT_RTC_G

FT3 REV 0.51

A6@ A6-6400 AM6400ITJ44JBA 2.4G BGA 769P

UAPUG

GND

A8 A13 A23 A31 A35 A39 B8 B13 B23 B31 B39 C1 C2 C5 C7 C9 C11 C13 C15 C17 C19 C21 C23 C25 C27 C29 C31 C33 C35 C37 C39 C41 D9 D11 D13 E3 E4 E9 E11 E13 E27 E31 E35 E38 E39 G3 G7 G11 G13 G15 G17 G21 G25 G29 G35 G37 G39 G41 H11 H13 H23 H31

VSS_1 VSS_2 VSS_3 VSS_4 VSS_5 VSS_6 VSS_7 VSS_8 VSS_9 VSS_10 VSS_11 VSS_12 VSS_13 VSS_14 VSS_15 VSS_16 VSS_17 VSS_18 VSS_19 VSS_20 VSS_21 VSS_22 VSS_23 VSS_24 VSS_25 VSS_26 VSS_27 VSS_28 VSS_29 VSS_30 VSS_31 VSS_32 VSS_33 VSS_34 VSS_35 VSS_36 VSS_37 VSS_38 VSS_39 VSS_40 VSS_41 VSS_42 VSS_43 VSS_44 VSS_45 VSS_46 VSS_47 VSS_48 VSS_49 VSS_50 VSS_51 VSS_52 VSS_53 VSS_54 VSS_55 VSS_56 VSS_57 VSS_58 VSS_59 VSS_60 VSS_61 VSS_62

VSS_63 J3 VSS_64 J7 VSS_65 J8 VSS_66 J39 VSS_67 K11 VSS_68 K13 VSS_69 K17 VSS_70 K19 VSS_71 K21 VSS_72 K23 VSS_73 K25 VSS_74 K27 VSS_75 K29 VSS_76 K31 VSS_77 L3 VSS_78 L7 VSS_79 L8 VSS_80 L10 VSS_81 L11 VSS_82 L15 VSS_83 L19 VSS_84 L31 VSS_85 L39 VSS_86 L41 VSS_87 M1 VSS_88 M2 VSS_89 N7 VSS_90 N15 VSS_91 N19 VSS_92 N25 VSS_93 N29 VSS_94 N31 VSS_95 N39 VSS_96 P1 VSS_97 P2 VSS_98 R3 VSS_99 R7 VSS_100 R15 VSS_101 R19 VSS_102 R25 VSS_103 R29 VSS_104 R39 VSS_105 R41 VSS_106 U1 VSS_107 U2 VSS_108 U3 VSS_109 U7 VSS_110 U8 VSS_111 U11 VSS_112 U15 VSS_113 U19 VSS_114 U25 VSS_115 U29 VSS_116 U31 VSS_117 U39 VSS_118 W3 VSS_119 W5 VSS_120 W11 VSS_121 W15 VSS_122 W19 VSS_123 W25 VSS_124

FT3 REV 0.51

A6@ A6-6400 AM6400ITJ44JBA 2.4G BGA 769P

UAPUH

GND

W29 W39 W41 Y1 Y2 AA3 AA7 AA8 AA11 AA15 AA19 AA25 AA29 AA39 AC3 AC7 AC11 AC15 AC25 AC29 AC31 AC39 AC41 AE3 AE7 AE25 AE29 AE32 AE39 AG3 AG5 AG10 AG11 AG13 AG15 AG19 AG25 AG29 AG31 AG39 AG41 AH1 AH2 AJ3 AJ7 AJ15 AJ17 AJ19 AJ23 AJ25 AJ29 AJ31 AJ32 AJ39 AL3 AL8 AL15 AL17 AL19 AL25 AL29

VSS_125 VSS_126 VSS_127 VSS_128 VSS_129 VSS_130 VSS_131 VSS_132 VSS_133 VSS_134 VSS_135 VSS_136 VSS_137 VSS_138 VSS_139 VSS_140 VSS_141 VSS_142 VSS_143 VSS_144 VSS_145 VSS_146 VSS_147 VSS_148 VSS_149 VSS_150 VSS_151 VSS_152 VSS_153 VSS_154 VSS_155 VSS_156 VSS_157 VSS_158 VSS_159 VSS_160 VSS_161 VSS_162 VSS_163 VSS_164 VSS_165 VSS_166 VSS_167 VSS_168 VSS_169 VSS_170 VSS_171 VSS_172 VSS_173 VSS_174 VSS_175 VSS_176 VSS_177 VSS_178 VSS_179 VSS_180 VSS_181 VSS_182 VSS_183 VSS_184 VSS_185 VSS_186

VSS_187 AL39 VSS_188 AL41 VSS_189 AM11 VSS_190 AM27 VSS_191 AM31 VSS_192 AN3 VSS_193 AN7 VSS_194 AN39 VSS_195 AP31 VSS_196 AR3 VSS_197 AR13 VSS_198 AR17 VSS_199 AR21 VSS_200 AR25 VSS_201 AR29 VSS_202 AR39 VSS_203 AR41 VSS_204 AU1 VSS_205 AU2 VSS_206 AU3 VSS_207 AU15 VSS_208 AU19 VSS_209 AU23 VSS_210 AU27 VSS_211 AU39 VSS_212 AV9 VSS_213 AW3 VSS_214 AW7 VSS_215 AW13 VSS_216 AW15 VSS_217 AW17 VSS_218 AW19 VSS_219 AW21 VSS_220 AW23 VSS_221 AW25 VSS_222 AW27 VSS_223 AW31 VSS_224 AW33 VSS_225 AW35 VSS_226 AW37 VSS_227 AW39 VSS_228 AY3 VSS_229 AY15 VSS_230 AY18 VSS_231 AY30 VSS_232 BA2 VSS_233 BA7 VSS_234 BA13 VSS_235 BA15 VSS_236 BA18 VSS_237 BA21 VSS_238 BA25 VSS_239 BA31 VSS_240 BA35 VSS_241 BA39 VSS_242 A15 VSSBG_DAC AL31 VBURN AM29 PSEN

FT3 REV 0.51

A6@ A6-6400 AM6400ITJ44JBA 2.4G BGA 769P

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Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: FT3 PWR/GND

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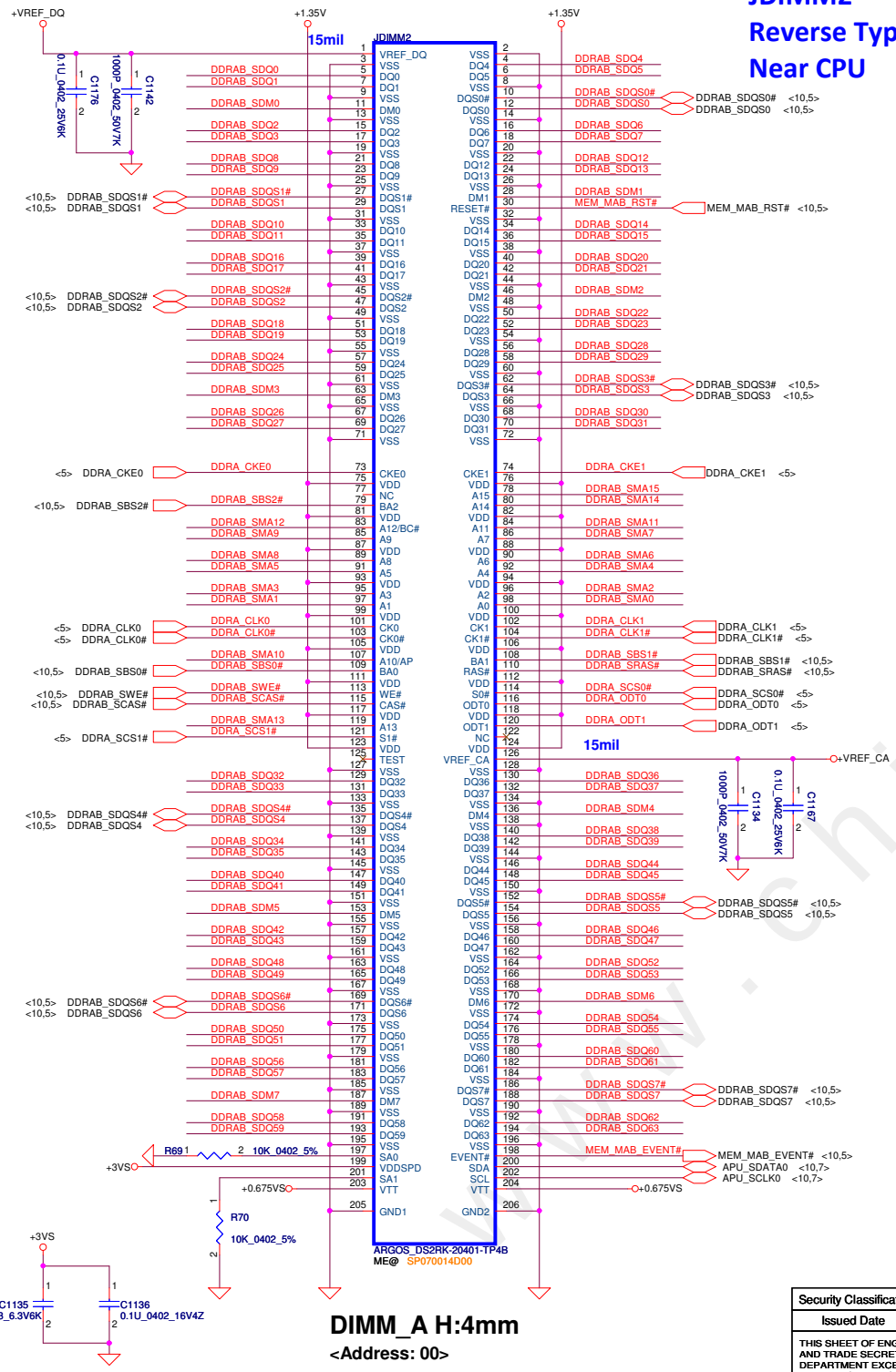
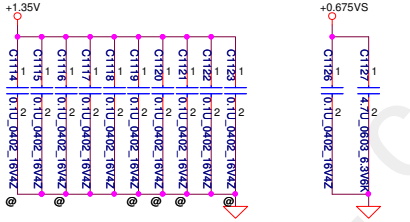
JDIMM2
Reverse Type
Near CPU

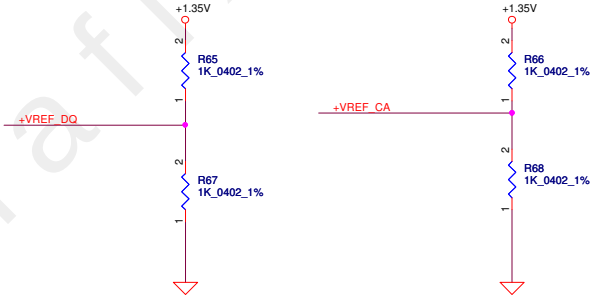


DDRAB_SDQ[0..63] → DDRAB_SDQ[0..63] <10,5>
DDRAB_SDM[0..7] → DDRAB_SDM[0..7] <10,5>
DDRAB_SMA[0..15] → DDRAB_SMA[0..15] <10,5>

+1.35V/+0.675VS OF DIMM1



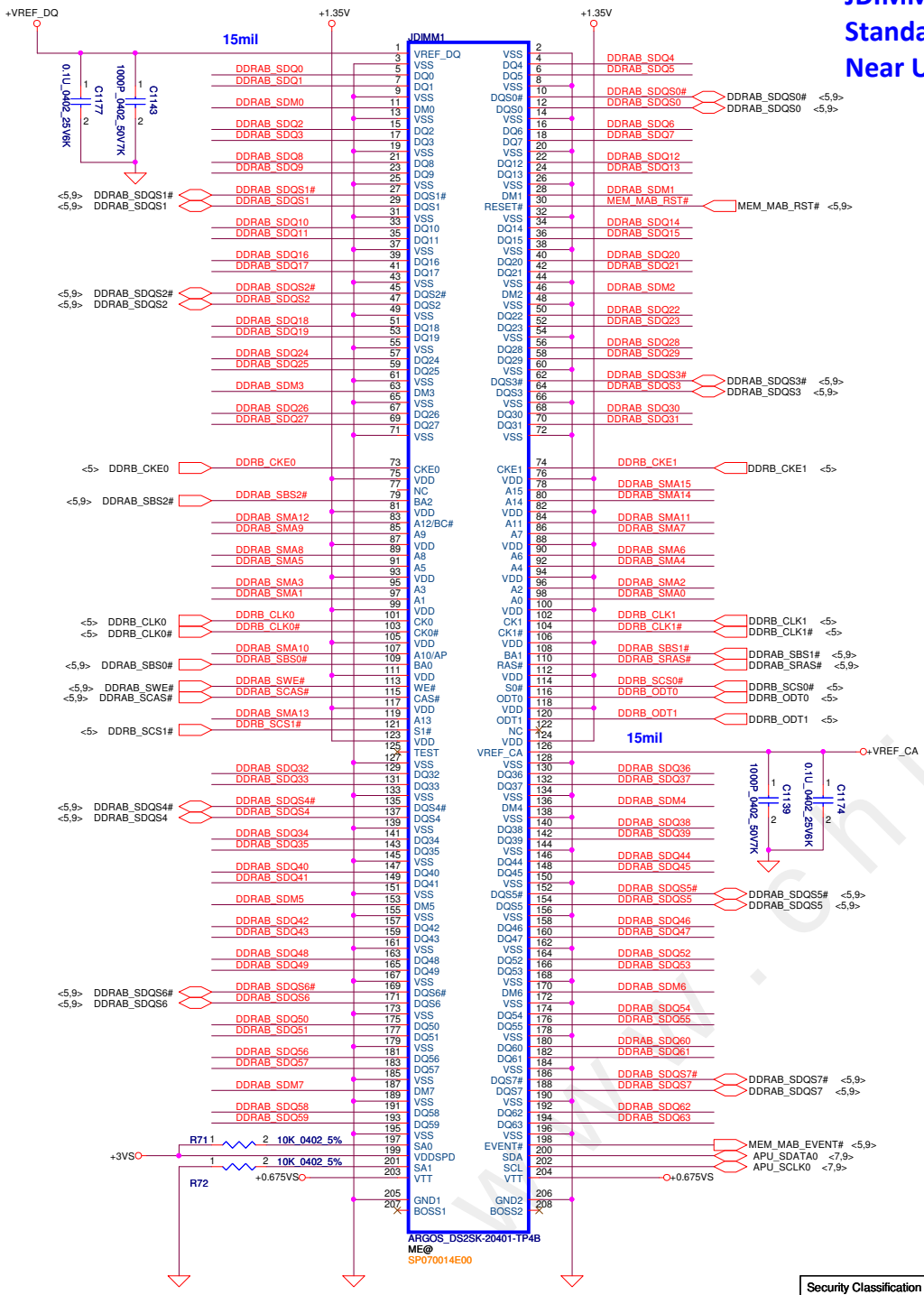
VREF for DIMM1,2



DIMM_A H:4mm
<Address: 00>

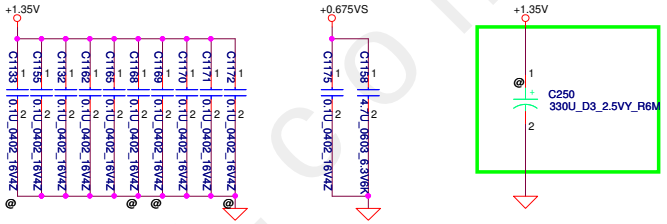
Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2014/03/03	Deciphered Date 2015/03/03	Title: DDR3 SODIMM-I Socket
			Size: Custom; Document Number: LA-B291P; Rev: 1.0
			Date: Monday, March 03, 2014; Sheet 9 of 46

JDIMM1
Standard Type
Near User



DDRAB_SDQ[0..63] — DDRAB_SDQ[0..63] <5,9>
DDRAB_SDM[0..7] — DDRAB_SDM[0..7] <5,9>
DDRAB_SMA[0..15] — DDRAB_SMA[0..15] <5,9>

+1.35V/+0.675VS OF DIMM2



DIMM_B H:4mm
<Address: 10>

Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: DDR3 SODIMM-II Socket

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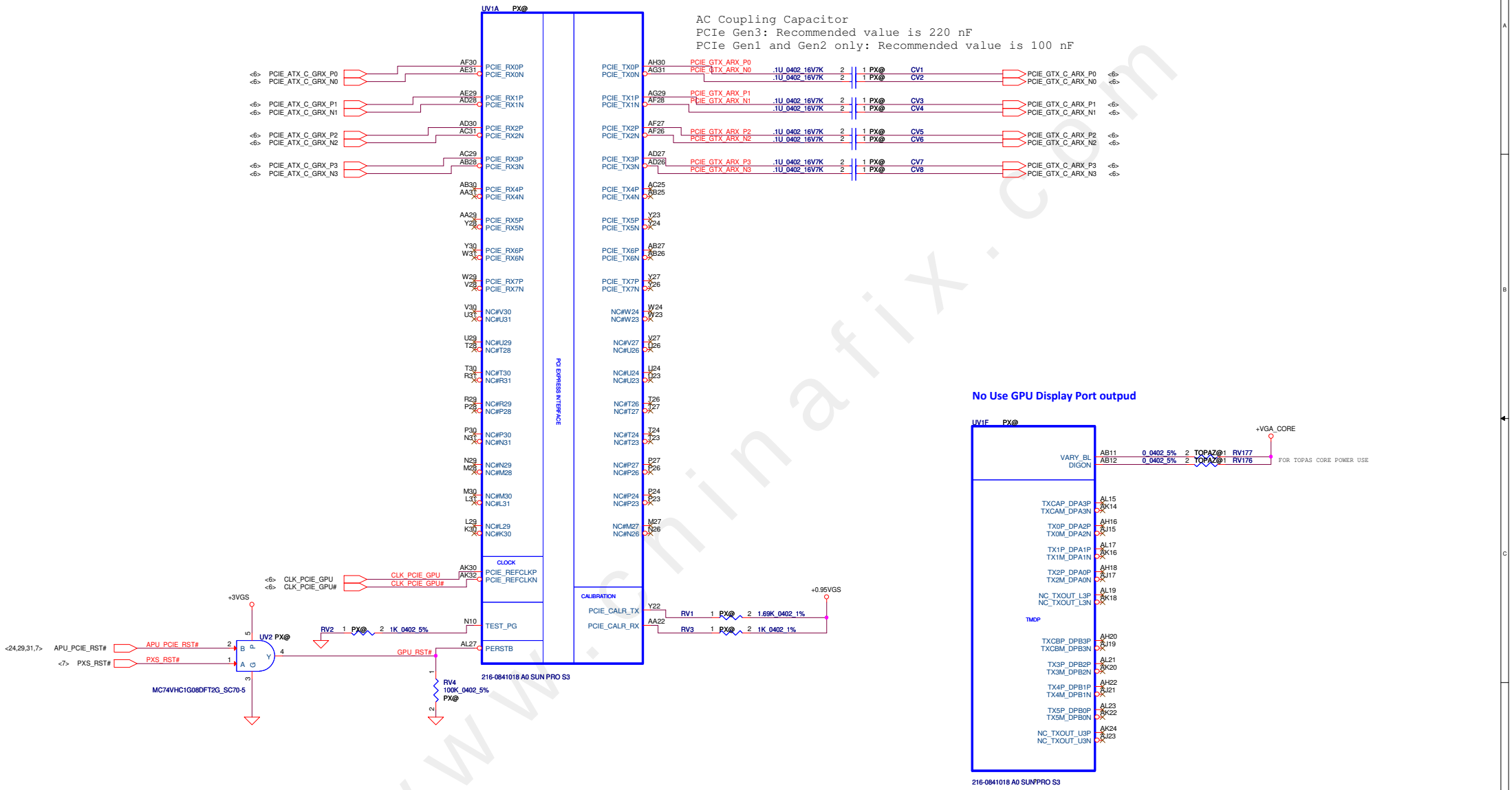

Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: JET/TOPAL(1/5)_PCIE/DP

Size	Document Number	Rev
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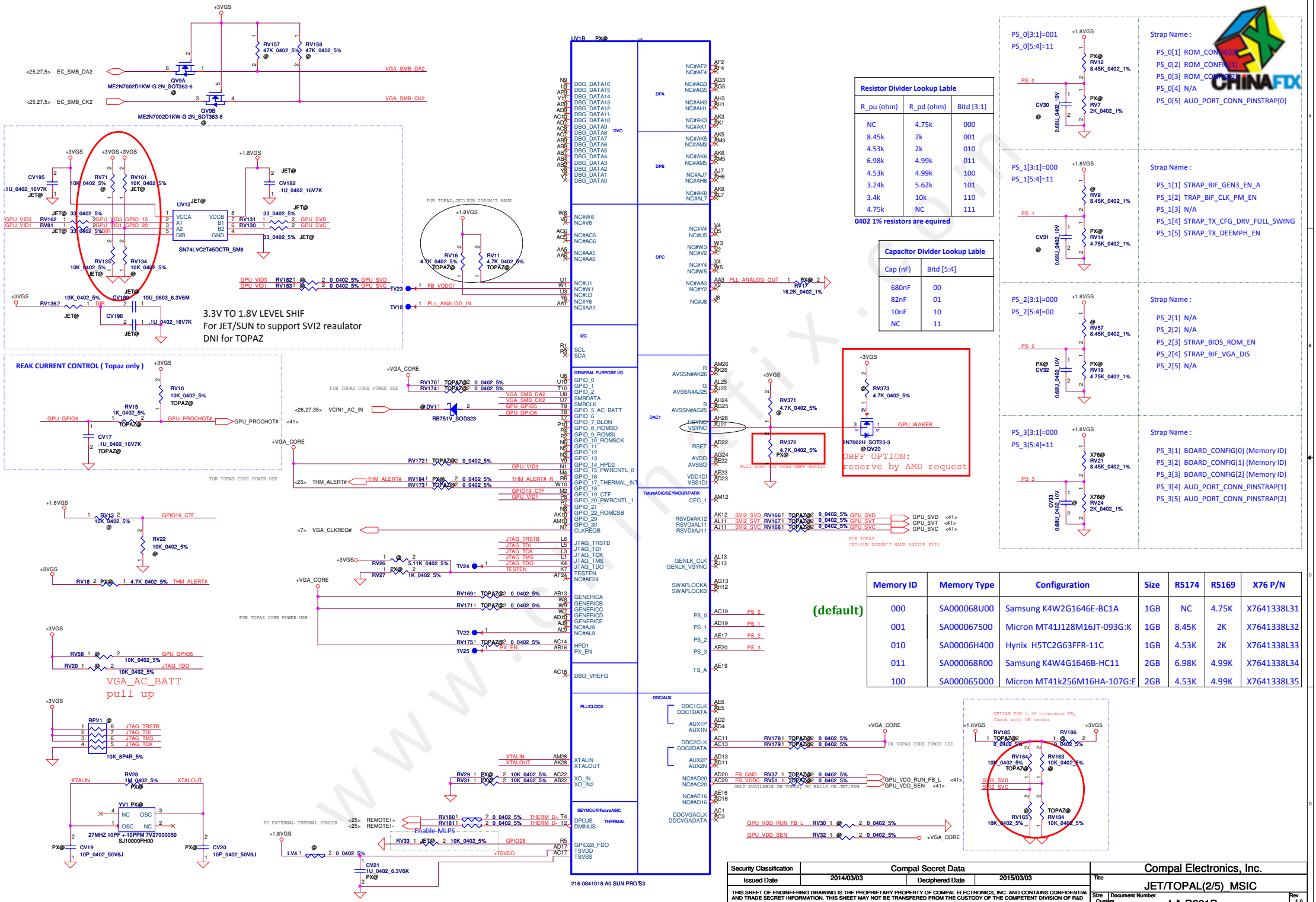

Resistor Divider Lookup Lable

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]=00

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]

Memory ID	Memory Type	Configuration	Size	R5174	R5169	X76 P/N
000	SA000068U00	Samsung K4W2G1646E-BC1A	1GB	NC	4.75K	X7641338L31
001	SA000067500	Micron MT41J128M16JT-093G:K	1GB	8.45K	2K	X7641338L32
010	SA00006H400	Hynix H5TC2G63FFR-11C	1GB	4.53K	2K	X7641338L33
011	SA000068R00	Samsung K4W4G1646B-HC11	2GB	6.98K	4.99K	X7641338L34
100	SA000065D00	Micron MT41k256M16HA-107G:E	2GB	4.53K	4.99K	X7641338L35

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Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: JET/TOPAL(2/5)_MSIC

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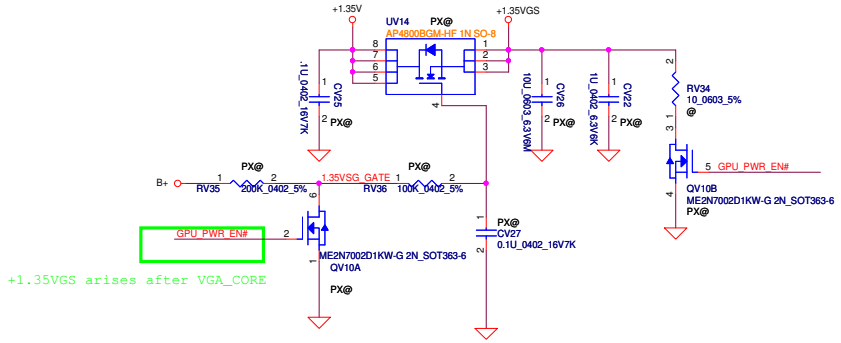
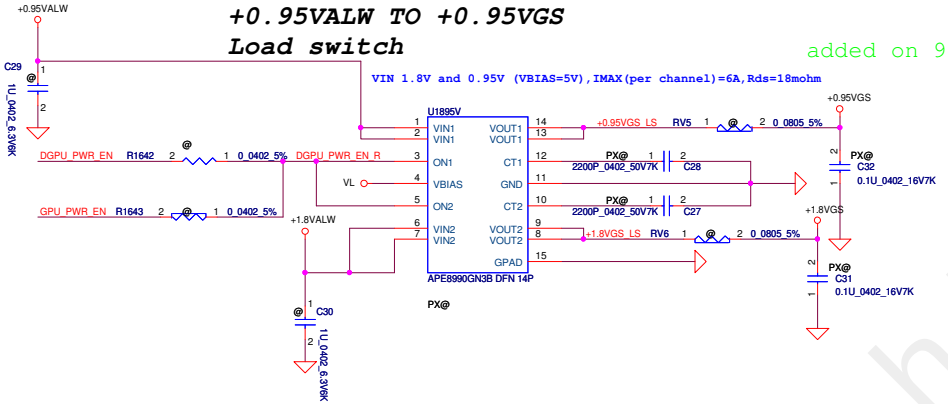
+1.35VS to +1.35VGS

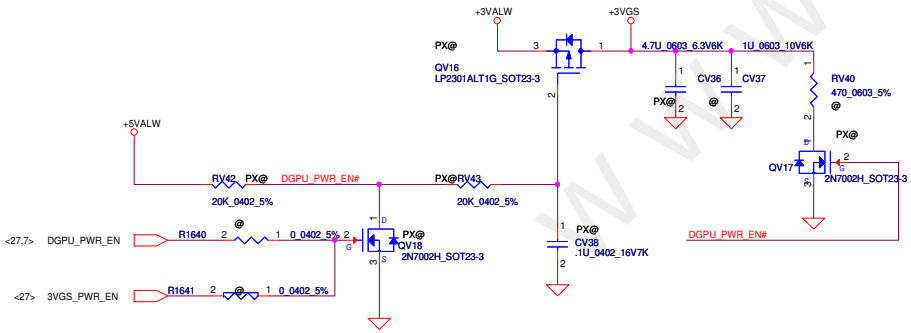


+1.8VALW TO +1.8VGS
+0.95VALW TO +0.95VGS
Load switch

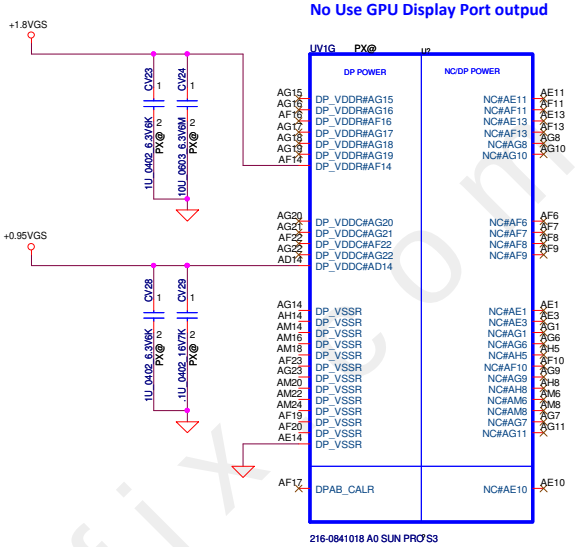
added on 9/28

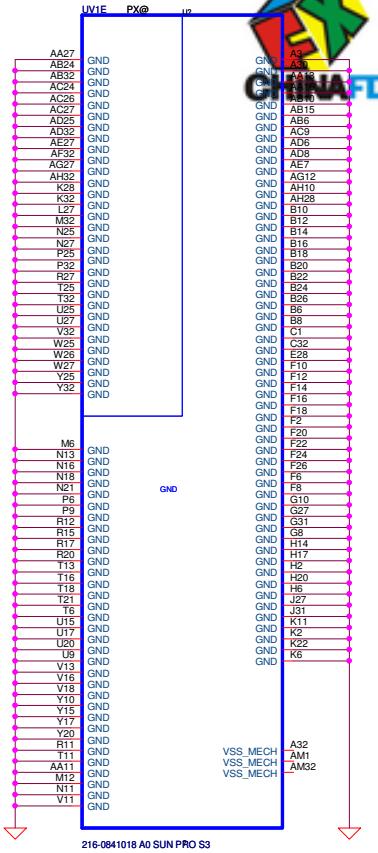


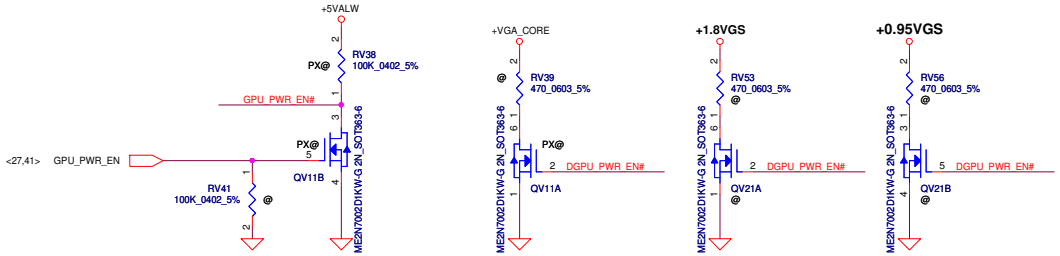
+3VS to +3VS_VGA



No Use GPU Display Port outpud







Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: JET/TOPAL(3/5)_PWR/GND

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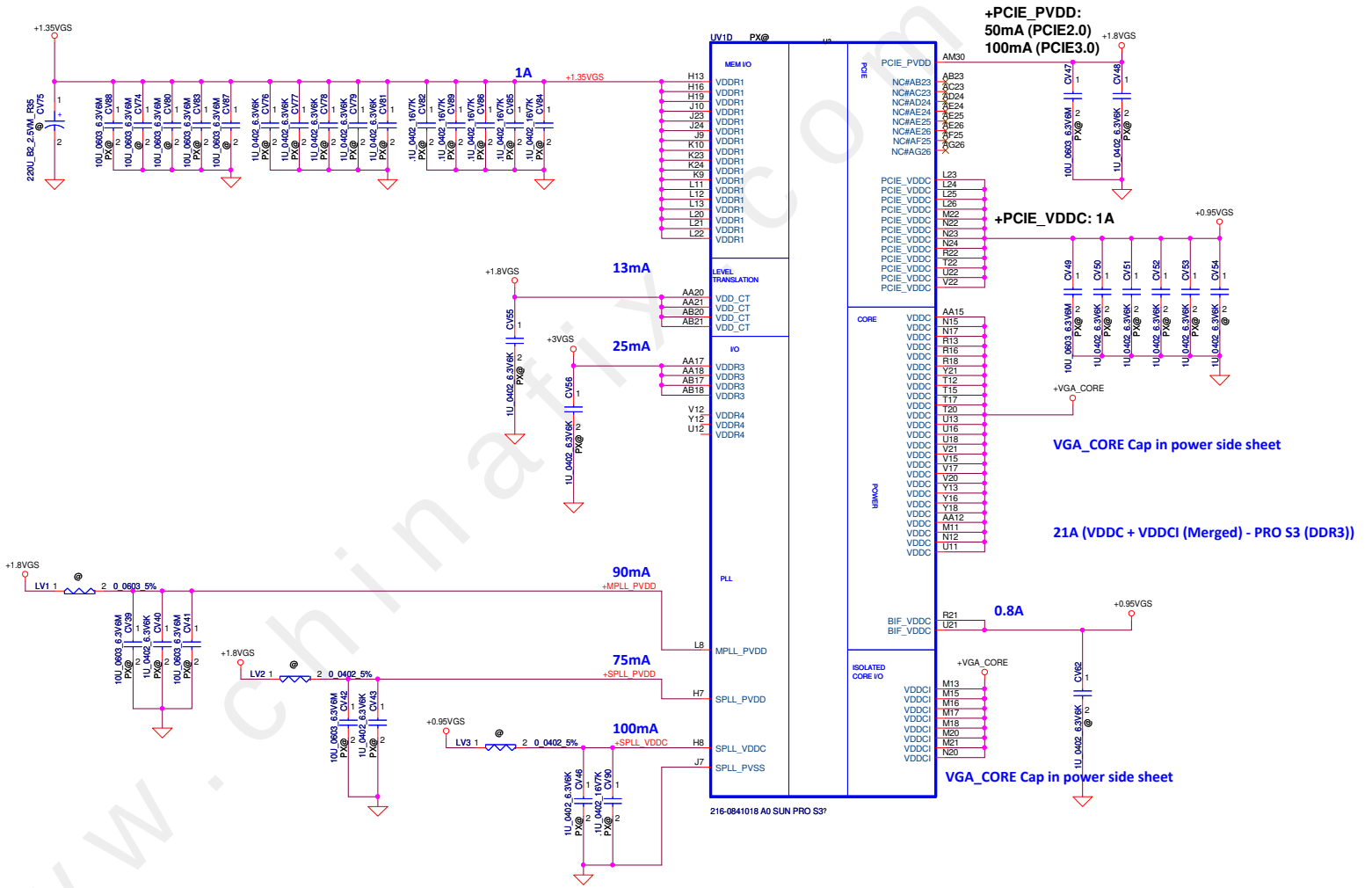
+VGA_CORE		10uF	2.2uF	1uF	0.1uF
VDDC	TBD	7	16	4	3
VDDCI	3.5A				

+0.95VGS		10uF	1uF	0.1uF
PCIE_VDDC	1A	1	5(1@)	0
BIF_VDDC	0.8A	0	1(1@)	0
SPLL_VDDC	100mA	0	1	1

+1.35VGS		10uF	1uF	0.1uF	0.01uF
VDDR1	1.5A	5(3@)	5	5	0

+1.8VGS		10uF	1uF	0.1uF
PCIE_PVDD	100mA	1	1	0
MPLL_PVDD	130mA	2	1	0
SPLL_PVDD	75mA	0	1	0
VDDR4	(300mA)	0	0	0
VDD_CT	13mA	0	1	0
+TSVDD	13mA	0	1	0
+DP_VDDR		1	1	0
+DP_VDDC		0	1	1

+3VGS		10uF	1uF	0.1uF
VDDR3	25mA	0	1	0



Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: JET/TOPAL(4/5)_PWR

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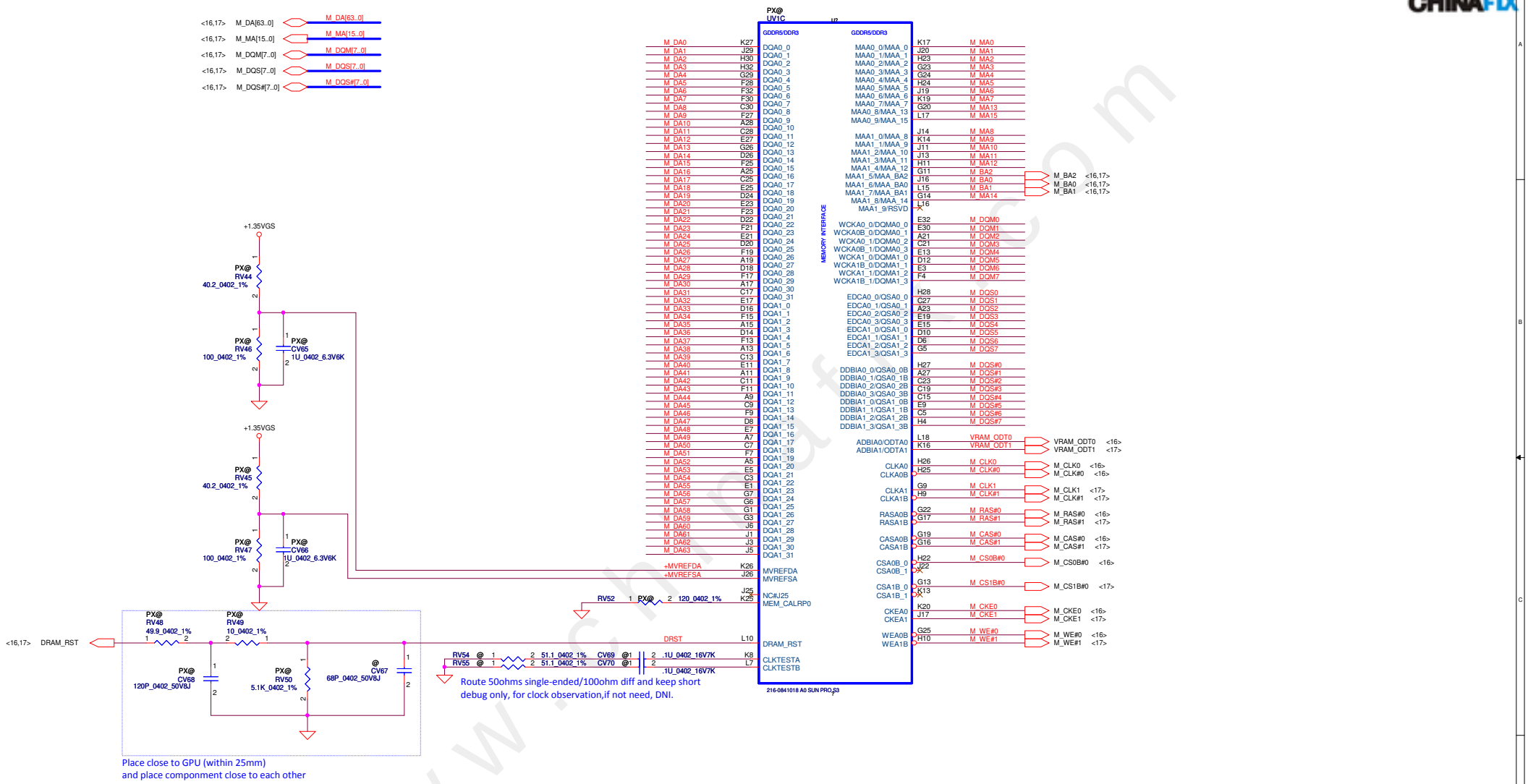

Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: JET/TOPAL(5/5)_MEM

Size	Document Number	Rev
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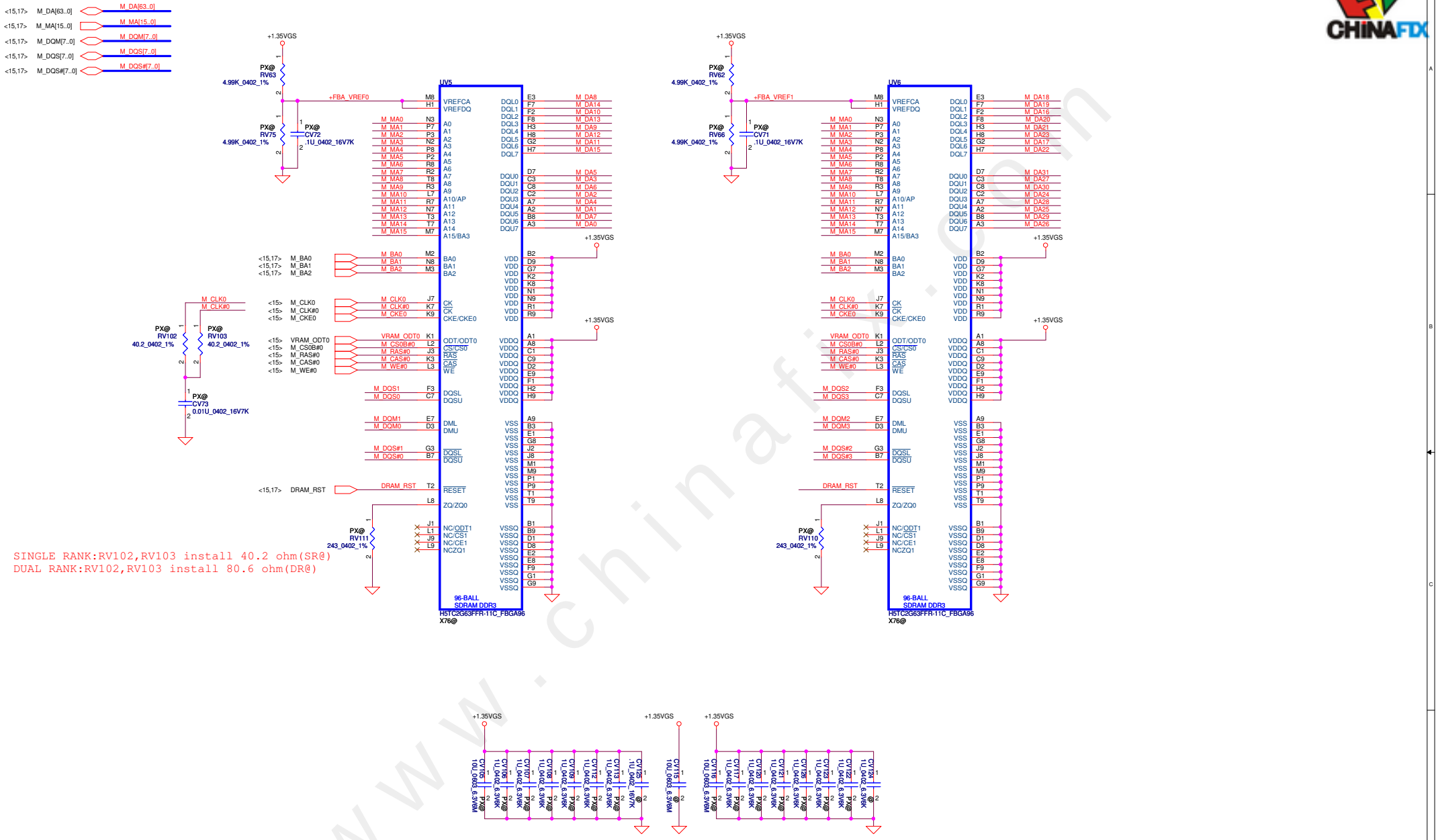
DDR3L Memory Channel Rank 0:A0



Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: JET/TOPAL_DDR3L_A1 Rank 0

Size	Document Number	Rev
Custom	LA-B291P	1.0

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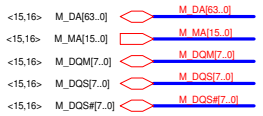
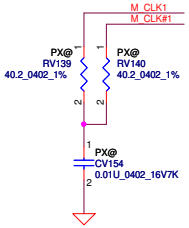
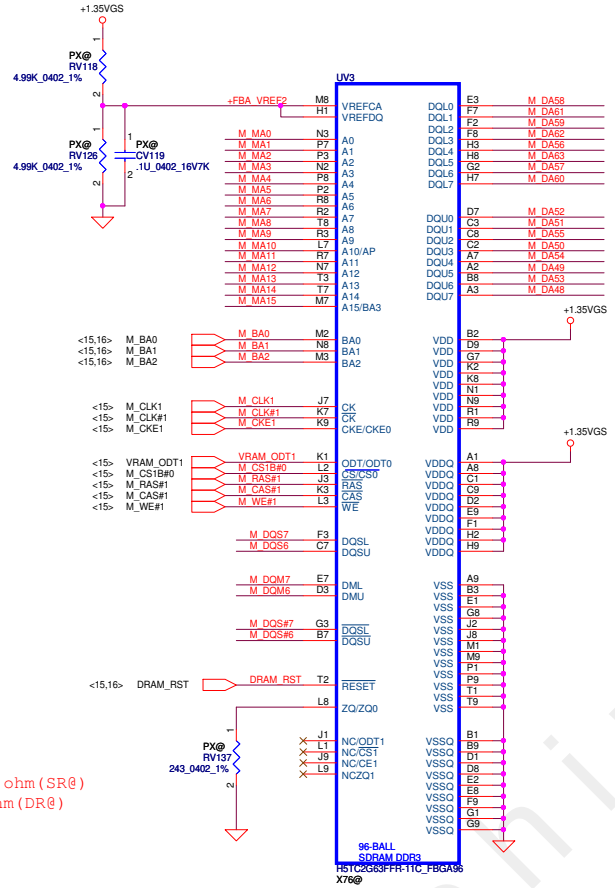
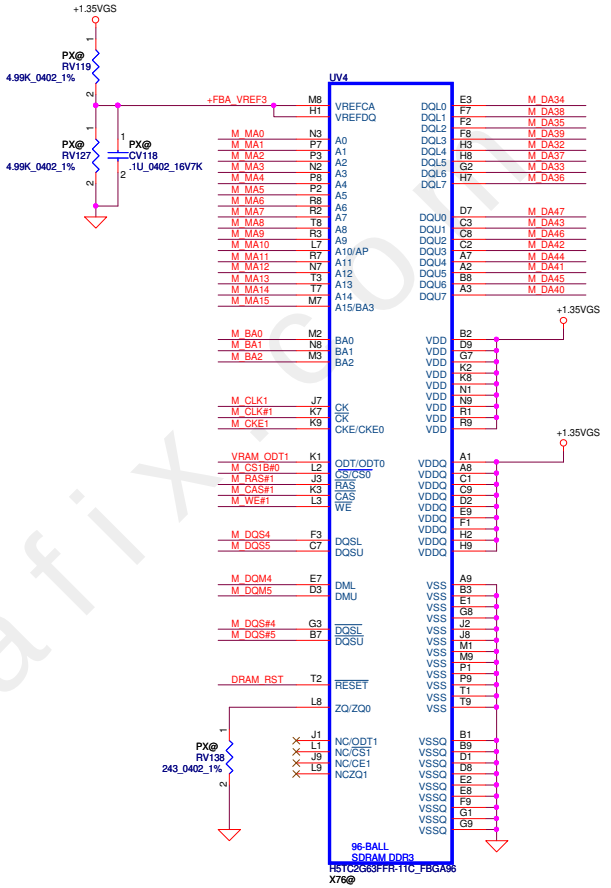
DDR3L Memory Channel Rank 0:A1

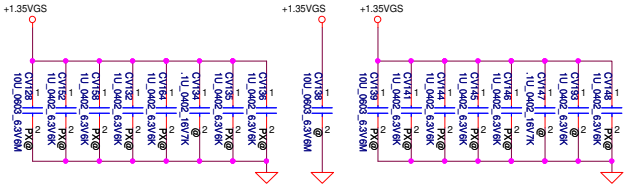




SINGLE RANK:RV139,RV140 install 40.2 ohm(SR@)
DUAL RANK:RV139,RV140 install 80.6 ohm(DR@)







Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: JET/TOPAL_DDR3L_A2 Rank 0

Size: Custom | Document Number: LA-B291P | Rev: 1.0

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Title	Reserved	
Size: A	Document Number: LA-B291P	Rev: 1.0
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Title	Reserved	
Size: A	Document Number: LA-B291P	Rev: 1.0
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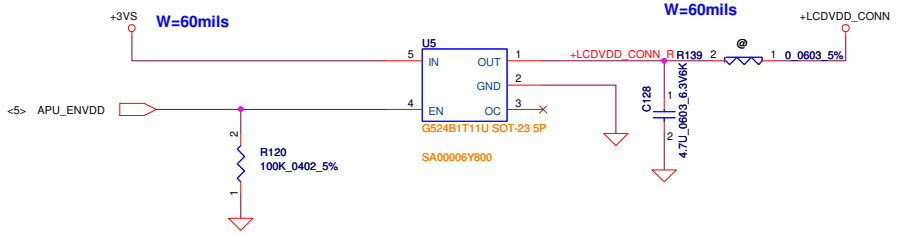
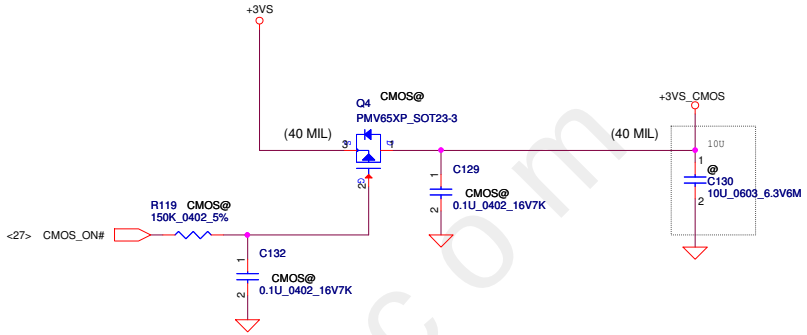
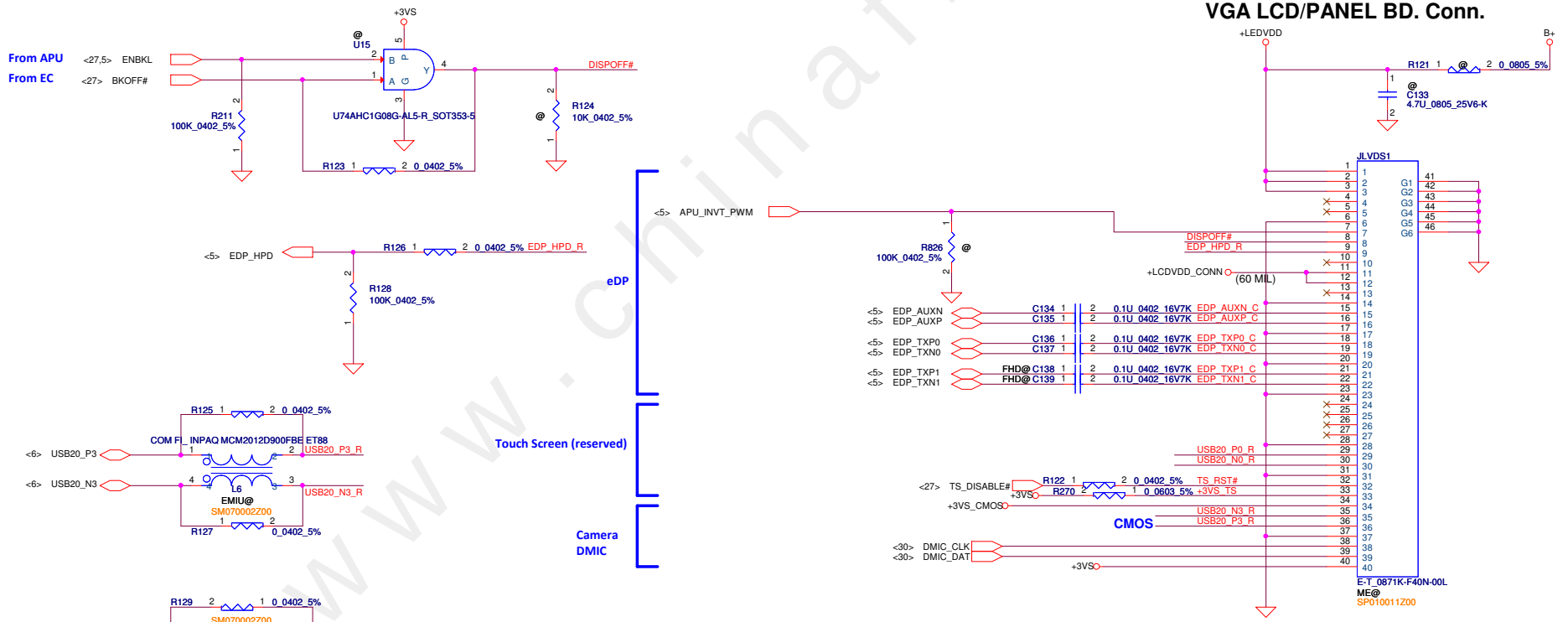
LCD POWER CIRCUIT



CMOS Camera



VGA LCD/PANEL BD. Conn.



Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/05

Compal Electronics, Inc.			
Title: EDP CONN / Camera			
Size: B	Document Number: LA-B291P		Rev: 1.0
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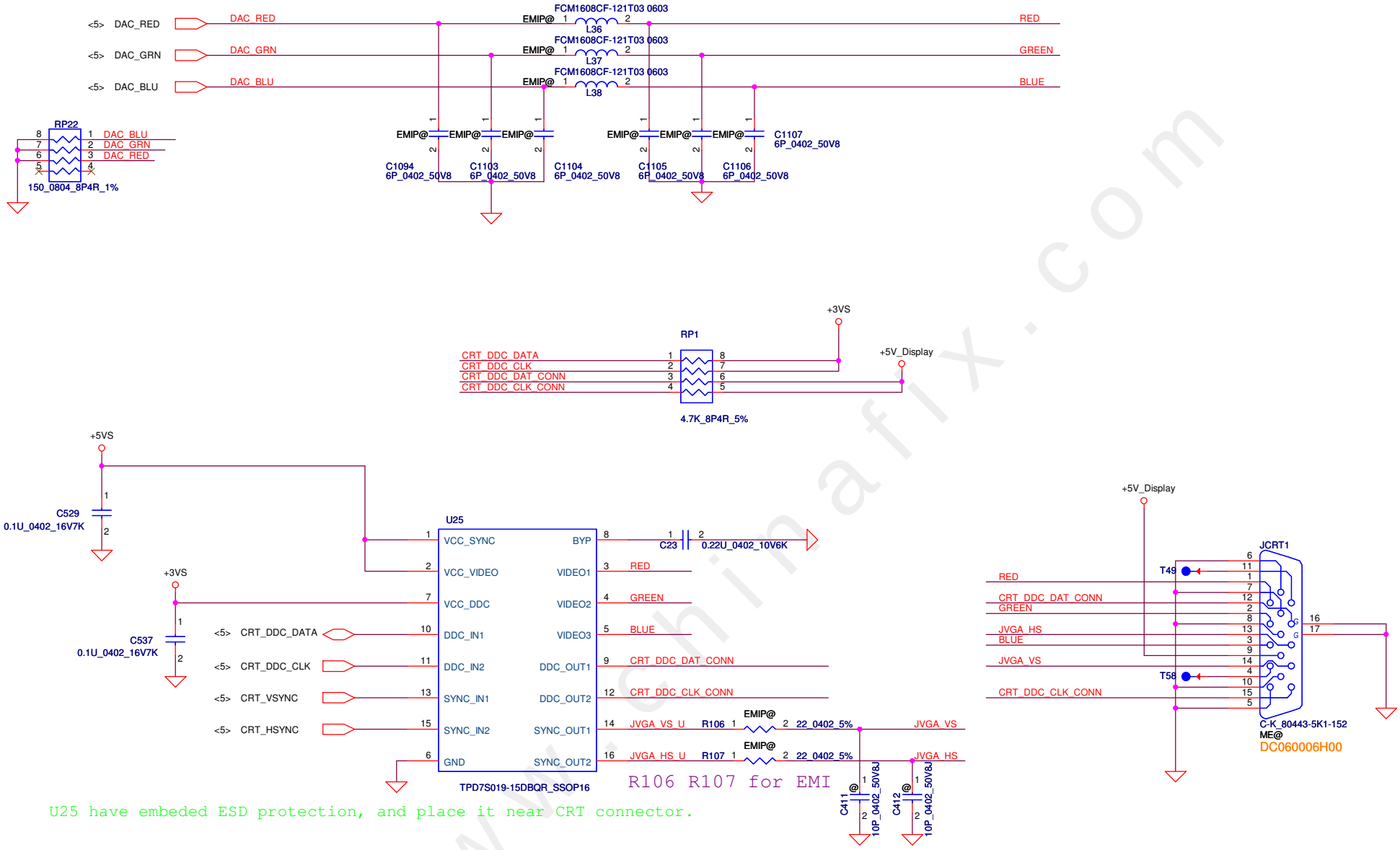

Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: CRT CONN

Size	Document Number	Rev
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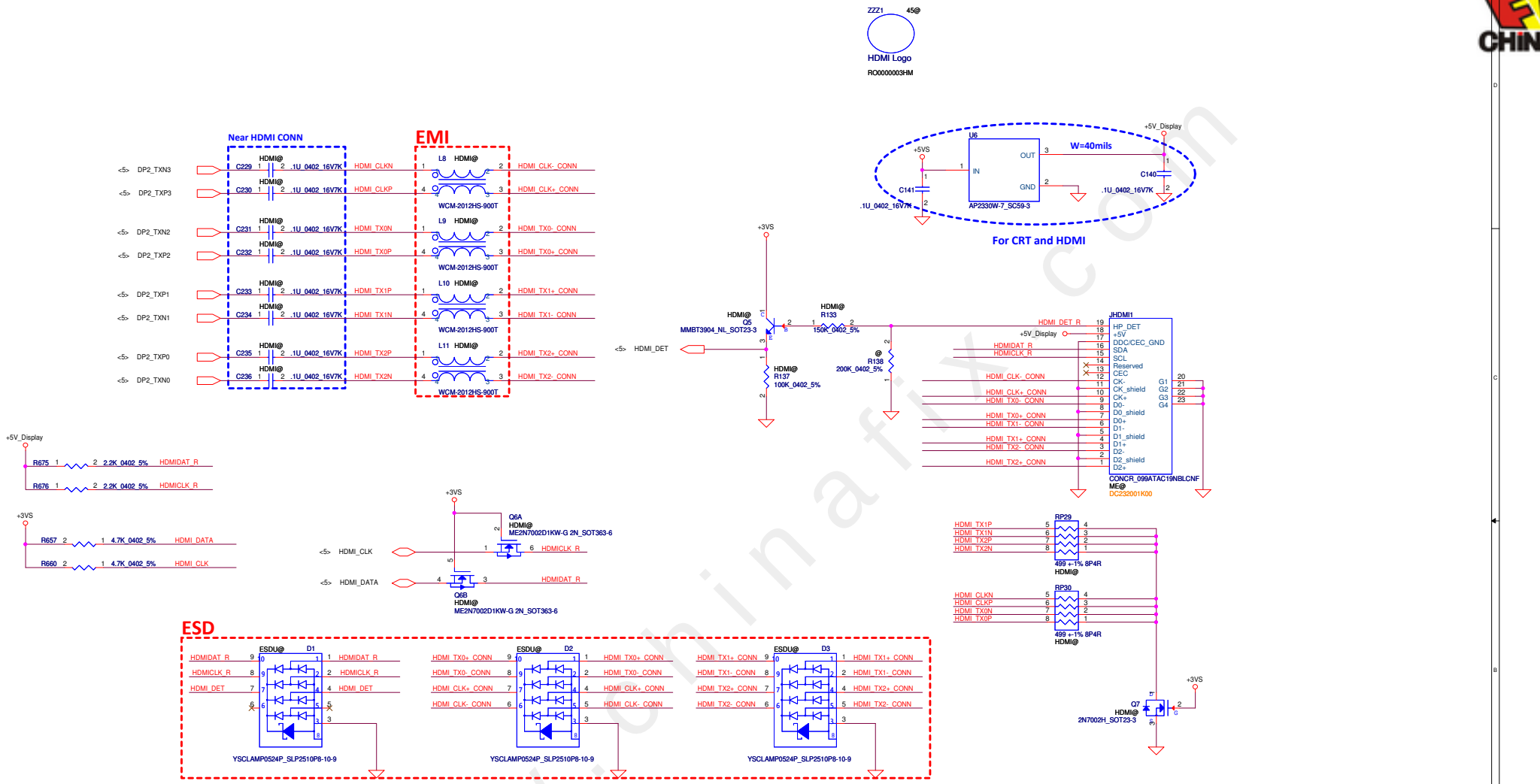

Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2014/03/03	Deciphered Date 2015/03/03	Title: HDMI CONN
Size: C	Document Number: LA-B291P		Rev: 1.0
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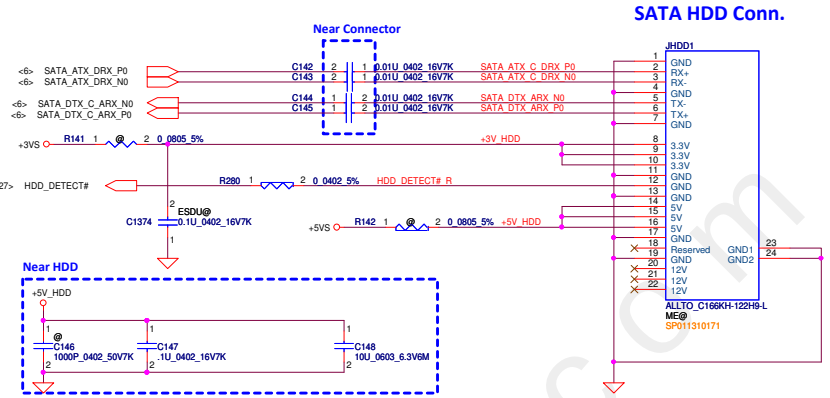
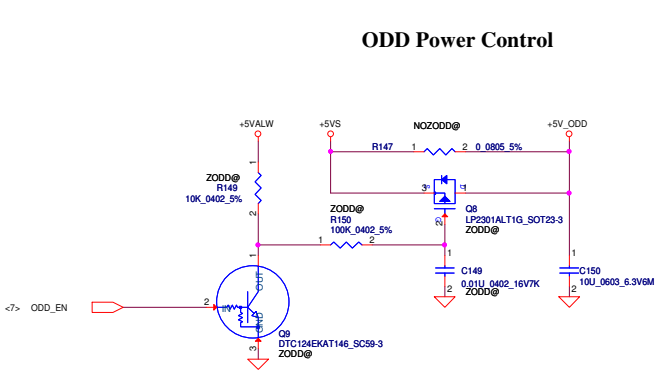
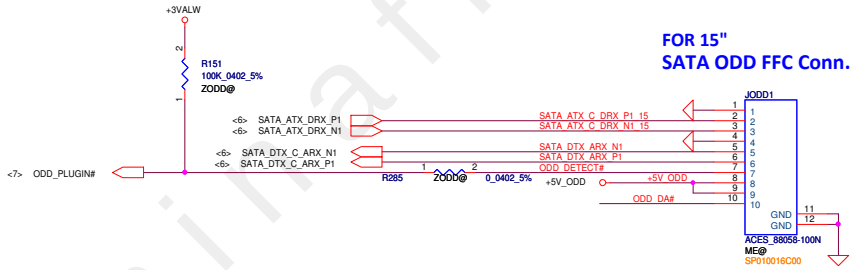
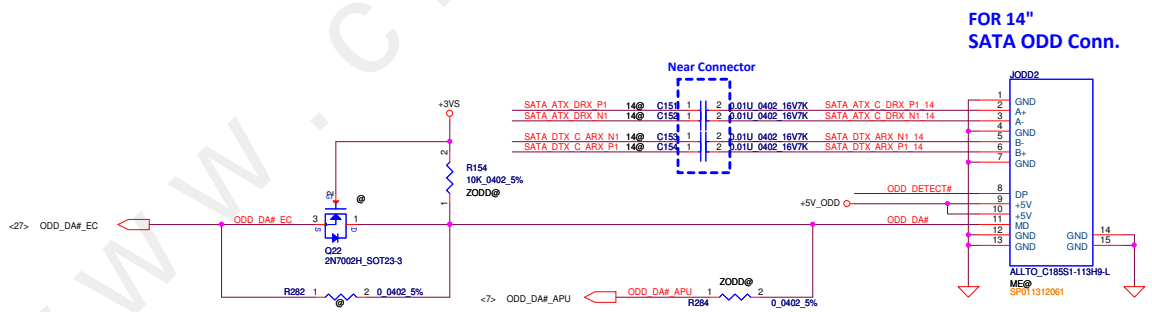
HDD



ODD







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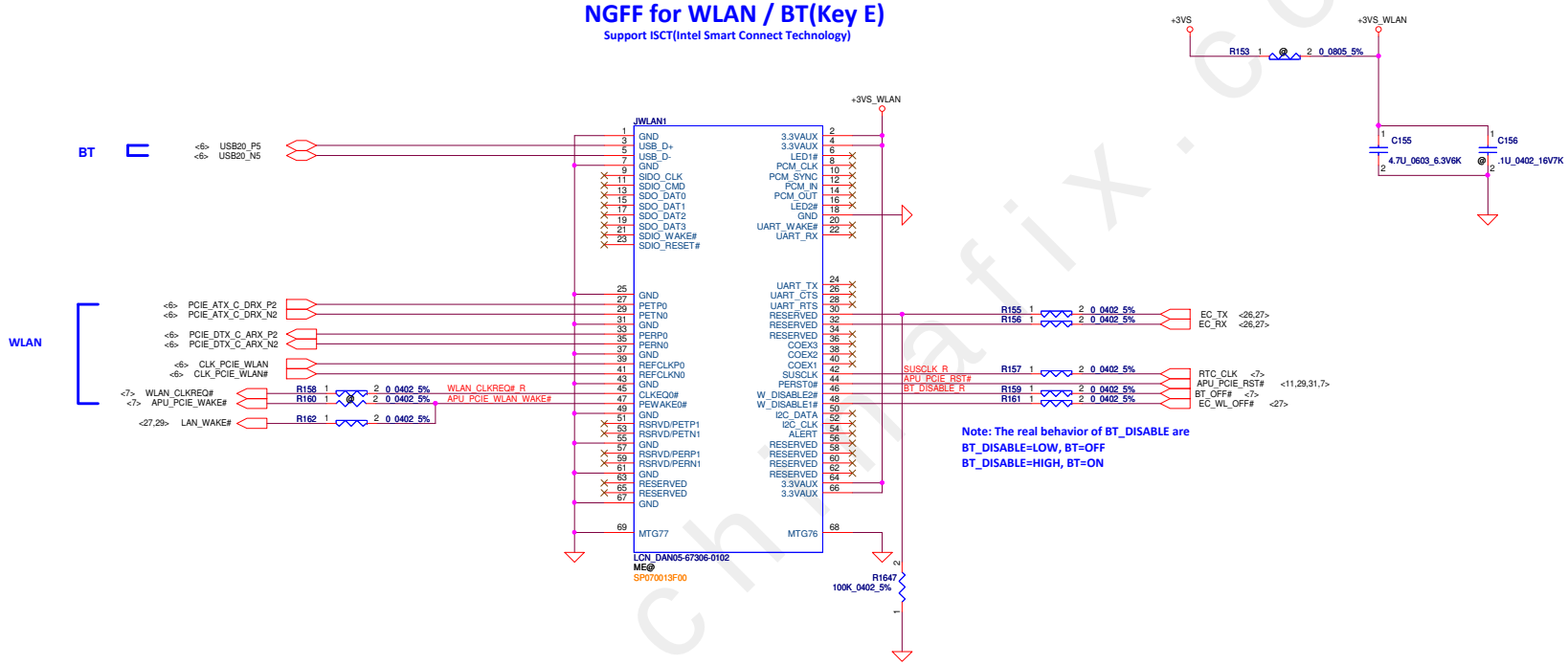
Issued Date	2014/03/03	Deciphered Date	2015/03/03
Title	HDD/ODD		
Size C	Document Number LA-B291P		Rev 1.0
Date: Monday, March 03, 2014	Sheet 23 of 46		

NGFF for WLAN / BT(Key E)

Support ISCT(Intel Smart Connect Technology)



Note: The real behavior of BT_DISABLE are
BT_DISABLE=LOW, BT=OFF
BT_DISABLE=HIGH, BT=ON

Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2014/03/03	Deciphered Date	2015/03/03
Title	NGFF WLAN/BT		
Size C	Document Number LA-B291P		Rev 1.0
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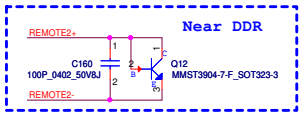
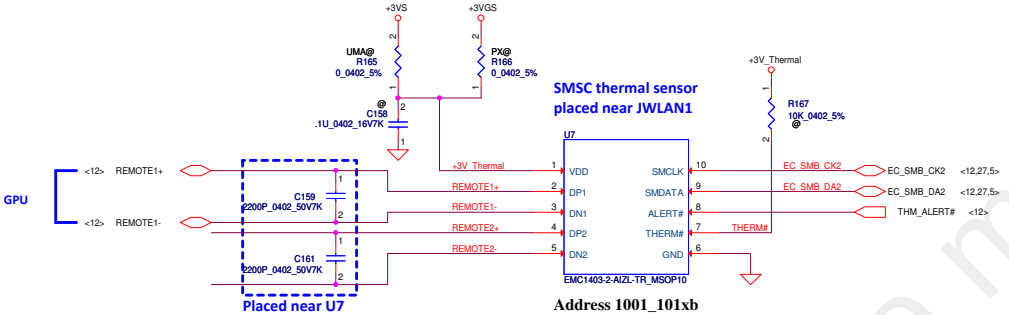
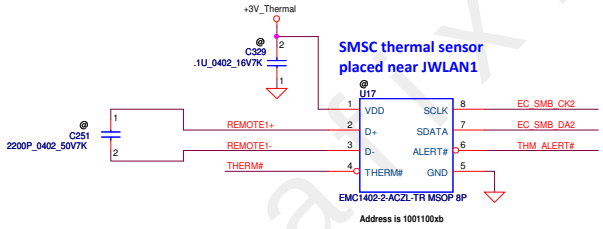
3 Channel

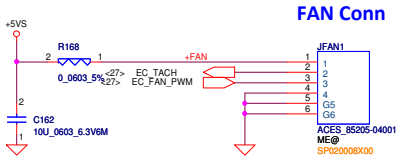


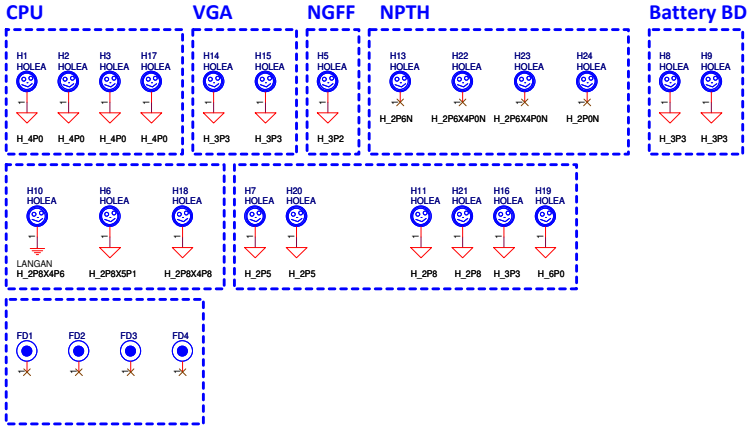
REMOTE1,2+/-:
Trace width/space:10/10 mil
Trace length:<8"



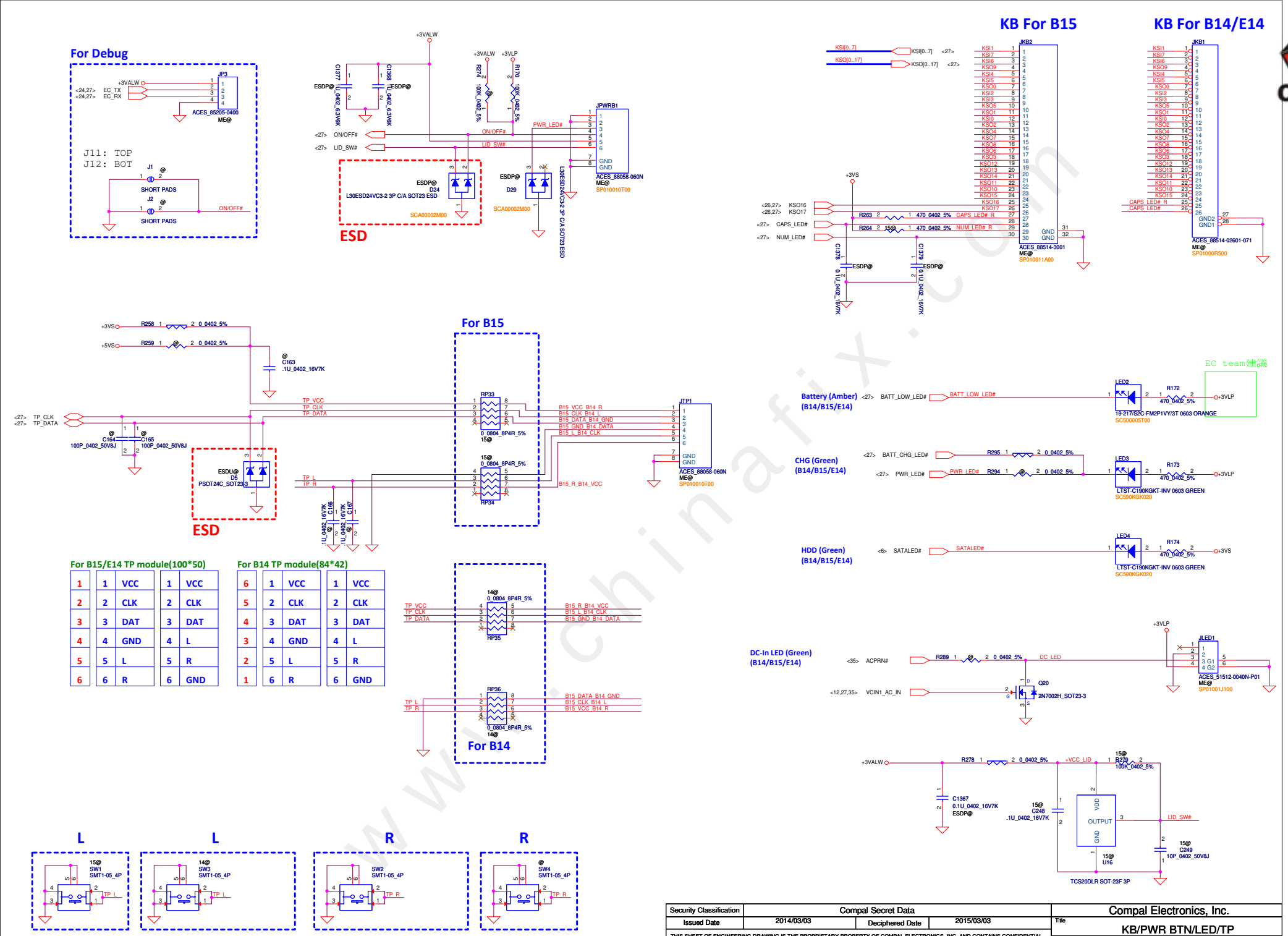
2 Channel







Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2014/03/03	Deciphered Date	2015/03/03
Title	EMC1403-2/FAN/Screw Hole		
Size C	Document Number LA-B291P		Rev 1.0
Date: Monday, March 03, 2014	Sheet 25 of 46		



Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

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Compal Electronics, Inc.

Title: KB/PWR BTN/LED/TP

Size: C | Document Number: LA-B291P | Rev: 1.0

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Vcc	3.3V +/- 5%				
R1562	100K +/- 5%				
Board ID	R1564	V_{AD_BID} min	V_{AD_BID} typ	V_{AD_BID} max	
0	0	0 V	0 V	0 V	MP
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V	PVT
2	18K +/- 5%	0.436 V	0.503 V	0.538 V	DVT
3	33K +/- 5%	0.712 V	0.819 V	0.875 V	EVT

CHINAFIX

+3VALW_EC
L20 FBM-11-160808-601-T_0603
C184 .1U_0402_16V7K
C185 @ 1000P_0402_50V7K
L21 FBM-11-160808-601-T_0603
+EC_VCCA
ECAGND
+3VALW
+3VLP
R188 @ 0_0603_5%
R189 0_0603_5%
C180 .1U_0402_16V7K
C181 .1U_0402_16V7K
C182 1000P_0402_50V7K
C183 @ 1000P_0402_50V7K
C179 @ 100P_0402_50V8J
+5VALW
R194 10K_0402_5%
USB_ON#
U11
NPCE288NB0DX_LQFP128_14X14
Part Number = SA000079Y00
ESDP@ C1375 1000P_0402_50V7K
EMIU@ C1263 22P_0402_50V8J
EMIU@ R1560 10_0402_5%
R192 47K_0402_5%
C187 0.1U_0402_16V7K
R201 2.2K_0402_5% EC_SMB_CK1
R202 2.2K_0402_5% EC_SMB_DA1
KSO[0..17]
KSI[0..7]
LPC & MISC
PWM Output
AD Input
DA Output
PS2 Interface
Int. K/B Matrix
SPI Device Interface
SPI Flash ROM
SM Bus
GPIO
GPO
GPI
GATEA20/GPIO00
KBRST#/GPIO01
SERIRQ
LPC_FRAME#
LPC_AD3
LPC_AD2
LPC_AD1
LPC_AD0
CLK_PCI_EC
PCIRST#/GPIO05
EC_RST#
EC_SCI#/GPIO0E
GPIO1D
KSI0/GPIO30
KSI1/GPIO31
KSI2/GPIO32
KSI3/GPIO33
KSI4/GPIO34
KSI5/GPIO35
KSI6/GPIO36
KSI7/GPIO37
KSO0/GPIO20
KSO1/GPIO21
KSO2/GPIO22
KSO3/GPIO23
KSO4/GPIO24
KSO5/GPIO25
KSO6/GPIO26
KSO7/GPIO27
KSO8/GPIO28
KSO9/GPIO29
KSO10/GPIO2A
KSO11/GPIO2B
KSO12/GPIO2C
KSO13/GPIO2D
KSO14/GPIO2E
KSO15/GPIO2F
KSO16/GPIO48
KSO17/GPIO49
EC_SMB_CK1/GPIO44
EC_SMB_DA1/GPIO45
EC_SMB_CK2/GPIO46
EC_SMB_DA2/GPIO47
PM_SLP_S3#/GPIO04
PM_SLP_S5#/GPIO07
EC_SMI#/GPIO08
GPIO0A
GPIO0B
GPIO0C
GPIO0D
EC_INVT_PWM/GPIO11
FAN_SPEED1/GPIO14
EC_PME#/GPIO15
EC_TX/GPIO16
EC_RX/GPIO17
PCH_PWROK/GPIO18
SUSP_LED#/GPIO19
NUM_LED#/GPIO1A
XCLKI/GPIO5D
XCLKO/GPIO5E
GPIO0F
BEEP#/GPIO10
GPIO12
ACOFF/GPIO13
BATT_TEMP/AD0/GPIO38
AD1/GPIO39
ADP_I/AD2/GPIO3A
AD3/GPIO3B
AD4/GPIO42
IMON/AD5/GPIO43
DAC_BRIG/GPIO3C
EN_DFAN1/GPIO3D
IREF/GPIO3E
CHGVADJ/GPIO3F
EC_MUTE#/GPIO4A
USB_EN#/GPIO4B
CAP_INT#/GPIO4C
EAPD/GPIO4D
TP_CLK/GPIO4E
TP_DATA/GPIO4F
CPU1.5V_S3_GATE/GPXIOA00
WOL_EN/GPXIOA01
ME_EN/GPXIOA02
VCIN0_PH/GPXIOD00
SPIDI/GPIO5B
SPIDO/GPIO5C
SPICLK/GPIO58
SPICS#/GPIO5A
ENBKL/AD6/GPIO40
PECI_KB930/AD7/GPIO41
FSTCHG/GPIO50
BATT_CHG_LED#/GPIO52
CAPS_LED#/GPIO53
PWR_LED#/GPIO54
BATT_LOW_LED#/GPIO55
SYSON/GPIO56
VR_ON/GPIO57
PM_SLP_S4#/GPIO59
EC_RSMRST#/GPXIOA03
EC_LID_OUT#/GPXIOA04
PROCHOT_IN/GPXIOA05
H_PROCHOT#_EC/GPXIOA06
VCOUT0_PH/GPXIOA07
BKOFF#/GPXIOA08
PBTN_OUT#/GPXIOA09
PCH_APWROK/GPXIOA10
SA_PGOOD/GPXIOA11
AC_IN/GPXIOD01
EC_ON/GPXIOD02
ON/OFF/GPXIOD03
LID_SW#/GPXIOD04
SUSP#/GPXIOD05
GPXIOD06
PECI_KB9012/GPXIOD07
V18R
+V18R
C823 4.7U_0603_6.3V6K
R1567 @ 0_0402_5%
C1370 @ 100P_0402_50V8J
ESDU@
GND/GND
AGND/AGND
20mil
ECAGND
ADP_65
BEEP#
EC_FAN_PWM
ACOFF
VCIN1_BATT_TEMP
ADP_I
ADP_ID
BRDID
ENBKL
3VGS_PWR_EN
EC_WL_OFF#
EC_MUTE#
USB_ON#
PTC_PROTECT
TP_CLK
TP_DATA
TS_DISABLE#
HDD_DETECT#
095VS_PWR_EN
VCIN0_PH1
EC_SPI_AISO
EC_SPI_AOSI
EC_SPI_CLK
EC_SPI_CS1#
APU_IMON_R
VGATE
USB_CHG_CTL1
USB_CHG_CTL2
CAPS_LED#
PWR_LED#
BATT_LOW_LED#
SYSON
VR_ON
095_18ALW_PWR_EN
EC_RSMRST#
EC_LID_OUT#
VCIN1_ADP_PROCHOT
VCOUT1_PROCHOT#
VCOUT0_MAIN_PWR_ON
BKOFF#
PBTN_OUT#
BATT_CHG_LED#
USB_CHG_CTL3
VCIN1_AC_IN
EC_ON
ON/OFF#
LID_SW#
SUSP#
NUVOTON_VTT
USB_CHG_STATUS#
APU_IMON
R1562 100K_0402_5%
R1564 @ 0_0402_5%
DVT@ R1564 18K_0402_5%
PVT@ R1564 8.2K_0402_5%
R199 4.7K_0402_5%
R260 4.7K_0402_5%
R200 4.7K_0402_5%
R261 4.7K_0402_5%
TP_CLK
TP_DATA
R214 10K_0402_5%
R309 0_0402_5%
R308 0_0402_5%
R343 47K_0402_5%
R198 10K_0402_5%
R212 10K_0402_5%
R281 100K_0402_5%
R344 47K_0402_5%
LAN_WAKE#
HDD_DETECT#
LID_SW#
ESDP@ C1366 0.1U_0402_16V7K
C189 100P_0402_50V8J
C190 @ 100P_0402_50V8J
R203 4.7K_0402_5%
R207 100K_0402_5%
ESDU@ C1369 100P_0402_50V8J
R204 0_0402_5%
R205 0_0402_5%
PROCHOT#
H_PROCHOT#
Q13 2N7002H_SOT23-3 9012@
C191 @ 47P_0402_50V8J
For GPU
R310 @ 10K_0402_5% GPU_PWR_EN
ESD
C193 .1U_0402_16V7K ESDU@
SYSON

Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

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Compal Electronics, Inc.

Title: EC-Nuvoton 288N

Size: Custom | Document Number: LA-B291P | Rev: 1.0

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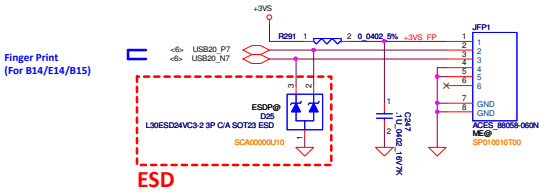
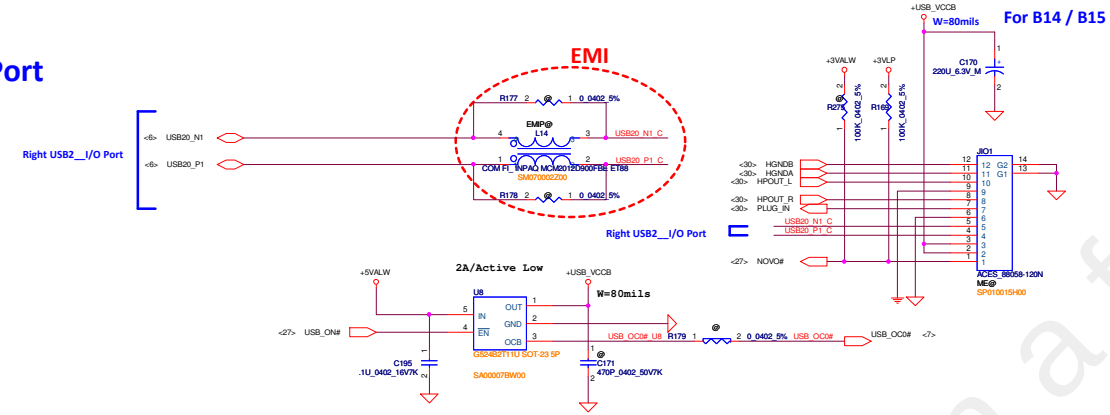
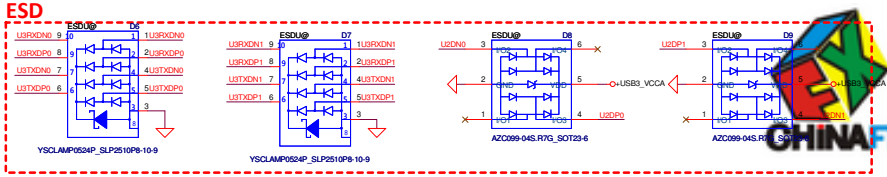
Finger Print



USB2.0_Port

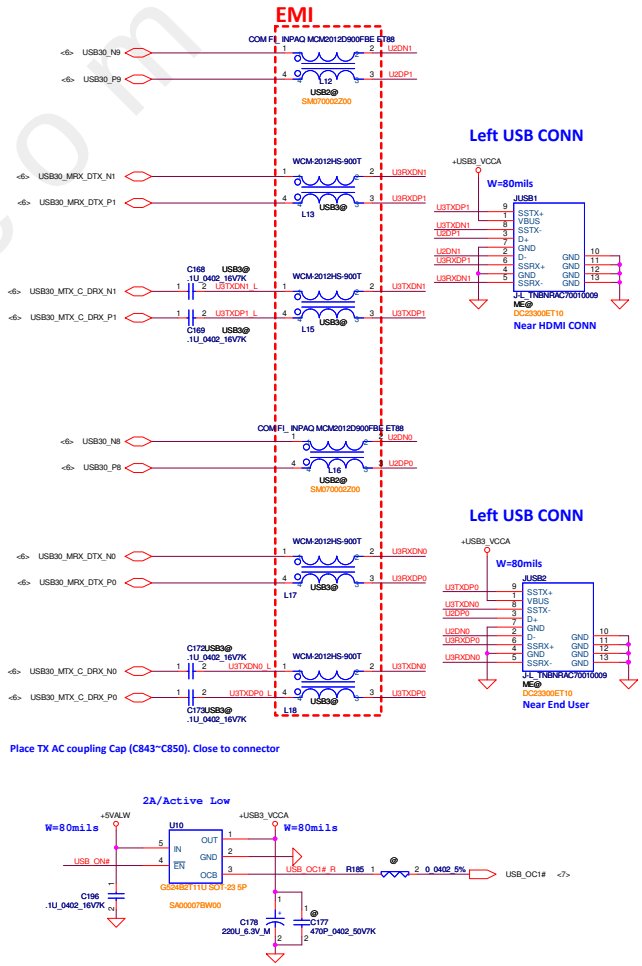


ESD

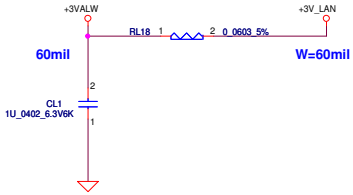


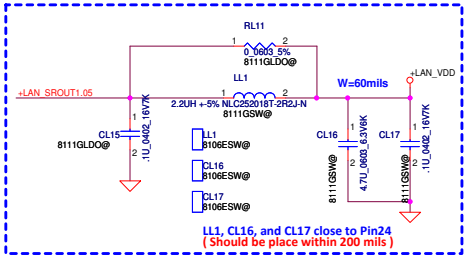
ESD protection needs to be placed near connector side

USB3.0_Port



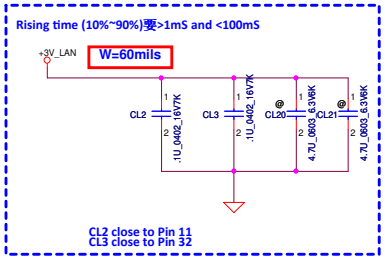
Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2014/03/03	Deciphered Date	2015/03/03
Title	USB Port/FP		
Size: Custom	Document Number: LA-B291P		Rev: 1.0
Date: Monday, March 03, 2014	Sheet 28 of 46		

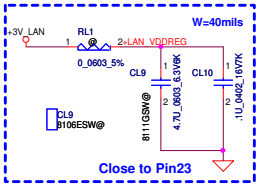


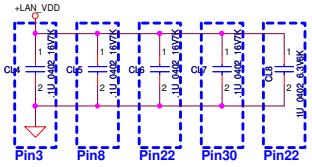


		1.0 V source	LL1	CL16, CL17	CL9, CL10	RL11	CL15
SA00005V700	RTL8111G	LDO	X	X	X	O	O
	~~RTL8111G~~	~~External~~	~~X~~	~~X~~	~~X~~	~~X~~	~~O~~
	RTL8111GS/ RTL8111GUS/ RTL8106EUS	SWR	O	O	O	X	X
SA00006Y00	RTL8106E	LDO	X	X	X	X	X

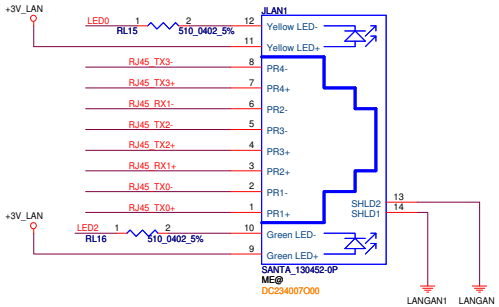
Please refer to the table above when using different 1.0V supply source.
For RTL8111GS, RTL8111GUS, RTL8106E and RTL8106EUS, External 1.0V Supply Is Not Permitted.



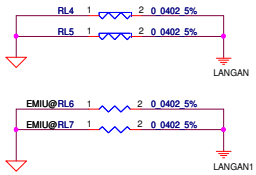


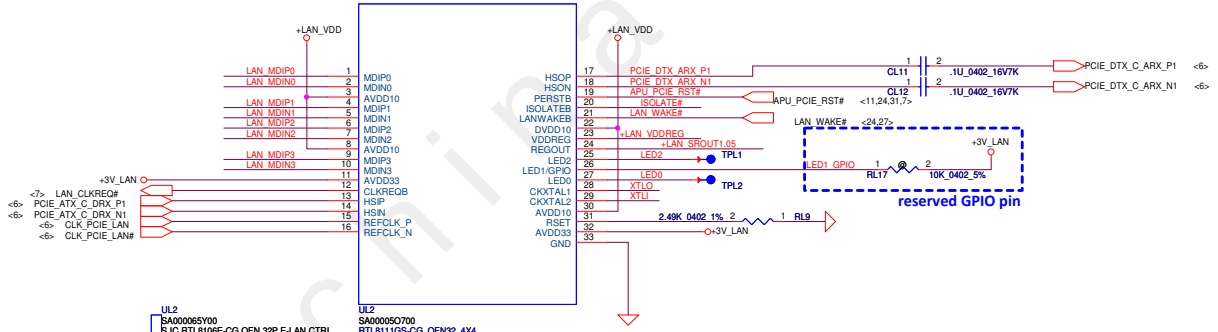


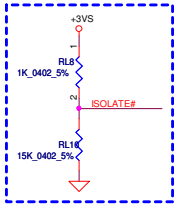
RJ-45 CONN.

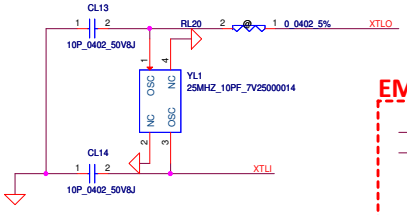


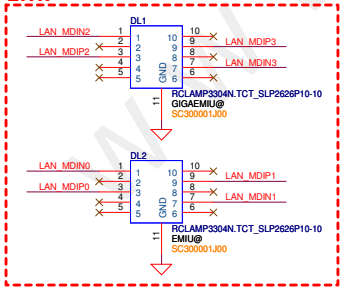
EMI

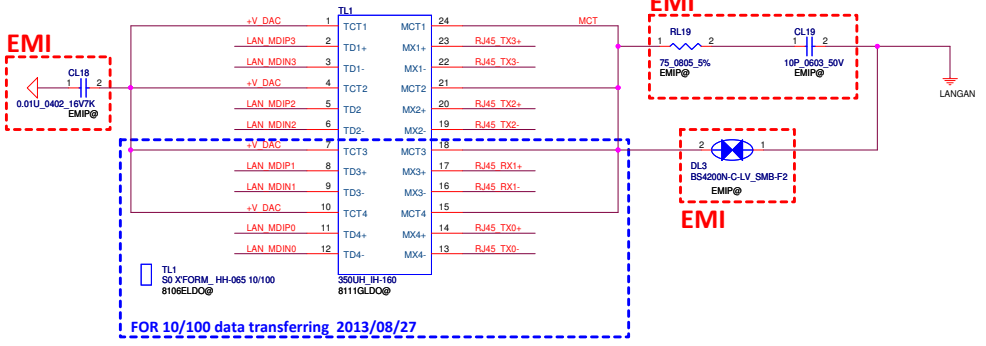




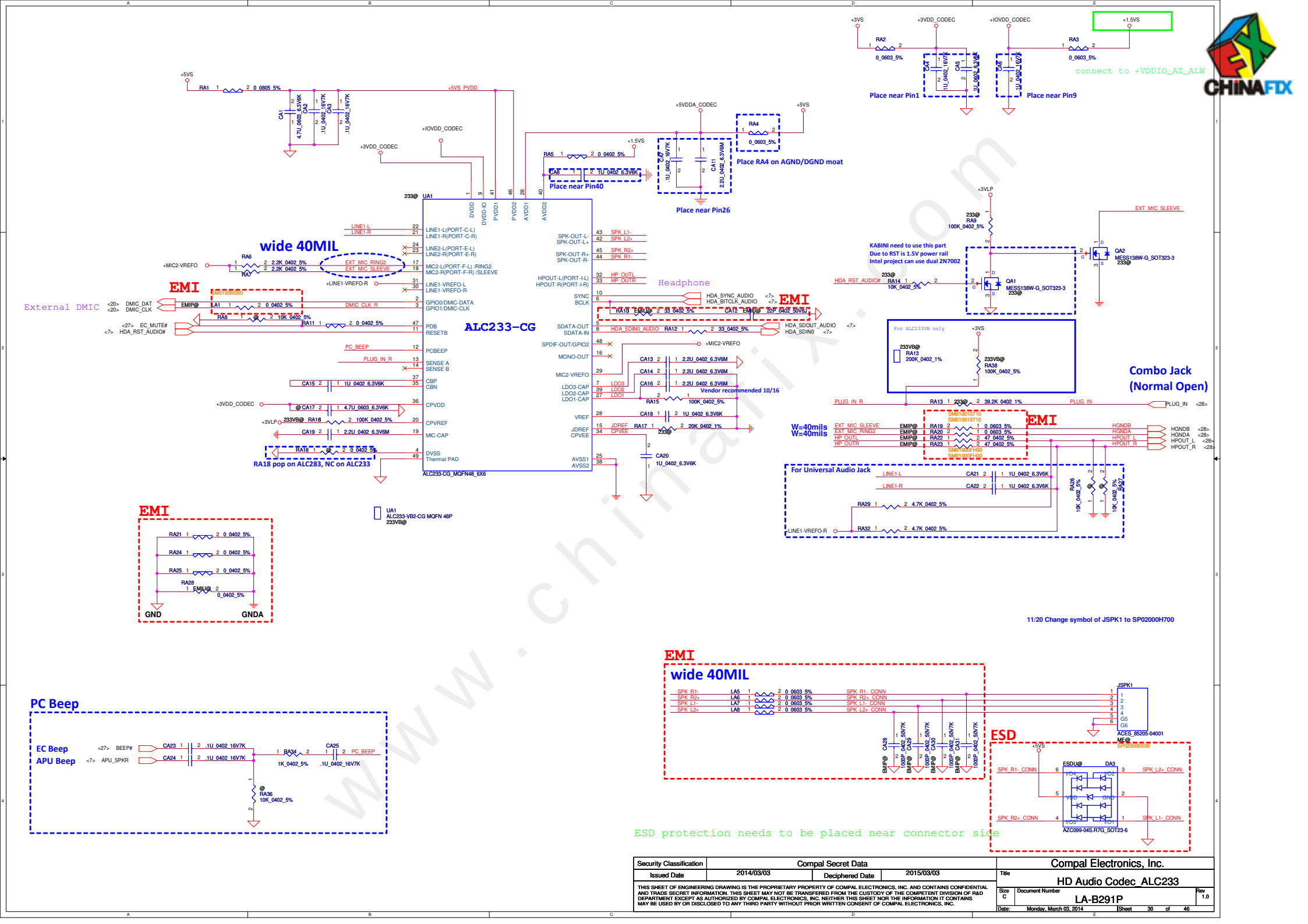








Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2014/03/03	Deciphered Date	2015/03/03
Title	LAN_RTL8111G/RTL8106E		
Size C	Document Number LA-B291P		Rev 1.0
Date: Monday, March 03, 2014		Sheet 29 of 46	



Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

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Compal Electronics, Inc.

Title: HD Audio Codec_ALC233

Size	Document Number	Rev
C	LA-B291P	1.0

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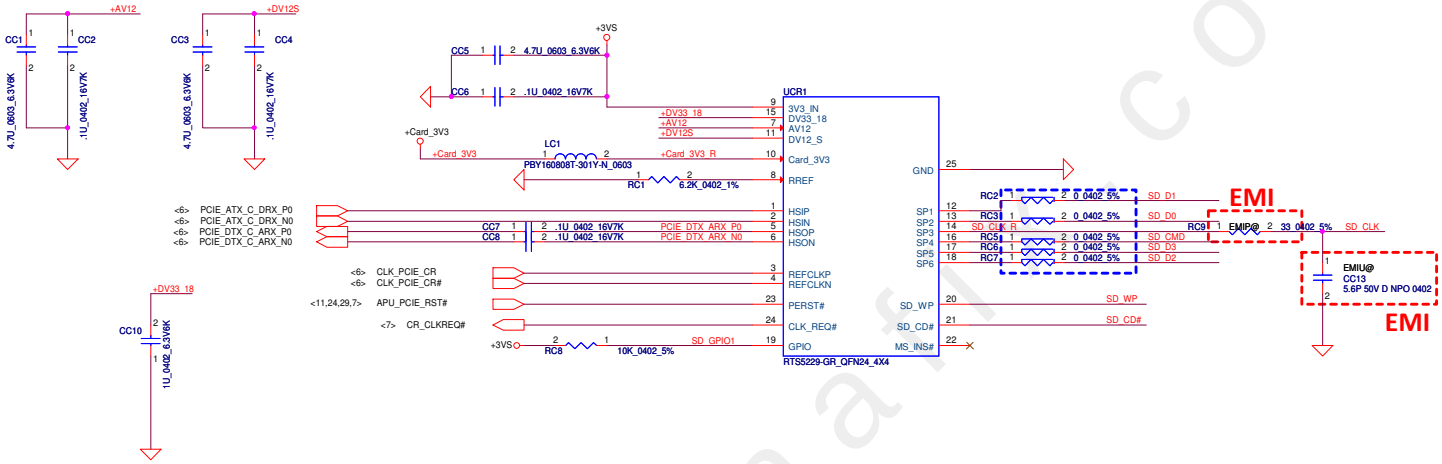
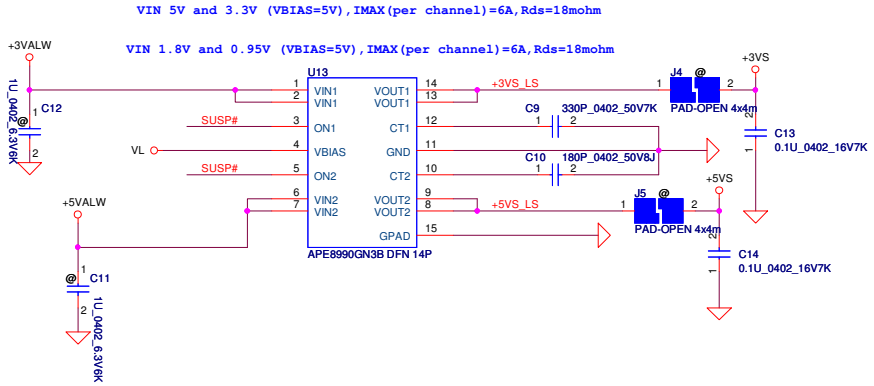


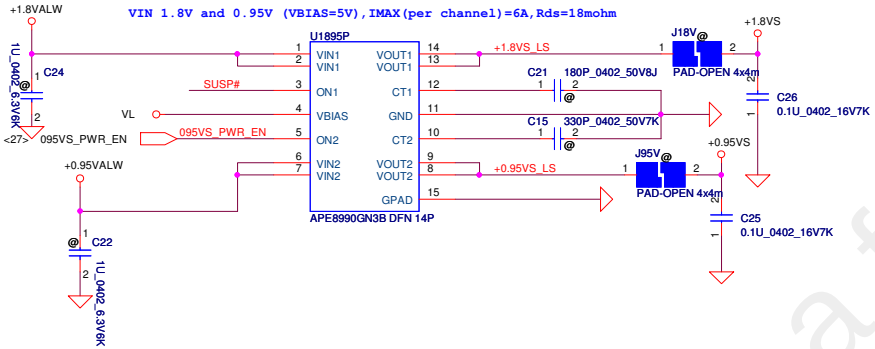
Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.			
Title	Card Reader RTS5229		
Size C	Document Number LA-B291P		Rev 1.0
Date: Monday, March 03, 2014	Sheet 31 of 46		

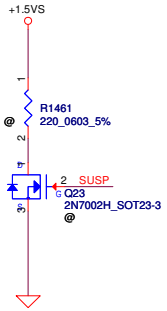
+5VALW TO +5VS
+3VALW TO +3VS
Load switch



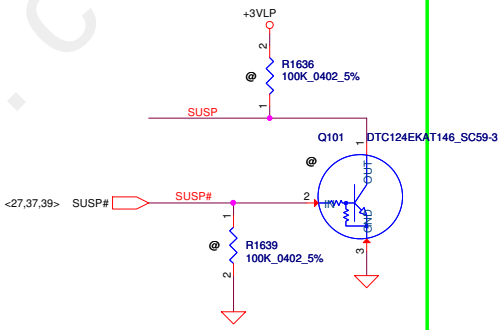
+1.8VALW TO +1.8VS
+0.95VALW TO +0.95VS
Load switch

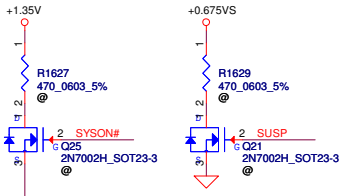


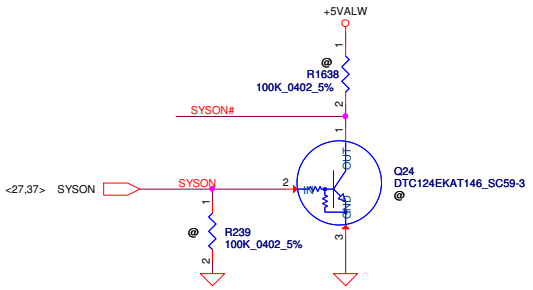
+1.5VS discharge circuit only for Beema
only 1.5VS from PWR



only for Beema

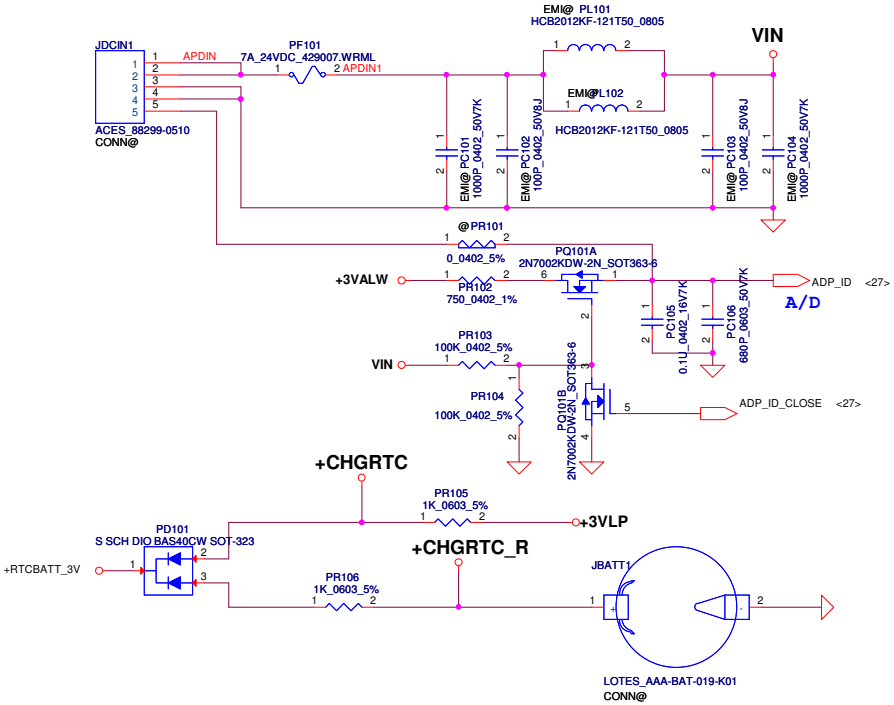






Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2014/03/03	Deciphered Date 2015/03/05	Title: DC Interface

Size B	Document Number LA-B291P		Rev 1.0
Date: Monday, March 03, 2014	Sheet 32 of 46		



RTC Battery

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

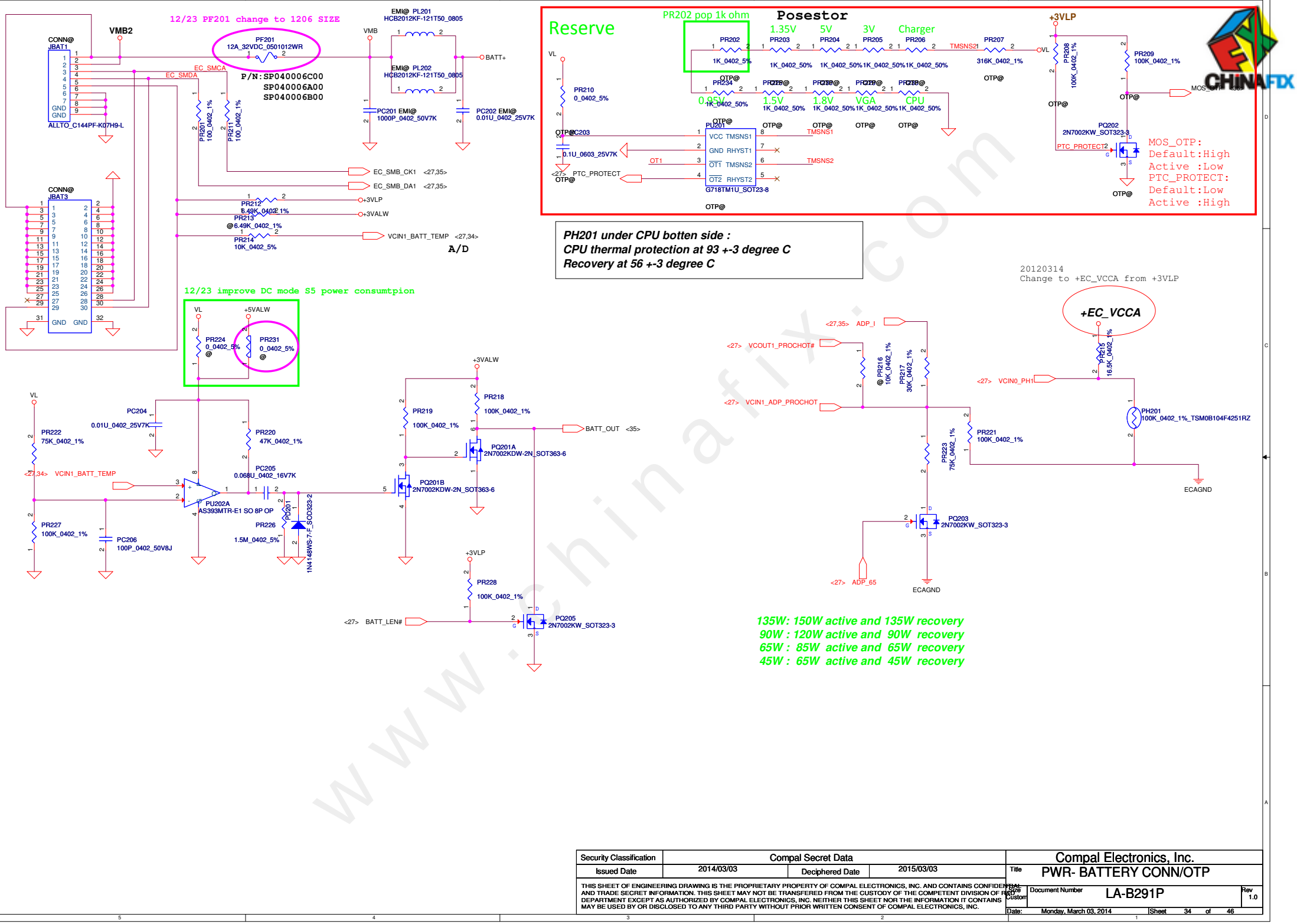
Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: Power Map

Size: Custom | Document Number: LA-B291P | Rev: 1.0

Date: Monday, March 03, 2014 | Sheet 33 of 46



Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2014/03/03	Deciphered Date 2015/03/03	Title PWR- BATTERY CONN/OTP

Size Custom	Document Number LA-B291P		Rev 1.0
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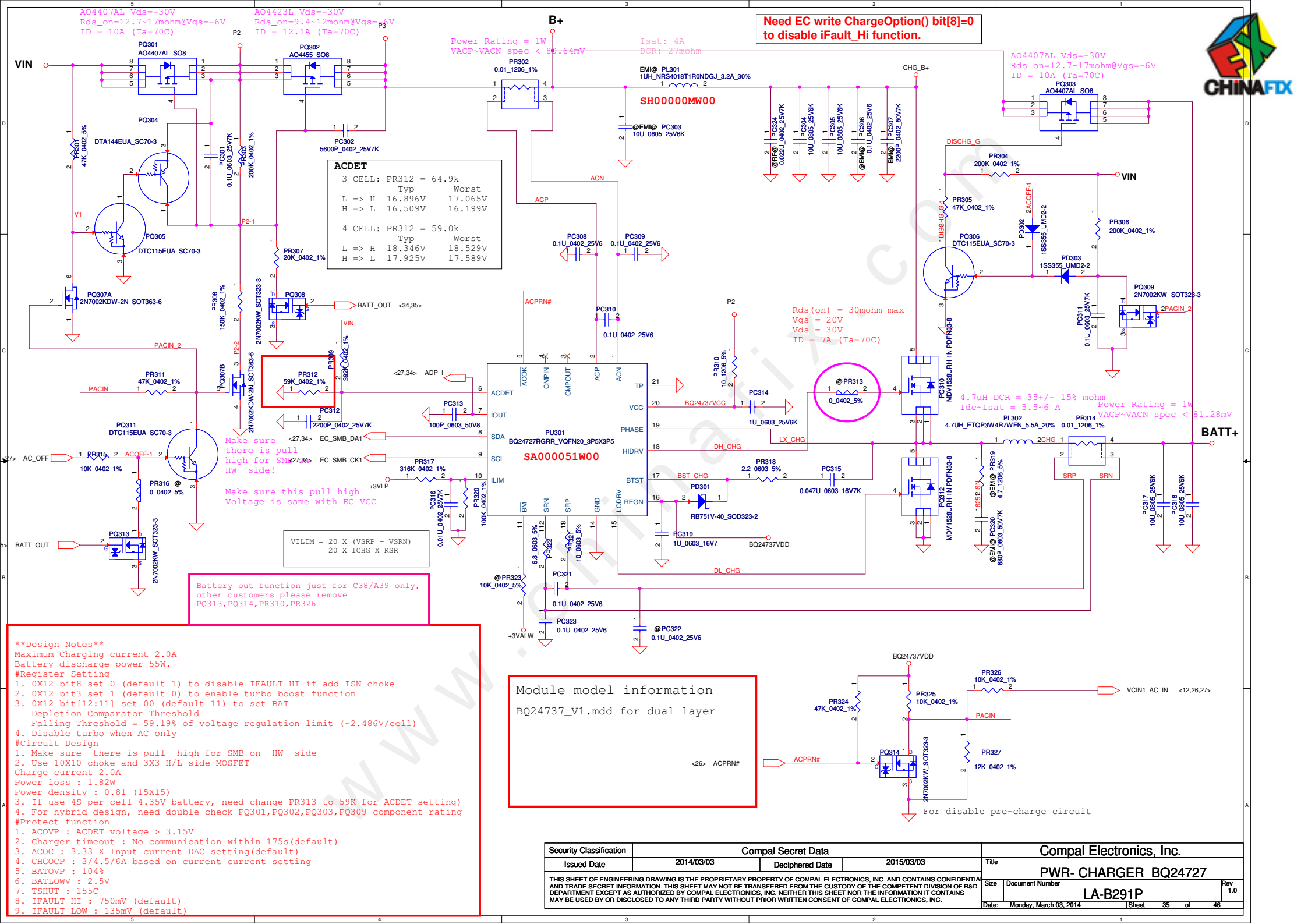
AO4407AL Vds=-30V
Rds_on=12.7~17mohm@Vgs=-6V
ID = 10A (Ta=70C)
AO4423L Vds=-30V
Rds_on=9.4~12mohm@Vgs=-6V
ID = 12.1A (Ta=70C)
B+
Need EC write ChargeOption() bit[8]=0 to disable iFault_Hi function.
Power Rating = 1W
VACP~VACN spec < 80.64mV
Isat: 4A
DCR: 27mohm
VIN
PQ301 AO4407AL_SO8
PQ302 AO4455_SO8
PQ303 AO4407AL_SO8
PQ304 DTA144EUA_SC70-3
PQ305 DTC115EUA_SC70-3
PQ306 DTC115EUA_SC70-3
PQ307A 2N7002KDW-2N_SOT363-6
PQ307B 2N7002KDW-2N_SOT363-6
PQ308 2N7002KW_SOT323-3
PQ309 2N7002KW_SOT323-3
PQ310 MDV1528URH 1N PDFN33-8
PQ311 DTC115EUA_SC70-3
PQ312 MDV1528URH 1N PDFN33-8
PQ313 2N7002KW_SOT323-3
PQ314 2N7002KW_SOT323-3
PU301 BQ24727RGRR_VQFN20_3P5X3P5
SA000051W00
SH00000MW00
ACDET
3 CELL: PR312 = 64.9k
Typ Worst
L => H 16.896V 17.065V
H => L 16.509V 16.199V
4 CELL: PR312 = 59.0k
Typ Worst
L => H 18.346V 18.529V
H => L 17.925V 17.589V
ACN
ACP
ACPRN#
BATT_OUT <34,35>
PACIN_2
PACIN
AC_OFF <27>
ACOFF-1
ADP_I <27,34>
EC_SMB_DA1 <27,34>
EC_SMB_CK1 <27,34>
+3VLP
+3VALW
BQ24737VCC
BQ24737VDD
LX_CHG
DH_CHG
BST_CHG
DL_CHG
CHG_B+
DISCHG_G
2CHG
SRP
SRN
BATT+
Rds(on) = 30mohm max
Vgs = 20V
Vds = 30V
ID = 7A (Ta=70C)
4.7uH DCR = 35+/- 15% mohm
Idc~Isat = 5.5~6 A
Power Rating = 1W
VACP~VACN spec < 81.28mV
PL302 4.7UH_ETQP3W4R7WFN_5.5A_20%
PR314 0.01_1206_1%
Make sure there is pull high for SMB HW side!
Make sure this pull high Voltage is same with EC VCC
VILIM = 20 X (VSRP - VSRN)
= 20 X ICHG X RSR
Battery out function just for C38/A39 only, other customers please remove PQ313,PQ314,PR310,PR326
Design Notes
Maximum Charging current 2.0A
Battery discharge power 55W.
#Register Setting
1. 0X12 bit8 set 0 (default 1) to disable IFAULT HI if add ISN choke
2. 0X12 bit3 set 1 (default 0) to enable turbo boost function
3. 0X12 bit[12:11] set 00 (default 11) to set BAT
Depletion Comparator Threshold
Falling Threshold = 59.19% of voltage regulation limit (~2.486V/cell)
4. Disable turbo when AC only
#Circuit Design
1. Make sure there is pull high for SMB on HW side
2. Use 10X10 choke and 3X3 H/L side MOSFET
Charge current 2.0A
Power loss : 1.82W
Power density : 0.81 (15X15)
3. If use 4S per cell 4.35V battery, need change PR313 to 59K for ACDET setting)
4. For hybrid design, need double check PQ301,PQ302,PQ303,PQ309 component rating
#Protect function
1. ACOVP : ACDET voltage > 3.15V
2. Charger timeout : No communication within 175s(default)
3. ACOC : 3.33 X Input current DAC setting(default)
4. CHGOCP : 3/4.5/6A based on current current setting
5. BATOVP : 104%
6. BATLOWV : 2.5V
7. TSHUT : 155C
8. IFAULT HI : 750mV (default)
9. IFAULT LOW : 135mV (default)
Module model information
BQ24737_V1.mdd for dual layer
<26> ACPRN#
VCIN1_AC_IN <12,26,27>
For disable pre-charge circuit
Security Classification
Compal Secret Data
Issued Date
2014/03/03
Deciphered Date
2015/03/03
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Compal Electronics, Inc.
Title
PWR- CHARGER_BQ24727
Size
Document Number
LA-B291P
Rev
1.0
Date: Monday, March 03, 2014
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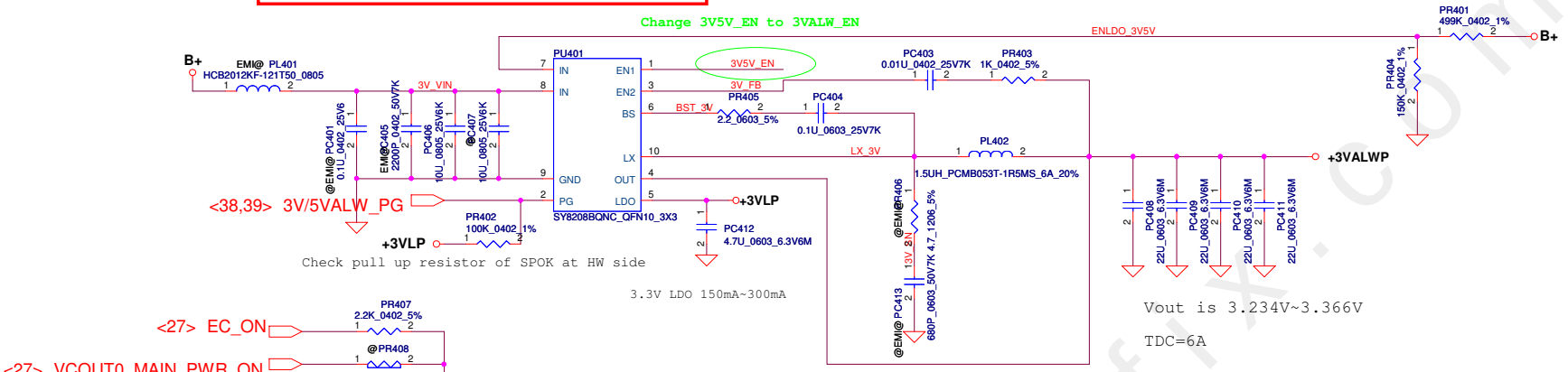
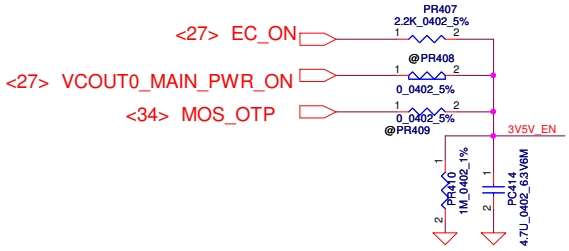
Module model information

SY8208B_V2.mdd

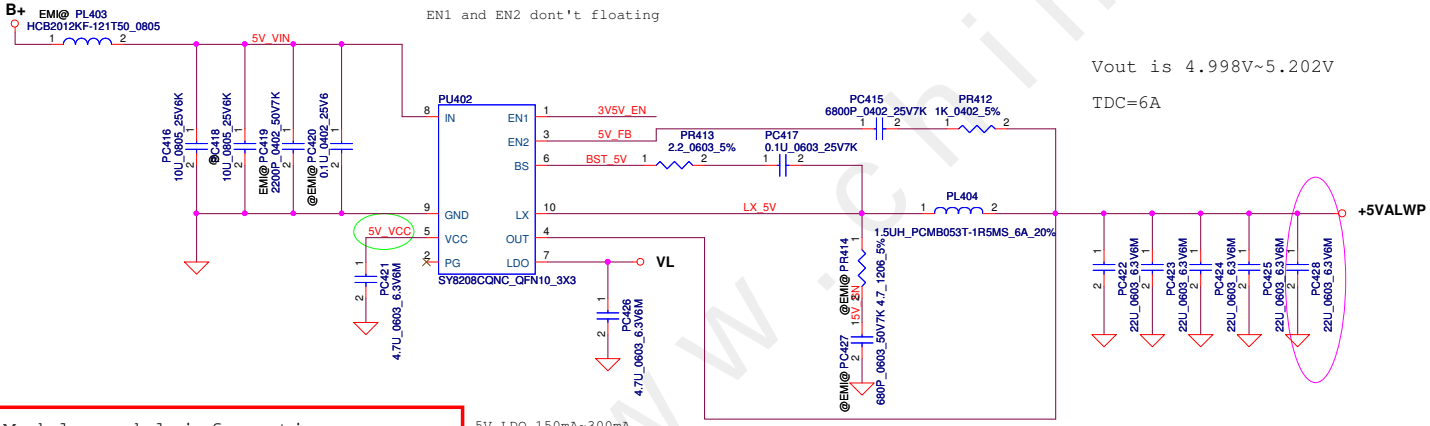
EN1 and EN2 dont't floating

Change 3V5V_EN to 3VALW_EN





EN1 and EN2 dont't floating



Module model information

SY8208C_V2.mdd

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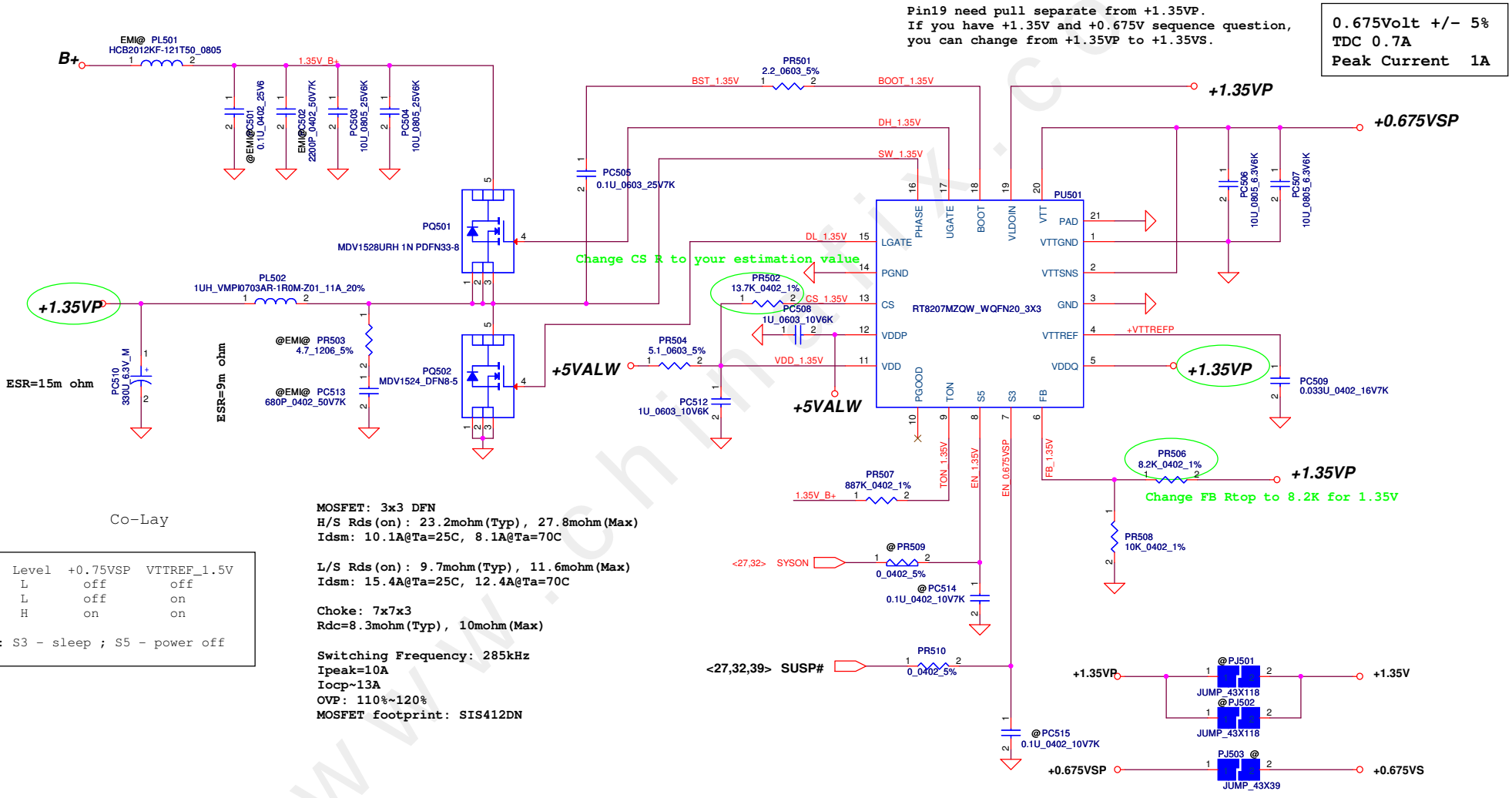
Module model information

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



Co-Lay

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): 23.2mohm(Typ), 27.8mohm(Max)
Idsm: 10.1A@Ta=25C, 8.1A@Ta=70C

L/S Rds(on): 9.7mohm(Typ), 11.6mohm(Max)
Idsm: 15.4A@Ta=25C, 12.4A@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		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

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Title: PWR-+1.35VP/ +0.675VS

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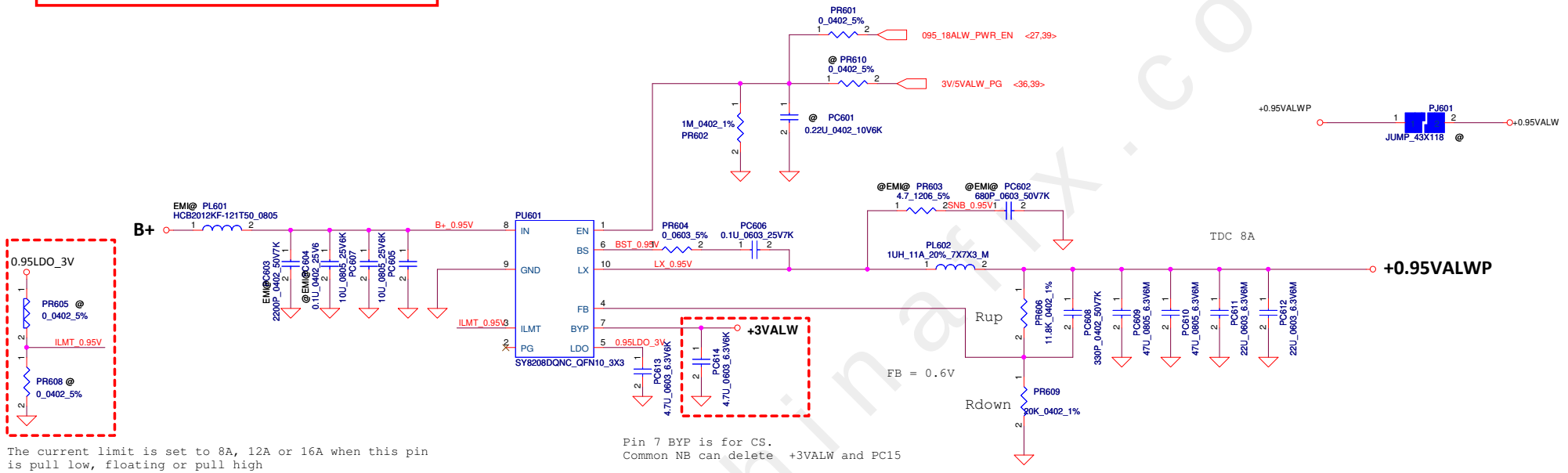
Module model information

SY8208D_V2.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 CS.
Common NB can delete +3VALW and PC15

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

Vout=0.95V

Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.			
Title	PWR- +0.95VALW		
Size: Custom	Document Number: LA-B291P		Rev: 1.0
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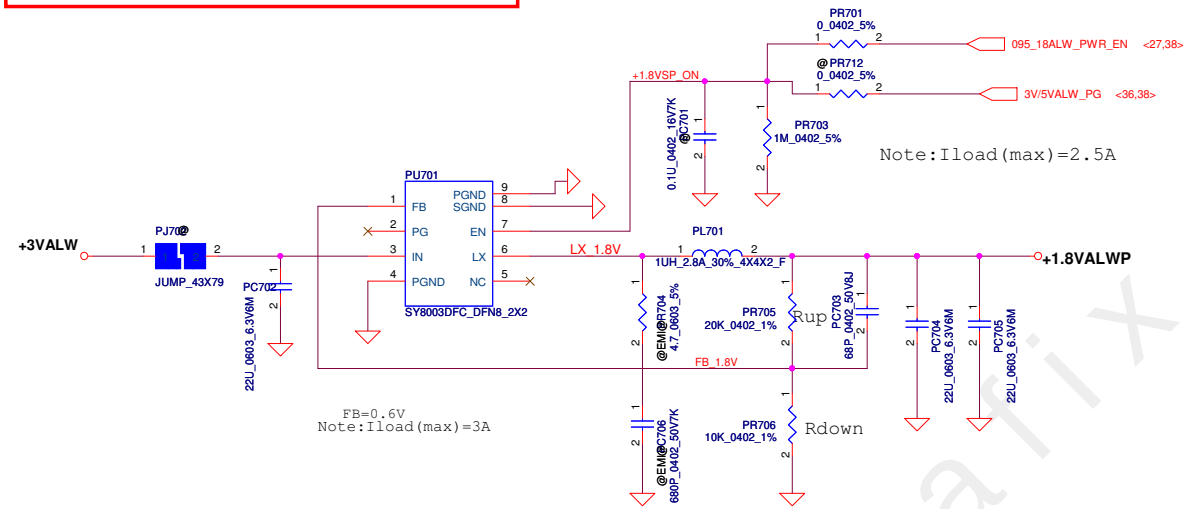
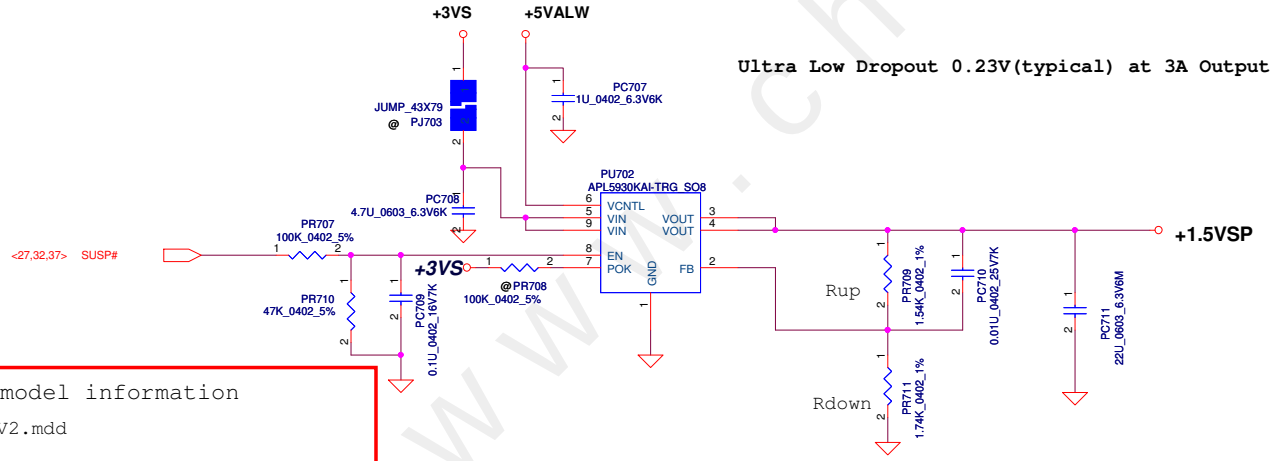
Module model information

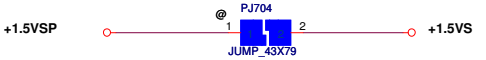
SY8003_V2.mdd



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

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





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

Vout=0.8V* (1+Rup/Rdown)

Module model information

APL5930_V2.mdd

Security Classification	Compal Secret Data		
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Compal Electronics, Inc.

Title: PWR- +1.8VALW/ +1.5VS

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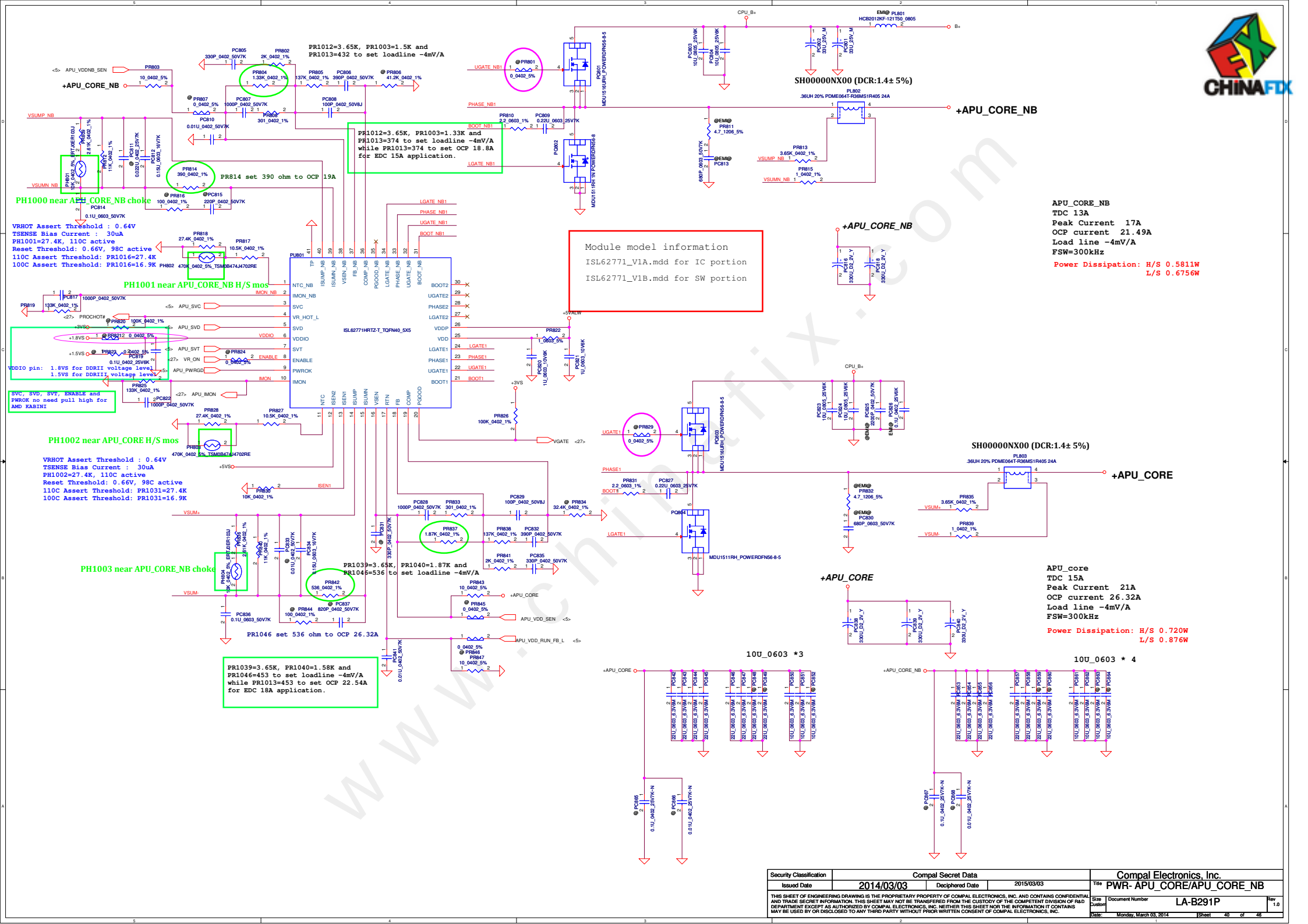
Date: Monday, March 03, 2014 | Sheet 39 of 46



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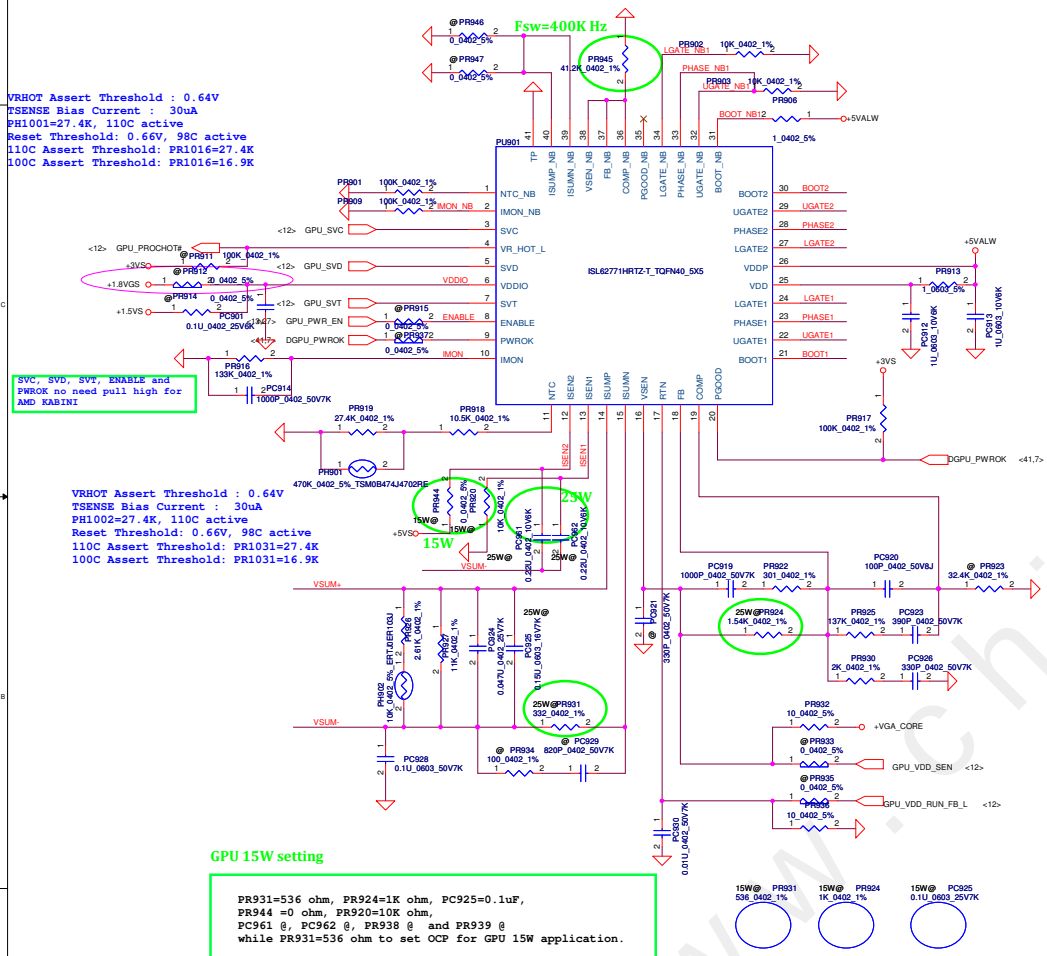
Module model information

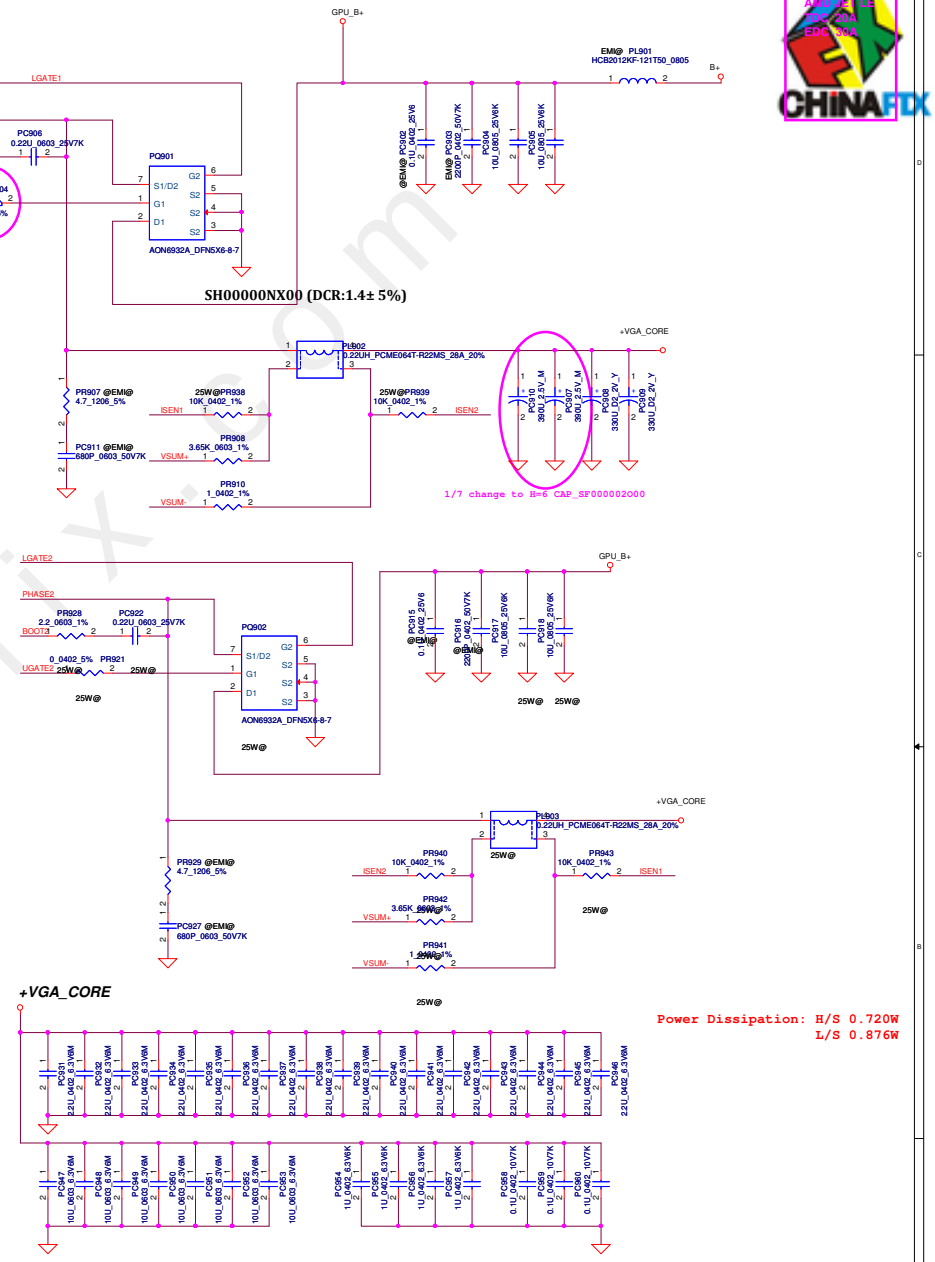
ISL62771_V1A.mdd for IC portion

ISL62771_V1B.mdd for SW portion



GPU 15W setting

PR931=536 ohm, PR924=1K ohm, PC925=0.1uF,
PR944 =0 ohm, PR920=10K ohm,
PC961 @, PC962 @, PR938 @ and PR939 @
while PR931=536 ohm to set OCP for GPU 15W application.



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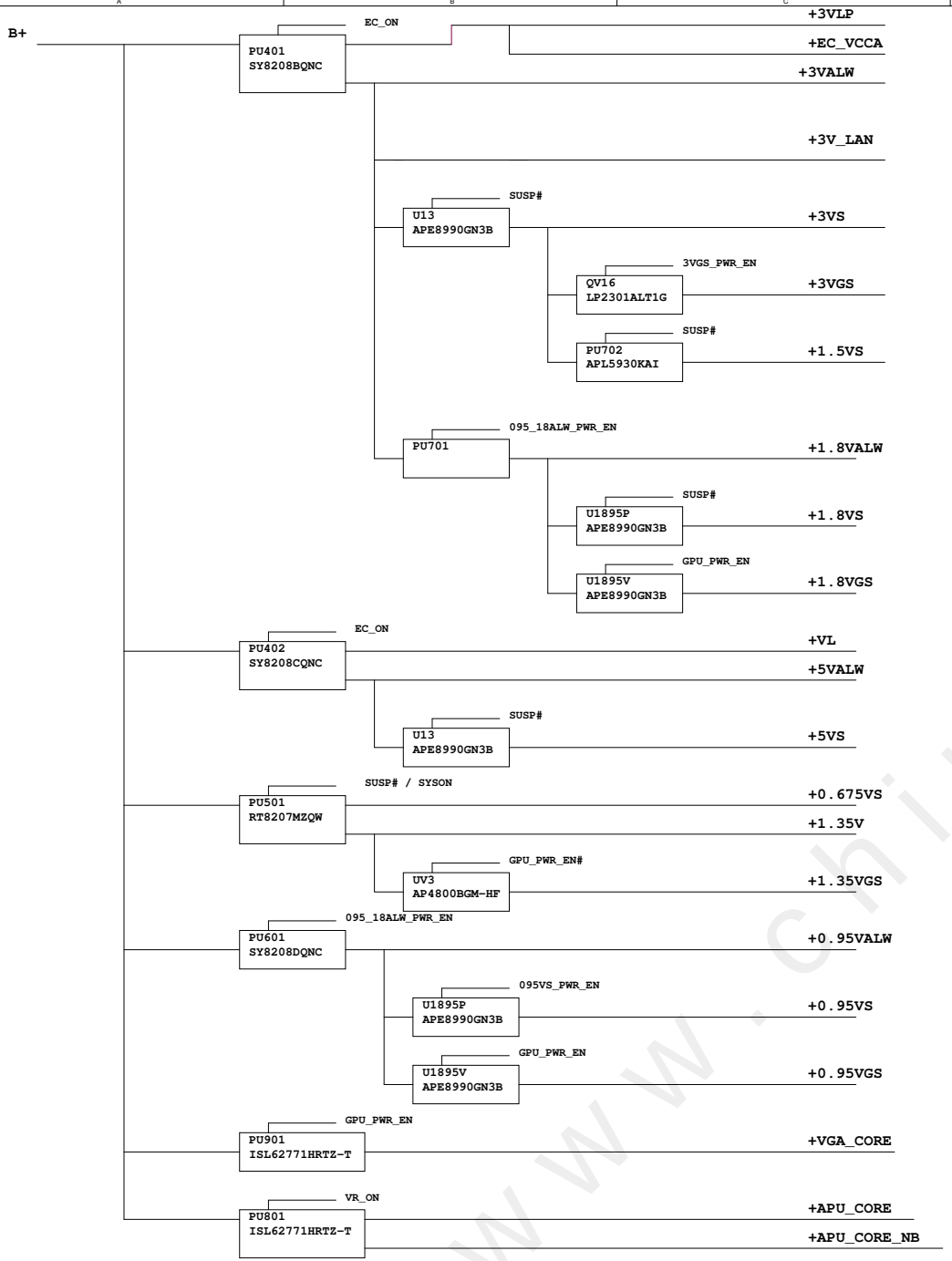
			Date: Monday, March 03, 2014; Sheet 41 of 46



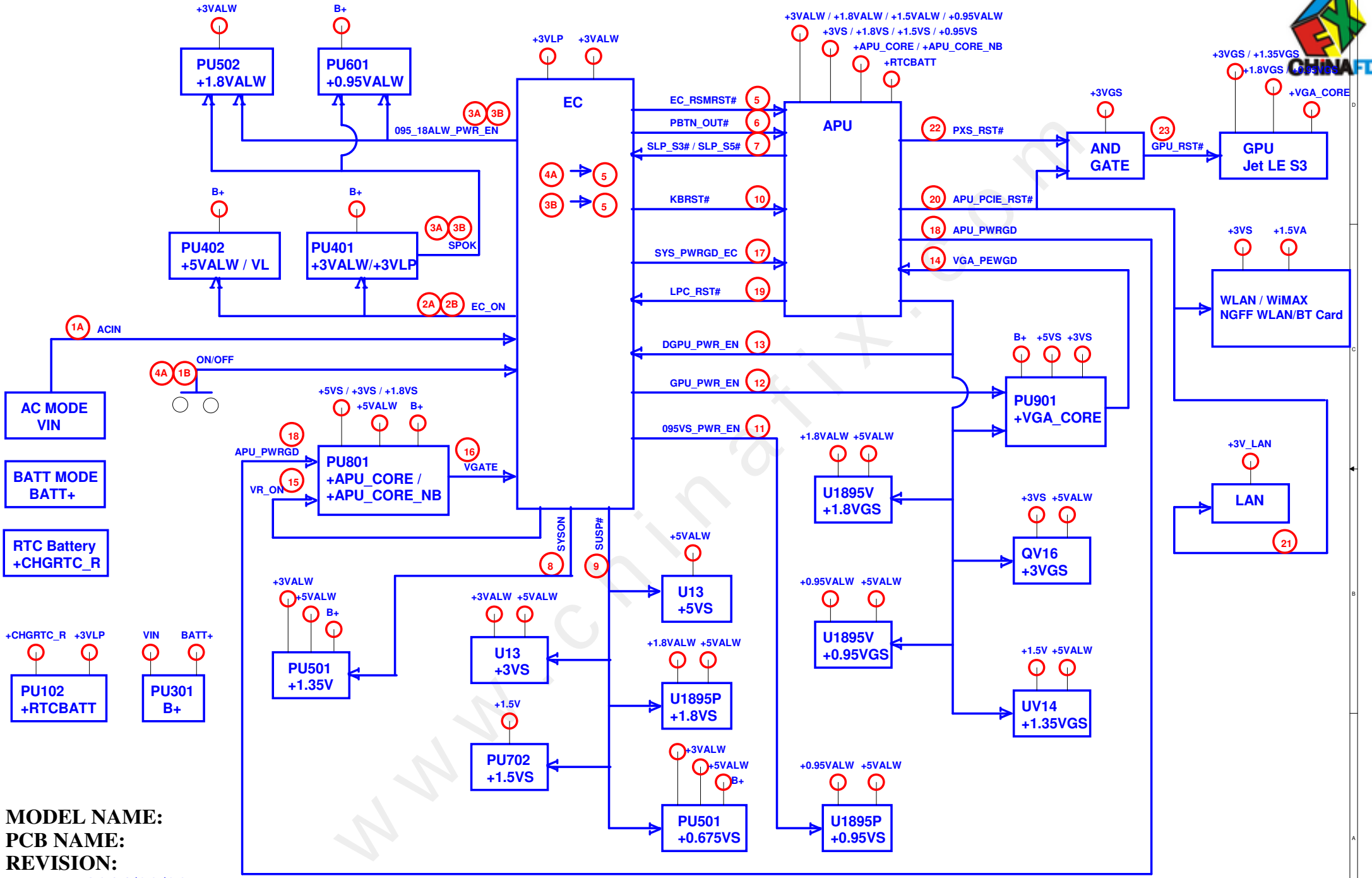
Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: PWR DCIN / RTC Battery

Size: Custom | Document Number: LA-B291P | Rev: 1.0

Date: Monday, March 03, 2014 | Sheet 42 of 46



MODEL NAME:
PCB NAME:
REVISION:
DATE: *2014/03/03*

COMPAL CONFIDENTIAL

Security Classification	Compal Secret Data		
Issued Date	2014/03/03	Deciphered Date	2015/03/03

Compal Electronics, Inc.

Title: Power Sequence Block

Size: Custom | Document Number: LA-B291P | Rev: 1.0

Date: Monday, March 03, 2014 | Sheet 43 of 46